Status of Water Supply and Sanitation in Hadejia Local Government, Jigawa State, Nigeria

Nura Isyaku Bello, Ahmad Said Abubakar, Hassan Adamu & Abdulkadir Bello

Aliko Dangote University

ABSTRACT

This research dwells on status of water supply and sanitation in the study area. It employs both primary and secondary data. Primary data were collected using questionnaire as tools for data collection where multistage sampling was adopted. The study area was stratified and questionnaire administered systematically to solicit information from respondents. The research established strong relationship between economic status, level of education, water supply and environmental sanitation. The water supply is frequent and majority about 79% source it form tap water system and have toilet in their houses. The distance to the water sources is very short, majority trek less than 500 metres (78%). The overall status of water supply and sanitation in Hadejia is good.

Keywords: water supply, sanitation, hadejia, jigawa, nigeria.

Classification: NLM: WA 30-60

Language: English

London Journals Press

LJP Copyright ID: 573384
Print ISSN: 2515-5784
Online ISSN: 2515-5792

London Journal of Research in Humanities and Social Sciences

Volume 23 | Issue 6 | Compilation 1.0

Status of Water Supply and Sanitation in Hadejia Local Government, Jigawa State, Nigeria

Nura Isyaku Bello[α], Ahmad Said Abubakar[σ], Hassan Adamu[ρ] & Abdulkadir Bello[ω]

ABSTRACT

This research dwells on status of water supply and sanitation in the study area. It employs both primary and secondary data. Primary data were collected using questionnaire as tools for data collection where multistage sampling was adopted. The study area was stratified and questionnaire administered systematically to solicit information from respondents. The research established strong relationship between economic status, level of education, water supply and environmental sanitation. The water supply is frequent and majority about 79% source it form tap water system and have toilet in their houses. The distance to the water sources is very short, majority trek less than 500 metres (78%). The overall status of water supply and sanitation in Hadejia is good.

Keywords: water supply, sanitation, hadejia, jigawa, nigeria.

Author α ρ: Department of Geography, Aliko Dangote University of Science and Technology, Wudil.
σ: Department of Geography, Aminu Kano College of legal and Islamic Studies.
ω: Geography Department, Kano State College of Education and Preliminary Studies.

I. INTRODUCTION

Water is fundamental to sustenance of life and safe drinking water is so essential that is why it is recognized as a basic human right (WHO, 2015). Worldwide 2.2 billion people do not have access to adequate supplies of water and almost 4.2 billion people suffer from poor sanitation problems, and latest UN data estimated that by 2050 this could rise to almost 5 billion peoples living in areas of water scarcity. Millions of people, particularly children, annually from contaminated water and about 95% of deadly diseases in are related to water consumption. Therefore, water is essential to sustainable development, about 673 million people practice open defecation and estimated 3 billion people have no access to basic hand washing facilities to practice personal hygiene (WHO, 2021).

Globally, 663 million people lack access to safe water although there is regional variation. The populations without access to safe drinking water are mainly in Sub-Sahara Africa. Millions of people in rural communities and poor urban centers throughout this region suffer from lack of clean, safe water (Water Project, 2015). In 2004, only 59% of the world population had access to any type of improved sanitation facility, 4 out of 10 people worldwide have no access to improved sanitation. Therefore, they defecate in the open or use unsanitary facilities, with a serious risk of exposure to sanitation- related diseases. The global statistics on sanitation hide the dire situation in some developing regions. With an average coverage in developing regions of 50%, only one out of two people has access to some sort of improved sanitation facility.

It was agrees that sensitization and awareness campaign should be organize to educates the stakeholders and their subjects on adequate strategies to adopt to avert severe water scarcity. There is need for team work between national governments, multilateral bonds, UN agencies, professional associations, the private sectors and development partners (NGOs) etc., for development and effective management of water resources sustainably (UNESCO, 2006).

Inadequate proper water supply and sanitation conditions results to outbreak of infectious diseases and pandemics especially diarrheal which claims more than one million people globally, and also serve as bottleneck to the

London Journal of Research in Humanities and Social Sciences

effective prevention and management diseases such as malaria, typhoid, malnutrition and cholera (WHO, 2018). In developing countries, free public conveniences are not available but rather privately established toilet for material gain in almost all the public places (Auwal *et.al* 2020).

The UN consider universal access to clean water and sanitation as basic human right and important step towards improving living standards all over the world. Place with poor water supply are economically poor and their residents trapped in cycle of poverty. In all access to adequate and sufficient water supply is better enhance by an efficient distribution system (Amori, 2009: Abdulkadir, et,al, 2019).

In 2019, about 60 million people in Nigeria are living without access to basic drinking water services and 80 million without access to improved sanitation facilities, and 167 million without access to a basic hand washing facility (IDA, 2021). In rural areas, 39 percent of the households lack access to at least, basic water supply services, while only half have access to improved sanitation and almost 29 percent practice open defecation (WHO, 2018).

II. LITERATURE REVIEW

2.1 Urban Sanitation

Nigeria lacks a comprehensive strategy on sanitation as a whole, including excreta disposal, solid waste disposal, wastewater disposal, drainage and treatment of wastewater. The new Water Supply and Sanitation Strategy document links sanitation development to water supply under the Ministry of Water Resources, however sanitation units from the Ministries of Health and Works and Housing have recently been transferred to the Ministry of Environment. Currently, individual solutions are adopted at the household level e.g. pit latrines, septic tanks and storage. There is very little sewerage in urban Nigeria. Regarding solid waste, while there is some level of public and private solid waste collection, the frequency of collection is poor. The storm water drainage system is frequently a disposal point for solid waste. Moreover, disposal, when waste is collected, is by dumping rather than sanitary landfill and is a major cause of water pollution either through the storm water drainage system or through seepage into the groundwater. Wastewater disposal pollutes the surface water. Being in an embryonic stage, the sanitation sub-sector requires better-formulated policies and a massive injection of well-formulated investments, designed specifically for African conditions, combined with institutional reforms. The Bank has been the only donor in the sub-sector with three projects to address this situation, but these efforts need to be multiplied significantly.

III. STATUS OF SANITATION FACILITIES

The 1997 survey also indicated that about 15% of the population did not have access to safe excreta disposal facilities and that about 75 % use pit latrines. The situation throughout the country is thought to be worse than this, with many facilities not operational or not well maintained. About 60 % of the people were shown to discharge their wastewater directly to the environment with no consideration of aesthetic or health consequences. Although water quantities are comparatively low since water is mostly hand-carried, drainage in many areas is poor, and good breeding conditions for mosquitoes are created. Most residents have no organized way of dealing with their solid waste. Water Supply and Sanitation Challenges in Small Towns and Rural Areas In rural areas, 8 out of 10 people still lack access to improved drinking water sources, with the majority living in Sub- Saharan Africa (319 million) and South Asia (134 million). With only 51 percent of the rural world's population using improved sanitation facilities, rural areas lag far behind urban areas, where the access rate is 82 percent. Seven out of 10 people live without improved sanitation facilities, and 9 out of 10 people still practicing open defecation live in rural areas.

The aim of this paper is to examine water supply and sanitation situations in Hadejia Local Governement, Jigawa State. The aim was achieved through the following objectives;

- To identify the sources of water supply in the study area.
- To identify the sanitation facilities available in the study area
- To examine the relationship between socio-economic status and sanitation

IV. METHODS

4.1 Description of the Study Area

Hadejia town is located in eastern part of Jigawa state between latitude 12.4506°N and longitude 10.0404°E. The town lies to the north of the river Hadejia, and it is upstream from Hadejia-Nguru wetlands. It shares boundary with Kirikasamma to the east, Malam Madori to the north and Auyo to the west. It has the total population of 105,628 (NPC, 2006), most of the inhabitants are Hausa/Fulani living together with other tribes such like Yoruba, Igbo, Kanuri among others. The geology of the study area is Chad formation with semi-arid type of climate. It is characterized with long dry season and a short wet season and average annual temperature of 27°C. The total annual rainfall ranges from 600mm to 762mm and falls within the Sudan Savannah with an extensive open grassland and few scattered trees (E.A.Olofin, 2016).

The research utilized both primary and secondary data. Primary data was sourced using questionnaire and field observation (Olajuyigbe, 2012),while the secondary data were derived from documentary sources such as journal articles, dissertation, and technical reports. One hundred (100) questionnaires were use in data collection. The questionnaires were distributed using multi stage sampling. The study area were group according to strata, therefore, political wards was considered as strata in the research. Then, systematic sampling was used where by the researcher select the first house randomly in each stratum and count the ten houses subsequently to administered the research instrument. The process continues until all the questionnaires were exhausted.

V. RESULTS AND DISCUSSION

Table 1: Bio-data of the Respondents

Questions	Variable	Number of respondent
Gender	Male	86
	Female	14
Total	100	
Age	0-20	21
	21-40	54
	41 to above	25
Total	100	
Marital Status	Married	45
	Single	54
	Widow	1
	Divorced	0
Total	100	
Occupation	Civil servant	29

London Journal of Research in Humanities and Social Sciences

	Trader	22
	Artisan	3
	Farmer	24
	Others	22
Total	100	
Educational Status	Islamiyya	18
	Primary	5
	Secondary	36
	Tertiary	41
Total	100	
Monthly Income of the respondent	₦1-₦50,000	21
	₦50,001-₦100,000	54
	Above ₦100,000	25
Total	100	
Family size of the respondent	0	58
	1-5	25
	6-10	15
	11 to above	2
Total		100

Source: field survey, 2022

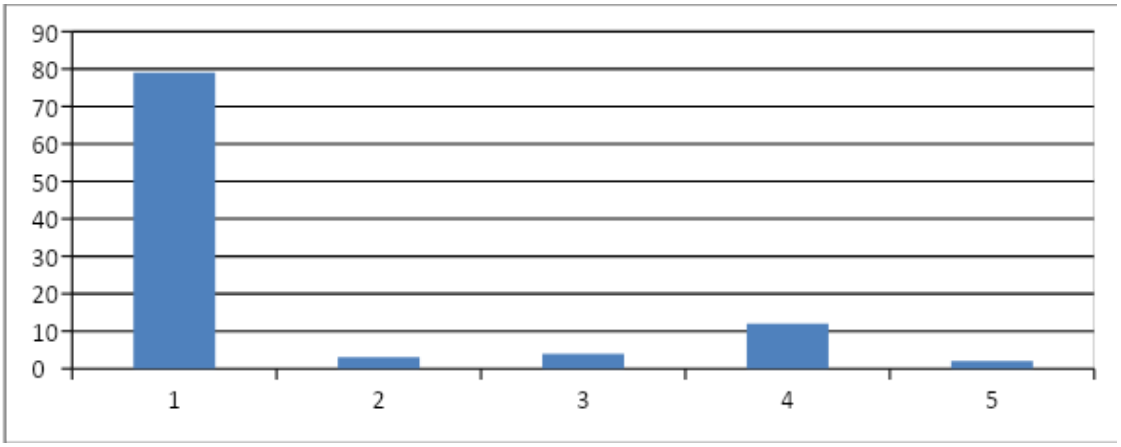
Based on the questionnaires distributed to 100 respondents living in Hadejia shown on table 1, more than fourth-fifth (4/5) of the respondents is males (86%). This result tallies with finding of Jallo, Kodiya, and Modu (2021) which show cases more males than females. However, in terms of age, majority of the people living in the study area are young between 21 – 40 years old. The second response is those between 41 to above years (25%). Majority of the respondents in Hadejia are between 26-45 years old as reported by Jallo, Kodiya, and Modu (2021). On the other hand, the marital status of the respondents indicates that those single are 54%, followed by married (45%). In contrast, majority of the respondents are civil servants (29%), farmers are 24% and trader (22%). This contradicts the result of Jallo, Kodiya, and Modu (2021) which pin pointed that majority of the respondents are traders, followed by farmers, civil servants, unemployed and others engage in fishing, carpentry and other hand works activities respectively.

On the other hand, educational level of the respondents indicated that only 18% did not have western education but majority of them (41%) have tertiary with 36% having O-Level certificates. The result is in line with studies conducted by Gambo *et al* (2018) which prove that 46.7 percent of the respondents in Hadejia attained tertiary education. Nevertheless, the result is against the finding of Nura *et al.* (2020) which stated that about 40% of the respondents do not attend any kind of formal education in Kano state.

Based on the income received by people in Hadejia, it is indicated that they are medium income earner. Their monthly income received fall over poverty level set by World Bank (2020) which says those living under US$1.90

(conversion level $1 = #360, i.e. 1.90 * #420 = #798) per day. Those receive less than US$57 (#23,940) per month are said to be in poverty level and mostly poverty goes hand-in-hand with environmental sanitation (Incekara & Abubakar, 2014). This indicated that 79% of the people fall above poverty level. While those receive between # 1 to #50, 0000 per month constitutes only 21% respondents. This negates the result Nura *et al.* (2021a) which asserted that majority of the respondents earn below #50, 0000 per month. In terms of family size, majority of them are single (have neither wife nor child). One-fourth (1/4) have family size between 1-5, followed by those have family size between 6-10 (15%) and those have above 10 family size are 2%. In contrary to what Nura *et al.* (2021a) identified in their research that shows that about 32% of the respondents are having family of more than fifteen in Kano state. While Ali, Abdullahi, Tanko, and llah (2018) identified 38% of the respondents in Dala local government area have 5-10 persons as their family size.

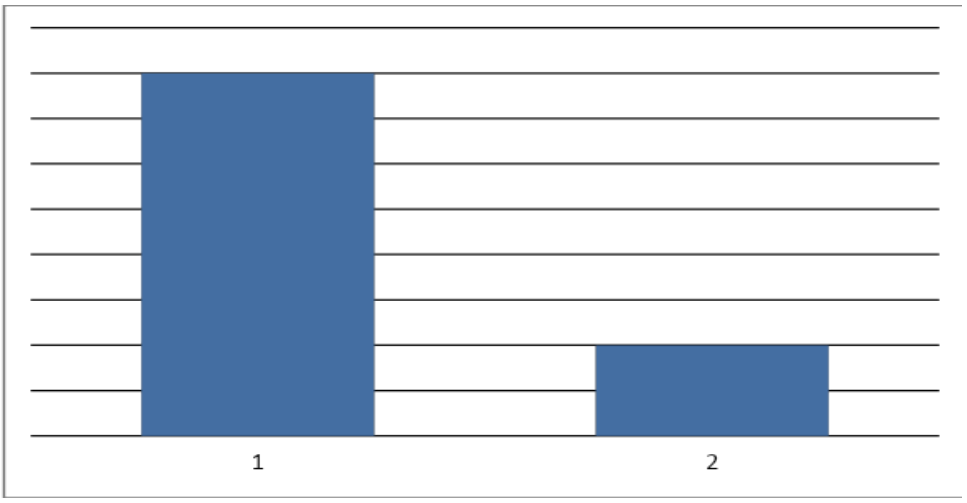
VI. SOURCES OF WATER SUPPLY IN HADEJIA



Source: Field Survey, 2022

Figure 2: Showing water supply in Hadejia

Figure 2 shows that majority of the respondent (79%) get their water source from tap bone water. Only two (2) respondents fetch water from either stream or river. This violates the finding of Ali *et al.* (2018) which reveals that the source of water is tap water and Bello (2019) which stated that large portion of the populace in Kano still use pit latrine,.

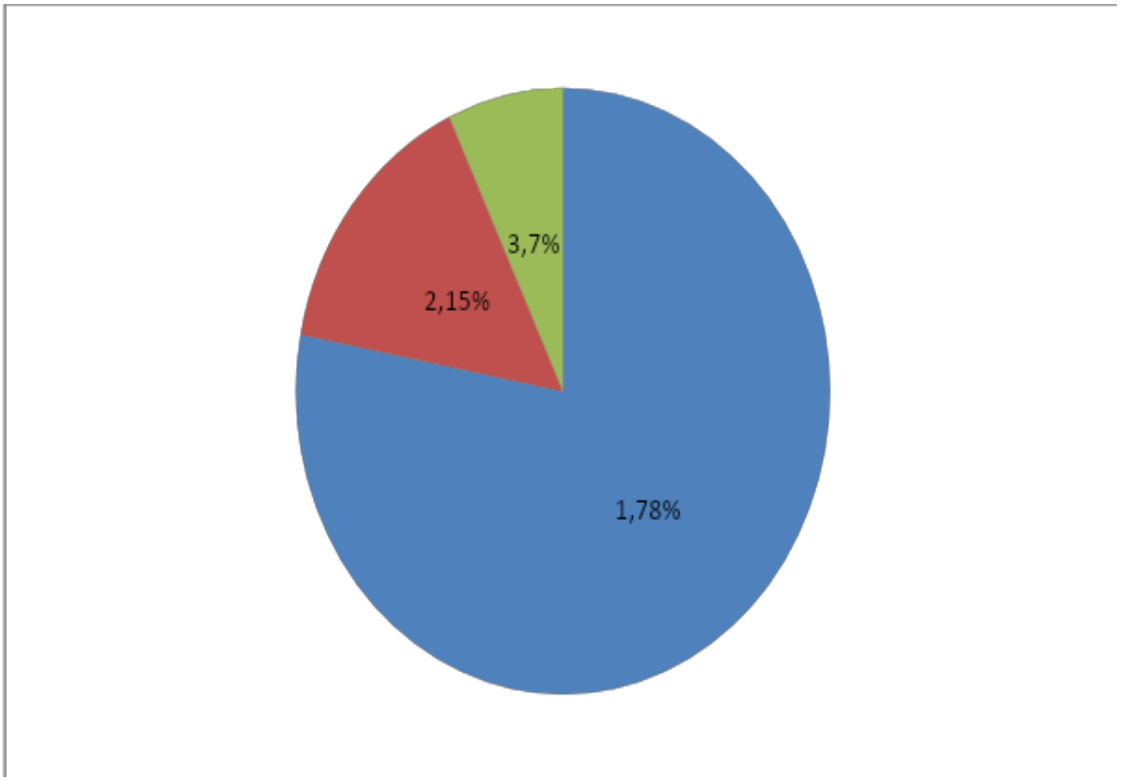


Source: Field survey, 2022

Figure 3: Showing reliability on water supply

6.1 Distance to Water Sources

Figure 3 shows that more than two-third of the respondents (80%) have availability of water. This indicates that there is water availability in Hadejia area.

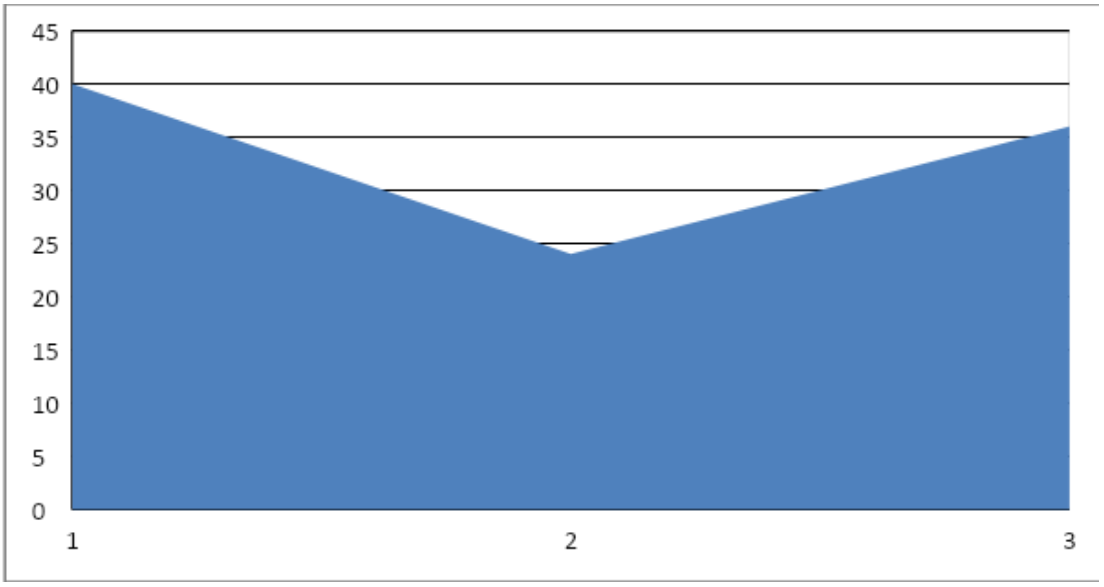


Source: Field Survey, 2022

Figure 4: Showing distance from residence to water fetching center

6.2 Water Consumption Per Household

Figure 4 indicates that majority of the respondent do not have tap in their houses until they trek few meters to fetch water. Only 7% of the respondents trek for more than one kilometer before getting water. This displays that people in the area have access to water. This corroborates the study conducted by Nura *et al.* (2020) which say that distance remains one of the major determinants for domestic water consumption with, high consumption of water from those living near the source of water. It is also in line with finding of Mpyet, Muhammad, Adamu, Umar, Tafida, Ogoshi, Maidaura, Isiyaku *et al.* (2018) which reveals that in Birnin kudu, Buji, Dutse and Kiyawa have access to water in a distance of a < 1 km round trip.

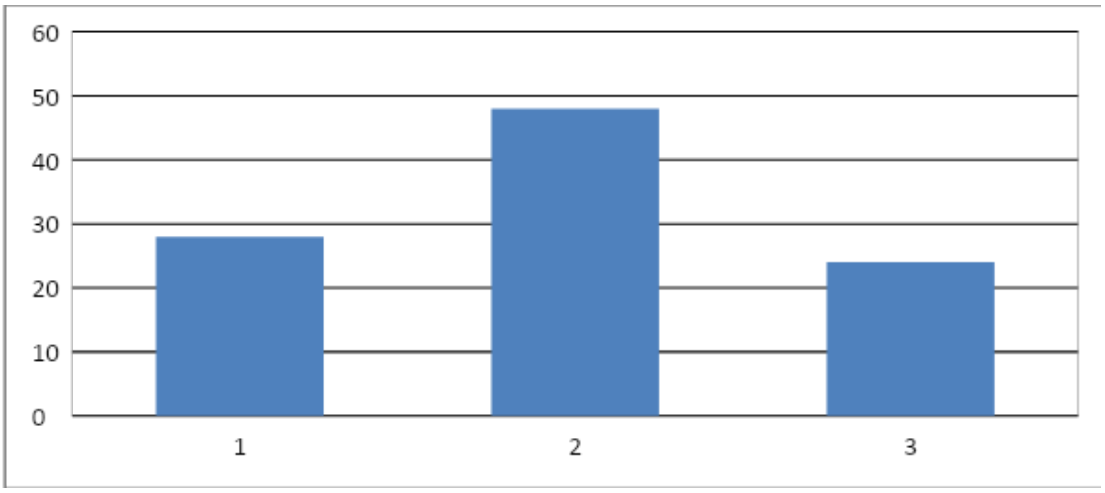


Source: Field Survey, 2022

Figure 5: Showing amount of liter consume daily

6.3 Problems Encounter in Accessing Water

Figure 5 reveals that the amount of water use every day in the area is uneven. The result shows that 40% of the respondents use water from one jerry can to five jerry cans (1-5). While those use more than eight jerry cans are 36%.



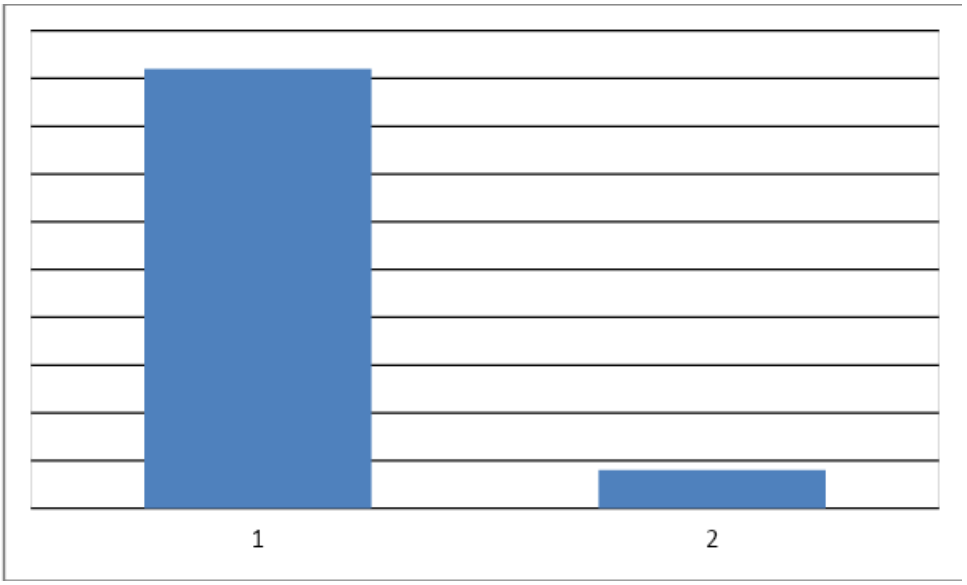
Source: Field Survey, 2022

Figure 6: Showing Problem face while sourcing water

Figure 6 reveals that the main problem respondents suffer in getting water is irregularity or uncertainty in water supply from the authority. This is because majority of the respondents depend upon the community tap for water fetching. This indicates that almost half of their problem is irregularity in water supply which has 48% followed by distance from source of water to residence (28%) and long queue has 24%. This result is in line with finding of Bello *et al.* (2021) which stated that majority of People in Kano depends on vendors for their domestic water supply due to irregularities and uncertainties in water supply system. On the other hand, this contradicts the result of Nura *et al.* which identified nature of the narrow street in the inner city wall of Kano become a problem for accessing water especially from water vendors.

London Journal of Research in Humanities and Social Sciences

6.4 Toilet Availability Per Household

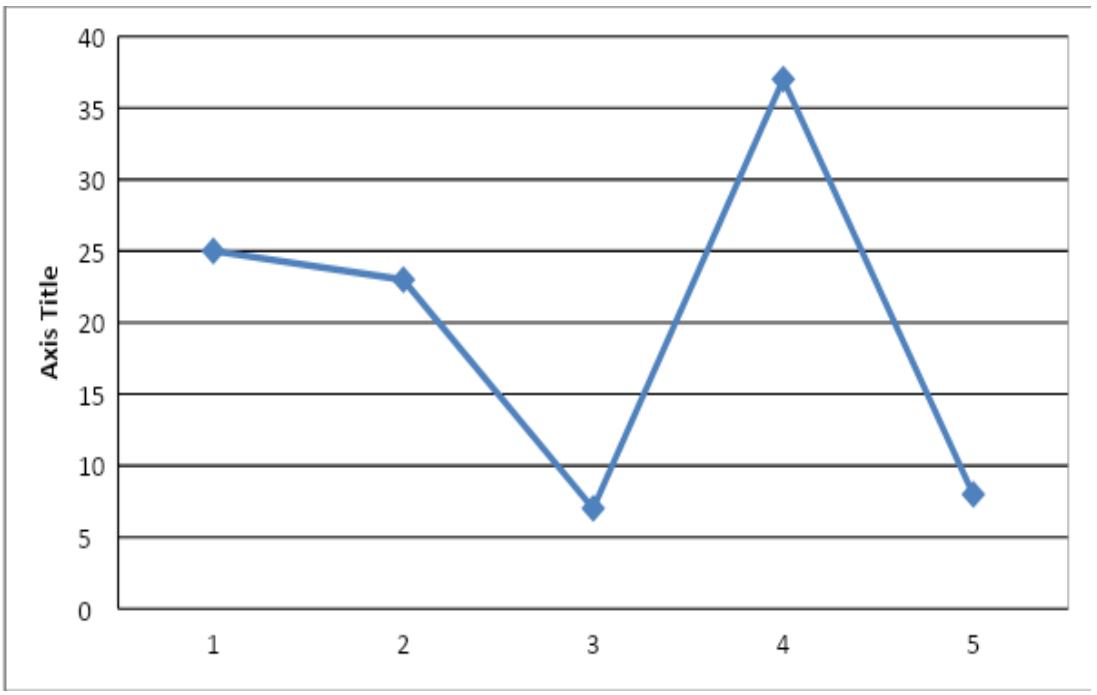


Source: Field Survey, 2022

Figure 7: Showing if the respondents have toilet in their domicile

Figure7 displays that most of the respondents have toilet (92%). This indicates that water for purification and flushing (in some modern toilets) is needed.

6.5 Types of toilet available

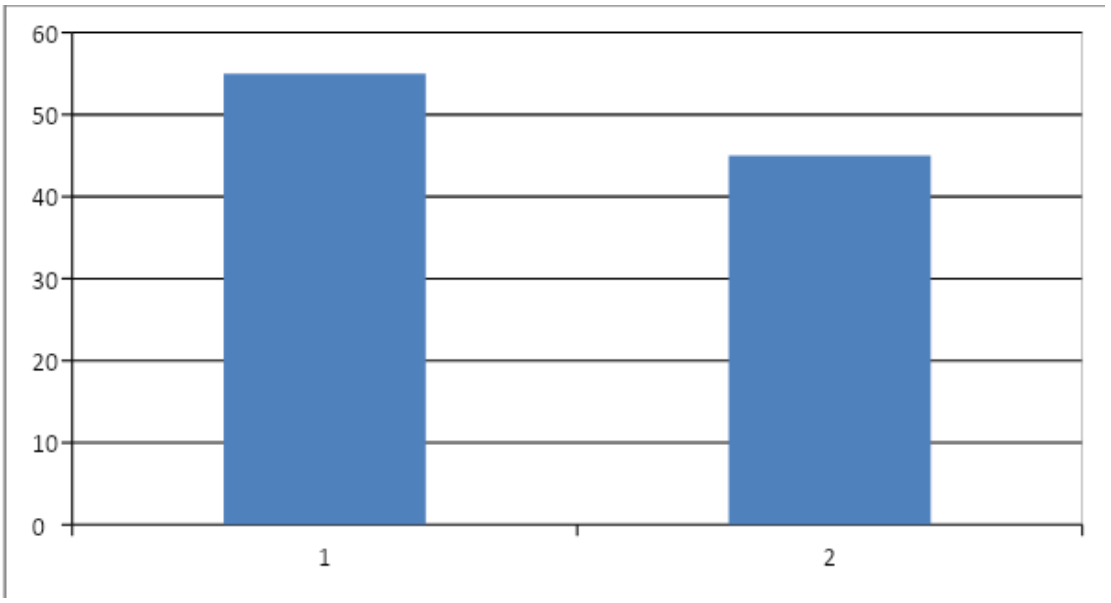


Source: Field Survey, 2022

Figure 8: Showing Types of toilet facilities are available in the study area

The result shows that majority of the respondent (37%) use modern toilet (flush) which necessitated them to need for much water for sanitizing the toilet. Pit latrine (traditional toilet

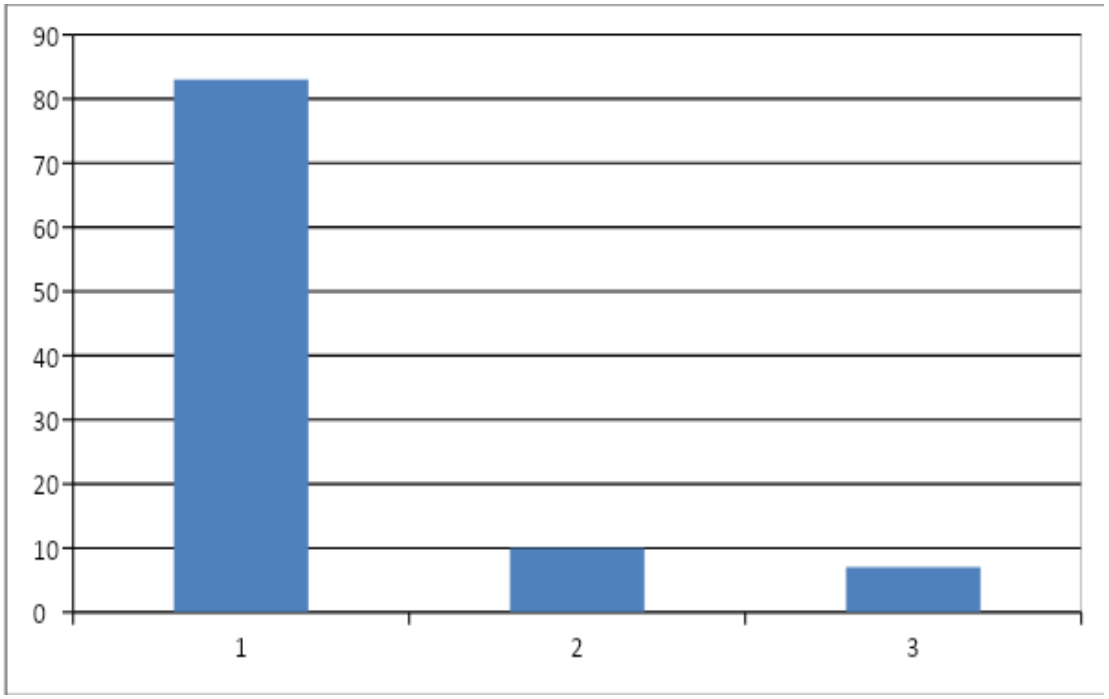
or latrine) takes 25% and open defecation as 23% (figure 8). Only 7% of the respondents use public toilet. As against the finding of Ali, Abdullahi, Tanko, and llah (2018) which reveals that pit latrine is the major type of toilet facility.



Source: Field Survey, 2022

Figure 9: Showing if the respondents share toilet facilities with respondents

Most of the respondent share toilet facilities their family members (55%); with 45% of the respondents do not share toilet facilities with their household (figure 9).



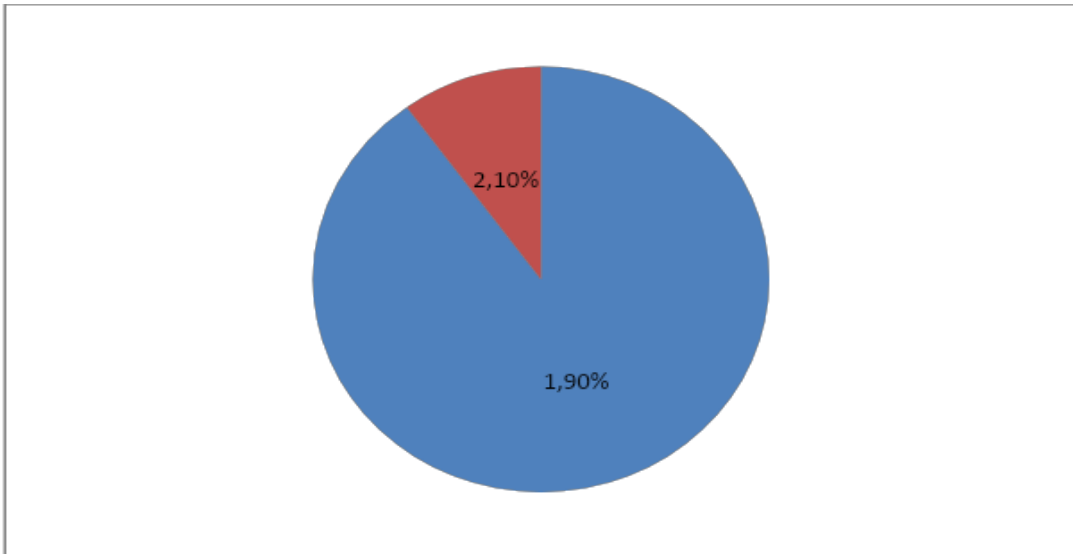
Source: Field Survey, 2022

Figure 10: Showing toilet facility per household

London Journal of Research in Humanities and Social Sciences

Figure 10 indicates that 83% of the respondents have 1 to 3 toilet facility in their houses; 10% of the respondents have 4 to 6 toilet facility. Those have 7 and above takes 7%. This showcases typical traditional Hausa land where they have homestead with more than 50 persons per house. Therefore, they need more toilets.

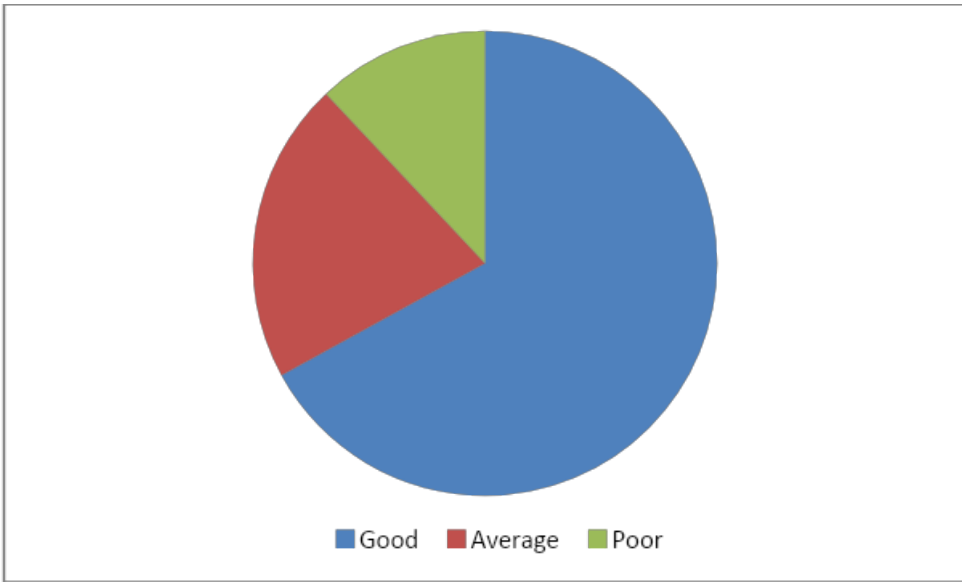
6.6 Method of Wastewater Discharging



Source: Field Survey, 2022

Figure 11: Showing methods managing wastewater in the study area

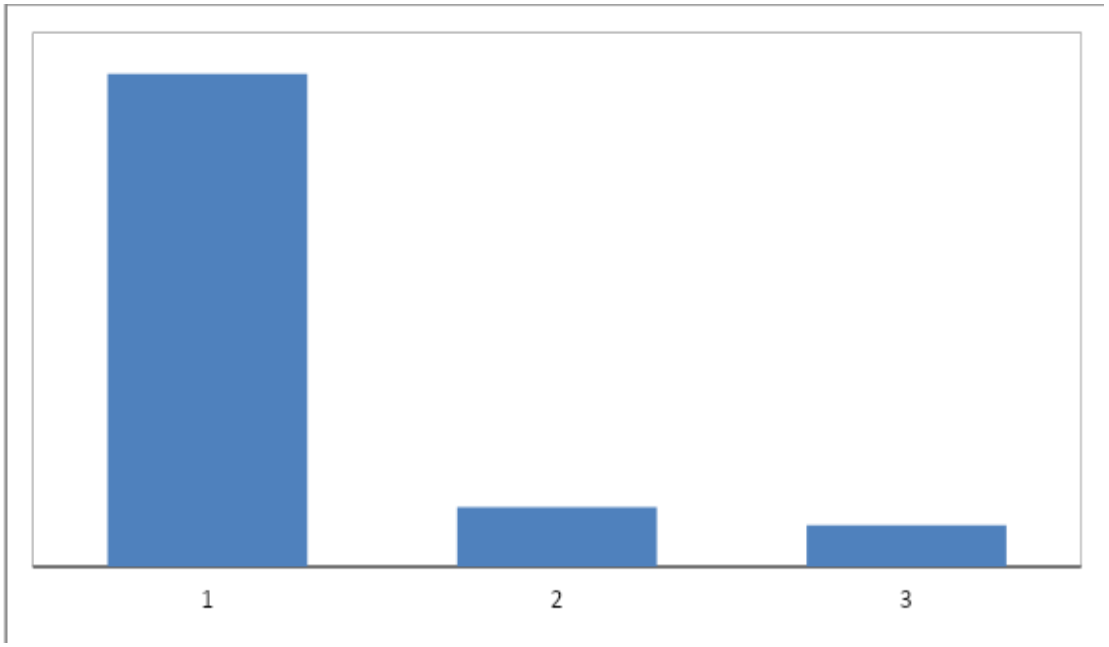
The main method used by the respondents in managing waste water is disposal via gutter which has 90% then disposal on ground which took 10% (Figure 11). This is in accord with finding of Mansur (2015) which demonstrates that the respondents in Dutse area Jigawa state mainly practice open dumping in unauthorized areas. But, it violates the result of Kazaure (2016) which stated that 64% of the respondents in Dutse metropolis, Jigawa state dispose their waste in an approved government sites.



Source: Field Survey, 2022

Figure 12: Showing the rate of water supply and sanitation in Hadejia Town

Based on the result of this research, it is indicated that 67%, 21% and 12% of the respondents believe that the sanitation and water supply is good, average and poor status (Figure 12).



Source: Field Survey, 2022

Figure 13: Showing methods to reduce poor sanitation problem in the study area

Personal hygiene took the highest score (83%), followed by environmental sanitation (10%). To other respondents, improving toilet facilities will improve sanitation in the study area (Figure 13). This negates the finding of Ali *et al.* (2018) proposes improve toilet facility as the major control measure, followed by cleaning environment and adequate sanitary measures.

VII. CONCLUSION

Water at sufficient quality and quantity is indispensable for qualitative health. Water supply in the study area is recommendable because 79% of the respondents sources water from tap water system that is clean and hygienic, and they cover minimal distances to the sources. Majority of the respondents are having average income earners and their income is above poverty line of US$1.90 (conversion level $1 = #360, i.e. 1.90 * #420 = #798) per day. These translate to good sanitation, as all the respondents have toilet in their respective household. The overall score of environmental sanitation in the study area according to the research base on respondent's views is good.

REFERENCES

1. Abdulkadir B., Nura I. B., Tajudden I. W., Ibrahim K. A. (2019). Assessment of Water supply Shortages in Zango, Rimin Kebe Area, Ungogo Local Government, Kano State. DUJOPAS 5 (2a): 23-30, 2019
2. Ali, A.F., Abdullahi, H., Tanko, A.I. and llah, S.K. (2018). Water Supply and Sanitation Challenges in Dala Local Government Area of Kano State, Nigeria. *DUJOPAS 4(2): 604 - 611, 2018*
3. Angoua, E.L, Dongo, K., Templeton, M.R., Zinsstag, J., & Bonfoh, B. (2018). Barriers to access of improved water and sanitation in poor peri-urban settlements of Abidjan, Côte d'Ivoire. PloS one, 13(8), e0202928.
4. Amori, A.A. (2009). Water Resources Mapping in Nigeria: fundamental Issues, Benefits and Constraints. Water Resources 18-25
5. Auwal, H.I., Ahmad, S.A., Bello, N.I. & Ali H. (2020). Spatial Distribution and Locational Implication of Public Conveniences in Kano Metropolis. FUDMA *Journal of Sciences (FJS)* 4 (3), 382 – 388. DOI: https://doi.org/10.33003/fjs-2020-0403-400

6. Bello, N. I., Imam, M. Z., Adamu, H. & Abubakar, A. S. (2021). Overview of domestic water supply in Kano state, Nigeria. *International Journal of Geography and Geography Education (IGGE),* 44, 489-494.
7. Bello, N. I. (2021). Environmental problems as a threat to sustainable urban development in kano metropolitan- a review. In A. Csiszárik-Kocsir & P. Rosenberger (Eds .), *Current Studies in Social Sciences 2021*(pp. 124–133). ISRES Publishing.
8. Blakely, T. S., Hales, C., Kieft, N. W., & Woodward, A. (2005). The global distribution of risk factors by poverty level. Bulletin of the World Health Organization, 83(2), 118-126
9. Gambo, J., Garba, A., Hadiza, Z., Ahmad, M. I., Bashir, S. B., and Yusuf, A.Y. (2018). Assessing the impacts of improper medical waste disposal and residents perception of their disposal practices in Hadejia Metropolis, Jigawa state, nigeria . *Nigerian Research Journal of Chemical Sciences, 4(2018).*
10. İncekara, S. and Abubakar, A.S. (2014). A Comparative Analysis of Students' Attitude towards the Environment. Case Studies from Turkey and Nigeria. Deutschland: Lambert Academic Publishing: ISBN 978-3-569-58033-8
11. Jallo, I.U., Kodiya, M. A., and Modu, M. A. (2021). Waste Management Practices and its Environmental Implications in Hadejia Metropolis, Jigawa State Nigeria. DUJOPAS 7 (2b): 228-236, 2021
12. Kazaure, M. B. (2016). Survey on SWM for Sustainable Development and Public Health in Dutse Metropolis, Jigawa State, Nigeria. *Procedia Environmental Sciences 35 (2016) 57 – 64*
13. Mahama, A. M., Anaman, K.A., & Osei-Akoto, I. (2014). Factors influnecinh householders access to improved water in low-income urban areas of Accra, Ghana. Journal of Water and Health, 12(2), 318-331
14. Mansur, A. (2015) An analysis of solid waste Generation in Dutse Sahelian Zone of Jigawa State, Nigeria. *International journal of Agriculture and Crop sciences.* IJCAS/2015/8-21/81-85
15. Nura, I. B., Abdulkadir, B., Ahmad, S. A. & Ibrahim, K. A. (2020). Water consumption determinants in Rimin Kebe area, Ungogo Local Government, Kano State, Nigeria. *International Journal of Research and Innovation in Social Science (IJRISS),* 4(7), July 2020|ISSN 2454-6186. *www.rsisinternational.org* Page 652.
16. Nura, I. B., Shehu, A., Abubakar, S.A., Bello, A. & Imam, M. Z. (2021). Water vendors participation in domestic water supply in Unguwa Uku, Tarauni Local Government, Kano State, Nigeria. *Fudma Journal of Science*, 4(4), 252-258. DOI: https//doi.org/10.33003/fjs-2020-0404-509
17. Mpyet, C., Muhammad, N., Adamu, M.D., Umar, M.M., Tafida, A., Ogoshi, C., Maidaura, A., Isiyaku, S., William, A., Willis, R., Bakhtiari, A., Olobio, N., Solomon, A.W... (2018). Prevalence of Trachoma in Four Local Government Areas of Jigawa State, Nigeria. *Ophthalmic Epidemiology, 25(S1): 86-92,* DOI:10.1080/09286586.2018.1467468
18. Olofin, E. A. (2016). Wudil Within Kano Region: a Geographical sysnthesi, Department of Geography, Kano University of Science and Technology, Wudil, 2nd edition, Adamu Joji Publishers Kano, 7-20
19. Olajuyigbe, A. E., Rotowa, O. O. & Adewumi, I. J. (2012). Water vending in Nigeria- A case study of Festac Town, Lagos, Nigeria. Mediterranean Journal of social Science Vol 3(1)
20. Sanusi, Y. A. (2010). Water, Saniation and Human Development in Urban Fringe Settlement in Nigeria. Theoretical and Empirical Researches in urban management, 8,17: 14-29
21. Stoveland, S. and B. U. Bassey (2000). Status of water supply and sanination in 37 small towns in Nigeria. Presented at the Donor Conference in Abuja. 2-4 February, 2000
22. UNESCO. The United Nations World Report 2, Water: A Shared Responsibility, UNESCO, Paris. 2006.
23. Water Project 2015. Accessed on 10th November, 2015 from http://www.thewaterproject.org/why-water

24. WHO (2018). Water, Sanitation and Hygiene strategy 2018-2025. Geneva: World Health Organization.; 2018 (WHO/CED/PHE/WSH/18.03). Licence: CC BY-NC-SA 3.0 IGO.
25. World Health Organization (2015). Water sanitation hygiene, water supply and sanitation monitoring and evidence, key fact from JMP 2015 report. See https://www.who.int/water_sanitation_health/monitoring/jmp-2015-keyfacts/en/.