IMPACT OF WATER SCARCITY IN SELECTED VILLAGES OF APA LOCAL GOVERNMENT AREA OF BENUE STATE, NIGERIA

By

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Abstract
Water scarcity is a global issue, including villages within Apa Local Government Area of Benue State. This problem has a significant impact on the daily lives of the region, as well as the overall development and sustainability of the community. The lack of access to potable water and proper sanitation facilities has resulted into various health problems, impeding the villagers' ability to live productive lives. The aim of this study is to investigate the impact of water scarcity in selected villages within Apa Local Government Area of Benue State, Nigeria. Three hundred and eighty-two respondents were purposively selected for the study. Questionnaire survey and focus group discussion was administered on the sampled respondents. Through a thorough analysis of data collected from surveys and interviews with the villagers, this study aims to highlight the extent of the scarcity and its implications. Additionally, potential solutions to address this problem was also explored. The findings revealed that water scarcity has greatly affected the daily lives of the villagers. It has not only resulted in various health problems, but also caused a decline in agricultural productivity which is the main source of livelihood for many villagers. Furthermore, this study also shed light on the underlying reasons for water scarcity in these villages. Factors such as inadequate infrastructure, climate change, and population growth have been identified as major contributors to the problem. These findings highlighted the need for immediate action to address water scarcity in these villages. Based on these findings, the study recommends the implementation of various measures such as improving infrastructure, implementing water conservation methods, and promoting community involvement in water management.
Keyword: Drinking water; Water scarcity; Health problem

INTRODUCTION
Water is the most important natural resource to mankind. Its adequate and safe supplies guarantee the quality of human life, poverty alleviation and overall human socio-economic development. A study by Abubakar (2019) opined that providing adequate and improved drinking water is an increasingly significant challenge for authorities, development agencies and water sector organizations, more especially in countries with rapidly growing human populations. The United Nations (2020) report on the 2019 progress in the Sustainable Development Goals (SDGs) highlighted that 785 million people remain without access to basic drinking water service, and 700 million could be displaced by intense water scarcity from now to 2030 –as nearly 2 billion people continue to live water stress regions. The scarcity of water resource.

Water is essential for all socio-economic development and for maintaining healthy ecosystem. Modern man requires large proportion of clean, pure and uncontaminated water, in his day-to-day activities. Water is used for domestic, industrial, agricultural and other recreational purposes. Hence, the supply of adequate qualitative water is becoming indispensable all over the globe. About 97.5% of water on the earth is salt water, leaving only 2.5% as fresh water of which two-third is frozen in glaciers and polar ice caps. The remaining unfrozen fresh water is mainly found as ground water, with small fraction present above ground or in the air (Green fact web, 2008).With the world heading toward a global water crisis, the developing and least developed countries suffer the most from water scarcity, excess, and contamination (Grey and Sadoff, 2007) and are disproportionately affected by extreme weather events (Watson et al. 2007).

This means that the developing countries, with weak public water supply institutions, are at great risk of severe water shortage in the 21st century due to the huge differentials inhouseholds' characteristics (Balogun et al., 2017). For instance, in sub-Saharan African countries, only 24% of the population had access to safely managed drinking water as the 2015 statistics have shown, compared with 65% in Latin America and the Caribbean, 90% in West Asia and North Africa and 94% in East Asia and South-east Asia (Abubakar, 2019). He maintained that thesub-region is also home to about 319 million people or about half of the world population using an unimproved drinking water source, which resulted to over half of the countries in the region not meeting the Millennium Development Goal (MDG) of drinking water target. Similarly, out of the global population that relied on surface water for domestic supplies, 70% of them live in sub-Saharan Africa, eight times more than any other regions (Abubakar, 2018). This has proved the prominent.

Water is one of the most important natural resources since it is necessary for human life, economic growth, and ecosystems. It is a vital component of the world, and this resource is completely connected to global climate change (IPCC, 2013). The unstable climate of the world carries a probable rearrangement of water resources as the climate changes (WHO, 2021).Affordable access to water supply constitutes a huge challenge to developing countries despite being a human right, its spatial distribution and accessibility which is projected to grow by 1% annually, are closely linked to socio-economic development with attendant effects on public health and poverty reduction (Al-Amin and Mahmud, 2011; Ngohi, 2011; Mohammed, 2016; WWAP, 2018).

Study Area
Apa Local Government Area (LGA) is in North-Western part of Benue State. The LGA is located on latitude 7º 20′ north to 7º 50′ north and longitude 7º 40′ east to 8º 10′. It is bounded in the North by Agatu LGA, in the South by Otukpo LGA, in the East by Gwer-West LGA and in the West by Olamaboro LGA of Kogi State (Ikyaagba, Jande and Eche, 2020). The LGA has its headquarters at Ugbokpo and it consists of 11 council wards. The LGA has a population of about 96,780 people and a land area of about 995 Km^2 (National population commission of Nigeria, 2006).
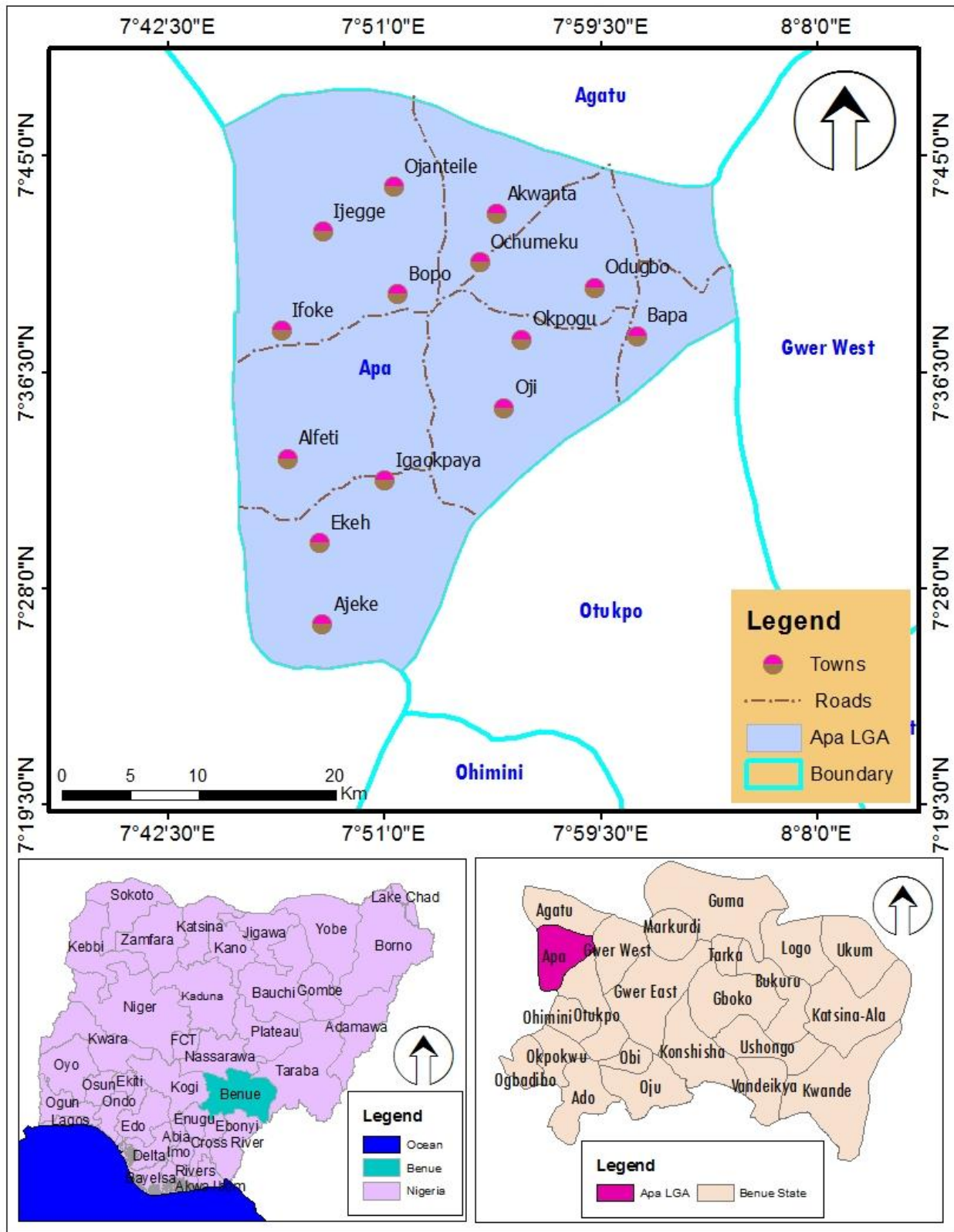
Figure 1: Map of Benue State showing the Study Area
Source: Nigeria shape file
Methodology

Questionnaire survey and Focused Group Discussion (FGD) was used to elicit relevant information from the sampled household in the eleven wards of Apa LGA. To determine the sample size for this research, Krejcie and Morgan's (1970's) method of determining sample size was adopted which states that, for an area with a population between 75,000 - 999,999, the sample size to be used is 382. Since the population of the study area is 96,780 (2006 Population census) which fall between these ranges, the sample size of 382 is in order. However, 385 respondents were used to have equal representation in each ward.

Purposeful sampling technique was used to administer the questionnaire in theLGA. Five wards were purposively selected for the study. The 382 questionnaires were distributed among the five wards, with 77 questionnaires in each ward, this was due to the non-availability of population figures for each ward from the 1991 and 2006 census results. However, 380 of the questionnaires were duly filled, returned and used for the analysis.

RESULTS AND DISCUSSIONS

The age distribution of the respondents is presented Table 1.

Table 1. Age of the Respondents

Age	No. of the Respondents	Percentages
25 to 30	155	41
30 to 40	150	39.5
41 to 50	40	10.5
50 and above	35	9.2
Total	**380**	**100**

Sources: author's fieldwork 2024

The results in Table 1 show that majority of the respondents were between the ages of 25 and 30 years (41%). The reasons for drawing more respondents from that age category was the fact that they constitute the active or simply the working population and they are responsible for the provision of basic necessities in their houses. Others are people with the age ranges from 36 years and above.

Table 2. Gender of the Respondents

Sex	Respondents	Percentages
Male	80	21
Female	300	79
Total	380	100

Sources: author's fieldwork 2024

Respondents who were female constitute 79%, while male accounted for only 21% due mainly to the fact that households in the study area are usually female headed. It was also revealed from the socio demographic characteristics of the respondents that larger proportions of the

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respondents (53%) were married. While the remaining was either single (29%), divorced (8%) and widow (10.5%). This statistic attests to the reliability of the sample of the paper.

Table 4. Family size of theRespondents

Family size	Respondents	Percentage
Less than 5	65	17
6 to 10	120	32
11 to 15	75	20
16 to 20	65	17
21 and above	55	14
Total	380	100

Sources: author's fieldwork 2024

Majority of the respondents (120) or rather 31.6% were having the family sizes of 6 to 10 members. Others have family sizes of 11 to 15 people (20%), less than to 5 people (17%) 16 to 20 (17%) above 20 people (14.5%).

Table 5. Respondent's occupation

Occupation	Respondents	Percentages
Civil servant	80	21
Self employed	60	16
Farming	220	58
Other	20	5.3
Total	**380**	**100**

Sources: author's fieldwork 2024

Table 5 shows that, Farmers constituted 58% of all the respondents, followed by civil servants self-employed (traders, private business practitioners and so on) with 21% and self-employed (16%). The rest include, house wives, students (5.3%). In a similar finding, the study revealed that the large number of the respondents (195) that is 51.3% had primary education; 26.3% had secondary education, while 22.4% had tertiary education respectively. These classifications have direct bearing with the analysis of household consumption and expenditure.

Table 7. Distance covered to source of water

Distance	Respondents	Percentages
0 - 1km	250	66
1 - 2km	120	32
2 - 3km	9	2.4
3 - 4km	1	0.3
4 and above	0	0
Total	380	100

Sources: author's fieldwork 2024

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Distance covered to water source from the study area shows that people from that area has to spend at least 0-1 kilometers before they get to water source and it has the highest percentages of 66%. While 1-2 kilometers with 32%, 2-3 kilometers has 2.4% and 3-4 kilometer with 0.3 kilometers.

Table 8. Health and well being

Health issue	Respondents	Percentages
Yes	100	26.3
No	280	74
Total	**380**	**100**

Sources: author's fieldwork 2024

Majority of the respondents constitute (280) 74% examined or believe the water that were busy using it has no health any sing of water born disease. While the other category which has 26.3% experienced heath issue and there is need to be purified.

Table 7: Sources of Water to the Respondent's

Source of water	Respondents	Percentages
River water	150	39.5
Well	180	47.4
Bore holes	30	7.9
Water vendors	10	2.6
Tap water	10	2.6
Total	**380**	**100**

Sources: Author Fielwork,2024.

Water supply from well (47.4%); Surface water (39.5%); boreholes (7.9%), water vendors and tap water constitute (2.6%) each. The major sources of domestic water supply in the study area and the least comparative proportion is accessed from surface water source. The study disagree with the findings of (Tsauni,2012) who discovered that water vendors are the major source of water in Kano metropolis.

Table 8: Causes of Water Scarcity in the Area

Causes	Respondents	Percentages
Mismanagement of water resources	180	47.4
poor infrastructures	140	36.8
Environmental pollution	10	2.6

High agricultural demand	50	13.1
Total	**380**	**100**

Source: Author Fieldwork,2024.

A large proportion of the respondents (47.4%), blame the use of mismanagement of water resources as the cause of water scarcity in the study area, 36.8% revealed poor infrastructures as the cause of the severe of water scarcity in the area. Other causes include environmental pollution with 2.6%, and high agricultural demand with 13.1%.

Table 9. Solution to water scarcity in the study area

Solution	Respondents	Percentages
Recycle water	100	26.3
Improves Sewage system	20	5.3
save water whenever possible	180	47.4
policy implementation	80	21
Total	**380**	**100**

Sources: Author Filed work,2024.

This table shows that the possible way to eradicate water scarcity in the study area was indicate that providing ways of saving water has the highest percentage of 47.4% follow by the recycling water would also help the study area with percentage of 26.3% and the others are policy implementation 21% and improve sewage system which constitute 5.3%

CONCLUSION
The study findings underscore the devastating impact of water scarcity in the study area having an impact on daily lives, health and economic development. The lack of access to portable water and proper sanitation facilities has resulted in a range of health problems, decreased agricultural productivity and hindered community development. In conclusion, water scarcity has severe consequences on the livelihoods of community members in Apa LGA. Addressing this issue requires a multi-faceted approach that involves improving infrastructure, promoting water conservation, and engaging communities. By implementing these recommendations, we can work towards ensuring sustainable access to potable water, improving health outcomes, and enhancing agricultural productivity. Ultimately, this will contribute to the overall development and sustainability of the community. It is imperative that stakeholders, including government agencies, NGOs, and community leaders, collaborate to address this pressing issue and ensure a water-secure future for generations to come.

RECOMMENDATION
The study's findings highlight the urgent need for sustainable solutions to address water scarcity in Apa LGA of Benue State, Nigeria. Based on the research, the following recommendations are as follows:
  i. Governments and NGOs should invest in building new water treatment plants, boreholes, and pipes to increase access to potable water through the improvement and enhancing water infrastructure development

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ii. Since mismanagement of water are identified as one of the leading factors that trigger the water scarcity in the study area, it advised to promote adequate and efficient implementation of water conservation methods and practices, such as rainwater harvesting and grey water reuse.

iii. Both government and NGOs should create massive campaign and awareness through public engagement on water management decisions and educate them on water conservation techniques.

iv. Government through expert on climate issues should provide techniques to support farmers and entire public in adopting climate-resilient and adaptation strategies on agricultural practices to reduce water usage.

v.   Population growth management: Implement family planning programs to mitigate the impact of population growth on water resources.

REFERENCE

Abubakar, I.R. (2018). Strategies for Coping with inadequate Domestic Water Supply in Abuja. *Nigeria Water International, 43*: 570 –590.

Abubakar, I.R. (2019). Factors InfluencingHouseholds' Access to Drinking Water inNigeria.*Utilities Policy,58*: 40 –51.

Ahmad Muhammad Tsauni (2012). Impact of Water Shortage on Household Consumption Expenditure in Kano metropolis. Issues in Governance, leadership and the Nigerian Economy. Published by the *Faculty of Social Science, Bayero University Kano,* pp 173-185.

Al-Amin, M. And Mahmud, K. (2011). Domestic Water Consumption Patterns in RuralBangladesh. Islamic University of Technology, Gazipur Bangladesh.

Grey, D. &Sadoff, C. W. 2007 Sink or swim? water security for growth and development. Water Policy 9, 545–571.

Intergovernmental Panel on Climate Change (IPCC) (2013).Freshwater resources. *Climate Change 2013. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Lacsu.

Watson, J. T., Gayer, M. & Connolly, M. A. (2007).Epidemics after natural disasters. Emerging Infectious Diseases 13 (1), 1.

World Health Organisation (WHO)(2021). Drought overview. Retrieved November 28, 2022, from WHO website: https://www.who.int/health-topics/drought#