



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 relates the use and management in the household. 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 examined, per capita household water use and management in the area, 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 areas from the four cardinal directions and samples for the study were selected through 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, Hotoro Masallachi: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%. It was found that women are the chief users of water and water is used for domestic uses cooking, washing and drinking. The per capita water consumption varies with household size where the chi square computed for household water shows significant difference in water consumption across the settlements since the asymptotic chi square value of .000 is significant at .05% level. The study also discovered that Women use both traditional and modern means to store water for use, pots, plastics containers (jerry cans) were used to store water. The research established that there is a direct relationship between household size and daily water use in the area. Finally, the study brought out with the help of respondents the sustainable suitable policy options for improved household water management within the peculiar socio-economic and industrial context of the study area.

Keywords: Women, Decision Making, Management, Per capita, Water use, Sustainability



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 sixfold. 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 (UNDP, 2006; Malley *et al*, 2008; UNDESA, 2014).

The importance of involving both women and men in the management of water and sanitation 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 and the Johannesburg Plan of Implementation. 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 (UNDESA, 2014; UNDP, 2006). The rationale for involving both men and women also derive from the fact that the United Nations Department of Social and Economic Affairs (UNDESA, 2014) were of the view that 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 (UNDESA, 2014).

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 (WHO and UNICEF, 2008; Moser, 1993). 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. According to the former secretary on women and water

"Water challenges go beyond questions of access. In many countries, girls are forced to drop out of school owing to a lack of sanitation facilities, and women are harassed or assaulted when carrying water or visiting a public, toilet." *Ban Ki-moon, UN Secretary General* (UNDP, 2006; UNDESA, 2014).

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 UN (Coles, 2005; Carter, 2006; GWA, 2006).

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 (UNDP, 2006; UNDESA, 2014).

Both urban and rural areas in Nigeria are endowed with several sources of water. The sources vary from natural sources like rivers, ponds, streams, springs and rain water. And the artificial sources/ human made sources such as Dams (plate1), well, boreholes (plate 2), and pipe borne water (Oyebande,1977;Mohammed,2004; Field observation).

Given the climatic condition of the study environment (Olofin 1987) , large scale dam projects are usually constructed for perennial storage of wet season runoff to be released later for dry season irrigation and other uses.



Source: <https://www.google.com.ng/search?q=water+manag>

Plate 1 : Dam for water storage

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 both involve processes of drilling/digging.



Adapted from: <https://www.google.com.ng/search?q=water+manag>

Plate 2: Borehole (A rural water supply scheme)

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. 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 in resource use and management at the household level.

MATERIALS AND METHODS

The study was carried out in Kano State which lies within latitudes $10^{\circ}30'N$ and $12^{\circ}30'N$ and longitudes $7^{\circ}30'$ to $9^{\circ}25' E$. It is bordered in the west by Katsina and Kaduna States and to the east by Jigawa and Bauchi States (Fig 1). Specifically however, the study was conducted in five out of the forty four local governments in Kano state. The local government areas were randomly selected through a process of balloting. The samples settlements selected and their geographical location is shown in table 1:

Table 1: Sample Settlements

Sample Points	Location	Sample Size	
			%
Janguza	$11^{\circ}55'N$ and $8^{\circ}25' E$	35	11.6
Lambu	$12^{\circ}00'N$ and $8^{\circ}20'E$	25	8.3
Zara	$11^{\circ}50'N$ and $8^{\circ}40'E$	20	6.6
Goda	$11^{\circ}50'N$ and $8^{\circ}42'E$	20	6.6
All Tini	$11^{\circ}55'N$ and $8^{\circ}40'E$	25	8.3
Naira	$11^{\circ}55'N$ and $8^{\circ}45'E$	25	8.3
Tsamiyar Boka	$12^{\circ}00'N$ and $8^{\circ}35'E$	40	13.3
Hotoro Masallaci	$12^{\circ}00'N$ and $8^{\circ}36'E$	40	13.3
Rijiyar Lemu	$12^{\circ}00'N$ and $8^{\circ}40'E$	30	10
Kurnar Asabe	$12^{\circ}00'N$ and $8^{\circ}35'E$	40	13.3

Source: Field survey,

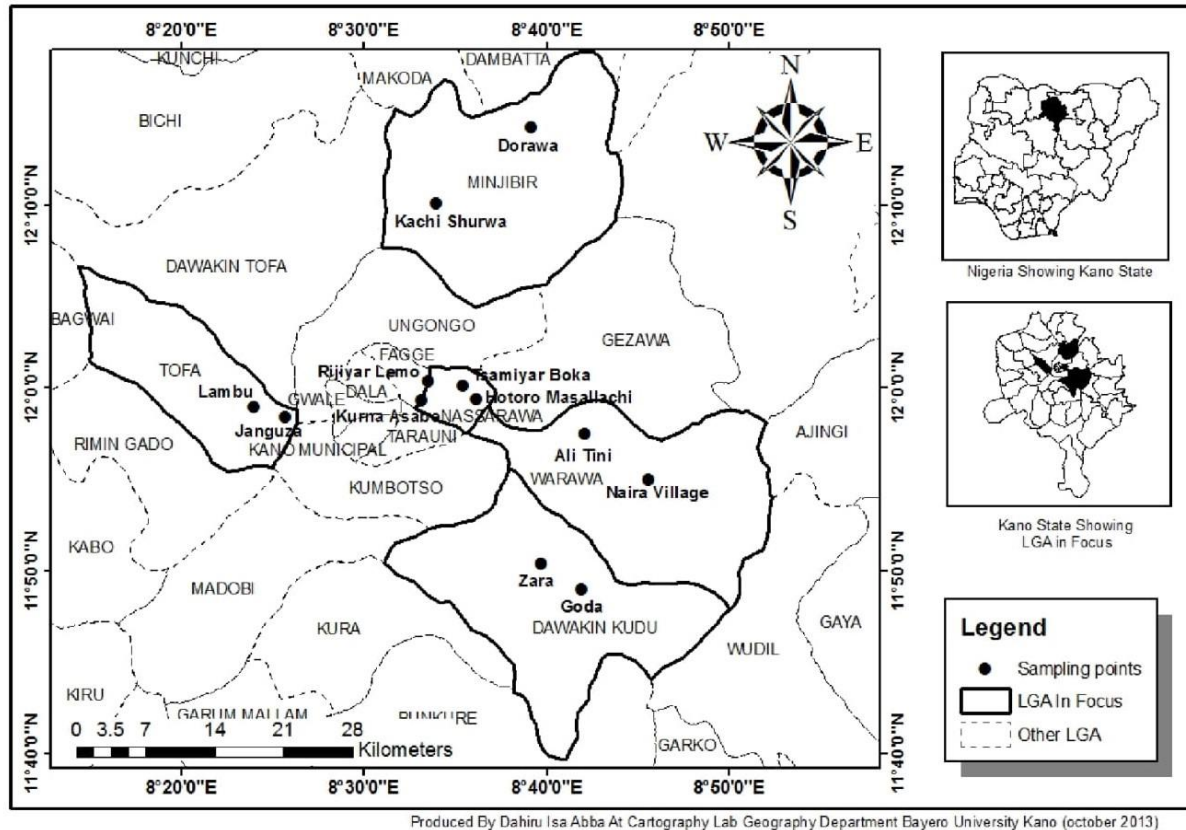


Figure 1: Part of Kano State Sampling Points

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 personal characteristics of the respondents such as age, marital status, educational level, and occupation, size of family and sources of water supply.

RESULTS AND DISCUSSION

The results of the findings and discussion are presented under two sections; The first section provides a general overview of the respondents' background and the second section discussed how the respondent's background have implication for water management.

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.

The summary of the data on the personal characteristics of the respondents showed that majority 46.3% had Quranic education 31% had primary education, 27% had secondary education while 16.3% had tertiary education. 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 cultural practice in the study environment. The main sources of water are public and private which was found to be in form of wells, boreholes and tap water, usually available in private homes and a times available in public places (Plate 3 and plate 4), 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%). Specifically those locations close to the metropolitan have more access to tap water than those far away for instance *Rijiyar lemo* has over a quarter (27%) access while *Janguza* which is a bit far away from the metropolitan has 13% access to tap water 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 across all the settlements



Plate 3: Water fetching from public well in one of the Settlements



The common source of water especially as one moves away from the metropolitan has been found to be stream and well water (Plate 3) as can be inferred from the data on sources of water which show that those that are distant from the influence of the metropolitan centers have little or no access to tap water and the scarcity of water is so 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

In the villages studied, the most common sources of water as shown in table 2 is water from well and stream. Although tap water is not a common occurrence in most of the rural areas, however as a result the recent structural changes and government's policy of integrated rural development, tap water amongst other social amenities is being provided in some parts of rural areas especially those close to urban or peri urban areas (Plate 4).

Table 2: Sources of Water in the Study environment

Villages	Sources of Water								
	Tap	B/hole	Well	Stream	Tap&Well	B/hole&well	B/hole&Tap	Total	%
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
Rijiyar lemo	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

Key: B/hole=Borehole



Source: Adapted From <https://www.google.com.ng/search?q=water+manag>

Plate 4a: A rural water supply scheme in Kano



Source: Field work

Plate 4b: Public Tap water supply



The study found that in addition to the use of well water and tap water, stream water (plate 5) is another source of water supply in all the study settlements studied. Those settlements which are far away from the metropolis *Naira* (61 percent) and *AL tini* (20%) show heavy reliance on stream water than the other sources.



Plate 5: Adapted From <https://www.google.com.ng/search?q=water+manag>
A woman Fetching water from the Stream

The commonest methods of storing water by in the study areas are by means of using drums, large containers, surface tanks, underground reservoir, and others such as buckets. (92%) of the respondents store their water using drums/containers, jerry cans, while very few of the (6%) store their water using the surface/reservoir tanks and only (2%) of the respondents use other methods like buckets, local pots and so on.

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

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	44.672 ^a	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% of the women said they 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 water 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. The difference in household size is one of the determinants of water needs in the settlements.

Table 4: Number of children and quantity of water used in liters

N/Children	Quantity of Water in Liters						
	Less 100	100-200	201-300	301-400	Over 400	Total	% total
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.

The decision related to availability and transportation of water in the homes in all the settlements rests on the father (70%) where the father had to ensure water is available for domestic use, the mother (8.3%) the children (16%) and in some other cases it rests on all the categories listed above (5.7%). This implies that 70% of the time making water for house use is the responsibility of the father or the household head. This finding contradicts that of a study of Sara Beth and Scott Youngstedt who in a paper presented at the AAG conference in April, 2014 on "the material culture of water in Niamey" found that the responsibility of



ensuring availability of water for domestic use in the house is more of the responsibility of women and children.

Similarly 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.

Water Shortage in the settlements

Observation was made of the fact that Most of the settlements sampled experience scarcity of water at point in time or the other. This has been attributed to the nature of the climate which has been classified as Koppen's Aw type with distinct wet and dry season, implying that one of the sources of water is of seasonal occurrence in addition to the nature of the hydrology.

From the result of the study, approximately one third (30.6%) of the respondents were of the view that water shortage in the study area is as a result of low water table especially during the dry season which Olofin (1987) attributes to overburdened use of water resources by man.

Some respondents opined that open wells get to dry up too frequently in recent times as a result of global warming and as a result they re-dig deeper wells and also find alternative sources of water supply.

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 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 are also among the problems of water scarcity in the study areas. The bills are needed for maintenance and payment of staff salaries for more efficiency.



Expenditure on Water

The findings of this research show that on a daily basis a family of between 5-8 children without a secured source of water spend 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 minimise 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 are common illnesses in the study environment

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 and educating women in the need for inefficient management of water and also involving women in water decision making.

CONCLUSION

In conclusion it can be said that the decision role of women in water management rests essentially on the use to which water is put and being the primary users of water women decide what water to use for what and where the water is to be stored for used, while making water available for use has been found to the responsibility of the male household heads which the exercise either by assigning the responsibilities to others..

Based on the findings of the research, the following are recommended:

RECCOMENDATION

- 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.
- There is the need to educate women on the various techniques in water management and preservation. Even though 70% of the time it is the house heads that have to



ensure water is made available for use, if women are taught how to preserve and manage water well this will translate to ample time for other productive activities for both the house heads, the women and the children which will invariably mean more income for the family.

- The people in general need to be more informed on proper water management techniques and maintenance culture necessary to save time and costs. Broken pipes need to be reported in good times so that repairs can be effected immediately. There is also the need for the people to be more alive to their responsibilities by paying their water bills regularly.



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