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of the DEPARTMENT OF URBAN AND REGIONAL PLANNING, FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

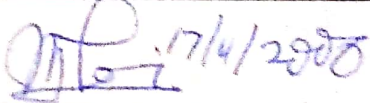
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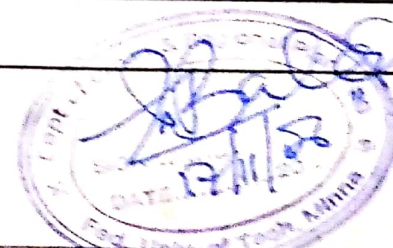
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TECHNOLOGY (FUT), MINNA.

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OJEMUDIA, V.E

DEPARTMENT OF URBAN AND REGIONAL PLANNING
FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

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Abstract

One general aspect of planning that has not received the right emphasis it deserves is rural planning. It is assumed that the rural areas are taken care of in the process of city planning. However, rural areas have peculiar characteristics, and dwellers have similar problems such as free and easy access to infrastructure, services and amenities. Water is one of the essential necessities of life. It is essential for health and necessary for the production of food and economic growth, and the support of the Environment. The fulfillment of poor people's water-related need is fundamental to the elimination of poverty. Despite the essential nature of water, it is not easily accessible by rural women. The provision of potable water supply to rural dwellers is inadequate and this has a negative effect on the health and rural productivity of the nations because the rural areas constitute about 75% of Nigeria's population. Assessment of the average time, distance and seasonal variation to sources of water supply was also studied. In view of the fact that this is a major problem faced by this group of people, the paper considered the access to and struggle for water by rural women in a linear settlement along Federal University Technology, Minna permanent site.

1.0 Introduction:

Water is one of the basic needs of man. It is a universal solvent and has no substitute. From microbe to Elephant water is needed. Its importance to man cannot be over emphasized. Water is essential to the survival of man. World health organization (WHO) has proved that man need between 40-60 litres of water per capita per day. (WHO, 1990) However, in spite of effort of government to provide water to people, only a small proportion of urban and rural settlements in Nigeria have access to safe drinking water. (Bikam, 1995). McNamara recommended that, "individuals need a minimum amount of potable water for drinking and for preparation of food". This is not below 20 litres per capita per day, but the supply today is less than 12 liters per capita per day (Egunjobi, 1987). The proper planning and even distribution of this necessity of man most especially the rural dwellers is still not encouraging. Rural areas of

Nigeria that constitute a large number of the nations population which contributes a great extent to agricultural development, has been neglected by those responsible in the provision of water.

Inadequate or poor water supply contributes to poverty and diseases while its availability has a great role to play in hygiene improvement. People wash more when they have tap or other sources of water supply connected to their houses or at a very close proximity and this helps in the fight against diseases that leads to death.

In the struggle to have access to water the women are most affected because they are the homebuilders. Women are often at higher risk of exposure to water borne diseases. Washing clothes, bathing children, drawing water from surface sources, and some places working in flooded rice field all increase women's risk of exposure to disease ridden water sources (Lewis 1994). The burden of domestic work falls on them. Drawers of water (White, 1992) though did not address the role of women in water resource management noted that in most African societies it is considered women's work to carry water. Both the poor and the rich have the same demand for water but they do not have equal access to it. So there is no equity in water supply. Domestic consumption is one of the major uses of water in both urban and rural areas. In less dramatic circumstances, the cost of inadequate water supply in rural area in terms of debilitating diseases, and associated medical treatment resulting in reduced productivity, is undoubtedly high.

The sources of water supply in rural areas of Nigeria include wells, rivers, streams, rainwater harvest, ponds, springs, reservoirs, boreholes, and community pipe-borne water stands. In the above list, only pipe-borne water supply could be regarded as treated, and are often not found in the rural area. Many of the communities depend on other sources for their supply. Some of the communities though obtain water from protected springs and wells with hand pump. However, the quantity of water from these sources are subject to seasonal fluctuation of rainfall. When the seasonal rains become inadequate as a result of drought, some of these sources dry up.

The absence of effective Planning and management of those scarce water resources is a major impediment to the elimination of poverty. Poorer states, regions of Nigeria and poorer communities and households have the greatest difficulty in establishing their claims to water. It is in the light of the above that this paper addresses the issue of rural water supply, assesses the access to and struggle for water by rural women in the linear settlements along the permanent site of FIIT, Minna. The objectives of the study are to: examine the sources of water to rural

dwellers; justify time spent in procuring water; study the average distance taken to fetch water; identify seasonal variation to water supply to rural people; assess the access of rural dwellers to public stand pipe-borne water; and stressing the need for a more pragmatic approach to rural water supply in Nigeria.

The paper also covers the average time spent in getting water, sources of water and its seasonal variation. It also makes recommendations to enhance proper planning of this essential need of man. This paper faced limitations like lack of adequate documented data, language barrier and slow response to questionnaire by the rural dwellers and other natural constrains.

1.1 Method of Data Collection and Analysis

Both secondary and primary sources of data collection were used in this research. The primary data were collected through the use of questionnaires while the secondary data were gathered from textbooks and other related materials. The data collected were analyzed using frequency tables and percentages.

2.0 Findings and Result Analysis

The analysis of water supply situation in the study area that is shown below indicated the problems faced by the people of the study area known as Gidan Mangoro. It consists of three communities, namely Gidan Mangoro 1, 2, and 3 and Gidan Gwada. The analysis is presented in the sections below.

2.1 Household size

The analysis of the study area considering their socio-economic characteristics indicated that many of the households are having higher number of people per household due to factors such as polygamy, religious believe and so forth. The household characteristics are shown in table 1

Table 1: Household size

Household size	Frequency	Percentage
1-6	32	16.0
7-12	80	40.0
13-18	60	30.0
Over 18	28	14.0
Total	200	100.0

Source: Author's Field Survey, October 2006

The analysis reveals that 40.0% of respondents has household size of between 7 and 12; 30.0% have family of between 13 and 18 people; 14.0% have family of over 18 people per household while 16.0% have household size of between 1 and 6 people. The implication of this is that larger volume of water is needed by the households daily, which the VIP deep well in the study area cannot meet. This has led to shortage of potable water available to the people of the area.

2.1 Occupation of respondents

The analysis of the occupational characteristics of the inhabitant of the study area indicated that major were engaged in farming. This account for over 80.0% while remaining 20.0% engaged in other activities such as blacksmith, petty trading and teaching. The VIP deep well is powered manually because there is no electricity in the study area. The occupational characteristic of respondents is shown in table 2.

Table 2: Occupation of respondents

Occupation	Frequency	Percentage
Farming	160	80.0
Trading	18	9.0
Teaching	10	5.0
Others (specify.. .)	12	6.0
Total	200	100.0

Source: Author's Field Survey, October 2006

The implication of this is that nearly everybody in the study area are farmers as they are engaged in one farming activities or the other. This shows the importance of water to the people and dependent on streams for water need of the community.

2.3 Income level of respondents

The investigation into the monthly income of respondents cannot be ascertained as many of them engaged in private activities thereby making accounting difficult. Also the type of farming practiced did not help matter. This can only be determined by their annual harvest. The annual income of respondents in the Gidan Mangoro can be tabulated thus.

Table 3: Income level of respondents

Annual Income (N)	Frequency	Percentage
Up to 20,000	-	-
20,001- 40,000	10	5.0
40,001 -60,000	24	12.0
60,001 -80,000	36	18.0
80,001 -100,000	96	48.0
Over 100,000	34	17.0
Total	200	100.0

Source: Author's Field Survey, October 2006

The analysis shows that majority of the respondents (48.0%) had annual income of about N100,000 which translate less than N10,000 monthly; about 17.0% earned over N100,000; 12.0% earn between N40,000 and N60,000 which translate to about N5,000 per month. About 19% had better income of over a N100, 000 also 18.0% and 12.0% earned between N60.00 and N40.00 respectively. This shows the level of poverty in the area and it affects their livelihood and productivity. They are of opinion that a lot of time is being spent on searching for water for drinking. About 17.0% had better income of over N100, 000; about 18.0% and 12.0% earned income between N60, 000 and N40, 000 respectively. This shows that the people are poor and have little income, which will affect their spending on water.

2.4 Source of water

The analysis as presented in table 1 indicated that there are basically three sources of water to the people of the study area. The first being the stream used from Fadama project; the other being the shallow wells numbering three (3) in the community. The shallow well is seasonal and the VIP deep well which the government provide some 20 years ago. This source is the major source as other sources are seasonal and causes water-borne diseases such as cholera and diarrhea

Table 4: Sources of water

Source	Frequency	Percentage
Well	20	10.0
Stream	40	20.0
Rain Harvest	20	10.0
VIP Deep Well	120	60.0
Total	200	100.0

Source: Author's Field Survey, October 2006

The analysis shows that about 60.0% of respondents depended on the VIP deep well due to its cleanness and reliability. But despite the reliability, it makes them to lose many Man-hours in the process of long queues, which normally characterized the water source. Others such as shallow wells and rain harvest accounts for about 40.0% for the community source of water.

2.5 Distance to Source of water

In the process of providing water for the people of Gidan-Mangoro community, the process of village re-grouping was adopted in 1982 to locate the site of the VIP deep well that the people used, so that all the three communities will have access to it. The analysis shows that the closest community to the well is about 150m away while the other communities trekked as far as 500m to fetch water. The largest community has the opportunity of being the host of the well. The well is powered manually as it is the hydraulic type that is installed, because the communities lack access to electricity, despite its proximity to Minna. This prove to be energy sapping process as greater energy is needed to power the pump the water before fetching is done said bone of the women and children who are saddled with the responsibility of fetching water for domestic use.

2.6 Time spent in fetching water

Because of the hydraulic nature of the well, the women use grater energy to fetch water. The well has being serving the three communities for the past 24 years and is still in the process of serving them. Due to its life span, the volume of water has reduced drastically. This has made fetching tasking and cumbersome for the people of the study area. People queue to

fetch water as early as 4:30 am and spent long hours before it gets to their turn. Table 5 indicated the normal time been spent by women to fetch water daily which is not usually enough for their daily need.

Table 5: Time spent in fetching water

Time	Frequency	Percentage
Up to 30 minutes	12	6.0
“ “ 1 hour	20	10.0
“ “ 1.5 hours	10	5.0
“ “ 2 hours	8	4.0
“ “ 2.5 hours	10	5.0
“ “ 3 hours	40	20.0
“ “ 3.5 hours	20.0	20.0
“ “ 4 hours	20.0	20.0
Total	200	100.0

Source: Author's Field Survey, October 2006

The analysis shows that about 70.0% of the respondents spent up to between 3 and 4 hours daily looking and fetching water for their daily need, which is often not enough. About 14.0% spent between 1.5 and 2.5 hours daily fetching water, while only about 16.0% spent between 30 minutes and 1 hour daily for water procurement. The implication of this is that greater amount of time and energy is expended looking for water for use daily, thereby reducing their productivity and aggravate poverty in the study area. Another reason has to do with pressure from the population fetching the water from the well thereby reducing its yielding capacity.

2.7 Reliability of the source of the water

This research also examined the reliability of the sources of water to the inhabitant of the study area. The result obtained are tabulated and shown in table 6.

Table 6: Reliability of the source of the water

Reliability	Frequency	Percentage
Reliable	72	36.0
Unreliable	128	64.0
Total	200	100.0

Source: Author's Field Survey, October 2006

The analysis reveals that majority of respondents in the study area believes that the source of their water for daily need is not reliable. It has caused a lot of untold hardship on them in the past; it has been the source of water related diseases for them. There have many incidences of cholera, guinea worm infection and host of others. The sinking of the deep well has help ameliorate the frequency of its occurrences. The reliability shows that 36.0% of the inhabitants agreed that the sources are reliable while 64.0% disagreed that the sources are reliable. The people that believe in the reliability depend mainly on the water from the VIP deep well; while those that depend on other sources in addition to the deep well do not agreed with the reliability, because they suffer more of the water related diseases. Other sources are the shallow well that not covered and allows all sort of pathogens, the Fadama stream and the little rain harvest they have during the wet season.

2.8 Volume of Water Obtained Daily

Because the sources are not reliable, the question about the volume obtained by each household daily is considered and the following analysis deduced. The amount of water available to each household is limited due to certain factors: time, yield of the well and seasonality. The result is shown in table 7

Table 7: Volume of water obtained daily

Volume (litres)	Frequency	Percentage
40-80	45	22.5
100-140	95	47.5
160-200	40	20.0
Over 200	20	10.0
Total	200	100.0

Source: Author's Field Survey, October 2006

The analysis revealed that over 47.5% of respondents fetched between 80 and 100 litres of water daily for their usage which is not enough, considering the WHO standard for an average of 8 people's need. About 500 litres is needed daily but it is not so in the study area. Infact majority of the households in the area exceed 8 people per household, and have access to about only 100 litres per capita per day. This has greater effect on their livelihood and productivity. Many of them don't bath everyday. The effect is the skin disease and many epidemics that are preventable.

2.9 Well Maintenance

The analysis of who and how the well is maintained shows that both local and state government have no stake in its repairs the dwellers depends on community contributions and philanthropist gesture of their children living in Minna. When any major repair is on they fall back to the stream that is for Fadama irrigation. The stream is seasonal and this makes it impossible for them to get water during the mean onset of raining season between 10 April and 10 May and mean cessation that is 7 October to 27 October. During this period they travel many kilometers to Minna and other neighboring villages to get water.

Table 8: Well Maintenance

Government(state and local)	-	-
Community contribution	180	90.0
NGO	20	10.0
TOTAL	200	100.0

Source: Author's Field Survey, October 2006

2.10 Activities of NGOs

Over the years, there have being in existence the activities some of Non- Governmental Organizations who are assisting the communities to have access to potable drinking water for their daily need. The NGOs have helped this communities by repairing their deep well and chemicals for treatment of the well especially during epidemics. The NGOs have also performed creditably well during the period of outbreak of epidemics such as cholera, guinea worm infection etc. in the study area. Amongst the NGOs are Global 2000, Water Aid, UNICEF, other NGOs have also contributed which they could not remember their names. There has also help

from philanthropists and their sons and daughter who are well to do in the society; prominent among them is Mallam Sanni Adama who happens to be the son of the Community head and a business man in Minna. He has been providing money for the repair of the well and provision of water where necessary.

2.11 Effect of long queue at the well site

Due to population explosion and quest for potable water at the VIP deep well site, there has been series of conflicts emerging from the site. The major problem from the well site has always been long queue, volume of water to be fetched by individual at a go. This has caused a lot of untold hardship on the people. This has led to communal clashes and sustaining of injuries by the people especially the women and children. There has been series of conflict resolution by the community head over water procurement.

3.0 Discussions and Planning Implication

From the research carried out, it shows that nearly all the people in the study area depend on one form of water or the other due to lack of access to publicly subsidized potable water. Everybody has access to water in one form or the other, but the issue is not whether they have access, but whether the water is potable, safe for drinking, reliable and adequate for their daily need.

Many people in the study area depend on three main sources for their daily water need, these are stream used for Fadama irrigation, shallow well that is seasonal and always dries up during dry season and VIP deep well which is the only reliable source of water to the people. All

the people in the study area enjoys the well but it has its own attendant problems. The well has been there for over 20 years and still counting.

The VIP deep well was provided for the people of Gidan Mangoro during the outbreak of cholera and Cerebral Spinal Meningitis (CSM) in 1982. The well was provided using village re-grouping strategy for rural development. It was provided for four villages (the three Gidan Mangoro villages and Gidar: Gwada village), and the shortest village to the well is about 100m away while the farthest village is about 500m away. Because of village re-grouping, the water source that is the well is not adequate considering the population. This makes them to spend longer period searching for water daily. The women and children saddled with the responsibility of fetching water spend a lot of time at the well site due to population explosion, long queue, and long queue at the site. Conflict always ensued when the volume of water dwindled. Some of the villagers especially women and children spend up to between 2.5 and 4 hours searching for water before they could obtain the little. This affects their productivity level and aggravates poverty in the affected villages. The World Health Organization has proved that the time the women and children used to fetch water in sub-Saharan Africa in total is more than 10 years (WHO, 1996)

After the provision of the well, government have not been forthcoming in helping the communities in the process of repairing the well, and when this happen the communities result to stream that is epidemic ridden. They contribute money and gesture from philanthropist to repair the well. The volume of water coming from the well is dwindling while the population of the communities keeps swelling. The research has revealed that the household sizes in the communities are large (between 7 and 12 people per household) and they have access to about 100 litres of water daily, even when considering the WHO standard, the families have access to about 20.0% of their daily need; this has led to people not taking their bath daily, the effect of

this is skin diseases and water-borne infections. During the period of damage to the well because of excessive usage, the people returns to the stream and water borne diseases reoccur in the villages.

The planning implication is that provision of infrastructure will aid development, there is no provision of this utility in these communities, lack of water is a limiting factor to food security, economic and social development and the effect is that there will be drift of population to cities, which will cause push pull effect on both the villages and Minna. Therefore, necessary infrastructures have to be put in place to stem this tide, reduce cost on medical care and enhance productivity level to reduce poverty.

4.0 Recommendations

From the analysis, it has been proved that the people of Gidan Mangoro lack access to adequate potable water for their daily consumption and need, due to population explosion, exhaustion of the existing VIP deep well, and high household size. Therefore, the following recommendation is proposed for effective provision of potable water to the people, so as to achieve the Millennium Development Goal of access to adequate safe drinking water for all.

- (i) Government should as a matter of urgency provide additional VIP deep well to the communities to augment the present one so that the people will have access to water. Therefore, additional three number boreholes is proposed considering the population of the study area.
- (ii) There should be proper orientation for the people on how to take good care of government properties in their surrounding to achieve maximum practicable benefit from it.

- (iii) There should be enlightenment to the people on water usage and its management to reduce pollution whether at the point source or at the household level.
- (iv) The activities of NGOs, CBOs and philanthropists etc should be coordinated by Ministry of Water Resources so that they will have adequate access to potable water supply from boreholes. This will reduce the migration/influx of rural dwellers to the city of Minna and development of neighbouring communities close to Minna.
- (v) As a matter of urgency there should be construction of reservoir in the communities by the government to provide water from Minna to the communities to enhance access to water by the people before the completion of the boreholes to be sunk to the communities.
- (vi) Proper arrangement should be made to rehabilitate from time to time the well so that it will be in proper shape for usage all year round. The communities CBOs should be empowered to play vital role in the provision of resources (both human and material) towards the achievement of this lofty goal.
- (vii) One of the goals of the Millennium Development Goals is the access to potable water by everybody, therefore, all hands must be on deck to make sure that this goal is achieved by making sure that all stakeholders (Government, NGOs, CBOs, philanthropists, Individuals) plays a prominent role in achievement of this goal.
- (viii) Government at Federal, State, and Local level should play a prominent role in the rural water supply and rural electrification programmes so that the level of development of the communities enhanced to reduce poverty and enhance productivity.

5.0 Conclusion

The data so presented above indicated that the people of Gidan Mangoro are lacking access to adequate potable water for their daily need which affects their livelihood, reduce productivity, causes conflicts and injuries to the people and aggravate poverty. Long hours is spent in procuring water from the deep well provided tot the communities over 20 years ago.

The communities are been ravaged by poverty, epidemic and water borne diseases. They have little access to water as it shows in their manner of living. The households are large often between 7 and 12 people per household. Each person in the study area have access to between 12 and 15 litres of water per capita per day, as the household have access to about 100 liters per day which is far cry from WHO recommendation per day. In some rural areas men prefers to sell their belongings to marry new or more wives than to contribute to the implementation of portable water supply so cultural and individual attitudes have a great rile to play in access to water and its management.

A lot recommendations were made to achieve ameliorate the problems of the communities in procuring and usage of water for their need. If all these strategies are adequately implemented, it will go a long way in assisting the communities to have access to potable water supply from reliable sources.

In conclusion, it could be seen that for the Millennium Development Goals to be achieved, there must be good design and implementation of low-cost technologies for improving water supply and management at the local government level. Every stakeholder in the provision of water must collaborate and work hand in hand to achieve practicable degree of comfort.

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