

## Management of Domestic Water by Women in Parts of Kano State, Nigeria

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### ABSTRACT

*The study examined the role of women in water management with a view to ascertaining their relevance in decision making that pertains the use and management of water at the household level. To achieve this, the various sources of water supply in the area were identified, the decision making roles of women related to water use in the study areas were analysed. The per capita household water use, the possible problems of water supply and means of sustainable water supply and its management in the study area were also analysed. For the selection of the study areas, stratified random sampling was used to select from the four cardinal directions and to samples for the study, purposive sampling where a total of 300 samples were drawn from the study areas in the following proportion Janguza:30, Lambu:25, Zara:20, Goda:20, AllTini:25, Naira:25, TsamiyarBoka:40, HotoroMasallachi:40, Rijiyar Lemu:30, Kurnar Asabe:40. The findings from this study suggest the main source of water for majority is boreholes 29.7%, well water 21% tap water 20.3% and streams 8.7%. And these sources could be private or public. It was found that women are the chief users of water and water is used for cooking, washing cleaning and drinking. The decision related to availability of water in the homes is the husband's duty. The per capita water consumption varies with household size where the chi square computed for household water consumption shows significant difference in water consumption across the settlements since the asymptotic chi square value of .000 is significant at .05% level. Related to this is that there is a direct relationship between household size and daily water use in the area. The study also discovered that Women use both traditional and modern means to store water for use. Women use pots, plastics containers jerry cans and etc. It was also revealed that the scarcity of water in the study areas varied with seasons as a result of which money is expended on the purchase of water.*

Keywords: Water management, domestic water, household, women

### INTRODUCTION

Water is essential for all forms of life and crucial for human development. Water systems, coastal zones, surface waters and aquifers provide a vast majority of environmental goods and services, including drinking water transport and food. As the world population has tripled over the last century the use of renewable water resources has grown six fold. Water sustaining role in the ecosystems remains undervalued despite the fact that minimum flows in water bodies are needed to support environmental health and increasing human demands. Faced with shortages and a grim future if current trends persist, there is a growing understanding that sustainable water management becomes inevitable. Thus water deprivation becomes a major concern in both the quality and quantity. According to the United Nation's FAO, over the 230 million people live in 26 countries classified as water deficient, of which 11 are in Africa. It is expected that by the year 2025, almost two thirds of the world's population are likely to experience some type of water stress, and for 1 billion of them, the shortage will be severe and socially disruptive. Water scarcity hits the poor and the most vulnerable first and hardest who are mostly women and children. The role of women in management therefore cannot be over emphasized.

## **Women's Reproductive Roles and Access to Water**

Reproductive roles can be defined from the perspective of biological and social reproduction. The term reproductive is used here in the sense of social rather than biological reproduction. It refers to all of the services provided by women to ensure the healthy maintenance of their families, including cooking, cleaning, and child care (Moser, 1993) As far as domestic water supply in most rural areas of Africa is concerned, an average household in developing countries consumes about 40-60 L of water daily for drinking, cooking, cleaning, personal hygiene, etc. Meeting this need usually entails several trips for women and children to water-collection points, sometimes involving several hours. In some mountainous regions of East Africa, women spend up to 27% of their caloric intake in fetching water. Many traditional rural water sources have become contaminated as a result of human and animal waste and agricultural runoff. Especially during the dry season, rural households often collect their water from contaminated sources.

Sustainability of water and sanitation systems is often problematic in the absence of year-round use of the systems. In some cases, to save time, women will use closer sources of water, even if the water quality is not optimal. In other cases, the financial contributions needed to maintain the system may become too burdensome for communities after donor support has ended, and systems may remain in disrepair for long periods. Lack of local expertise to repair and maintain systems also continues to be a problem, as does unavailability of spare parts.

## **Sources of Domestic Water in Northern Nigeria**

Both urban and rural areas in Nigeria are endowed with several sources of water. The sources vary from natural sources like rivers, ponds, streams, rain water, and human made sources like well, boreholes, and pipe borne water (Niyi and Felix, 2007).

In Nigeria, many water projects have been embarked upon by previous governments and it gave rise to the provision of so many dams. Almost 150 dams consisting of large ones with height of above 15 metres and small to medium ones have been constructed or are under construction (Oyebande, 1981:201-225).

The large scale dam projects are concentrated in the Northern and Central areas for perennial storage of wet season runoff to be released later for dry season irrigation and other uses. Lake Chad provides natural storage but it is a shallow lake with depth of 1.5-5 metres and its surface area is very sensitive to change in the level resulting from the basin's water balance.

In addition to dams constructed that provide domestic water, ground water and surface water play a vital role in sourcing safe water. Ground water simply means underground water, which is the water that seeps down through layers of the ground/soil and reaches to the water table or in other words it's the highest point. Surface water refer to the water we see on the surface like rivers, streams, and others. Surface waters can sometimes drain and add to the amount of ground water. Man invented ways of accessing the ground water or natural reservoir to make domestic water available for example through Wells and Boreholes both manual and machine enhanced which involves processes of drilling/digging.

## **Women and Water Management**

Women are the primary water users due to the fact that they are known to play a substantial role in food production, although it varies regionally and from country to

country. In Africa, women produce over 70% of the food which makes them the managers in agricultural and industrial sectors (UNDP,2006).

The roles and responsibilities, and access to resources are highly differentiated both in men and women and amongst the women themselves. In terms of patterns of managing water, two kinds of tasks for women may be analysed; first is the creation and maintenance of water sources and second is their participation in the decision making processes governing the water resources.

Women’s most important role in water management in the traditional context is seen as responsibilities of gender-specific tasks of procuring, managing and using water for domestic purposes. Their chief concern lies with the water used for five basic domestic purposes namely drinking and cooking, washing and cleaning, bathing, sacred and therapeutic usage.

Social arrangements, age and generation are some of the factors known to show differentiation in the role of women in water management. Social arrangement or hierarchy influences women’s role for example the burden of fetching water or providing household water for the family increases as one moves down the hierarchy. Age and generation also contribute in which we can see that older women, who grew up in a different generation had different social standing with a set of rights, privileges and responsibilities that set them apart from that of the younger women. The study examined the role of women in water management in the study area with a view to ascertaining their relevance in decision making as per take resource use and management at the household level.

## MATERIALS AND METHODS

The study was carried out in Kano State which is lies within latitudes 10<sup>0</sup>.30’N and 12<sup>0</sup> 30’N and longitudes 7<sup>0</sup> 30’ to 9<sup>0</sup>25’ E of the Greenwich meridian. It is bordered in the North and East by Katsina and Kaduna States and in the South by Kaduna and Bauchi States. Specifically however, the study was conducted in five out of the forty five local governments in Kano state. The local governments were randomly selected through a process of balloting. The following samples points selected were:

**Table 1. Sample sites**

Sample Points	Location	Sample Size	
		Female	%
Janguza	11 <sup>0</sup> 55’N and 8 <sup>0</sup> 25’ E	35	
Lambu	12 <sup>0</sup> 00’N and 8 <sup>0</sup> 20’E	25	
Zara	11 <sup>0</sup> 50’N and 8 <sup>0</sup> 40’E	20	
Goda	11 <sup>0</sup> 50’N and 8 <sup>0</sup> 42’E	20	
All Tini	11 <sup>0</sup> 55’N and 8 <sup>0</sup> 40’E	25	
Naira	11 <sup>0</sup> 55’N and 8 <sup>0</sup> 45’E	25	
Tsamiyar Boka	12 <sup>0</sup> 00’N and 8 <sup>0</sup> 35’E	40	
Hotoro Masallachi	12 <sup>0</sup> 00 N and 8 <sup>0</sup> 36’E	40	
Rijiyar Lemu	12 <sup>0</sup> 00N and 8 <sup>0</sup> 40’E	30	
Kurnar Asabe	12 <sup>0</sup> 00 N and 8 <sup>0</sup> 35’E	40	

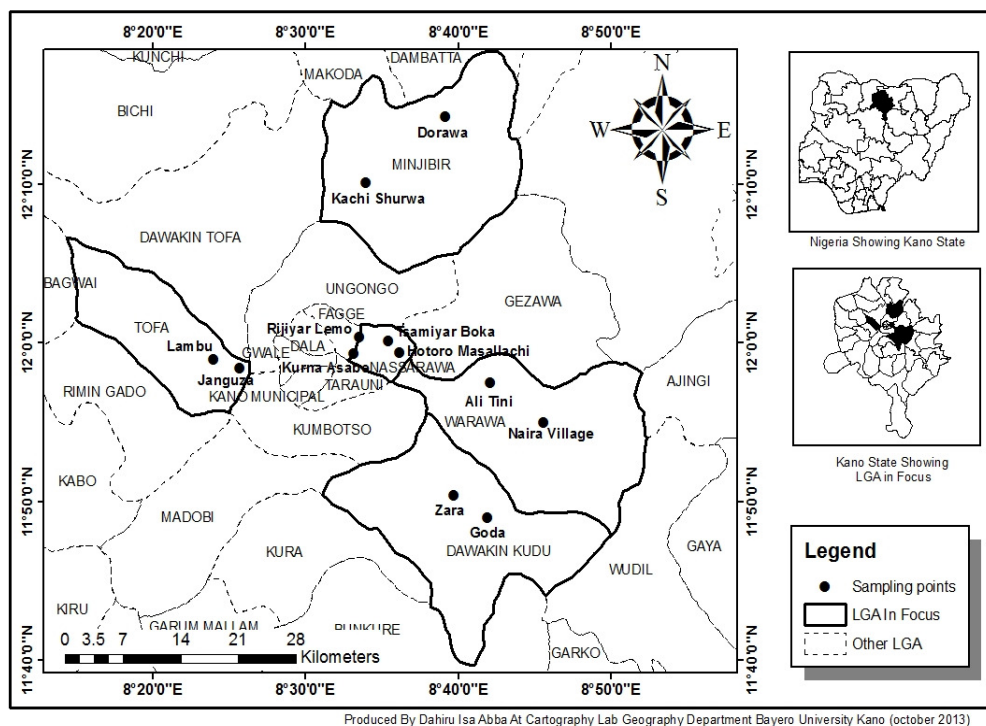


Figure 1. Part of Kano State Sampling Points

**Sources of Data**

Data was gathered from primary and secondary sources. The primary sources were through the administration of questionnaire to samples selected for the study. The questionnaire contained questions on the personal characteristics of the respondents such as the age, marital status, educational level, occupation, size of family, sources of water supply and access for the research were

**RESULTS AND DISCUSSION**

The results of the findings and discussion are presented in the tables and sections below.

This section provides a general overview of the respondents’ background and how it affects water use, collection, allocation and gender relations in rural households in the study area. The key issues identified are; education, occupation, relations in the households, income, household size. These highly determine the water use and demand in the households and the extent to which women get involved in domestic water supply, planning, provision, construction, maintenance and management. An understanding of these issues can help policy makers to see which areas are critical for enhancing women empowerment. Table 1 gives a summary of respondents’ background in both communities.

The summary of the data on the personal characteristics of the respondents showed that majority 46.3% had Qur’anic education 31% had primary education, 27% had secondary education while 16.3% had tertiary education. It was found that those with tertiary education are living close to the metropolitan.

As far as the occupation of the respondents is concerned 58% were into petty trading, 30% handcraft and weaving, 10% were civil servants and 2% were farmers. The respondents are wives with their spouse and children. Table 1 show that 44.5% of the respondents have between 5-8 children. This could be the result of early marriage which is a common practice

among the women in the study environment. The main sources of water are public and private which could be in form of wells and boreholes and tap water, which is usually available in private homes and a time available in public places. Streams and ponds are naturally occurring source of water available for the use of the public in the settlements.

The majority of water users in the study area source their water mainly from tap (20.3%). Borehole (29.7%) well (21 %) and streams (8.7%).Majority of those who source their water from the well and streams did so because they are not served with public tap water in addition to these sources 40% of all the respondents do use sachet water purchased from vendors for drinking. Rain water harvesting is another common source that cuts through all the study settlements.



**Table 2. Sources of Water in the Study environment**

Villages	Sources of Water In The Village								Total	%
	Tap	B/hole	Well	Stream	Tap & Well	B/hole & Well	B/h & Tap			
Janguza	13	3	3	6	0	0	5	30	10	
Lambu	3	15	7	2	0	3	0	30	10	
Zara	0	4	11	0	0	5	0	20	6.7	
Goda	0	0	20	0	0	0	0	20	6.7	
All tini	0	14	3	8	0	0	0	25	8.3	
Naira	0	0	0	25	0	0	0	25	8.3	
Tsamiyar Boka	4	23	7	0	2	4	0	40	13.3	
Hotoro Masallachi	8	18	7	0	0	0	7	40	13.3	
Rijiyarlemo	16	3	2	0	2	0	7	30	10	
Kurnar Asabe	14	3	9	0	0	0	14	40	13.3	
Total	58	83	69	41	4	12	33	300	100	

Source: Field work, 2013

The data on the sources of water show that those that are distant from the influence of the metropolitan centres have little or no access to tap water and the scarcity of water is compounded where the relief is underlain by layers of iron concretions in the basement complex region which makes the digging of well not cost effective.



### Methods of Storing Water

The commonest methods of storing water by the respondents in the study area is by means of drums, large containers, surface tanks, underground reservoir, and others such as buckets. (92%) of the respondents store their water using drums/containers, a close range percentage (6%) of the respondents store their water using the surface/reservoir tanks and only (2%) of other methods like jerry cans, buckets, local pots and so on (see plates). The chi square tests of significant difference showed there is a significant difference in methods of storing water by village as shown in table 3.

**Table 3. Chi-Square Tests on the methods of storing water in the study areas**

	<i>Value</i>	<i>df</i>	<i>Asymp. Sig. (2-sided)</i>
Pearson Chi-Square	44.672 <sup>a</sup>	18	.000
Likelihood Ratio	44.925	18	.000
Linear-by-Linear Association	.725	1	.395
N of Valid Cases	300		

a. 20 cells (66.7%) have expected count less than 5. The minimum expected count is .20.

### Decision Making Role on Water Usage and Management

The decision on the use and management of domestic water rests with women where majority 92% said they use water for cooking, washing, bathing, drinking and etc. Thirty six percent (36%) said they try saving water when washing the dishes by using collected water,

another 32% use left over for cooking , 22% use water saving detergents to wash clothes, and only 10% said they bath once or may not bath in a day especially in times of scarcity . The quantity of water used is however a factor of the Household size as shown in tables 4, where those with between five and eight children 11% of them use between over 400litres of water where they have sources in their homes more water than those in other categories

**Table 4. Number of children and quantity of water used in litres**

N/Children	Quantity of Water in Litres					Total	% Total
	Less 100	100-200	201-300	301-400	Over 400		
1-4	37	60	21	13	2	118	39.3
5-8	19	27	29	32	11	133	44.5
9-11	9	4	5	10	0	28	9.3
Over 11	5	0	11	5	0	21	7.0
Total	70	91	66	60	13	300	100

Source: Field work, 2013.

It was found that the average water use in the study area was not evenly distributed as shown in table 5. To confirm this, the chi square tests of significant difference. The decision related to availability and transportation of water in the homes in all the settlements rests on the father (70%), the mother (8.3%) the children (16%) and in some other cases it rests on all the above categories (5.7%). This contradicts the findings of a study of Sara Beth and Scott Youngstedt in the study on the material culture of water in Niamey presented in at the AAG conference in April 2014 despite similar culture and religion with Kano found contrary results where the responsibility of transporting water into the homes is the responsibility of women and children out in the southern part of Nigeria and Niamey.

It also contradicts the findings of a study carried out in the southern part of Nigeria where the responsibility of ensuring availability of water rests first and foremost with women 57% men 45% and their children 3% in the house. where it was found that women and children are the main people responsible of looking for and collecting water in these communities, although men sometimes do help their wives when they are sick and or when the nearest water sources in the village is broken down or not functional. This is because they have to go to the other alternative sources which are in most instances far away from the villages and sometimes quite difficult for the women and children to collect the water.

### Factors of Water Shortage

Most of the settlements sampled experience scarcity of water at one point or the other. Field observation confirmed that the scarcity varies with the nature of the underlying rocks and seasons Kano is underlined by the basement complex and sedimentary rocks. Field study revealed that the presence of iron concretion due to years of weathering has led to a water table far below the surface rock. Some of the respondents associate the scarcity with nature of the rock. The study also revealed that most of the areas under the basement complex are water stressed. Those under the sedimentary /Chad formation have water table close to the surface and as such are less stressed. Thus 30.6% claimed that water shortage in the study area is as a result of low water table which can be attributed to over burden use of water resources attributed to anthropogenic and climatic factors (Olofin 2001). Some respondents

opined that open wells dried up which made them to re-dig deeper wells and others had to switch to other sources of water. Many factors contribute to low water table such as population increase and some blame the community itself which contributes to the problem for example each household having individual borehole and/or well.

For the artificial scarcity of water in the study area, most of the respondents (64.4%) claimed that the government is to be blamed for water shortage for not providing adequate and reliable tap/boreholes across the settlement especially in areas of water deficit by virtue of the nature of the underlying rocks in such places. In addition to the above factor the non-challant attitude of the people towards government's property vis a vis non-payment of water bills and lack of maintenance culture.

### **Tackling Water Shortage in the Study Area**

According to the respondents, if the government and the community should collaborate and come up with ideas, the problem of water shortage might be resolved.

The respondents suggested some possible measures to be taken by the Government and the community to tackle water shortage. About 64.4% of the respondents suggested that the Government and water authorities should provide adequate pipe borne water, a proportion of 11.1% of the respondents think construction of more public boreholes and wells will be a solution to water shortage, and about 24.4% of the respondents believe the community itself should fight for water supply in the area for example reporting pipe leakages, reducing indiscriminate construction of boreholes, involving women in water decision making.

### **Expenditure on Water**

On a daily basis a family of between 5-8 children without a secured source of water spends between #100- #200 to purchase 30 litres of water which falls short of the minimum requirement for a healthy living. To save costs women in addition to various management techniques identified earlier also minimize use of water by reducing the number of times children and other members of the family wash clothes and take bath once in two days or in a week, the use of minimal water for washing vegetables and food items. The health implications of this cannot be overemphasized, as a result of which cholera and diarrhoea is a common illness in the study environment.

### **CONCLUSION**

In conclusion women being the primary users of water should be in a better position to preserve and manage water. Their ability to preserve and manage water well, will translate into ample time for other productive activities which will invariably mean more income and savings for the welfare of the family.

### **RECOMMENDATION**

Based on the findings of the research, the following recommendations have been put forward:

Government and stakeholders should encourage the development of a well-designed project for integrated water supply in the area. This should include construction of more public wells, boreholes such as the new improved solar borehole, and also the provision of clean, safe, and reliable pipe borne water especially in those settlement that have difficulty in accessing the ground water. Government and stakeholders should encourage the development of a well-designed project for integrated water supply in the area.

The people in general need to be more informed on proper water management techniques and maintenance culture necessary to save time spent fetching water in times of scarcity and cost



expended on purchasing water. Broken pipes need to be reported in good times so that repairs can be affected immediately. There is also the need for the people to be more alive to their responsibility by paying water bills regularly.

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