

PROBLEMS OF HOUSEHOLD WATER SUPPLY IN MINNA NIGER STATE, NIGERIA

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ABSTRACT

This paper has investigated the problems of access to household water supply in Minna, Niger State Nigeria. A total of 6075 households were enumerated from the existing broad units that form the study area, namely: GRA/Housing Estate, Core Areas and Peripheral Neighborhood. To obtain data for this study, 235 copies of a Survey questionnaire were randomly administered to respondents within the study area. From this number only 220 copies were used in the analysis, the remaining 15 copies were not considered due to bad filling. The study revealed that 54.5% of the respondents complained of water depletion mostly from January to May. Complaints of water fetching such as long distance, heavy load and long winching time were also made by 68.2% of the respondents. The research recommends the encouragement and expansion of the scope of indigenous informal water management and conservation activities to increase the amount of water for household use such as running the gutters from house roofs into wells and storage tanks and adoption of methods of adjustment of feeding and clothing habits.

KEYWORDS: Household, water supply, water fetching, water winching, water source.

INTRODUCTION

Attempts in making water available for domestic purposes are as old as the human existence on the globe. For example, in Nigeria, the primitive method of procuring water for domestic uses comprised direct collection of rain water in containers, extraction of raw water from springs, streams, ponds, earth dams and hand-dug wells (Kenneth, 2006). Alani (2005) highlights that shortage of skilled manpower, inadequate fund for capital and recurrent expenditures, lack of proper feasibility study of hydrological systems, decline in government efforts and inadequate management of water resources are the causes of water supply problems in Nigeria. In addition to these, rapid urbanization coupled with high rate of population growth in Nigerian Urban Centre's and high rate of illegal connections to the existing water distribution mains are also part of the factors responsible for inadequate water supply to the Nigerian Populace (Akande, 2006).

Onifade (2005) pointed out that as the socio-economic standard of a society improves, demand for water increases. Hence, socio-economic status of a community should be an important factor to be reckoned with when investigating problems associated with water supply to the general public. By considering water supply situation in Nigeria, one can support the conclusion made by Kenneth (2006) that there are adequate reserves of surface and ground water in Nigeria but it is Nigerians that lack management ability to use the potential water sources.

The main problems facing water supply sector in Nigeria can be categorized as inadequate distribution networks and low quality of water supply to the general public (Fourth

Nigerian National Development Plan, 1981-1985). Emmanuel (1998) supports this assertion when he itemizes inadequate quantity and incessant shortage of water supply as the major problems of water supply in Nigeria. Many urban water supply schemes carried out by successive governments in Nigeria failed because there are wide gaps between their design capacities and ultimate urban water demand (Onibokun, 1986)

The aim of this research is to examine problems of access to household water supply in Minna townships. To achieve this aim the following objectives were pursued;

- a. Identify the sources of water supply used for domestic activities.
- b. analyze the problems of household water supply in the study area.
- c. Make recommendations appropriate to the findings.

MATERIALS AND METHODS

A total of 6075 households were enumerated from the existing broad units that form the study area namely; GRA/Housing Estate, Core Areas and Peripheral Neighborhoods. Out of these, 235 households were selected and 235 copies of a Survey questionnaire were randomly administered in the existing broad units that form the study area. At the end 220 copies were used in the analysis, the remaining 15 copies were not considered for analysis due to bad filling. The questionnaire was pretested by administering it to 10 household heads during a reconnaissance survey. Preliminary analysis of the reconnaissance test led to a revision of the questionnaire to produce the final research instrument.

Concurrent with the questionnaire survey, semi-structured interviews were conducted with some key household informants. These consisted of elders who assisted in the water supply by direct purchase and motor vehicle drivers who assisted in water supply from water stations.

Pre-arranged focus-group sessions were held for open-ended discussions with definite target groups in the study area. The groups consisted of separate groups of men, women, children and youths. The discussions were aimed at assessing communal responses to water needs and problems.

Household activities related to water demand; fetching and supply, water storage and use were observed directly and recorded in order to obtain quantitative data required for the estimation of water use. The frequency of fetching water was determined by counting, while the time required for fetching was calculated with a stop watch. The depths of wells and their

distances from dwellings were measured with a steel tape.

RESULTS AND DISCUSSIONS

Sources of Water Supply

Hand-dug wells are the major sources of water supply for household use in the study area. As presented in Table 1, this source (44.5%) is supplemented by water supply from rain and well which accounted for 22.3%. Pipe-borne water from Chanchanga and Bosso water treatment plants offer limited water supply to a few privileged respondents (14.4%), only 12.3% of the respondents are having access to boreholes. Water supply, from wells ponds and earth dam is highly constrained by well depths and distances of the sources from dwelling units. Moreover, the use of water from pond and earth dam is limited to consumption by domestic animals and domestic uses such as washing and bathing. However, 9.5% of the respondents relied on water supply from these sources.

Table 1: Sources of Water Supply

Sources	No	%
Rain and Well	49	22.3
Well	98	44.5
Pipe-Borne	25	11.4
Borehole	27	12.3
Pond and earth dam	21	9.5
Total	220	100

Source: Field Survey, 2009

Persons Responsible for Water Fetching

Water fetching is a responsibility of all members of the family including the husband, wife, house helps and children as well as Pupils of Quranic Schools (Almajiri) and water vendors who supply water on commercial basis during acute scarcity. Table 2 shows that water vendors and all members of households play the most prominent role in fetching water as 26.4% of respondents chose this combination. This is

closely followed by those who chose all members of households (18.2%). When water becomes scarcer, as is usually the case during the dry season, additional water supply can be obtained from the Quranic Pupils (Almajiris) who fetch for payment in cash and kind to 5.5% of the respondents. Also 6.8% of the respondents depend completely on water vendors at relatively high prices.

Table 2: Persons who fetch and supply domestic water

Persons Involved	Number	%
Wife and children	20	9.0
Wives only	18	8.2
Husbands only	27	12.3
All members of households	40	18.2
Vendors and members of households	58	26.4
Children and house helps	15	6.8
Vendors only	15	6.8
Almajiris only	12	5.5
Total	220	100

Source: Field Survey, 2009

Majority of the respondents (68.2%) complained of water fetching problems comprising of long distances, heavy load and long winching time as presented in Table 3. They also complained of alarming rates of body pains due to long water winching time,

difficulties of conveying heavy jerry cans from distant viable water sources with associated health risks, lack of facilities for purifying the water obtained from depleted wells and ponds during the long dry season and the high cost of purchasing water during this period.

Table 3: Complaints of water fetching

Complaints	Number	%
Long winching time	20	9.1
Heavy load	15	6.8
Far distance	25	11.4
All the three above	150	68.2
Muddy water	10	4.5
Total	220	100

Source: Field Survey, 2009

Apart from long distance, the burden of winching water from wells becomes high because of the depths of the wells (8-12meters), the frequency of trips (6-9 times per day) and times spent (1-2 hours per period) in daily water fetching. The 5.5 liter bag used in drawing water from the well must be winched 4 times before 20 liters jerry can used in conveying water is filled up.

In the process of winching water for 6-9 trips daily, new blisters are often created and

scars are left as permanent features on the palms of women and children who often fetch water for domestic use. At this time, water purchase becomes prohibitively expensive, and household water use is reduced significantly. Results presented in Table 4 reveal that considerable size of the respondents (37.7%) employed coping measures during scarcity including visit to ponds and earth dams, reduced utilization and purchase from water vendors.

Table 4: Measures employed during scarcity

Measures	Number	%
Visit to ponds and earth dams	25	11.4
Reduced utilization	32	14.5
Purchase	60	27.3
All the three above	83	37.7
Fetching Pipe-borne water	20	9.1
Total	220	100

Source: Field Survey, 2009

WATER SHORTAGE AND SCARCITY

Irregular water supply from the water sources is experienced in Minna town between January and May especially from afternoon to evening when the sources are often depleted due to daily over-withdrawal (Table 5). During the peak of the dry season (January to May) acute water shortage compounds the problems of water supply as the ponds and wells are relatively dry and only

muddy water remains in them. During this time, complaints are numerous about water fetching. Measures employed to cope with shortage of water and the burden of fetching ranges from water purchase at exorbitant prices and reduced water use to moving domestic activities such as washing to pond and dam sites. Efforts are also expended to clear the wells to increase their depths.

Table 5: Period of water shortage and scarcity

Month of the year	No	%	Time of the day	No	%
January - May	120	54.5	Evening	40	18.2
June - September	60	27.3	Afternoon	65	29.5
October - December	40	18.2	All the two above	115	52.3
Total	220	100	Total	220	100

Source: Field Survey, 2009

In general, access to domestic water in Minna is limited, especially during the dry season when the demand is greater. In some part of the study area, increased access to shallow wells is prohibited by the long distance of the wells from dwelling units. For this reason, household heads prefer paying for long distance transport of water by purchasing the commodity from water vendors and Almajiris who provide water at high prices. Sometimes the quality of the water supplied by this group of people is not guaranteed as the sources are usually not disclosed.

During the dry season when water is scarcer, larger quantity is required to prepare meals from the sun-dried food stuff consumed by households. Washing and bathing also require much water during this period due to the amount of dust in the air. As a result of limited dry season water supply, less water is utilized in preparing meals by shifting to fried, roasted and steamed foods. There is also an increase in household consumption of sugar cane, which supplement water intake to the body. During this period most of the people involved are apparently dehydrated.

CONCLUSION

Access to household water supply in Minna is mostly restricted to deep and seasonally shallow-hand-dug wells, boreholes, ponds, reservoirs of earth dams and sometimes rainfall, but without any form of seasonally stable public water supply. Access to water for household use in Minna is associated with problems especially during the dry season; these include reduced utilization and high cost of purchase from vendors during periods of acute water shortages, alarming rates of body pains due to long winching time and difficulties in conveying heavy water jerry cans from the water sources.

RECOMMENDATIONS

The following measures are recommended to solve the problems of access to household water supply in Minna:

- a. Niger State Government should partner with private investors to adopt conjunctive water use concept. This concept states that all

reliable water supply sources in an area can be integrated or linked together and directed into specific reservoir according to a programmed system.

- b. There is a need to mobilize the local people towards self-help water supply projects capable of improving the quality of pond, dam reservoir and well water for domestic consumption. In this direction, it is strongly recommended that the scope of indigenous informal water management and conservation activities should be expanded. This activities include the various methods of harvesting rain water, particularly those involving running the gutters from house roofs into wells and storage tanks which can increase the amount of water for domestic consumption and the various methods of adjustment of feeding and clothing habits which reduce the amount of water used for domestic activities.

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