

An Overview of Private Sector Participation in the Provision of Potable Water in Minna, Niger State, Nigeria

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ABSTRACT

The provision of potable water to the populace is considered as one of the most important and critical functions of a government. As a result of this, nations have developed their own water resources master plan that guides them in harnessing this all-important component of human survival from being misused and abused, while at the same time ensuring that their citizens have access to it both in quantity and quality. But unfortunately, this cannot be said of the developing countries, thus the springing up of private water supply companies that complement the activities of the public water agencies. Owing to this, this paper set out to assess the roles of the private water supply companies in the provision of potable water in Minna. Therefore, a total of 400 questionnaires were administered on the residents of the 25 major neighbourhoods of Minna using the simple random sampling technique. Also, questionnaires were administered on 10% of the private water supply companies in Minna, as well as on a representative of the Niger State Water Board (NSWB). The result of the study revealed that despite the erratic nature of the public water supply scheme, the residents of Minna have preference for it. The finding also revealed that the water vendors sometimes sale water from questionable sources like uncovered well and stream to unsuspecting member of the public while claiming that the water was bought from private water companies. Owing to these, the paper recommended the development of water resources master plan that will serve as a policy framework to guide and address all the problems faced by (NSWB as well as developing a legal and policy framework that would facilitate the participation of private developers in the provision of water services on a sustainable basis in Minna.

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Introduction

Nations, the world over, have developed at one time or the other, programmes and policies aimed at improving the living standard of their citizenries, and by extension, the environmental quality of their territories. This is because of the important roles played by such programmes and policies in the socio-economic development of the people and their environment; and one of such basic services that greatly enhances human development index is potable water. Therefore, if this basic service, essential for human development is lacking or absent, man would resort to practices that would endanger the environment, his life and that of the generations yet unborn. It was owing to this that, all the three tiers of Government in Nigeria have taken up the provision of this service as part of their statutory and social responsibilities (Usman, 2007).

But according to Calaguas and Roaf (2001), government agencies (especially in the developing countries) have been unable to cope with the supply of water (needed by the public) because of rapid increase in population, growth in demand due to changes in lifestyles and commercial growth in cities, ageing and deteriorating infrastructure, increasing degradation of surface and groundwater sources through pollution, over extraction and historic inability to recover the actual cost of operating and managing the water system. This has thus created a gap resulting in the lack of access to improved water supply services by around 1.1 billion people globally (WHO, 2012) with Sub-Saharan Africa lagging behind China and India in terms

of inaccessibility to potable water (World Bank Group, 2012). Therefore the created gap has been filled by the activities and operations of the private water supply companies in cities and towns of the developing countries. The private water service providers in Minna (some of which are not registered) basically withdraw water from aquifers using motorised boreholes and thereafter sale same directly to the members of the public or through the water vendors (truck pushers). In view of this, this study examines the efforts of the private sector in the provision of potable water as well as the spatial distribution of the private water service companies in Minna in order to determine their locational quotient.

Aim and Objectives

The aim of this paper is to assess the roles of the private water supply companies in the provision of potable water in Minna, with a view to identifying their nature and level of participation in water supply. In order to achieve the stated aim, the objectives are to:

- i. Assess the complementary roles of the Niger State Water Board (NSWB) and that of the private water supply companies in the provision of water in Minna metropolis;
- ii. Examine the spatial distribution of the private water service companies and;
- iii. Examine the public perception of the services provided by both the public and the private water supply companies in Minna.

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Limitation of the study

The major challenge faced by this study was in the area of obtaining the necessary data needed for the study from the relevant authorities, especially the NSWB. The data included the list of the private water supply companies in Minna, the daily water needs as well as the daily water supply to the each of the neighbourhoods of Minna. As a result of this, a survey was carried out by the researchers in order to determine the number and location of the private water service companies in Minna.

The study area

The name "Minna" was derived from the *Gwari* words "mi" and "na" which means "spraying fire". The town was originally on the Sayako hills and had walls (Ganuwa) built around it. The construction of railway line from Baro through Minna in 1911 is one of the major factors that led to the development of the town. Minna lies on latitude 9°36' N and longitude 6°33' E, and combines the status of a State capital and that of a local government headquarter. The town sits on geological base of undifferentiated basement Complex of mainly gneiss and magmatite (Max Lock group, 1979). The town is surrounded by a range of hills with the famous Paidia hill, having the highest point of 443m. The lower part of the town is dissected by River Suka and its tributaries. In the far southeast of the town lies River Chanchaga; the river flows westward from the south-eastern part of the town. River Chanchaga has been dammed to provide community water supply for the greater part of the town.

Climate of the Study Area

The town lies within the central region of Nigeria known as the middle belt zone and it is marked by two major seasons. The rainy season, which last between 190–200 days, is brought about by the tropical marine air mass i.e. southwest trade winds. The mean annual rainfall is 1334mm with August and September recording the highest rainfall of about 300mm averagely. The average monthly temperature is highest in March at 30°C and lowest in August at about 22°C. The dry season (harmattan) is brought about by tropical continental air mass (Northeast trade winds) and it lasts from October/November to March/April every year.

Research Methodology

This section discussed the sampling frame and technique, population of study, the instruments used for obtaining data for the study as well as the method of data collection and analysis.

Sampling Frame and Technique

For the purpose of this study, all the major 25 neighbourhoods of Minna were used as the sampling frame and a total sixteen questionnaires were randomly administered on each of the neighbourhoods; thus a total of 400 were administered on the residents of Minna. The sampling frame for this research work also included 10% of the 85 identified private water supply companies in Minna.

The Instruments

This research was carried out with the aid of primary and secondary data sources. The primary data sources included questionnaires, physical observation and oral interviews from the study area, while the secondary data were sourced from relevant textbooks, journals and the internet.

Method of Data Analysis and Presentation

The data collected from household heads or their representatives, the designated representatives of the Niger State Water Board and the private water supply companies in Minna were analyzed through simple statistical computation, and thus presented in written and pictorial forms.

Data Analysis And Results

The Complementary Roles of NSWB and the Private Water Supply Companies in Minna

The provision of potable water to the populace, according to Usman (2007) is a public good, and therefore, must be treated as such by all the three tiers of government in Nigeria. Owing to this, the Niger State government, has since the creation of the State in 1976 constructed the Chanchaga and Tagwai dams as well as reactivated the Bosso Dam. The government has also laid infrastructures and facilities that would ensure that all the residents of Minna have access to potable water on a sustainable basis. This is evident in the number of reservoirs constructed and pipelines laid, especially during the 10 year period of 1989–1999 (see Appendix I). Despite this, a large proportion of Minna is experiencing erratic public water supply, and this can be adduced to the town's high population growth rate and the lack of sustained public investment in the sector. This thus has created a wide gap in the peoples' water need which has therefore been filled by the establishment of private water service companies whose water rates of N10 per 20 litres is fairly beyond the reach of a low income earner (it is though more expensive when bought from water vendors i.e. truck pushers). In some parts of Minna, where the services of the private companies are not efficient, the water vendors in such neighbourhoods resort to sourcing of water from questionable sources like uncovered well and stream and thereafter, sell same to unsuspecting members of the public while claiming that the water was bought from private water companies.

The Spatial Distribution of Private Water Service Companies

The spatial distribution of the private water supply companies can be said to be determined by effectiveness or ineffectiveness of the public water supply scheme in the neighbourhoods, population density and the water table of the area. A further assessment of the activities of the private companies showed that they have made enormous contribution in the supply of potable water as people do not have to trek long distances again in order to have access to water. Therefore, in order to determine whether the neighbourhoods have less than enough, or a fair share or more than a fair share of the private water supply companies, their locational quotient will be calculated. According to Morenikeji (2006), the locational quotient of a particular outlet or activity such as banks, post office, water firms etc in a city or region can be used to determine or compare the degree of concentration of the activity. The method has been applied in this study thus:

$$\text{Formula for LQ} = \frac{(S1/S)}{(N1/N)}$$

Where

LQ = Locational Quotient

S1= number of private water firm in a neighbourhood;

S= total number of private water firms in all neighbourhoods

N1= population of the neighbourhood;

N= population of all the neighbourhoods

Example: (Anguwan Daji ward)

$$S1/S = 1/72 = 0.0138$$

$$N1/N = 13440/346670 = 0.387$$

Therefore, Locational Quotient (LQ) = 0.0138/0.0387 = 0.4

Results for the other neighbourhoods are shown in Appendix II



Fig. 1: Street Guide Map of Minna Showing the Studied Neighbourhoods

240 0 240km

Source: Bawa (2007) Adapted

Appendix 1: the Locations, Types, Capacities in M³, Year of Construction and Some Areas Served by the Water Reservoirs located in different parts of Minna

S/No	Location	Type	Capacity (m ³)	Year of Const.	Some Areas served by the Reservoir
1.	Army Barrack	Bi-Water Tank	4,500	1989-1990	Shango, Army Barrack, Tunga West and part of Chanchaga
2.	Tunga Top Medical	Circular Concrete Tank	2,000	1992-1993	Tunga Top Medical Area, and part of Tunga East
3.	Opp. INEC Office, David Mark rd.	Surface Tank	2,000	1945	Bay Clinic Area
4.	Up Hill Tank	Circular Concrete Tank	7,000	1999	Central Minna, Central Market, Kwangila, Kateren Gwari, Old Airport Quarters, Limawa, Kpakungu, Soje, and Barikin Sale
5	Paida Tank	Circular Concrete Tank	4,000	1993	Emir's Palace, Anguwan Daji and F Layout
.6	Shiroro Tank				Tunga Low Cost, Tunga West, Shiroro Hotel, Sauka Kahuta, and Barikin Sale
7	Police Sec. Sch.	Circular Concrete Tank	10,000	1993	Dutsen Kuran Gwari, Dutsen Kuran Hausa, Type-B Qtrs, GRA, Bosso Low Cost, Bosso Estate, and FUT Minna (Bosso Campus)
8.	Bosso Low Cost	Wielded Steel Tank	2,000	1983	Hayan Gwari, Bosso Low Cost and Jikpan

Source: NSWB, Minna in Usman, (2007)

Appendix II: Spatial Distribution of Private Sector Water Supply in 25 Neighbourhoods of Minna

S/No	Neighbourhoods	Population (2009)	No. of Private Water Companies	Locational Quotient (LQ)
1	Agwan Daji	13 440	01	0.4
2	Barkin Saleh	5 216	03	2.8
3	Bosso Estate	1 637	02	5.9
4	Bosso Town	35 603	03	0.4
5	Chanchaga	23 878	07	1.4
6	Dutse Kura Gwari	8 154	03	1.8
7	Dutse Kura Hausa	12 229	03	1.2
8	Fadipe	4 077	01	1.2
9	F-Layout	4 374	-	-
10	Tayi Village	8 795	01	0.5
11	GRA	3 080	03	4.7
12	Jikpan	7 820	01	0.6
13	Minna Central	23 825	02	0.4
14	Kpakungu	15 817	05	1.5
15	Limawa A	24 647	01	0.2
16	Maitumbi	12 600	07	2.7
17	Makera	24 287	01	0.2
18	Nasarawa	27 451	03	0.5
19	Sabo Gari	30 464	02	0.3
20	Shango	2 713	04	7.1
21	Sauka Kahuta	2 797	06	10.4
22	Tudun Fulani	9 478	-	-
23	Tudun Wada North	21 251	05	1.1
24	Tudun Wada South	19 187	04	1
25	Tunga Low Cost	3 850	04	5.0
	Total	346670	72	51.3

Source: 2006 population figures (NPC) and Authors' field work, 2012

Interpretation:

An LQ value of less than 1 means that a city or a neighbourhood has less than a fair share of the facility, a value of 1 indicates a condition of having a fair share and a value greater than 1 refers to a condition of having more than a fair share.

From the result of the LQ in appendix II, neighbourhoods like Barikin Sale, Bosso Estate, GRA, Shango, Maitumbi, Sauka Kahuta and Tunga Low Cost have more than fair share of the private water firm distribution in Minna, while Anguwan Daji, Bosso town, Tayi Village, Makera, Minna Central, Limawa A and Sabon Gari have less than a fair share of private water supply companies.



Plate I: Supreme waters at Kpakungu, Minna



Plate II: Circular Concrete Reservoir, Dutsen at Kura, Minna

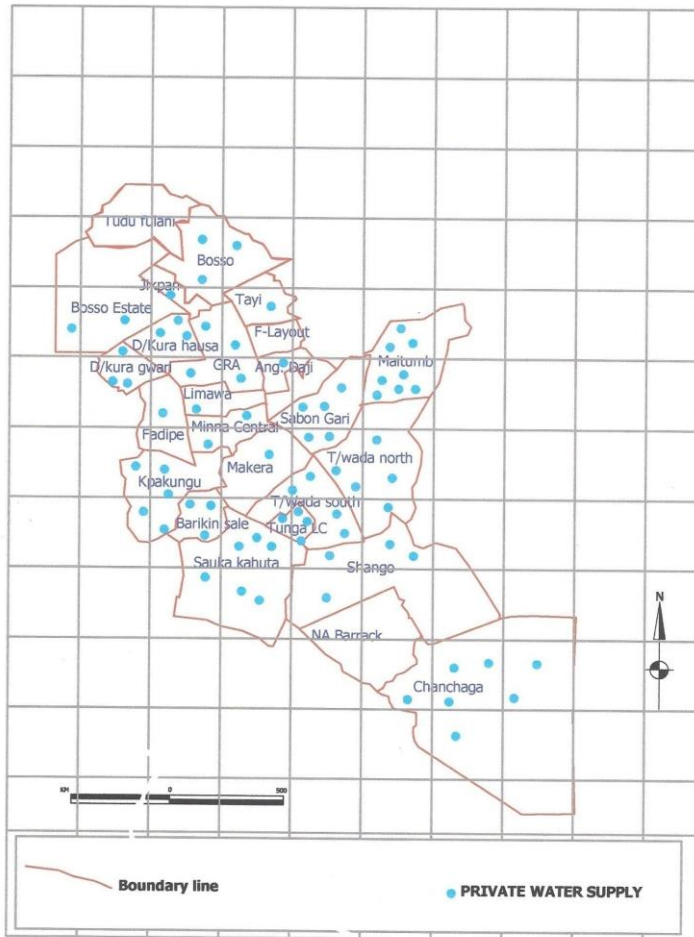


Fig 2: Location of private water supply companies in Minna
Public Evaluation of the Services provided by both the Public and Private Water Supply Companies in Minna

In order to feel the pulse of the residents of Minna as regards the services of the NSWB and the private water supply companies, they were asked to comment on the services rendered by both outfits. All the respondents stated that they prefer the services of the NSWB, though it is very erratic and unreliable. Their preference for the public water supply scheme according to them is informed by its low monthly rate of N1,000 as well as the convenience of collecting the water within the comfort of one's home. The respondents also claimed that the domestic wells located around the private water companies easily gets dried up as a result of the heavy withdrawal of ground water by the companies.

Conclusion

It is of paramount importance that every country develops its water resources sector in order to provide access to safe and sufficient drinking water to meet the socio-cultural and economic needs of its people. Given Minna's rapid population growth, it has then become imperative for all stakeholders to join hands to ensure access to safe drinking water by all. Though the private sector in Niger State is living up to this challenge as evident in the existence of many private water supply companies, the State government needs to develop a regulatory framework and partner with the private sector in order to develop the infrastructural facilities necessary for the provision of potable water to the residents of Minna at an affordable rate.

Recommendations

The development of an effective and sustainable solution to the problem of water supply in Minna does not lie in the activities of the private water supply companies, but in the massive infrastructural development by the State government that would ensure the full utilisation of its surface water resources as well as the connection of all houses in the town to the NSWB pipes. Owing to these, the following measures are therefore recommended:

1. The development of water resources master plan that will serve as a policy framework to guide and address all the problems faced by the NSWB;
2. The introduction of the metering system that would ensure that consumers are billed based on their consumption, thus increasing the revenue base of NSWB;
3. The development of a legal and policy framework that would facilitate the participation of the private sector in the provision of water services on a sustainable basis and;
4. The institution of State-owned Urban Development Bank to assist urban service providers in complementing the State government in providing urban facilities and services to the populace.

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