

Urban Water Poverty: X-raying the Albatross among Public Water Supply Agencies in Port Harcourt Municipality, Rivers State, Nigeria



Gbarabe, F.O.¹, Weje, I.I.², Dapa, I.N.³

^{1,2,3}Department of Urban and Regional Planning, Rivers State University, Nkpolu-Oroworukwo, Port Harcourt, Rivers State, Nigeria

ABSTRACT: One of the challenges facing urban managers especially in the developing countries deals with their inability to meet the water needs of the ever increasing population of its urban dwellers. The present study examined the challenges militating against effective water delivery to residents among public water supply agencies in Port Harcourt municipality. The non-probability sampling technique was used to select five (5) out of the twenty (20) neighborhoods in the study area. This sampling strategy ensured the deliberate inclusion of the planned areas of the municipality (Main Town, Diobu (Miles 1, 2 and 3), and Oromineke Layout, which are expected to still bear the footprint of past (colonial) planning for water delivery, and at least one of the old indigenous enclaves now being transformed into modern residential neighborhoods. Finding revealed that the challenges of public water supply in Port Harcourt municipality is not due to the absence of institutional framework, but low investment towards water infrastructural development, a situation that has led to dilapidation of existing water facilities in the municipality. Among the challenges militating the provision of water by public water supply agencies in Port Harcourt include: inadequate investment/funding, vandalism/encroachment on water rights –of- way, and lack of political will. Others are Indiscriminate siting of water projects, Lack of state owned laboratory for water testing, and issues relating to sustainability. The study advocates for the revamping of the water supply schemes in the area by ensuring collaboration between and among public water agencies in the area so as to achieve sustainability in water delivery through the tenets of cost recovery strategies that will in turn promote socio-economic development for not just the municipality but the state.

KEY WORDS: water supply; cost recovery; water needs; socio-economic development; water safety

1. INTRODUCTION

Although much progress has been made in terms of improving the wellbeing of man the world over, ensuring access to portable water and sanitation for residence in most nations of the world still present enormous challenge especially in developing countries of the world. In these climes, the supply of water in the right quantity and quality is marred by increasing demand that outpace supply. Akin to imbalance between demand and supply for water are the enormous challenges that hinder effective water delivery by municipal water agencies. These scenarios result to situations of unequal access to water among residents with attendant health implications.

At a rudimentary level, everyone needs access to safe water in adequate quantities for drinking, cooking, personal hygiene and sanitation facilities that do not compromise health or dignity. Water of reasonable quality is the major indicator of health and wellbeing of a society and hence, fundamental for the development of a country (Davis et al, 2008). Clasen and Bastable (2003) opined that roughly 3.1% of global annual deaths (1.7 million) and 3.7% of the annual burden (disability) (54.2 million) are caused by the use of unsafe water and lack of basic sanitation and hygiene while some 829 000 people are estimated to die each year from diarrhoea as a result of unsafe drinking-water, sanitation, and hand hygiene.

In Nigeria, rapid population growth has not been accompanied by corresponding increase in the delivery of essential urban services including water; instead, there has been gross neglect of public infrastructure especially water supply facilities. Assessing the effectiveness of public water delivery agencies in Nigeria, Omotomilola (2018) observed widespread recognition and acceptance that conventional water utilities have fallen short in providing adequate water services to citizens especially the urban poor.

Inadequate public water supply precipitates situations where people's health are endangered resulting to public health issues including outbreak of diseases such as cholera, dysentery and a host of water-borne diseases identified as one of the lead causes of infant death between the ages of 0 and two years (WHO & UNICEF, 2008).

Over the years, Port Harcourt has gone through rapid urbanisation due mainly due to the changes that have taken place in the socio-economic and political lives of the city (Agbor & Weje, 2019). As a Port town in 1912, Port Harcourt has grown phenomenally to

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be home for oil and gas business in Nigeria. The presence of these firms and good climate for business makes Port-Harcourt a choice area drawing both firm and people to it. Rapid influx of people precipitates situations that wean the ability of municipal government to meet the water needs of the burgeoning population including the provision of water services.

Although, water has been described as an economic good by several Human Rights Charters, in Port Harcourt, only small percentage of the populace have access to potable water from public mains. To meet the rising demand for water supply with no response from the Government, the rich and middle class began to sink private boreholes within their compounds, others dug wells while majority of the residents especially the poor are left to patronise water vendors.

Public water Provision in the study area dates back to 1913 when six (6) Public water stations were built namely Trans Amadi, Rumuola, Moscow Road, Diobu, Borokiri under the then Public Works Department at Old Port Harcourt Township. The creation of Rivers State in 1967 with Port Harcourt as its capital led to the construction of the Ernest Ikoli, Boro Park and Abuloma Public water stations between 1968 and 1970 to meet the water needs of residents. In spite of these efforts, meeting the water needs of residents is a far cry suggesting that there might be institutional, administrative and political challenges militating the smooth running of the water agencies in the state. The present study sought to examine the challenges that have hindered effective operations of public water agencies and supply of water to residents.

2. CONCEPTUAL /THEORETICAL ORIENTATION AND LITERATURE REVIEW

2.1. Accessibility to Safe Drinking Water

The UN and other countries declared that access to clean safe drinking water is a basic human right, and an essential step toward improving living standards worldwide. Access to water was one of the main goals of United Nations Millennium Development Goals (UN-MDGs) and it is also one of the main goals of the United Nations Sustainable Development Goals (UN-SDGs).

Access to water is unequally distributed within and among nations. Inequalities in access to water are morally unacceptable, but it is prohibited under international law. Water is allied to every form of life on earth and is the basic human need, equally important as air. Water is linked to every facet of human day-to-day activities directly or indirectly (Bos et al, 2016). Universally, it is estimated that 89% of people have access to water suitable for drinking.

According to UNDP report (2006), one out of six people do not have access to clean water, that is, about 1.1 billion people lack access to safe drinking water (Fogden & Wood 2009). In some countries, particularly in Africa, virtually half of the population do not have access to safe drinking water

De Albuquerque and Roaf (2012) see accessibility to water supply as the right to equal and non-discriminatory way to an adequate amount of safe drinking water for personal and domestic purposes including personal sanitation, food preparation, laundry etc.

According to Okon and Njoku (2017) water is said to be accessible when an individual is availed a volume of at least 50 litres per day at a convenient distance of at least 200 metres to acquire the water where it is not present within the residence. Right of safe water is mainly a civic (social) responsibility that needs bottom-up collaboration in making sure it becomes a reality.

Government responsibility is to ensure that its citizens have access to safe water by providing Adequate infrastructure, policies and management for the supply of potable water (WHO 2006). Water over the years has become a global concern and has attracted various summits in order to solve water related issues in the world.

2.2. Water as Economic Good

Water was first referred to as an economic good in 1992 at the Earth Summit in Rio De Janeiro and in the fourth Dublin Conference where it was discussed extensively. Economic good according to refers to goods or services that has is of benefit to the society and has opportunity cost. The economic goods theory focuses more on cost recovery of water allocation (Perry et al., 1997). The cost recovery relies mainly on the principle of water pricing. Instituting effective pricing of water can solve to a level the allocation of water resources especially household drinking water. The economic goods theory supports the liberalisation of the water market giving room for market forces and the private sector and less government involvement

2.3. National Water Policy of Nigeria 2004

During the oil boom days of the 1970s and early 1980s, the country invested heavily in water resources development, particularly in the construction of multipurpose dams. The dams were meant to control flood, provide water for domestic and industrial uses, control riparian rights and for the environment, hydro-power generation, fishing, livestock, inland waterways and irrigated agriculture amongst others. Nigeria constructed 200 dams storing up to 31 billion cubic metres. Out of these, 11 billion cubic metres are meant to command up to 340,000 hectares of irrigated land. So far, about 100,000 hectares of land have been equipped with the infrastructure whilst currently only about 60,000 hectares can actually be irrigated; thus the remaining 40,000 of the equipped field needs some major rehabilitation, (National Water Policy, 2004).

The balance of 240,000 hectares of land that can be commanded by the water stored so far, need to have the full complement of irrigation facilities in order for the country to derive the benefits fully. A large percentage of the country's population which is estimated to be in the neighbourhood of 120 Million does not have access to potable water. It is estimated, according to Multi-

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indicator Cluster Survey of 1999 by the Federal Office of Statistics, that only 52% of the urban (48% if peri-urban areas are included) and 39% of rural dwellers have access to potable water.

The Federal Government represented by the Ministry of Water Resources and its agencies shall be responsible for policy formulation, macro planning regulation, setting standards, monitoring and evaluation, coordination and collaboration with national and international organizations.

State Governments represented by the ministries responsible for water resources and their agencies shall be responsible at a lower level for policy formulation, macro planning regulation, setting standards, monitoring and evaluation, coordination and collaboration with national and international organizations within their catchment areas and administrative procedures of defining water protection zones and the issuing of water permits.

2.4. Nigeria Water Supply and Sanitation Policy (2000)

The National Water Supply and Sanitation Policy (2000) of Nigeria emphasizes the provision of sufficient potable water and adequate sanitation to all Nigerians in an affordable and sustainable way through a cost sharing formula on investment and operational costs between government and the beneficiary. A careful balance between affordable tariffs for the poor and a high degree of cost recovery is a real challenge for the implementation of the policy in this regard.

Water demand in urban and small town areas is increasing at a rate, which is not proportional to the rate of expansion of water supply and sewerage services. This is due to the increase in urban population, increase of industrial activities and significant unaccounted-for-water that includes leakage, wastage and illegal connections. Water demand management measures will replace the up to now existing supply management in order to conserve and use the available water efficiently and equitably and to protect the poor.

Empirical review

The issue of water has attracted the attention of scholars the world over. Van and Pellenberg(2004) conducted study on water management challenges in the Netherlands and concluded that the major challenges of water management in the Netherlands is financially based. Roy and Dutta (2017) worked on the opportunities and challenges for promoting sustainable water services to the urban poor in Dharka, using a qualitative research methodology. Their findings indicated that the challenges of supply of water were due to population pressure and financial constraints.

Panwar and Antil(2015), study the issues, challenges and prospects of water supply in urban India and identified the challenges of water in India to include mismanagement of water resources and wasteful behaviours amongst others.

In Africa, studies water related to water have also been carried out. For example, Edokpayi et, al.(2018) examined the challenges of sustainable safe drinking water in South Africa using a quantitative research method. Their study revealed that frequent shutdown accounts for unreliability of municipal water distribution and supply in South Africa.

Adah and Abok (2013) observed that the gap between water need and supply has widened steadily in Nigeria's urban centres despite continuous efforts made to develop the nation's vast surface and ground water resources. Their study recommended for total compliance with water management policies (both local and international), encourage stakeholder participation enforcement of existing laws and regulatory responsibilities. More realistic water rates should be charged in order to raise the much-needed revenue to meet increasing production and distribution costs.

Balogun, Sojobi and Galkeye (2017) worked on public water supply in Lagos state, Nigeria. Their study revealed variation in the public water-supply-demand gap among low, middle and high income classes. The study recommended for strategic planning and implementation of new water-works, improved operational efficiency of existing water works, improved reticulation and appropriate cost- recovery.

Abbey and Onyebueke (2020) researched on the geo-electric evaluation of ground water potential in Omuma LGA Rivers State. Using a non-invasive, geo-physical techniques, vertical electrical sounding, geo-electrical software SAS 300, to determine the location and depth of the aquifer. It was found that the aquifer in the study area were prolific and located at an average of 52m.

Kakulu and Mafuta(2011), worked on water and sanitation in Port Harcourt using a quantitative method and observed that population growth in Port Harcourt does not match the provision of infrastructure, utility, industrialization and employment opportunities.

Chikagbum, Brown and Weje (2020) worried with the proliferation of boreholes looked at the challenges of private provision of potable water in Obio Akpor LGA and its socio-economic implication. Adopting a cross-sectional survey, the study revealed that residents bear huge financial burden to meet their water needs, a situation that increases residents' vulnerability to water borne diseases. The present study is a step further to examine some of the challenges that hinder effective water delivery by public water supply agencies in Port Harcourt Municipality.

3. METHODS AND MATERIALS

Data for this study came from both primary and secondary sources. The simple random sampling technique was used to select five (5) out of the twenty (20) neighbourhoods in the study area. This sampling strategy ensures the deliberate inclusion of the planned

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areas of the municipality (Main Town, Diobu (Miles 1, 2 and 3), and Oromineke Layout), which are expected to still bear the footprint of past (colonial) planning for water delivery, and at least one of the old indigenous enclaves now being transformed into modern residential neighbourhoods.

The selected neighbourhoods have a total households size of 192,661 while the sample size consists of 399 householdheads arrived at using the Taro Yamane formula at 5% level of significance. The number of questionnaires administered in each of the neighborhoods was proportionally done as shown in table 1.

Table 1: Population and Sample Size

S/No.	Communities	1991 Census Population	Projected Population (2020)	Total Number of Households	Number of Questionnaire To administer
1	Main Town	12369	76,820	12,803	27
2	Oromineke Layout	21377	132,766	22,128	46
3	Nkpolu Oroworukwo Mile 3 Diobu	52613	326,764	54,461	113
4	Mgbundukwu (Mile 2 Diobu)	55582	345,203	57,534	119
5	Rumuwoji (Mile 1 Diobu)	44,183	274,407	45,735	95
Total		186,124	1,155,960	192,661	399

Source: Researcher's Field work, November (2021)

To corroborate the findings from questionnaire, interviews were extended to nineteen (19) key informants who are mainly staff of public water works, (10) Directors in the Ministry of Water Resources (5) and, Water Agency staff (4) in Rivers state.

Authors also carried out on the spot visit to water distribution facilities in the study area to make direct observations in order to ascertain the state of existing public water-related infrastructure. Data analysis was achieved using simple descriptive statistics such as percentages while findings were presented in pictorial and table formants to enhance comprehension.

4. RESULTS AND DISCUSSION

4.1 Installed water capacity/ functionality of water facilities in Port Harcourt Municipality

Figure 2 shows the water supply network in Port Harcourt as at 1975. The average installed capacity of water reticulation in the area (1975) was 70,000m³/day with demand exceeding 200,000m³/day for a population of 1,000,000. The 1975 plan made provision for the provision of additional new water sources, including water treatment plants in anticipation of increase in the demand for water in the city to avoid water shortage.

The reality on ground is to the effect that this plan never saw the light of the day. Presently, the city has a total installed water capacity (by Federal, State and Local Government agencies) of 166,246m³/day and population of 5.17 million people while the water need stands at 326,167m³/day.

The picture revealed above indicates that though the installed water facilities in the area has increased over time, the city still face serious water challenges occasioned by very rapid population of the city. Water scarcity in the municipality precipitates a situation where residents have to rely on other sources to meet their daily water needs with attendant health implications.

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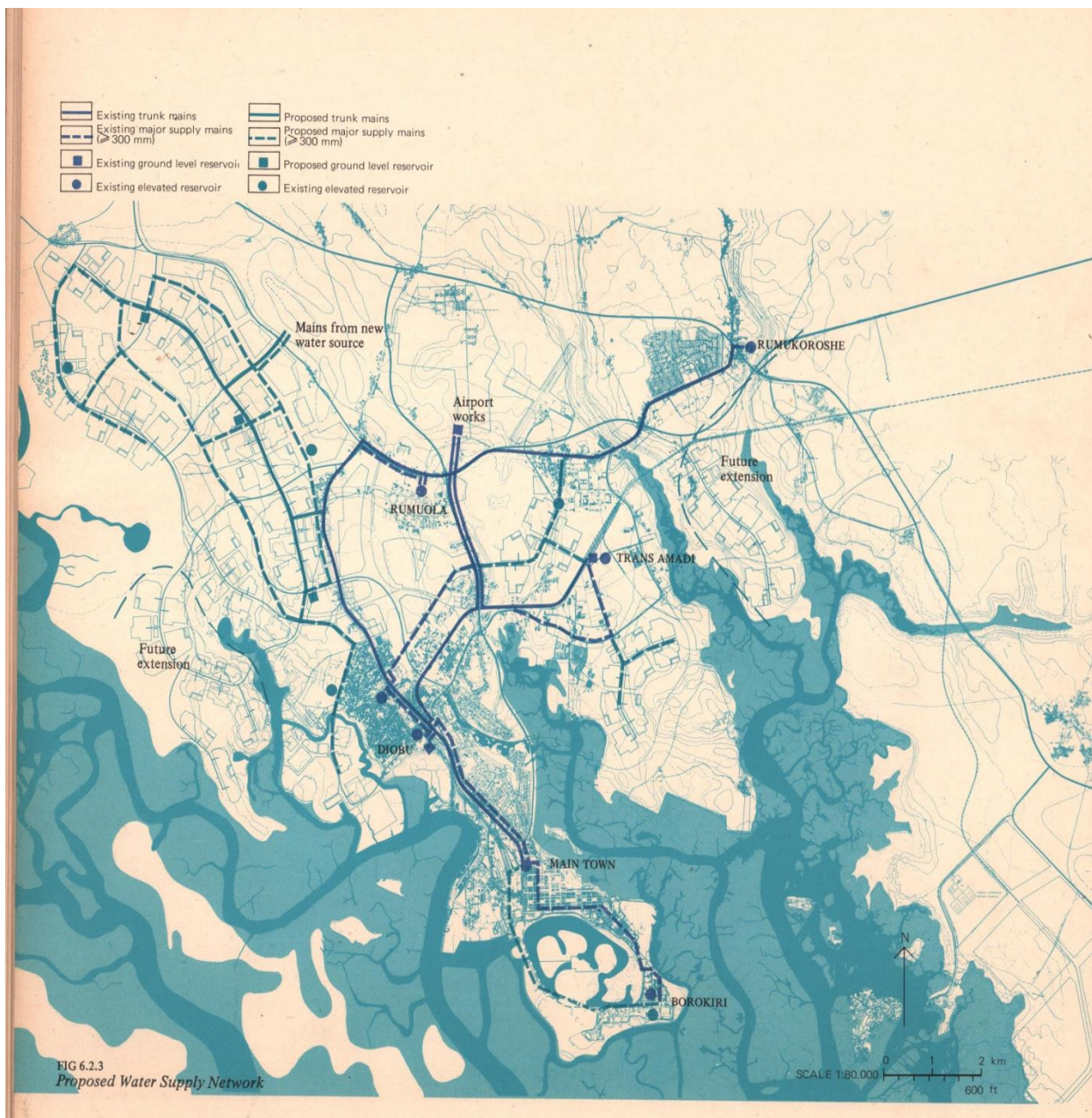


Fig 2: Water Reticulation Plan of Port Harcourt

Sources: Special Konsult (1975); Port Harcourt Master Plan: Final Report, Ministry of Lands and Housing, Port Harcourt, Rivers State.

4.2 Institutional Framework for effective water delivery in Port Harcourt Rivers State

To meet the needs of Port Harcourt residents, various agencies (figure 3) were put in place including the creation of a full ministry for water resources. These agencies include:

4.2.1. The Ministry of Water Resources and Rural Development (RSMWRRD)

The major statutory function of the Ministry of Water Resources and Rural Development is the formulation of water policies to regulate the provision of water in the state. It is saddled with the responsibility to initiate and implement water schemes through the development of a water development plan that will promote the sustainable delivery of potable water to the public and sanitation services. Its framework includes planning of short, medium and long term water resources, management of water resources, and provision of technical support to the sector and co-ordination of activities in the water sector. The Ministry is also charged with providing legal policy framework for water to regulate standards in terms of quality and coordinate public-private investments in water. (RSMWRRD, 2012)

Findings from this study indicates that the ministry of water resources is faced with plethora of challenges that tends to militate the realization of its objectives chief among is political unwillingness on the part of successive governments in the state. Other challenges are: Inadequate investment/ funding: The provision of public water connotes the development of “hard” infrastructure and

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is capital intensive. The Ministry responsible lacks the financial capability to execute such a project and needs private, corporate organisation to partner with the ministry. Indiscriminate location of water project by non - governmental organisation

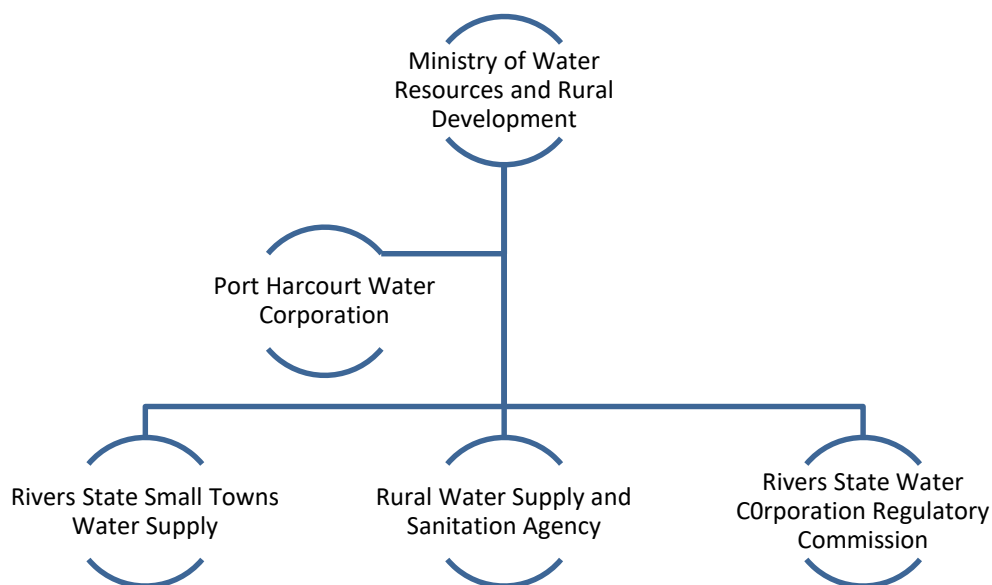


Figure 3: Frame work for water delivery in Port Harcourt

Source: Rivers State Ministry of Water Resources and Rural Development (2012)

4.2.2. The Port Harcourt Water Corporation

The Port Harcourt Water Corporation has the responsibility to produce potable water for the consumption of residents and distribution of the water produced to consumers. Through the sale of potable water it generates revenues for the sustainable operation of the agency (Managing Director, PHWC). The Agency plans, controls and manages all water schemes in the Port Harcourt Area and immediate environs, ensuring adequate supply of water to consumers in line with national water quality standards and determines and charges water rates as approved by the Rivers State Water Services Regulatory Commission (RSWSRC). It conducts or organizes the conduct of research with respect to water supply and water development and makes results available to the MWRRD for policy formulation, development, maintenance and beneficial exploitation of water resources, both natural and artificial; and production of water sector development plan (WSDP) for its areas of operation (RSMWRRD, 2012).

The Corporation has achieved since inception the design of a new water supply and sanitation master plan had gotten sponsorship for the water project by the African Development Bank and is able to award contracts and has mobilized to site for the rehabilitation of water stations.

The major challenges encountered by the Water Corporation is lack of political commitment as government has not made public water a priority in governance. Also mentioned is the issue of sustainability. Water resources and delivery in Port Harcourt do not incorporate sustainability. Vandalism of water mains, lack of treatment plant and laboratory poses a great challenge in equipping the agency to provide water for the

4.2.3. The Rivers State Water Services Regulatory Commission (RSWSRC)

Rivers State Water Services Regulatory Commission was established by the Water Sector Development Law No. 7 of 2012 to provide for the efficient and sustainable supply of water and sanitation services. Its functions include licensing water supply and sanitation providers to operate, the establishment and enforcement of sector standards and guidelines, dissemination of information relating to water, handling complaints associated with water providers and consumers and acting as watch dog for the sector water supply services (RSMWRRD, 2012).

4.2.4 The Rivers State Small Towns Water Supply and Sanitation Agency

The Rivers State Small Towns Water Supply and Sanitation Agency is in charge of operation of small town schemes, having its own accounting systems as a commercial undertaking, responsible for the production and delivery of water supplies to semi-urban areas and small towns, operation, maintenance and expansion of small towns water supply and sanitation schemes, formulate appropriate tariffs for revenue collection from small towns, collaborates with government and external support bodies for the implementation of the scheme in Rivers State, Encourage and ensure community participation, and government support for small town water projects from inception to commissioning, provide technical assistance to members of water consumers associations in small towns and develop water development plans as inputted into the state water sector development plans.

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4.2.5. The Rural Water Supply and Sanitation Agency

The Rural Water Supply and Sanitation Agency is saddled with the responsibility to plan, control and supervise the sinking of boreholes by individuals or corporate bodies in the state, design, construction, rehabilitation, improvement, maintenance and support of rural water supply programmes, collaboration with federal government ministries and agencies in the design and implementation of programmes and projects in rural water supply and the provision and rural infrastructure and encourages community participation in water supply (RSMWRRD, 2012).

4.3. Challenges of Public Water Supply in Port Harcourt Municipality

Our finding shows that the challenges of public water supply in Port Harcourt Municipality started after the 1990s and is traceable to lots of reasons. From the findings of this study the challenges of public water supply in Port Harcourt are not due to the absence of institutional framework, but that of low investment towards water infrastructural development and dilapidation of existing water facilities resulting to inadequate provision of potable water to residents in the city.

Although there are public water agencies in the study area, our findings indicates that the inability of these agencies to meet the water needs of residents in Port Harcourt include ,inadequate investment/funding”, vandalism /encroachment on water rights –of-way ,lack of political will . Others are Indiscriminate siting of Water projects, Lack of state owned laboratory for water testing, and issues relating to sustainability (see table 4).

Lack of sustained investment in water services in the area by successive governments has rendered the existing water institutions ineffective and moribund. Mores so, as the population of Port Harcourt continues to increase without a corresponding strategic spatial plan and enforcement, it breeds situations where by city growth and expansion occurs along public water rights of ways (ROW) making water reticulation an uphill task.

Table 4. Challenges of Public Water Supply in Port Harcourt

S/n	Challenges
1	Lack of Political Will
2	Inadequate Investment /Funding
3	Indiscriminate Siting of Water projects by organisations
4	Lack of staff training
5	Lack of state owned laboratory for testing and water analysis
6	Lack of Sustainability
7	Vandalism / encroachment of water rights of way

Source: Researcher’s Field Survey,(2021)

5. CONCLUSION AND RECOMMENDATION

The basis for public water supply is for the overall health and welfare of residents in the urban areas. For the Sustainable Development Goals 6 (SDGs) to be achieved by the year 2030, safe and affordable water has to be provided to urban dwellers to combat water-related diseases and ensure hygiene and sanitation. Unavailability of public water in Port Harcourt is as a result of the non-functional public water stations in the municipality.

Funding is a major instrument for the provision of functional water infrastructure and utility development as water operations are capital intensive. The willingness of government in providing water would make the water sector boost its operations and capacity as there will be synergy between government and the corporation.

Although government has a duty to provide water, effective water delivery is a collective responsibility (Public-Private Partnership) to meet the demand. There is need for collaboration between all related agencies such as NDRBDA, NESERA, RSMWRRD, PHWC, RSMUD &PP and the Public to achieve sustainability in water delivery through the tenets of cost recovery strategies for operations and maintenance.

The provision of public water in the nearest future can be achieved through the revamping of the water sector for institutions such as schools, market places, hospitals, individuals and households will have access to the public water scheme which will in-turn promote socio-economic development for not just the municipality but the state.

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