WATER AND SANITATION SERVICE PROVISION IN OWERRI CITY, NIGERIA

Emmanuella C. Onyenechere Evan Enwerem University, Geography & Environmental Management, Owerri, Nigeria <u>emmazob@yahoo.com</u>

BACKGROUND AND INTRODUCTION

Human beings often settle close to water sources because they need water and human settlements are sustainable only if they have access to potable water. There can be no state of positive health and well-being without safe water. Public health experts maintain that the single most effective measure that could be taken to improve human health would be to provide safe sources of drinking water (Mason, Patterson and Loewenson, 1986). For many in urban areas the quality of water is becoming a major concern. This helps to explain the increasing demand for potable water.

Water must not only be adequate in quantity, it must also be adequate in terms of its quality. The basic physiological requirement for drinking water has been established at about 2 litres per person per day. However, a daily supply of 140-160 litres per capita per day is considered adequate to meet the needs for all domestic purposes (Gleick, 1996). Water is not only a vital environmental factor to all forms of life, but it has a great role to play in socio-economic development of human populations. For the development of the economy, adequate supplies of water are required in the areas of domestic use, agricultural (irrigation) use, industrial use, power generation purposes and recreational use (Okpala, 1980).

However, many urban dwellers do not have access to drinking water. A study in 1990 estimated that more than 1 billion people in developing countries lacked access to safe drinking water (WHO, 1995). Generally the provision of drinking water is difficult in African cities because they are characterized by high rates of population growth. The consequence of this growth is the emergence of many new and unplanned urban centres and districts. Cities are complex systems requiring special methods of prediction and management. The task of the city manager is made more complex by the fact that most of the rapidly growing cities are either located in water stress or water scarce regions, with diminishing per capita water availability or are confronted by issues of control and governance which affect improvement of water supply.

In spite of the considerable investment of Governments in Nigeria over the years in this essential human requirement, a large population still does not have access to water in adequate quantity and quality. The supply of potable water for domestic use is a major challenge for the development of Nigerian cities. It is estimated that only 48% of the inhabitants of the urban and semi-urban areas of Nigeria and 39% of rural areas have access to potable water supply (NWSSP, 2000). In the face of increased demand for water, the average delivery to the urban population stands at only 32 litres per capital per day (lpcd) while that of rural areas stands at 10 1pcd. Unfortunately the widening gap between the demand and supply of water is of crisis proportion in Nigerian cities like Owerri (the capital of Imo State).

Nigeria is one of the signatories to the United Nations International Drinking water supply and Sanitation Decade whose objectives was to supply water to all citizens of the country between 1981 and 1990. Despite the effort of the various governments at all levels, the water supply coverage in the country appears to be decreasing and deteriorating. Current statistics show that for the urban and semi-urban population only about 42% of the population has access to safe water supplies and adequate sanitation. The supplies are being handled by State Water Agencies (SWAs) that were set up as independent bodies to develop, operate and manage urban water supply undertakings.

Most of Nigeria's SWAs, are grappling with the multiple problems owing to various reasons, many water works are now supplying less water than they were designed for. SWAs have generally failed to provide water services to urban dwellers particularly the urban poor. In the 1980s water provision through public utilities were financed through government budgets, relying mainly on donor support and taxes. Since they are not run on profit, tariffs were minimal for piped connections.

2

This accounted for SWAs overdependence on subventions from state government. Without increased investment in water and sanitation, city waste and pollution levels will multiply. An important obstacle to stepping up investment flows in water and sanitation has been this reluctance of authorities to put in place a realistic pricing policy that could stimulate conservation, discourage waste and ensure cost recovery. Prior to this period, successive governments in Nigeria and external support agencies have expended millions of naira on the construction of water supply facilities to the extent that some places have up to three facilities executed by different agencies. In spite of this huge investment, the majority of the people do not have access to safe drinking water and basic sanitation either because most of the installed facilities are not functioning at all or are functioning intermittently. Irregular and inadequate water supply, excessive and inefficient billing, low water quality and poor consumer service are typical complaints. The SWAs do not recover their operating expenses from their own revenues this is because many customers default in paying bills.

With the failure of the state government to provide adequate water supply, people searched for alternative sources of supply. The local government, water vendors and other local entrepreneurs all got unto the stage and the evidence became the buying and selling of water in the open market across Nigeria, while the various tiers of government watched with arms folded. The urban poor became serious victims of the trade.

The solution to the water crisis is closely linked to how cities are governed and managed. There is need for urban residents to have a larger stake in the planning, development, management and protection of water resources for their benefit if they do not have that. This calls for an urgent paradigm shift in urban water governance. Improved governance would also lead to democratization of water usage on a level playing ground with acceptable regulations, a view shared by many international actors and governments. One of the lessons learnt during the water supply and sanitation decade, is that government at all tiers cannot provide water adequately in a sustainable way alone. The policies are national and the scene is local, water governance institutions, regulations and rules often apply to people in their own setting and may be limited to a particular ethnic or language group or associated with certain political regimes and may even be used only for certain kinds of water resources. With the "blooming of a thousand flowers" in water supply provisioning, the central question is; who is in control of municipal water provision in Owerri city (our case study)? This question is apt as myriads of players/actors are continuously emerging in the urban water provisioning arena. It is on the basis of probing to know if it is the government (Federal, state or local), NGOs, International actors, the local entrepreneurs or the private water investors in Owerri city, that this study is being conducted. It is hoped that its findings will help in policy formulation.

OBJECTIVES OF THE STUDY

- To identify those served and those excluded by the public water distribution system of Owerri city;
- To identify those who are actually in control of Owerri city's water and sanitation service provision; and
- To explain the dynamics between international, national and local forces in the shaping of water governance and its institutions.

METHODOLOGY

The methods of data collection included; surveys, key informant interviews, ordinary interviews, direct observation and literature search/desk research. Primary data were obtained from the entire seventeen wards that constitute Owerri city (i.e. the municipal area) were selected. A list of the wards within the city was obtained from Imo State Independent Electoral Commission. From the list, key informants were identified and interviewed using a structured interview schedule. The identified key informants with whom interviews were held in the wards were ward heads and elders. Others who were also interviewed were officials of the State Water Corporation and Owerri Municipal Council, water tanker drivers, commercial borehole operators, state government officials, consultants and scholars in the university. Secondary data obtained were from Imo State Water Corporation and the Works Department of Owerri Municipal Council. Some of the data obtained were summarized using tables.

RESULTS AND DISCUSSION

Water Supply Provision at Owerri

In-depth interviews with the ward heads and elders in Owerri city show the water supply providers found at each ward. The results of the interviews are summarized in Table 1. There are six kinds of water supply provision system found at Owerri city.

Table 1: Current Urban Water Supply Provision at Owerri City

Wards	*ISWC	Comm.	Comm.	Self	Water	Water	Municipal
		Based:	Based: Non-	provision	kiosks	peddlers	council
		Commercial	commercial				
Aladinma I	1	1	1	0	0	0	0
Aladinma II	1	1	1	0	0	0	0
Ikenegbu I	1	1	1	0	1	0	1
Ikenegbu II	1	1	1	0	0	0	1
Ikenegbu III	1	1	1	0	0	0	0
Ikenegbu IV	1	1	1	0	0	0	1
Ekeukwu	1	0	1	0	0	0	1
Azuzi I	1	0	1	0	1	1	0
Azuzi II	1	1	1	0	0	0	1
Azuzi III	1	1	1	0	1	0	1
Azuzi IV	1	1	1	0	0	0	1
Azuzi V	1	1	1	0	0	0	1
Azuzi VI	1	1	1	0	0	1	1
Azuzi VII	1	1	1	0	0	0	1
G.R.A	1	0	1	1	0	1	1
New Owerri I	1	1	1	0	1	0	1
New Owerri II	1	1	1	0	0	1	1

Data Source: Author's fieldwork (2011).

* Imo State Public Water Corporation (ISWC).

1 – available, O-not available.

Owerri City is witnessing a rapid rate of urbanization. With a population growth rate of 3.2%, the number of residents keeps swelling. The city has few properly planned layouts; some parts of the city are poorly planned. All these factors have hindered the provision of adequate services to Owerri City dwellers. One of such affected services is water. Currently water provision in Owerri city which is the state capital is poor. It was observed that though majority of the residences are connected to the public water supply in the city, the water supply is extremely irregular. The result is that people use the public water in Owerri but they are also forced to resort to other alternative water sources to supplement their domestic, commercial or industrial supplies. The finding is in agreement with the findings of Banerjee, et al. (2008) who found out in their study that piped water reaches most urban Africans than other forms of supply but not as large a share as it did in the early 1990s. Imo State Water Corporation (ISWC) is the government approved agency responsible for managing the State's water networks and extending services where necessary in urban centres of the state in an affordable and equitable manner. From inception no ward was excluded, ISWC served all the wards in Owerri city (see Table 1).

Although ISWC in Owerri City was established in 1995 with Edict No. 35, it was in an era when they had a monopoly because the market was not opened up to competition. Its coverage by April 2011 was only 20% of Owerri city inhabitants. The coverage as at year 2000 was 70%. Those inhabitants living at low elevation are enjoying the services of the public water corporation more than other inhabitants of the city. Those who live at Aladinma 1 are the ones worse off. This area has a high elevation which hinders water supply to it. Presently, because of the low capacity of pumps and the fact that the pipelines are not pressurized enough the inhabitants living there cannot be properly served by ISWC. With existing reticulation facilities being out dated, there are parts of the city with taps that do not run for months and have inhabitants with piped connection that are not served. The greatest bottleneck of ISWC in service provision is infrastructural decay due to lack of funds.

Years						Quantity per mo	onth (litres)						Total quantity
	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sept	Oct	Nov	Dec	supplied (litres)
1999	1,256,000,000	1,761,816,000	1,368,000,000	1,193,280,000	1,389,960,000	1,067,880,000	1,492,481,000	1,137,804,000	1,279,520,000	1,581,360,000	1,279,540,000	1,680,346,000	16,488,987,000
2000	1,401,840.000	1,136,080,000	1,384,240,000	1,199,000,000	1,525,480.000	1,096,920,000	1,441,880,000	946,000,000	1,374,120,000	1,353,120,000	1,295,360,000	849,640,000	15,227,680,000
2001	1,098,680,000	1,137,080,000	917,840.000	1,176,450,000	1,085,920,000	1,567,816,000	1,681,417,000	1,420,760,000	1,364,999,000	1,279,520,000	1,162,480,000	1,193,280,000	15,085,243,000

Table 2. Total Litres of Water Pumped by ISWC from 1999-2000 at Otamiri Head-works

Source: Imo State Water Corporation (2011).

With respect to production, most of the raw water used by ISWC comes from surface water. The water treatment plant at Otamiri head-works which contributes most of the total water supply produced uses surface water from Otamiri River. The water supplied to Owerri city comes from the Otamiri head-works. In terms of unaccounted for water, the level has increased from year to year. It was formerly 35%, but now it is 50%. According to the key informants the quality of water at Owerri city is fairly good, irrespective of whether it is rainy season or dry season. The only threat to its quality is contamination through pipelines. Since supply is intermittent when pressure in the piped system drops contaminants can easily seep in through cracks in the pipes.

The discharge of River Otamiri is very sufficient; as such there are rarely complaints of shortages of raw water supply during the dry season. At the point of installation, the water facility was meant to generate 66,000 m³/d but it is currently supplying 12,000m³/d. Dwindling supplies for three years (1999-2001) can be seen in Table 2. Many of those served by the ISWC complain of inadequacy in quantity to the authorities, they do not consider the service good enough. It has led to a proliferation of various other urban water supply providers in Owerri city, increase in water borne diseases and the construction of several substandard commercial and private boreholes in the city.

One distinctive feature of ISWC water service is its low tariff. The tariff is lower in comparison with water bought from commercial boreholes or bottled water bought for drinking. The tariff charged is based on flat rate, according to the category of the buildings or tenements. The lowest tariff is N300 (\$2) a month for a room connected to the network. For a rooming apartment with water system facilities it is N550 (\$3.67) per month, and for a three bedroom flat N1,500 (\$10) monthly. The details of tariff for other building/tenement types can be seen in Table 3. Previously, it was N50 (\$0.34) per room and N350 (\$2.34) for a flat of 3 bedrooms. Surely there is an astronomic increase in the tariff charged.

Category	Monthly Tariff			
	-N	US \$		
Five (5) Room Boys Quarters	1,500	10.00		
One (1) Room	300	2.00		
Rooming Apartment (water system facilities)	550	3.67		
One (1) Bedroom Flat	650	4.33		
One (1) Bedroom Flat with Boys Quarters	900	6.00		
Two (2) Bedroom Flat	1,200	8.00		
Three (3) Bedroom Flat	1,500	10.00		
Four (4) Bedroom Flat	2,500	16.67		
Four (4) Bedroom with Boys quarters	3,000	20.00		
Single Bungalow with One to Four Rooms	3,500	23.33		
Single Bungalow with Above Four Rooms	4,000	26.67		

Table 3: Tariffs Charged Consumers of Water Provided by ISWC

Source: Imo State Water Corporation (2011).

Occasionally some water tanker drivers looking for brisk business sell water obtained illegally from the piped supplies meant to serve neighbourhoods in some wards in Owerri city to residents of the peri-urban areas. The management of ISWC considers such activities illegal. However, as part of efforts to check such practice, ISWC has warned households not to sell its water to neighbours or abet water tanker drivers that may want to do same, in order for them to them not to be disconnected. Some households continuously buy water due to ISWC's inability to produce enough quantities of water, and even when a substantial quantity is produced, satisfactory distribution is in doubt. It is becoming common sight to see distribution pipes get blown up from water pressure and large quantities of treated water wasted through the leakages that abound in the distribution network. It is these events that have led to the exclusion of few wards which were hitherto connected to the ISWC's network, as is the case in Aladinma I.

Under the community based water provision there are two kinds, the commercial water providers and the non-commercial water providers. The former saw

the unpleasant water supply situation in the city as a business opportunity to provide water supply services in their neighbourhood. They use boreholes as the sources and sell water through PVC piped outlets and PVC overhead tank. It is mostly those in middle and low density areas that patronize commercial borehole owners. The problem for those patronizing commercial borehole operators is the quality and the cost of water. There is no standard tariff for the water sold; its cost varies according to the severity of the water supply problem and source of power supply for its pumping machine. The operators do not use water meters nor is a monthly base tariff applicable. Water is sold per unit cost of containers used for water purchase. Commercial boreholes are sometimes the source of water supplied by water peddlers. Generally, a 25 litre jerrican cost N10 (\$0.07) irrespective of the season.

These community based water providers take up the deficit in official supplies. Thus, in water and sanitation services provision, one new development has been the involvement of the private sector in service provision. As long as customers are trying to get the most convenient service at the most convenient time and for the amount they are willing to pay, hunting down illegal resellers and regulating a great majority of these providers will not be easy. To curb the water inadequacy wealthy households own private boreholes. Churches and schools, own private boreholes too which they use and also provide to neighbourhoods free of charge. They all fall under noncommercial community based water providers, because supply is not for profit.

The commercial boreholes are actually more widespread than any other alternative commercial water source. While non-commercial boreholes can be found in all the seventeen wards of Owerri city, commercial boreholes do not exist in all the wards. Ekeukwu, Azuzi I and G.R.A are wards where commercial borehole owners do not operate (see Table 1). Two out of the these three wards are areas with the highest commercial activities in the city (Ekeukwu is where the city's main market is located, while Azuzi I is on Douglas Road right in front of the city's main market). The G.R.A ward has the seat of government (the Government House) and two five star hotels. The dominant activities in these wards explain why they are not areas where commercial borehole operation can thrive.

In Nigeria decentralization laws in the water resources sector explicitly gave the establishment, operation and maintenance of local water scheme to Local Government Areas (L.G.As) /Municipal Councils, in conjunction with the benefiting communities. It

was based on this mandate that the Owerri city municipal council (local government) had also tried to solve the low coverage of the public Water Corporation by providing water boreholes and elevated water tower without reticulation in thirteen wards out of the seventeen wards in the city (see Table 1). Since those were funded and built with the supervision of the works unit of the Municipal Council under the framework of participatory approach, after being commissioned they were handed over to the people with the water committees in the benefiting wards to manage it on a not-for-profit basis on behalf of the people. Aladinma 1, Aladinma II and Ikenegbu III have none due to the fact that they are the highest – income residential wards of the city where the wealthy with several private boreholes live. Azuzi I has none. It is a ward with the Anglican Christ Church, St Paul's Pro-cathedral and the Main Market that have several private not-for-profit boreholes that serve the neighbourhood. The details of the Municipal Council provided boreholes and their location can be seen in Table 4.

Year	Description of	Contractor	Contract sum	Location of facility		
	facility					
2005/2006	150 mm diameter	Stino & Bros., Owerri	2,405,000	Ikenegbu Girls Sec.		
	boreholes and			School		
	elevated water	R.U. Engineering	2,494,000	Umuihugba hall at		
	towers	Services, P/Harcourt		Umuodu		
		Cinik Nig. Enterp.,	2,496,000	Umuoyima		
		Owerri				
		Jonmos Engineering	2,500,000	Samuel Njemanze		
		Company, Aba.		Primary School		
		Information Not	Information Not	Area L, World Bank		
		provided	provided	Housing Estate's		
				Health Centre		
Year	Description of	L	ocation of facilit	У		
	facility					
2009/2010	Modern Boreholes	Tetlow Road by Osuji S	Street			
	with standard	Edede Street by Oguan	nanam Street			
	twin overhead	Ejiaku Street by Lagos	Street			
	tanks	No. 184 Tetlow Road				
		Njiribeakor Street by O	ha Owerre Hall			
		Shell Camp/Alvan CKC	Chaplaincy			
		Shell Camp Police Barra	acks Quarters			
		Hausa/Yoruba Quarters	s (Amahausa)			
		Nekede Mechanic Villag	ge			
		Relief Market				
		New Market				

Table 4:Water Supply Facilities Provided by the Municipal Council in
Owerri City.

Source: Owerri Municipal Council (2011).

Funds for these projects were obtained from internally generated revenue and allocation from Federal Government. Before embarking on any water project that costs more than N500,000 (\$3,340), the officials of Owerri Municipal Council (OMC) must first obtain approval from the state government through the Ministry of Local

Government and Chieftaincy Affairs. This indicates that Owerri Municipal Council suffers from some measure of state government interference in its efforts to provide necessary services. The council lacks the heavy equipment and expertise for construction of water facilities; as such the projects are contracted out to engineering firms.

The Council employs a pro-poor approach to water provision. Its water is tariff free provided the beneficiaries can levy themselves to ensure that pumps are powered and water is pumped regularly. In the provision of water supply to the people, OMC relies on groundwater abstraction to avoid the huge costs associated with surface water abstraction (i.e. treatment and reticulation). Lack of regulatory framework, has led to the absence of quality assurance and lack of policy implementation in water provision under this tier of government. Field investigation revealed that no water quality tests were conducted on water from the boreholes upon completion and commissioning. There are no inputs from the Ministry of Public utilities and ISWC that ought to monitor them and ensure compliance with acceptable standards. This implies that at that level of governance, water policy issues are not effectively drawn into water provision activities.

Few self-provision households at Owerri City use harvested rainwater as a source of their water supply. According to Thomas (1998) it provides safe water for domestic use. Most of the inhabitants in G.R.A ward that use harvested rainwater had to abandon their dry taps and seek this cost free alternatives. The areas which make us the G.R.A ward are Shell Camp, Alvan CKC Chaplaincy, the Police Barracks, the Government House and Government College. Many of these residents are low income and middle-income earners and have chosen to resort to rainwater harvesting because of its cost effectiveness. However, storage tanks and drums for collected rainwater should have covers to avoid the invasion of algae or other biotic compounds that may alter its quality (Njoku and Ubuoh, 2010). From Table 1, it can be seen that it is not a popular source of water supply and this is simply because rainwater harvesting has never been an urban option and it is still not one.

Water in bottles and nylon sachets known as "pure water" are popular sources of water in some wards with water kiosks are found. These wards are Ikenegbu II, Azuzi 1, Azuzi III and New Owerri I. One thing common to these four wards is that they are high-density areas, where unmet high and demand for water will natural have to be supplemented by other readily available water sources such as packaged water. The water sold at the water kiosks is said to be from springs exist in some Local Government Areas of the State. The 19 litres bottle is sold for N2,000 (\$ 13.33). Usually the gallon/container is owned by some customers. Those customers who buy only water using their container pay as little as N300 (\$2) for the refill. A bottle with 1.5 litres capacity is sold for N100 (\$0.67), while a crate of 12 such bottles is sold for N1,200 (\$8). These bottles have brand names printed on them. Some of the producers claim that before the raw is packaged, it is processed by an ozone machine to make it drinkable. The water from water kiosks is mainly for drinking. The sachet water costs less than the bottled water. A sachet of 0.5 litres cost N10 (\$0.07), while a big nylon bag of 20 sachets (10 litres) cost N100 (\$0.67). Shofuyi (2003) warns that the indiscriminate disposal of these non-biodegradable containers have compounded problems of environmental sanitation.

In the following wards; Azuzi I, Azuzi II, G.R.A and New Owerri II, there are households that depend on water peddlers for their supplies. Residents of these wards live in compounds that have sufficient space for large PVC tanks which store the water bought from the water peddlers. In Azuzi I the residents that patronize water peddlers have their tanks right in front of their premises. Those at Azuzi VI and New Owerri II that buy from water peddlers keep their own tanks in their premises at the back of their buildings. The water peddlers sell water in bulk and the buyer must at any point in time buy a tanker load.

The water peddlers have four agglomeration points located in wards with the most acute water problems. On the average, twenty five tankers are registered at each agglomeration point, and the tanker drivers belong to a union. The business is becoming so lucrative that some commercial borehole owners own water tankers that fill up at their boreholes and move around in search of patronage. Water peddlers do not suffer from government interference, a situation which keeps them outside any regulatory frame work except for theirs.

The water peddlers obtain water for sale mostly from commercial boreholes and occasionally from Otamiri River. To fill a 5,000 litre Tanker, the driver pays ₩500 (\$3.34), while it costs ₩1,000 (\$6.67) to fill a 10,000 litre tanker. If the abstraction

into a water tanker is directly from a river, it costs N300 (\$2) to fill up irrespective of the tanker's capacity. Water is sold in tankers and not drums or buckers as it's often the case in some peri-urban and rural areas. Water from a tanker of 5,000 litres capacity costs 42, 000 (\$13.34), while water from a tanker of 10,000 litres capacity costs 44, 000 (\$26.67). Prices may vary; most often times distance is a determinant of price.

Control of Owerri City's Water and Sanitation Service Provision

It was at the prompting of the Federal Government that independent bodies such as Water Corporations were set up to develop, operate and manage the water supply undertakings. Every state of the federation including the Federal Capital Territory has a Water Board/Corporation managing the public water supply undertakings (NWSSP, 2000). In Edict Number 35 of 1995, the Imo State government provided the legal framework for the establishment and functioning of the State Water Corporation. From 1995 till date, the Imo State Water Corporation (ISWC) is operating the following legal framework- the statutory laws of Decree 101 of 1993, Minerals Act of 1990 and the State's Water Edict. The Edict empowered ISWC to construct, reconstruct, operate and maintain waterworks stations, building and other works; to abstract water from any lake, river, stream or natural water sources within Imo State;; to enter upon any land any time for the purpose of examining repairing or removing any water-pipe belonging to the corporation; to construct public fountains in any street or other public places; to enter into or upon any tenement between the hours of six O'clock in the morning and six O'clock in the evening or in an emergency in order to inspect any services or to disconnect the supply of water; to enter into contracts subject to the prevailing tenders and awards of contract procedure as may be necessary to diminish, withhold, suspend, stop, turn-off or divert the supply of water; to enter into agreement with any person for the supply, construction, manufacture, maintenance or repair of any property for the performance of its functions; with the approval of the Governor in writing, to write off bad debts and to determine adequate charges or fees which shall be approved by government for water supply and treatment, amongst others.

The National Water Supply and Sanitation Policy Document of 2000 and the National Water Policy of 2004 recognized and gave ISWC and other sister agencies mandate and responsibilities for the establishment, operation, quality control and maintenance of urban and semi-urban water supply systems. It empowered them to encourage private ownership of water supply and sanitation facilities and to license and monitor private water supply and quality of water supply to the public. The entire decrees and edict in the legal framework and the mandate provided by the water policy documents are tools of empowerment, dominance and control of water supply and sanitation provision in the city. Those are pointers to the fact that the state government through its agency, the state water corporation, despite its peculiar constraints, is in control. Its scale of provision both in terms of quantity and quality cannot be equalled by any other category of water and sanitation service provider in Owerri city. Table 5 is a catalogue of water consumer units in Owerri city being served by ISWC as at 2008. ISWC by 2007 also served 57,748 household with connection.

Table 5. Summary of Water Consumer Units in Owerri City in 2008 served by ISWC

	Category	Number of Units
	Residential	33,111
	Hotels	113
	Hospitals/ clinics	78
	Banks	21
	Carwash Enterprises	138
	Block Industries	137
	Filling Stations	36
	Hair Dressing Salons	13
	Churches	129
	Institutions	272
_		

Source: Imo State Water Corporation (2011)

Its distribution network spans across the entire seventeen wards of Owerri city, and can provide services to all when providing at full capacity. T

ISWC has the advantage of possessing reticulation and distribution network as well as treatment plant which other providers do not have and it does not depend on ground water but uses environmentally sustainable means for water abstraction (exploits surface water only) which others do not do. The ISWC also has a strong presence of the state government. However the political will to ensure efficiency and maximum output in the running of its day to day activities to provide water adequately in the city is lacking. Strategies for boosting its services are lacking and that is why till date ISWC has not been able to provide water meters to consumers in line with current standards. It has not succeeded in funding its activities sufficiently from monies realized from charges nor has it sourced for external loans to overhaul its system.

Currently, the ISWC's control of Owerri city's water and sanitation service provision is not in doubt, but its short-comings which undermine its powers have to be highlighted. From field observation, it was discovered that ISWC does not collaborate with the Municipal Council in water and sanitation services provision. It is due to ISWC's non-provision of technical assistance to the Municipal Council water supply unit that resulted in OMC's engagement of engineering construction firms for construction for its facilities. It was discovered that ISWC does not have a popularly acceptable regulatory framework and does not monitor other providers nor does it provide them licenses with which to operate. ISWC ought to regulate the activities of other providers and ensure that the quality of water provided is high and their charges will not exclude the poor from bring served. Since the National Water Policy (NWP) (2004) document mandates SWAs to encourage private ownership of water supply and sanitation facilities regulating them is imperative. ISWC has not yet adopted the National Water Polices of 2004, nor has it adapted the policy to suit local needs and peculiarities as it is expected. Though the edict establishing ISWC stipulated that it performs certain specific functions, for some reasons the act has not been effectively enforced.

The failure of ISWC to deliver services to all of Owerri city dwellers puts groundwater in jeopardy and endangers groundwater sustainability. The other alternative sources all abstract groundwater except for self provision where rain water which is an atmospheric resource is abstracted. On the average twenty boreholes (estimated number) exist in every ward in Owerri city. Groundwater is a also a preferred source because it is a common property resource. The onus lies on ISWC to warn other water providers and others of this over dependence on groundwater and its long term implication. It has been known to deplete and degrade groundwater and affect continuous aquifer systems (Hadipuro and Indriyanti, 2009). Burke and Moench (2000) are of the view that legislation and regulation would help nip this likely problem in the bud.

The Dynamics between International, National and Local Forces In Shaping Of Water Governance and Its Institutions

During the oil boom days of the 1970s and early 1980s, the country invested heavily in water resources development. It was in this era that the Imo State Government designed and constructed its Otamiri Regional Water Scheme. A scheme it has depended on till date. The institutional arrangement for water resources development and management is such that all tiers of government, which is Federal, States and Local Government, are involved. These tiers of government at one time or the other have had collaborations with external support agencies which they appreciated and felt was encouraging. However, one of the challenges facing the sector is fragmented and uncoordinated water resources development, while another is rapidly rising water supply costs.

To meet its funding needs, the Federal Government stipulates that there is need for active private sector participation. Previously state government assumed responsibility for overall management of the state's water resources, and did not involve stakeholders in water resources development. That trend led to its water supply project providing services that do not meet consumer needs and for which the consumers are unwilling to pay for. From inception of the regional water scheme till date water has been highly subsized in Owerri city, and this has been financially burdensome for the state government.

In Imo State there is need for a re-orientation to the fact that people have to be kept at the centre of the concern for water management and development. It should be conducted on a participatory basis with decision making occurring at the lowest appropriate level. There is also a growing recognition in line with international views and requirements, that greater emphasis must be placed on the management of demand for water as an economic good, to make sure that water use is efficient and it does not compromise environmental requirements. The previous approach to water resources development that has resulted in inefficiency in service provision involved treating water as a public social good.

The Federal Government recognizes the fact that the role of a regulatory frame work cannot be undermined in any circumstance, because according to it, water is too valuable a commodity for its management to be handed over solely to its users. Thus government must be in the picture to play a vital role in monitoring and enforcement of compliance with water policies and laws.

Presently the Federal Government is of the opinion that water services can be delivered through public, private or community based institutions. Water pricing is important. Cost recovery of these services is also necessary to ensure their long-term utilization. Government should change its role from being an implementer to being a regulator, facilitator and coordinator in order to help improve efficiency and effectiveness in private sector delivery of water services. It is a new strategy in conformity with the on-going reforms in the public sector. There is need for an independent regulatory body (made up of professional bodies, local officials, government officials, community members, technocrats, NGOs, and other resource users) to be created to mediate between government and their private contract partners from the public private partnerships in water and sanitation service provision.

All the problems concern management, roles and responsibilities, accountability, maintenance of scheme, inadequate coordination or customer involvement. According to the United Nations Secretary – General, wider access to clean water can be achieved through the strengthening of institutional capacity and governance at all levels, promoting more technology transfer, mobilizing more financial resources and scaling up good practices and lessons learned. To this end, commitment to carry out profound new reforms in the way the water supply and sanitation sector is managed at the national, state and local level is beginning to exist.

According to some scholars, reforms in Nigeria's water and sanitation sector have been partly based on expectation of loans from multilateral financial institutions and foreign investments, moreso as World Bank has explicitly made financing conditional on water reform. The assistance of international actors and development partners has always been sought in the water sector in Nigeria, its 36 states and numerous L.G.As. It is evident that it is because the challenges are myriad and it can not tackle it in isolation of the International Community that it has always tried to draft its policies to attain and maintain internationally acceptable standards.The international actors involved in water supply in Nigeria are World Bank, the African Development Bank, USAID, WaterAid, EU, JICA, UNICEF, UNDP, CIDA and ZONTA International.

The World Bank has been providing assistance to Nigeria in water supply since 1979. It even entered an agreement with the Federal Ministry of Agriculture, Water Resources and Rural Development, and the sum of US \$250 million was released in 1992 to finance the National Water Rehabilitation Project (NWRP). The Old Imo State like other nineteen states of the Federal and the Federal Capital Territory Abuja received \$10 million. Between 1991 and 2001, Otamiri scheme serving Owerri city got expanded and this ushered in improved services but this dwindled again with time. The real challenge in external support is coordination which has produced a fragmented actor scene. The drawing of erroneous conclusions about the scale of the problem due to lack of statistics is also a contributing factor.

The multilateral development agencies are supposed to support and reinforce local effort and capacity and this is lacking. Their projects for water should actually complement local development structures, institutions and agencies and not duplicate or undermine them. However, the World Bank got its intervention of 1992 as well as other interventions assessed. The Independent Evaluation Group (IEG) of the World Bank considers its intervention in Nigeria up to 2005 to have failed; many were rated as unsatisfactory with unlikely sustainability and with negligible or modest institutional development impact (World Bank, 2006).

With respect to the promotion of reforms in the water sector, the World Bank has repositioned itself more strategically. The Bank has no longer limited itself to promoting loans but also to promoting policy reform (Goldman, 2005). The goals of the Bank for the water sector in 2005 – 2009 country partnership paper were prepared for Nigeria by the Bank and DFID. This is a clear indication that multilateral and bilateral agencies have a shared vision on water and sanitation services provision in Nigeria. They are all advocates of the involvement of private sector, NGO and government in delivery of water services. With the unanimous agreement among them, Nigerian government has moved in the desired direction by producing a National Water Supply and Sanitation Policy Document in 2000 and a National Water Policy Document in 2004 to guide the water sector. These are instruments for the reformation of the sector and the ushering in of Private Public Partnerships (PPP). With decentralization the federal government has set the stage for state governments and local governments to follow. Among the generality of Nigeria people, it has remained an unpopular reform; this is because they do not want powerful international agents to push government into hasty partnerships that they will regret in the longer term. Therefore the notion that water is an economic good must be handled with care in Nigeria, where access to adequate water and sanitation is still at its lowest ebb.

In Imo State where Owerri city is capital, the government has the New face of Imo State Agenda. It is a development strategy document of State Government detailing the government's policy thrust. It hopes to introduce Public Private Partnership (PPP) in water supply. From field observation, it is a vision that is far from the reality on the ground. In Owerri city water and sanitation service provision is yet to be privatized, the state government still retains its monopoly and public interest is still considered paramount in water governance. The state lacks a comprehensive water policy document, this seems to agree with Adeoti's (2007) view that numerous policy guidelines for water and sanitation exist only at the federal level in Nigeria. Nigeria is in a democracy, and PPP or PSP is a politically sensitive issue. This explains why there is a slow speed in its adoption at the state or local government level right now. For effectiveness of policies and programmes in the water sector, they should be adjusted to or tailored towards local social and cultural realities. It should be carefully explained to all water users especially the poor.

It is a fact that citizens of Owerri city use different water sources, but the distance from the supply source, the associated hardship, susceptibility to diseases

and the cost of water are very critical. When the suffering is weighed against the gains, the majority of the residents of Owerri city may accept PPP, especially if they are co-opted into its realization. Regarding water as an economic good and privatizing it without adequate explanation might make the profit motive paramount which could affect both the affordability and the accessibility of water. Since the poverty profile in Nigeria reveals that more than 70 percent live below the poverty line of US\$1 per day (Central Bank of Nigeria, 1999), an element of cross-subsidization may be required to produce a sustainable way out.

CONCLUSION AND RECOMMENDATIONS

Water and sanitation provision analysis is useful for policy intervention and programme formulation. Action on the ground often requires information on forms of provision already existing. The study reveals that water supply from ISWC is the best form of water provision. However, the role of the private sector in water provision is very important as such should not be disregarded. Service provision problems can be addressed through government's collaboration with the private sector and the community based organizations. The water users should not be left out. The tripartite arrangement should enhance water provision.

It also recommends that Water decree 101 from 1993 (water legislation) be reviewed to address growing challenges. A new regulatory framework that will carry out government ownership and control of water resources and participatory aspects of water management should be produced by ISWC. Currently, to regulate other urban water and sanitation service providers, ISWC should introduce stringent controls in areas of water quantity and quality, provide procedures for water quality management, regulate groundwater abstraction and protect surface water from over exploitation, depletion and pollution and establish a list of fees for abstraction of groundwater and surface water and also for sales of abstracted water. It should resolve disputes on water, and with the help of government, it should institutionalize into statutes relevant customary laws and practices that relate to water supply and management.

REREFERNCES

Adeoti, O. (2007) "Challenges to managing water resources along the Hydrological Boundaries in Nigeria", *Water Policy*, 9, 105-118.

Banerjee, S.; Skilling, H.; Forster, V.; Briceno-Garmendia, C.; Morella, E. & Chfadi, T. (2008) *Africa Infrastructure Country Diagnostic: Urban Water Supply in sub-Saharan Africa*, Report by the World Bank and the Water and Sanitation Programme.

Burke, J.J. & Moench, M.H. (2000) *Groundwater and Society: Resources, Tensions and Opportunities*. United Nations Publication, New York.

Central Bank of Nigeria (CBN). (1999) *Nigeria's Development Prospects: Poverty Assessment and Alleviation Study*, CBN, Lagos.

Gleick, P. (1996) "Basic requirements for human activities: meeting basic needs", *International Water*, 21 (2), 83-92.

Goldman, M. (2005) *Imperial nature: the World Bank and struggles for social justice in the age of globalization,* Yale University Press, London.

Hadipuro, W. & Indriyanti, N.Y. (2009) "Typical urban water supply provision in developing countries: a case study of Semarang City, Indonesia", *Water Policy*, 11, 55-66.

Joanne, G. (2000) *Global Environment Outlook*, United Nations Environmental Programme (UNEP), Kenya.

Mason, P.R., Patterson, B.A. & Loewenson, R. (1986) "Piped water supply and intestinal parasitism in Zimbabwean school children", *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 80 (1), 88-93.

National Water Policy (2004) Document of Federal Republic of Nigeria.

National Water Supply and Sanitation Policy (2000) Document of Federal Ministry of Water Resources, Abuja, Nigeria.

Njoku, J.D. & Ubuoh, A. (2010) "Quality of rainwater in storage tanks in selected locations in Mbaitoli LGA of Imo State", in Igbozurike, U.M., Ijioma, M.A. and Onyenechere, E.C. (Eds.) *Rural Water Supply in Nigeria*, Cape Publishers, Owerri.

Okpala, D. C. I. (1980) "Water supply constraints on Nigeria's Economic Development: The Example of Anambra State", *Third World Planning Review*, 2 (2),170-186.

Park, K. (2002) "Environment and Health", in Parks, K. (Ed.) Preventive and Social Medicine, 17.

Shofuyi, S. (2003) "Study x-rays poor quality of 'Pure Water' in Nigeria", *The Punch,* 4 February 2003, 46.

Thomas, T. (1998) "Domestic water supply using Rainwater Harvesting", *Building Research and Information*, 2 (2), 94-101.

World Bank (2006) *Project Assessment Report: Nigeria, No. 36443*, World Bank, Washington DC.

World Health Organization (1995) "Bridging the Gaps", The World Health Report, 41.