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# Gender Inequality in Household Water Provision: Consequences on Women and Children in Gwagwalada Area Council, Federal Capital Territory, Nigeria

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## Abstract

The study assessed the gender inequality in household water provision and its consequences on women and children in Gwagwalada Area Council. Using the systematic sampling method, a total of 200 questionnaires were used to collect data on the socio-economic characteristics of the respondents, as well as their accessibility, demand and use of water. Results of the analysis showed that respondents depend on varied sources of water, with over 50% depending mostly on boreholes; 51% affirmed that those that source for water were mostly women and female children; 70% have household size of 8-11; 47.5% cover a distance of less than 1km each day to fetch water but may trek for up to 3 hours during the dry season; 57.5% spend 1-2 hours each day fetching water and the time spent can increase up to 4 hours at the peak of the dry season, during which they wait in long queues to fetch water. Consequently, a significant number of the respondents (66%) spend money to buy water from water vendors. On the whole, the quantity of water used (100-200litres) by most (61%) of the respondents per day is less than the actual quantity (200-300litres) they require per day. The resultant effect of these being loss of man hour for other productive work and income generating activities; exposure of women and children to kidnapping and rape; absence or lateness to school; increased vulnerability to water borne diseases, cranial depression, malformed spines, stunted growth, persistent headache among others and 87.5% affirmed that community water supply projects are sole responsibility of the government. Recommendations were made that adequate provision of clean potable water close to the communities should be made to reduce the length of time people spend to source for water. This will also help to reduce the gender gap in household water provision.

**Keywords:** Gender, Inequality, Water, Women, Household

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## Introduction

Water is a fundamental basic need and an essential resource for economic activities with strong cultural and symbolic values for millions of people especially in developing countries. Water has become the most commercial products of the century. This may sound bizarre, but true. On the one hand, the rapidly rising population and changing lifestyles have increased the need for fresh water, while on the other hand, intense competitions among users in agriculture, industry and domestic sector is pushing the ground water table deeper (Vandana, 2007; O'reilly, 2010). A domestic water supply is universally acknowledged as not only a basic right but a key development indicator. It is also accepted as an excellent entry point to reaching the poorest women who have the responsibility of finding domestic water supplies (O'reilly, 2010).

Water is unevenly distributed; almost one-fifth of the world's population lives in regions where water is scarce and one-quarter suffer from severe water shortage (UNDP, 2012). Although the Millennium Development Goals (MDGs) target 7(c) sought to "halve by 2015, the proportion of people without access to safe drinking water and sanitation" (UNDP, 2005; Ademun, 2009), it is anticipated that Sub-Saharan Africa will only reach the MDGs water target by 2040 (Sutton, 2008). But still, some 400 million of the people living in sub Saharan Africa will be left without access to safe water with a majority of them being women and children living in rural households (Sutton, 2008; Nwankwoala, 2011).

Most of the world's 1.2 billion poor people, two thirds of whom are women, live in water scarce countries and do not have access to safe and reliable supplies of water for productive and domestic uses (IFAD 2001). The bulk of these rural poor people are dependent on agriculture for their livelihoods and live in sub-Saharan Africa and South Asia, the regions which are also home to most of the world's water poor (Molden, 2007). One third of the world's population is currently experiencing some kind of physical or economic water scarcity. A growing competition for water from different sectors, including industry, agriculture, power generation, domestic use, and the environment, is making it difficult for poor people to access this scarce resource for productive, consumptive and social uses. In water-scarce regions and countries, inequity in access to water resources is increasing because of competition for limited resources, and this particularly affects poor rural people, especially women (IFAD, 2012).

According to the Water Sanitation and Hygiene Watch (WASHWatch) (2017), In 2015, 69% of the total population in Nigeria had access to "improved water supply". This was 80% of the urban population and 57% of the rural population. Also, around 58 million people lacked access to "improved" water. As for sanitation, only 29% of the total population had access to "improved" sanitation. This was 33% of the urban population and 25% of the rural population. Approximately 130 million people still lacked access to "improved" sanitation. Reported progress in Nigeria towards the target on sustainable access to safe drinking water shows that in 1990, 2000 and 2011, the proportion of Nigeria's population with improved sources of drinking water was 47, 55, and 61 % respectively. Pipe borne water is prominent in urban areas while surface water is a common feature in the rural areas. In addition, urban areas have access to improved water sources than rural areas. On a national scale, as at 2011 more than half of Nigerians rely on other improved sources of drinking water such as protected dug wells and springs, tube wells or boreholes, rainwater collection, and public taps or standpipes. Altogether an estimated 26% of the 2011 population of Nigeria gained access to improved drinking water sources since 1995 (WHO and UNICEF, 2013).

It is often women and children who bear the burden of fetching water to meet the increasing water demand in the households and are therefore deprived of time which could be used for income-generating or other activities. There is therefore gender disparity in household water provision (Arseniuk, 2010), especially in the rural and semi urban areas of Nigeria. Water collection is part of a gender division of labour reflecting gender inequality within households. Women spend several times longer than men in fetching water. A 2002 UNICEF study of rural household in 23 Sub-Saharan African countries found that a quarter of them spent 30 minutes to an hour each day collecting and carrying water, and 19% spent an hour or more (UNDP, 2006).

Gender refers to the different roles, rights and responsibilities of men and women and the relations between them. Gender does not simply refer to women or men, but to the way their qualities, behaviours and identities are determined through the process of socialization (Gbadegesin and Olorunfemi, 2007). Gender is generally associated with unequal power and access to choices and resources. The different positions of women and men are influenced by historical, religious, economic and cultural realities. These relations and responsibilities can and do change over time. It has become increasingly accepted that women should play an important role in water management and that this role could be enhanced through the strategy of gender mainstreaming (World Bank, 2012). The importance of involving both women and men in the management of water and access-related questions has been recognized at the global level, starting from the 1977 United Nations Water Conference at Mar del Plata, the International Drinking Water and Sanitation Decade (1981-90) and the International Conference on Water and the Environment in Dublin (January 1992), which explicitly recognizes the central role of women in the provision, management and safeguarding of water. Reference is also made to the involvement of women in water management in Agenda 21. Moreover, the resolution establishing the International Decade for Action, 'Water for Life' (2005-2015), calls for women's participation and involvement in water-related development efforts.

The differences and inequalities between women and men influence how individuals respond to changes in water resources management. Understanding gender roles, relations, and inequalities can help explain the choices people make and their different options. Involving both women and men in integrated water resources initiatives can increase project effectiveness and efficiency (WCED, 1987).

Terrorism and has added a new twist to the water crisis. There have been cases of kidnaps and abduction of women and children in places that has been under the attack of terrorists, especially the northeastern parts of Nigeria, with Borno, Yobe and Adamawa states being the worst hit. These kidnaps have left many of the communities where they were perpetrated unhappy and in fear. Women and children are afraid of trekking long distance in search of water due to incidence of abduction, kidnapping and rape. This has made them to sometimes resort to the use of water with poor quality. In addition, money meant for other economic activities are used for the purchase of water.

Effort by the government through the provision of hand-operated boreholes in Gwagwalada Area Council has yielded little or no water during the dry seasons and these boreholes are prone to frequent breakdowns. The result has been constant water crisis and shortages in different parts of the area council. It is in line with this that this study sought to assess the impact of household water supply on the total wellbeing of women and girls in Gwagwalada Area Council, especially as they are the ones who bear the burden of providing water for the entire household. It also seeks to create awareness and the understanding of these impacts among the general public. This study also examines the role of the government at the local level and other organisations in providing water for the people of the study area.

The aim of this research is to assess the impact of household water supply on women and girls in Gwagwalada Area Council, who are disadvantaged in their roles and responsibilities of providing domestic water supply to their households; and also to enhance gender equality in water service provision

## **Material and Methods**

### ***Study Area***

Gwagwalada area council is geographically located between latitude 8°55' and 9°25' and between longitude 6°55' and 7°15'. It is bounded to the north by Suleja Local Government Area of Niger state, it is bounded by Abuja Municipal Area Council to the North East, Kwali Area Council to the South and Abaji Area Council to the West. The biggest settlements in Gwagwalada Area Council are Gwagwalada town and Zuba. The location of Gwagwalada town is central in the Federal Capital Territory (Balogun, 2001).

The climate of Gwagwalada area council is the hot, humid tropical type. The highest temperature (between 34.7°C and 35.1°C) occurs in the dry season between January and April and the lowest temperature (between 22.8°C and 23.3°C) is experienced in August. The rainfall is moderate with annual total ranging approximately between 1,100mm and 1,650mm. Gwagwalada is drained by River Usuma, a tributary of River Gurara which provides the bulk of water used in the FCT. Hand dug wells and boreholes are found in most communities around Gwagwalada area council but during the dry season when the water table becomes lower, some of these wells and boreholes dry up (Balogun, 2001). The population of Gwagwalada area council as at 2006 was 157,770 (NPC, 2006), with the projected population for 2016 being 373,499. The indigenous people of Gwagwalada area council are the Gwari, Gwandara, Koro and Basa people, although there are others such as the Igbos, Yoruba, Tiv and Hausa who are settlers from other parts of the country. The indigenes are mostly farmers, who engage in crop production for their livelihood. Some of them, especially the women, engage in trading of their farm produce along the road. Farming takes place mostly during the rainy season and crops such as millet, maize, rice, yam, potatoes, garden egg, cocoyam and vegetables are cultivated (Mundi, 2000).

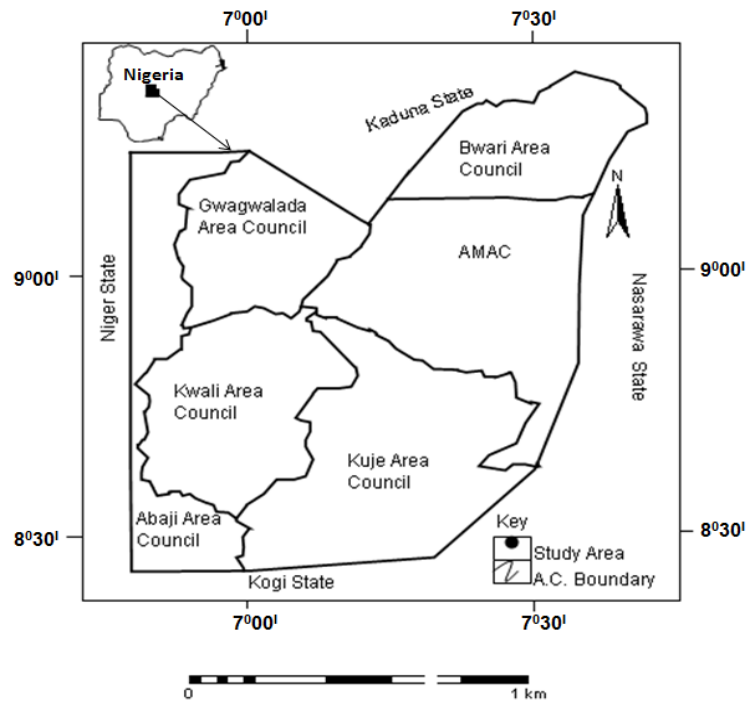


Figure 1: Map of the Federal Capital Territory showing the Area Councils

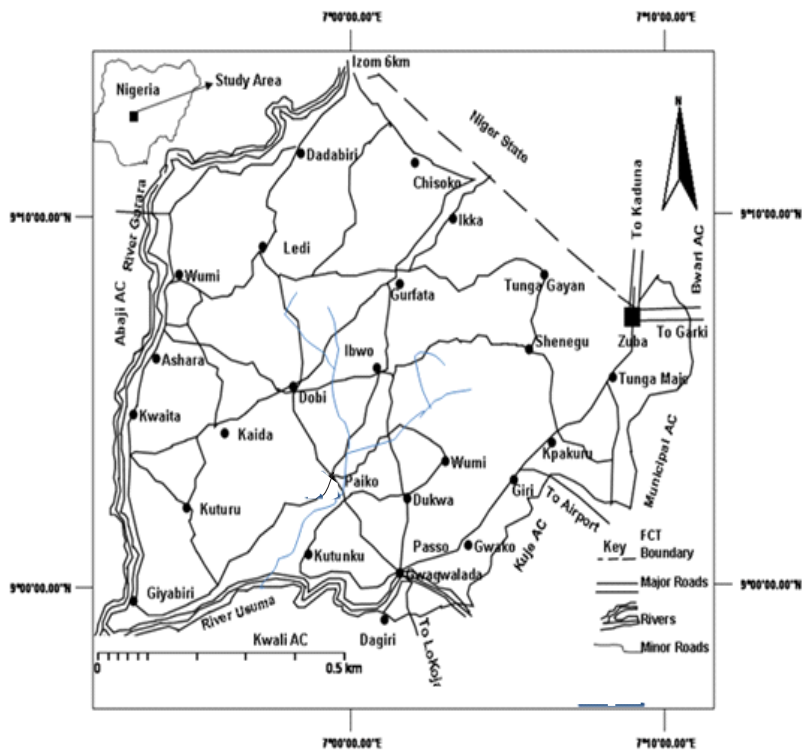


Figure 2: Map of Gwagwalada Area Council showing the Study Sites

### **Data Collection and Analysis**

The study drew a sample size from the 2016 projected population figures of Gwagwalada area council. The sample size was determined using the formula for sample size determination as given by Yamane (1967).

$$n = \frac{N}{1 + N(e)^2}$$

Where: n is the sample size, N is the population size, and e is the level of precision.

Using the formula above, a sample size of approximately 400 was derived for the area council. The data for this study was derived through the administration of questionnaires, interviews as well as personal observation. Four hundred questionnaires were administered to the respondents on fundamental household water supply issues such as household water consumption and requirements among others. This helped the researcher to understand the socio-economic and gender relations in the households. The questionnaire was designed to address the key aspects in relation to water use and demand in the household like access, quantity, time, distance, cost, and reliability. These were used to analyse the extent to which the current domestic water supply affects women in the study area. The data collection activities followed directly from the objective of the study. Forty respondents were randomly selected from each of the ten wards in Gwagwalada area council. The administration of questionnaire was done by trained research assistants and effective supervision was done during the administration and collation. Data analysis involved the use of descriptive statistics. Simple frequencies and percentages generated from the analysis were presented in tables and figures to discuss data and information on various issues addressed by the study objectives.

## **Results and Discussions**

### **Socio- Economic Characteristics of Respondents**

#### *Sex of Respondents*

A questionnaire was administered to a total of 200 respondents in the study area. Some of these respondents were also interviewed. About 44.5% of the respondents were male while the remaining were females. There is a deliberate attempt to represent the sexes almost equally because of the universality of water and the higher influence of women in decisions relating to fetching and using water. Often in the developing world, particularly in both its rural and traditional urban settings, decisions about household water use fall directly on women who are expected to simply get water by whichever means while the male goes to farm or for other economic activities for household livelihood ((Gbadegehin and Olorunfemi, 2007; World Bank, 2012; WASH, 2015). The result is shown in Table 1.

#### *Marital Status*

There are three marital characteristics among the respondents in the sample communities. These are the singles, the married and the others. About 21.5% of all respondents were single while about 77.5% were married. The remaining 1% was among others including the widows and divorced or the separated. More often, the quantity of water used is related to the household size, hence the married households, especially with more number of children, are likely to be high consumers of water. The interest of this group is therefore not surprising. It must be noted that household water fetching exerts a lot of pressure on large households in the rural areas where almost all adult members are expected to partake in the production process.

#### *Age of Respondents*

More than three quarters of those interviewed were above 20 years of age. The results consistently showed that the highest proportion of the total number of respondents falls between the ages of 26-45 years. This result is not surprising considering the fact that these age cohorts are the most active when it comes to fetching water. On the other hand, the decision to fetch and use water in the household, in most cases, rests squarely on this age group. The result is similar to that obtained by Ogunbode and Ifabiyi (2014) in a related study in Osun state, Nigeria. The

major implication of this result is that since substantial amount of time is spent in fetching water, it then means that there is substantial human hour loss because this age group is the most active working group. This age group also utilizes more water than other age groups. It should be noted that most rural and growing urban informal income generating activities are labour intensive. Therefore, the productivity of labour is drastically reduced in the course of fetching water, and low productivity deepens poverty.

#### *Education of respondents*

With Gwagwalada Area Council being a growing urban area, their educational level is quite moderate. The results obtained from this analysis, therefore, is not much different from what is expected. The highest education attainment of about 41% of the respondents is secondary school. About 20.5% have tertiary education as their highest educational qualification. This could be due to the fact that the University of Abuja and the Zuba College of Education are located in the study area. The remaining 38.5% of the respondents have either Primary, Adult or Koranic Education, with those having Primary Education constituting 25.5% of the respondent. Gbadegesin and Olorunfemi, (2007) opined that literacy level has some implications on quantity and quality characteristics of water used by households as well as the management of the existing water sources.

#### *Occupation and Income of Respondents*

The distribution of respondents among the various occupation groups in the communities studied shows that there were more traders (35%) than any other group. Civil servants account for 22.5% of the respondents. 20% were farmers and accounted for the third largest occupation in the study area. The results also shows that one quarter (25%) of the total number of respondents earns 20,000-30,000 naira monthly. This is followed by those who earn 30,000-40,000 naira and 40,000-50,000 naira monthly. The income can therefore be said to be moderate. From the results, the farmers earn the least amount of money followed by the traders. These values may however not be a true representation of the entire population because only a very small fraction of the population was sampled. Their earnings determines how much they are willing to spend on water. Also, it is a known fact that people do not like revealing what they earn. They either over exaggerate or under exaggerate them. Income earnings have implication for willingness to pay for provision of water supply in the communities. It also affects people's willingness to contribute to the management of the existing water supply infrastructure especially boreholes, which is the major source of water throughout the study area. According to the World Bank (1993), there are three sets of characteristics that jointly influence a household's willingness to use, or to pay for, an improved water supply: The socioeconomic and demographic characteristics of the household, including education of family members; occupation; size and composition of family; and measures of income, expenditures, and assets. Hence income play a significant role in determining how much one is willing to pay for water, the higher the income, the higher the amount one is willing to pay.

#### *Household Size*

Most households in Nigeria, especially in the rural and growing urban areas, are large. This is because of the kinship structure and the extended family system practiced in Nigeria and in most African countries. It is not surprising therefore that an overwhelming majority (70%) of the total number of the respondents have 8 to 11 members in their households. The result is similar to the one obtained by Keshavarzi *et al.*, (2006) and Ayanshola *et al.*, (2010) Household size has implication for quantity of water consumed in the household. Considering the existing low level of water provision in the study area, it then means that less water is available per person in the household. It also means that households would fetch water more frequently and from a variety of sources with varying quantities. According to Akintola *et al.* (1980), many rural inhabitants have no choice but to make use of whatever sources of water that is available no matter the quality.

**Table 1: Socio-economic Characteristics of Respondents According to Ward**

Socio-economic data/Location	Ibwa	Paiko	Dobi	Ikwa	Zuba	Tungan-maje	Central	Kutunku	Quarters	Gwako	Total	%
Male	16	18	16	20	16	24	14	18	20	16	178	44.5
Female	24	22	24	20	24	16	26	22	20	24	222	55.5
Total	40	40	40	40	40	40	40	40	40	40	400	100
<b>Marital Status</b>												
Single	12	10	14	4	8	14	4	6	6	8	86	21.5
Married	28	30	24	36	32	24	36	34	34	32	310	77.5
Others	-	-	2	-	-	2	-	-	-	-	4	1
Total	40	40	40	40	40	40	40	40	40	40	400	100
<b>Age</b>												
15-25	12	6	8	-	4	8	4	2	4	6	54	13.5
26-35	8	16	12	12	16	24	4	18	12	16	138	34.5
36-45	16	16	14	20	18	8	26	16	20	14	168	42
46-55	4	2	4	8	2	-	4	2	4	2	32	8
55-65	-	-	2	-	-	-	2	2	-	2	08	2
Above 65	-	-	-	-	-	-	-	-	-	-	00	0
Total	40	40	40	40	40	40	40	40	40	40	400	100
<b>Education</b>												
Koranic education	4	4	2	2	-	4	4	-	-	4	24	6
Adult education	8	4	4	2	2	4	4	-	-	-	28	7
Primary	12	20	8	12	10	14	12	6	2	6	102	25.5
Secondary	12	10	26	20	22	18	16	16	08	16	164	41
Tertiary	4	2	-	4	6	-	4	18	30	14	82	20.5
Total	40	40	40	40	40	40	40	40	40	40	400	100
<b>Occupation</b>												
Farming	10	14	14	6	4	12	4	8	2	6	80	20
Fishing	-	2	-	-	-	-	-	-	-	2	04	1
Trading	18	16	14	18	20	10	12	14	8	10	140	35
Artisan/Craft	4	-	6	4	8	4	8	2	8	10	54	13.5
Civil service	4	6	2	6	8	8	12	12	20	12	90	22.5
Others	4	2	4	6	-	6	4	4	2	-	32	8
Total	40	40	40	40	40	40	40	40	40	40	400	100



<b>Monthly income (₦)</b>												
Less than 10,000	2	4	-	2	-	2	2	2	-	4	18	4.5
10,000-20,000	10	6	8	2	2	10	2	6	4	6	56	14
20,000-30,000	8	6	6	10	14	4	12	12	20	8	100	25
30,000-40,000	8	12	14	12	10	8	8	12	6	4	94	23.5
40,000-50,000	4	8	6	8	10	8	12	8	10	12	86	21.5
Above 60,000	8	6	6	6	4	8	4	-	-	4	46	11.5
<b>Total</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>400</b>	<b>100</b>
<b>Average number of people in household</b>												
Adults	3	5	3	3	4	4	3	3	2	3		
Children	3	6	4	5	4	4	6	5	3	5		
<b>Total</b>	<b>6</b>	<b>11</b>	<b>7</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>9</b>	<b>8</b>	<b>5</b>	<b>8</b>		

**Table 2:Water Sources, Accessibility, Use and Demand**

Location	lbwa	Paiko	Dobi	lkwa	Zuba	Tungan- maje	Central	Kutunku	Quarters	Gwako	Total	%
<b>Sources of water</b>												
River/stream	8	22	8	6	4	6	-	18	-	16	88	
Rain water	14	24	22	20	16	22	20	18	14	26	98	
Hand dug wells	12	10	16	10	14	12	14	12	10	16	126	
Bore hole	28	30	18	22	16	10	14	20	22	18	198	
Pipe borne	-	-	4	8	12	4	10	2	12	12	64	
Water vendor	8	12	10	16	20	10	20	8	24	18	146	
<b>Distance from water Source</b>												
Within household	8	4	4	4	-	2	6	2	6	-	36	9
Less than 1km	14	16	12	20	26	14	30	20	32	6	190	47.5
1-2km	18	16	20	12	14	16	4	16	2	14	132	33
2-4km	-	4	2	4	-	6	-	2	-	18	36	9
More than 4km	-	-	2	-	-	2	-	-	-	2	06	1.5
Total	40	40	40	40	40	40	40	40	40	40	400	100
<b>Persons responsible for fetching water</b>												
Men	2	4	-	-	2	-	6	-	4	-	18	4.5
Women	10	8	10	6	8	4	6	12	10	14	88	22
Children	8	6	10	4	8	2	6	10	8	10	72	18
Women & children	18	22	16	30	18	32	18	18	16	16	204	51
Others	2	-	4	-	4	2	4	-	2	-	18	4.5
Total	40	40	40	40	40	40	40	40	40	40	400	100
<b>Do you pay for water?</b>												
Yes	24	14	22	26	34	28	32	22	36	26	264	66
No	16	26	18	14	6	12	8	18	4	14	136	34
Total	40	40	40	40	40	40	40	40	40	40	400	100
<b>Average amount Spent on water per day</b>												
Less than 100 naira	2	4	2	-	-	2	-	4	-	-	14	3.5
100-300 naira	32	32	36	32	24	32	26	30	26	28	298	74.5
300-600 naira	6	4	2	6	10	4	8	4	6	8	58	14.5
600-1000 naira	-	-	-	2	6	2	6	2	8	4	30	7.5

Total	40	40	40	40	40	40	40	40	40	40	400	100
<b>Average time spent to get water</b>												
Less than 1hr	8	4	4	4	-	2	6	2	6	-	36	9
1-2hrs	18	22	22	26	30	20	32	24	28	8	230	57.5
2-3hrs	14	14	14	10	10	16	2	12	6	28	126	32.5
Above 3hrs	-	-	-	-	-	2	-	2	-	4	08	2
Total	40	40	40	40	40	40	40	40	40	40	400	100
<b>Average quantity of water used per day</b>												
Less than 100 litres	2	-	-	-	-	-	-	-	-	2	04	1
100-200 litres	30	28	26	20	16	24	22	22	28	28	244	61
Above 200 litres	8	12	14	20	24	16	18	18	12	10	152	38
Total	40	40	40	40	40	40	40	40	40	40	400	100
<b>Average quantity of water required per day</b>												
Less than 100 litres	-	-	-	-	-	-	-	-	-	-	--	0
100-200 litres	12	18	16	10	8	6	4	8	6	4	92	23
200-300 litres	24	18	12	10	10	22	20	20	24	26	186	46.5
Above 300- litres	4	4	12	20	22	12	16	12	10	10	122	30.5
Total	40	40	40	40	40	40	40	40	40	40	400	100
<b>Effects of sourcing for water</b>												
Insufficient water	22	18	20	12	26	22	32	20	18	18	208	52
Lateness to school	26	16	18	24	20	16	14	14	18	10	176	44
Absenteeism	12	10	16	12	4	14	2	10	-	4	84	21
Poor health	8	20	26	32	18	22	14	20	22	12	194	48.5
Cranial depression	4	-	2	2	-	2	-	2	-	2	14	0.35
Stunted growth	4	2	2	2	-	-	-	-	-	2	12	3
Poor sanitation	14	18	20	28	16	20	12	16	10	16	168	42
Use of poor alternative sources	16	12	20	4	6	10	4	4	10	14	100	25
Lack/less attention for other activities	28	26	20	20	12	12	10	4	14	2	148	37
Abduction and kidnapping	14	8	10	6	12	8	2	6	4	10	80	20
Rape	1	2	-	1	1	2	-	2	-	1	10	2.5

### ***Water Sources, Accessibility, Use and Demand by Respondents***

This section discusses water sources, uses, its availability and accessibility, supply and demand as well as the problems confronted by households in obtaining water for domestic uses. Critical problems confronting household in obtaining water for domestic uses including time and distance are discussed with specific reference to their variations in the study areas.

#### *Sources of Water*

Gwagwalada area council is endowed with several sources of water. The sources vary from natural sources like rivers, streams, rainwater, and human made sources like wells, boreholes and in few cases, pipe borne water. The residents, by force of circumstances, depend on many sources of water supply because no one source is capable of supplying all the water needs throughout the year. Most of the respondents in each of the wards depend on water from bore holes as the source of water they used most frequently, while some especially those located close to rivers and streams like Gwako and Paiko depend more on them for their water supply. Rainwater is not frequently used because of its seasonal occurrence. Pipe borne water is only available in some parts of Gwagwalada area council, and in the places where they are available, the supply is usually periodic and the quantity supplied are not usually sufficient. Few of the residents also depend on water vendors popularly called *Mairuwa* for their water.

#### *Distance of Respondents' Residence from Water Sources*

One of the reasons why a great deal of time and energy is spent fetching water in many rural and growing urban areas is because many of the sources are of considerable distance from the settlements especially during the dry season. Though the distance from the source of water supply to majority (47.5%) of the respondents is less than 1 kilometer, about 51% the total number of respondents could not estimate the distance to the main source of water they use. About 1.5% of the respondents claimed that the distance to main water source is more than 4km. This response is highest among respondents in Gwako ward. The result is not surprising considering for example, the fact that Giri (a settlement in Gwako ward), is a linear settlement and depends mostly on river, especially during the dry season, which is located far away from their residents.

#### *Time Spent in Fetching Water*

A great deal of time and energy is spent fetching water in many parts of Nigeria. The result obtained from this study reveals that there is variation in time spent fetching water among the communities sampled. While, on the whole, 57.5% of the total number of respondents spends one to two hours fetching water daily, 32.5% of the respondents spend two to three hours daily in fetching water. The length of time spent in fetching water also varies from season to season. It is usually highest during the dry season as some of the wells and boreholes dry up, and the volume of water in the rivers and streams reduce considerably. Women and children therefore trek for longer distance during the dry season in search of water. This does not only reduce the man hours used for other activities, it also affects the children's schooling as some may go late to school and in some cases, they may not go at all. It also exposes them to dangers of abduction, kidnapping and rape, especially in this period of insecurity in the country. It is not surprising then that similar to other studies (Akintola *et al*, 1980; Gbadegesin and Olorunfemi, 2007), the considerations of obtaining water of improved quality are only secondary to those of reducing the time and energy expended in fetching water. The time spent and distance travelled to source for water are two important factors that determine man-hour/School hour lost. These factors also have adverse effects on the health of the individuals.

#### *Household Members Involved in Fetching Water*

On the aggregate, women and children form the major groups involved in fetching water throughout the study area (51%). This shows that water fetching is the primary responsibility of women and the children. The proportion of men fetching water in the study area is generally low (4.5%). In a typical African community, there is a near strict division of labour in households in relation to water fetching, cooking and farming activities. The first two are almost exclusively reserved for women while the last is for men. This has implication for planning for water supply. A

meaningful water supply strategy in the rural areas must therefore involve more women than men because these are the group that is more conversant with the existing water problems and coping strategies in their communities.

#### *Payment for Water*

Most of the respondents, especially the ones who cannot source for water from rivers and streams, affirmed that they pay for water (66%). While some of the respondents buy water from water vendors, some pay directly to the borehole operators. Most of the respondents (74.5%) spend 100-300 naira daily to purchase water. About 14.5% spend 300-600 naira daily while 7.5% percentage spends over 600 naira daily on water. The amount of money spent on water by the respondents is better appreciated when estimated on monthly basis.

#### *Quantity of Water Used and Required per Day*

According to the WHO (2004), the average water use for drinking, cooking and personal hygiene in any household is at least 1.5 litres per person per day. More than half of the respondents sampled (61%) use 100-200 litres of water per day for an entire household, with the average household size being eight (8). About 38% uses more than 200 litres per day. The quantity of water used, among other factors, is largely dependent on the amount of water that is available to the users. In comparison to the amount of water required per day, most of the respondents (46.5%) require 200-300 litres of water. About 30.5% of the respondents indicated that they require over 300 litres of water per day. To obtain the required quantity of water therefore, the respondents may need to spend more time or money, especially during the dry season. Water demand for domestic use in Gwagwalada area council is therefore higher than the supply.

#### *Sourcing for water and its Impacts on Women and Children*

The collective positioning of women as subordinate and dependent vis-à-vis men determines and shapes women's vulnerabilities in so many situations. Women and men's divergent social positions has led to differences in water responsibilities, rights, and access, therefore women, together with the children (especially the female children), are disproportionately burdened by scarcity of clean drinking water. Women are seen as the collectors, managers, and guardians of water, especially within the domestic sphere that includes household chores, cooking, washing, and child rearing. Because of these traditional gender labor roles, women are forced to spend long hours each day collecting water. Sourcing and providing water for the entire household has some effects on the women and the children. About 52% of the respondents affirmed that due to water scarcity and the difficulties associated with sourcing for it, there is insufficient water for their use.

In addition, the issue of water scarcity causes children's lateness to school and in some cases, prevents many young children, especially girls, from attending school and receiving an education, since they had to carry water for long hours each day over long distances. About 44% and 21% of the respondent complained of lateness to school and absenteeism respectively. This is because they are expected to not only aid their mothers in water retrieval, but to also help with the demands of household chores that are made more time-intensive because of a lack of readily available water.

Carrying water for long hours each day over long distances also has health consequences which may include cranial depression, stunted growth, permanent skeletal damage, it may also translate to increased physical strain that contributes to increased stress and increased time spent in health recovery. Collectively, over 50% of the respondents agreed that they have had different health challenges as a result of carrying water over long distances.

As a result of the distance trekked to obtain relatively clean water, some people resort to using other alternative sources of water which may be readily available but poor in quality. 25% of the respondents attested to this. Such polluted water can contribute to the spread of waterborne diseases including typhoid fever, cholera, dysentery and diarrhea, and to the spread of diseases such as malaria whose vectors rely on such water resources. About 42% of the respondents agreed that a lack of clean water lead to poor sanitary conditions. This could result to the absence of sanitary facilities and latrines in schools, and so once puberty hits, this has a more serious impact on female children. Also in the course of searching for water, women and girls are also exposed to incidences of rape

and abduction. Over 22% of the respondents agreed with this. These has adverse effects on their health and safety.

**Governments Effort in the Provision of Potable Water in Gwagwalada Area Council**

There are institutional arrangements in Nigeria that ‘put’ the responsibility for water supply on the three tiers of government namely, local, state and federal tiers of government. However, the failure of this arrangement, with resultant acute shortage in water supply has led to the growth of private operatives in the supply of water to communities.

In this study, an overwhelming majority (87.5%) of the respondents believe that water provision is the responsibility of the government. The rest believed that communities, organizations and individuals can also carry the responsibility of water provision as shown in Table 3. This response is similar to that obtained by Gbadegesin and Olorunfemi (2007) in a related study. However, these responses are different from what exists in reality. Most of the boreholes which are in different parts of Gwagwalada area council are owned by individuals who sell the water to make money.

**Table 3: Respondents’ Perception of who should Provide Water in the Community**

Location	A	B	C	D	E	F	G	H	I	J	Total	%
Government	18	19	20	17	15	18	16	19	15	18	175	87.5
Community	1	-	-	1	1	-	2	-	1	1	07	3.5
Public/private	1	1	-	2	4	2	2	1	4	1	18	9
Total	20	20	20	20	20	20	20	20	20	20	200	100

Note: A = Ibwa, B = Paiko, C = Dobi, D = Ikwa, E = Zuba, F = Tungan-maje, G = Central, H = Kutunku, I = Quarters, J = Gwako

The Federal Capital Territory Water Board is the sole agency charged with the responsibility of producing and supplying potable water in the FCT. The FCT Water Board in its distribution network has eight storage tanks located in different parts of the city and several trunk lines criss crossing the city. In order to meet the water need of the people of Gwagwalada Area Council, the Ministry of Federal Capital Territory, as at 1992, had constructed about five water works in the territory with one of them being in Gwagwalada and the rest in Usuma, Kubwa, Airport and Giri. Gwagwalada water supply is from a two- package treatment plant with the capacity of 200m<sup>2</sup>/hour and 100m<sup>3</sup>/hour (FCT Water Board, 2004). The Federal Government, through the Federal Capital Development Authority (FCDA) has also carried out programmes which were aimed at increasing water supply in the FCT such as the construction of the Usama dam and the subsequent establishment of the Gwagwalada water treatment plant, the establishment of the FCT Water Board and the inter-basin water transfer project (FCT Water Board, 2004). Despite the volume of water treated and supplied to Gwagwalada, the demand for water is still on the increase due to population increase (Makwe, 2013).

**Conclusion and Recommendation**

Given the enormity of the water supply problem and the difficulties experienced by women and children in sourcing for water, especially in the rural areas of Gwagwakada area council, it is obvious that the existing water supply is incapable of meeting the current water demand. Hence there is need for the government, organizations and individuals to increase the water supply in the area. There is also the need to reduce the gender gap through Gender mainstreaming, which is the process of assessing the implications for women and men of any planned

action, including legislation, policies or programmes, in all areas and at all levels. This will go a long way in reducing the gender inequality that exists in household water provision. The construction and improvement in water supply schemes close to the communities will reduce the burden of fetching water by women and girls. Women will have more free time for income generating activities to augment the family income and the girls will have more time to attend to their education.

Rain water is a major source of water in all the rural communities studied. But the technology for storing and preserving the water is still very poor. There is the need to design appropriate water storage devices for use in the rural areas in order to make water available for the people throughout the year.

Government at all levels should therefore ensure continuity of people-oriented public policies especially in a critical sector like the water supply sector. In addition, Local Government Authorities should be empowered to provide mini-water schemes in their areas of jurisdiction while two or three local governments could also collaborate to provide large water schemes.

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