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BASELINE REPORT
OF WASH SERVICES IN 10 LGAs OF KEBBI STATE

The Project For Improved Sustainability of Integrated WASH Service (I- WASH)

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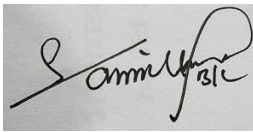
FOREWORD

Access to safe drinking water and sanitation is regarded as a basic human need that every society must strive to achieve. Inadequate access to sanitation, water and hygiene facilities has been linked to water-borne diseases and associated socio-economic challenges.

This report presents a detailed assessment of the existing conditions of WASH services in Kebbi State. It is informed by the statistics from the WASH-NORM II (2019) report, which reveals that only about 22% of the average population in Kebbi State has access to an improved water supply. In fact, Kebbi State has the third-highest percentage of people who have access to unimproved water supplies in Nigeria, trailing only Zamfara and Sokoto States. However, a recent Satisfaction Survey Analysis (SSA) conducted by the Kebbi State Government has shown an improvement in the status of water supply and sanitation compared to the 2019 WASH-NORM report. This baseline survey by Green Habitat Initiative also reflects this improvement, even though the survey was limited to only 10 out of the 21 Local Government Areas (LGAs) of the State. Over 1,000 new water pumps and 300 sanitary facilities have been installed across the State.

Furthermore, with support from multiple donor agencies, the State Government has reactivated and fully disinfected over 900 non-functional water systems to a globally acceptable quality level for potable water. Nevertheless, there is still more work to be done to achieve the sustainable development goal in water, sanitation and hygiene in Kebbi state.

The baseline survey of WASH infrastructure conducted by the Green Habitat Initiative (GHI) is a welcome development for Kebbi State. I believe that the findings of this baseline survey will serve its main purpose of drawing the attention of all the relevant stakeholders towards the critical need of addressing the WASH challenges Kebbi State is facing. Furthermore, it will serve as a reference point for planning and management of WASH facilities in Kebbi State.

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Ag. Permanent Secretary Kebbi State Ministry of Water Resources

PREFACE

Sequel to the GHI cooperative agreement with USAID to implement the Project for Improved Sustainability of Integrated Water, Sanitation and Hygiene (I-WASH) Services in Kebbi and Sokoto States, a baseline survey of WASH services in these states became necessary. This is in order to identify the existing condition of WASH services that will be used in developing the list of most deprived Local Government Areas (LGAs) and subsequently where I-WASH will intervene.

The WASH NORM II report prepared by the Federal Ministry of Water Resources (FMWR) in collaboration with UNICEF and the National Bureau of Statistics (NBS) has provided a brief overview of the baseline condition of WASH services in Kebbi State. However, the purported baseline data in this report were limited by the sparse population sampling size used during data collection, and as a result, a further re-evaluation of the baseline survey in Kebbi State was deemed necessary.

Consequently, this project work was carried out to provide a baseline assessment of WASH services in 10 LGAs of Kebbi State. A detailed overview of the existing conditions of WASH services in selected communities, schools, health centers, and public spaces in these LGAs have been provided in this report.

One of the interesting findings of this baseline survey is the presence of several completed but non-functional water pumps around the State. Despite the State and other donors' efforts in increasing access, most of the pumps break down after a while.

Accordingly, one of I-WASH's interests is advancing the convenience of learning environments. About 9 out of 10 schools in Kebbi do not have access to basic sanitation facilities. A situation that drives a very high existing reality, is absenteeism, especially for the girl child. These findings, of course, will serve as the basis for the eventual selection of communities and institutions that will be prioritized for the I-WASH intervention.

It is our proposal that Kebbi State Government utilizes this comprehensive and unprecedented baseline, by building on it to capture the situation in other LGAs and use it to monitor their progress in achieving SDG 6 targets. All in order to reduce the spread of waterborne diseases and promote economic prosperity in Kebbi State and its citizens.

In conclusion, I would like to express my profound appreciation to the former Honorable Commissioner of Water Resources, Nuradeen Usman Kangiwa and the staff of his ministry, for their support toward completing this survey. Similarly, I wish to also acknowledge the facilitation and relentless support provided by the Hon. Commissioner of Budget and Economic Planning Dr. Abba S. Kalgo. Finally, my gratitude goes to our everyday partner, in and off the field, the General Manager of Kebbi State Rural Water Supply and Sanitation Agency, Engr. (Dr.) Muhammed Bala Yelwa.

Engr. Sadiq Abubakar Gulma, PMP

I-WASH Project Director

President/CEO, Green Habitat Initiative

TABLE OF CONTENTS

ACKNOWLEDGMENT

LIST OF TABLES

List of Figures

LIST OF ACRONYMS

ADM	Administration
COVID-19	Corona Virus Diseases 2019
CHEWs	Community Health Extension Workers
CHOs	Community Health Officers
EA:	Enumeration Area
EC:	Electrical Conductivity
EDUCONSULT	Educational Consultancy Services
FGN	Federal Government of Nigeria
GAVI	Global Alliance for Vaccines and Immunization
GHI	Green Habitat Initiative
GPS	Global Positioning System
HC	Healthcare center
HF	Health Facility
HH	House-Hold
HOD	Head of Department

ICP	Infection control and prevention
IEC	Information, education, and communication
IHP	Integrated Health Program
I-WASH	Integrated Water, Sanitation and Hygiene
JMP	Joint Monitoring Program
LAM	Local Area Mechanic
LGAs	Local Government Areas
MDGs	Millenniums Development Goals
MHM	Menstrual Hygiene Management
MTN	Mobile Telephone Network
NGO	Non-Governmental Organization
NISH	National Integrated Survey of Households
NSDWQ	Nigerian Standard for Drinking-water Quality
O&M	Operation and Maintenance
ODK	Open Development Kit
PTA	Parent Teachers Association
pH	Redox Potential
PHCDA	Primary Health Care Development Agencies
PHCs	Primary Health Centers
RI	Routine Immunization
RUWASSA	Rural Water Supply and Sanitation
SDGs	Sustainable Development Goals
TDS	Total Dissolved Solids
UNICEF	United Nations Children's Fund

USAID	United State Agency International Deployment
VIP	Ventilated Improved Pit Latrines
WASH	Water, Sanitation and Hygiene
WASHCOMS	Water Supply, Sanitation and Hygiene Committee
WASHNORM	Water Sanitation and Hygiene Normal Outing Routine Mapping
WASHIMS	Water Sanitation Hygiene Information Management System
WDC	Ward Development Committee
WHO	World Health Organization
WQAP	Water Quality Action Plan

TABLE 1: GLOSSARY OF TERMS

S/N	Keywords	Definition
1.	Household	A household was defined as a person or group of related and unrelated persons who live together in the same dwelling, unit(s) or in connected premises, who acknowledge one adult member as the head of the household, and who have common arrangements for cooking and eating meals[1]
2.	Safely Managed Drinking Water	Drinking water from an improved water source that is accessible on premises, available when needed and free from fecal and priority chemical contamination[2]
3.	Basic Drinking Water	Drinking water from an improved source, provided collection time is not more than 30 minutes for a roundtrip including queuing[3]
4.	Limited Drinking Water	Drinking water from an improved source for which collection time exceeds 30 minutes for a roundtrip including queuing[4]

5.	Unimproved Drinking Water	Drinking water from an unprotected dug well or unprotected spring[5]
6.	Surface Water	Drinking water directly from a river, dam, lake, pond, stream, canal or irrigation canal[6]
7.	Safely Managed Sanitation	Use of improved facilities that are not shared with other households and where excreta are safely disposed of in situ or removed and treated offsite[7]
8.	Basic Sanitation	Use of improved facilities which are not shared with other households[8]
9.	Limited Sanitation	Use of improved facilities shared between two or more households[9]
10.	Unimproved Sanitation	Use of pit latrines without a slab or platform, hanging latrines or bucket latrines[10]
11.	Open Defecation	Disposal of human feces in fields, forests, bushes, open bodies of water, beaches and other open spaces or with solid waste[11]
12.	Basic Hygiene	Availability of a handwashing facility with soap and water at home[12]
13.	Limited Hygiene	Availability of a handwashing facility lacking soap and/or water at home[13]
14.	No Hygiene	No handwashing facility on premises[14]

Source: **WHO/UNICEF - Joint Monitoring Programme (JMP) Definitions**

EXECUTIVE SUMMARY

Green Habitat Initiative (GHI) entered into a cooperative agreement with USAID to implement The Project for Improved Sustainability of Integrated WASH Services (I-WASH) in Nigeria, targeting mainly Kebbi and Sokoto States. The project's primary goal is to reduce waterborne diseases and associated socioeconomic challenges through an integrated, participatory, and innovative approach that focuses on improving reliable and inclusive access to WASH services in health centers, schools, and unserved/underserved communities within Kebbi and the Sokoto States.

This report presents the baseline survey of WASH services that was conducted in 10 Local Government Areas (LGAs) of Kebbi State. The baseline survey provides current and detailed information about the state of water supply, sanitation and hygiene services in communities, schools, health centers and public spaces.

METHODOLOGY

For each LGA, six wards (representing more than 50% of wards per LGA) were surveyed. A total of 25 households were sampled in each ward, representing about 10% of the sample size (total average of sampling population per ward is less than 500). Standard survey instruments were employed to collect relevant data on demographics, WASH services and facilities in households, healthcare centers, schools and public spaces. In addition, one school and one primary health care centers (PHCs) were sampled in each ward, making a total of 6 schools and 6 per LGA, respectively.

RESULTS

(a) Households- results showed that most respondents are male (head of households) between 26-45 years of age. Monthly household income across the 10 LGAs ranged between ₦30,000 to ₦60,000, and most households have children below five years. In the ten (10) LGAs, the average number of people per HH is 13. In Argungu, the average household size is 10, with Augie 12, Koko-Besse 8, Maiyamma 10, Gwandu 10, Kalgo 12, Bunza 18, Dandi 10, Ngaski 15, and Suru 21. Also, over 50% of respondents mentioned farming as their primary occupation, with Quranic education as the main type of education. The literacy level was found to be generally low.

As for the main source of water, groundwater is the primary source of drinking water across the 10 LGAs. It is typically harnessed using tube wells, motorized boreholes, open dug wells, etc. The proportion of households obtaining drinking water from unprotected sources is very high across the 10 LGAs. For example, in Gwandu LGA, up to 49.7% of respondents obtain water from unprotected sources, with the worst was case observed in Dandi LGA (69.4%). Kalgo and Gwandu LGAs have a high proportion of households with inadequate water supply. In addition, the access to basic water supply across the 10 LGAs is 38%, with safely managed and limited at 7% and 27% respectively.

As for the main source of water, groundwater is the primary source of drinking water across the 10 LGAs. It is typically harnessed using tube wells, motorized boreholes, open dug wells, etc. The proportion of households obtaining drinking water from unprotected sources is very high across the 10 LGAs. For example, in Dandi LGA, up to 51% of respondents obtain water

from unimproved sources, with the worst case observed in Gwandu LGA (57%).

As for sanitation, more than 40% of HHs across the 10 LGAs have access to basic sanitation facilities. The best numbers were seen for basic sanitation services in Dandi (57%), Maiyamma (56%), Bunza (51%), and Gwandu (51%), with Suru and Ngaski LGAs having the least access to basic sanitation services while the rest of the LGAs all have 46% or less access. Open defecation was the typical coping strategy across the board. Furthermore, infant feces were mostly found to be disposed of in open waterways. Generally, communities do not empty their pit latrines except in Gwandu, where 99% of respondents empty their pit latrines. This may be associated with the high-water table in the LGA.

With regards to hygiene, 44% of HHs across the ten LGAs have handwashing facility on premises with soap and water (basic), while 34% have handwashing facility on premises without soap and water (limited) and 22% of households do not have access to hygiene facilities.

TABLE 2: WASH BASELINE DATA FOR HOUSEHOLDS ACROSS TEN LGAS

LGA	Water Supply		Sanitation		Hygiene	
	Basic%	Safely managed%	Basic%	Safely managed%	Basic%	Limited%
Argungu	46	2	32	1	31	19
Augie	50	3	46	0	41	14
Koko-Besse	61	1	44	0	71	29
Maiyamma	53	6	56	0	51	22
Gwandu	20	6	51	0	34	31
Kalgo	23	16	45	1	48	33
Bunza	37	18	51	1	55	42
Dandi	30	4	57	0	35	27

Ngaski	27	2	24	0	58	37
Suru	33	9	16	0	13	86

Regarding the availability of local area mechanics (LAMs), Argungu, Maiyamma, Gwandu, Kalgo, Bunza, and Suru LGAs, representing over 50% of the studied locations, have borehole mechanics. Concerning willingness to pay for improved water supply, most LGAs showed a strong willingness to pay for the operation and maintenance of water facilities.

(b) Health Centers- About 36% of healthcare centers were found to be without a functional water facility and over 50% of HCs have access to basic hygiene facilities with soap and water at handwashing stations. Generally, water for handwashing spots is fetched from the facilities' water source rather than been directly connected to the handwashing stations. In terms of sanitation, around 78 percent of HCs have access to improved sanitation facilities, however utilization is mostly limited due to inadequate water supply.

78% of the studied healthcare centers have no reliable and steady budgetary allocations for WASH services. Also, 92% of healthcare centers have no written operation and maintenance plan for WASH facilities. Cases of waterborne diseases were highest in Gwandu having a weekly average of 550 cases over a 12-week period with Maiyamma and Kalgo LGAs trailing with an average of 242 and 212 cases respectively.

TABLE 3: WASH BASELINE DATA FOR HEALTH CENTERS (HC) ACROSS 10 LGAS

LGA	HCs with Improved Water Supply (%)	HCs with Improved Sanitation Facilities (%)	HCs with Basic Hygiene Facilities (%)
Argungu	83	83	69
Augie	75	75	33
Koko-Besse	90	75	50
Maiyamma	88	50	69
Gwandu	100	67	100
Kalgo	35	64	100
Bunza	25	44	90
Dandi	100	33	100
Ngaski	91	24	39
Suru	33	34	27

(c) Public Schools- The sex composition in schools across the 1- LGAs showed that 98.31% of schools in Kebbi State are mixed. Ngaski, Gwandu, and Augie LGAs have the highest number of females enrolled in school with an estimated figure of 5,222, 4,038, and 3,440 pupils, respectively. Male enrollment in these three LGAs is 7,158, 6,128, and 4907, respectively. These figures represent less than a 2:1 ratio of males to females, respectively. The least enrollment number was in Koko-Besse, with only about 650 female pupils and 1,264 male pupils.

For water supply in schools, 53.1% of schools use unimproved water sources as their primary source of drinking water with 46.9% having access to improved water supply across the 10 LGAs throughout the year. On sanitation, only 12.5% of schools have access to improved sanitation facilities while 87.5% of schools lacked access to improved sanitation facilities. About 81% of respondents in schools across the 10 LGAs mentioned open defecation as the main coping strategy for the inadequacy or non-functionality of toilets.

Furthermore, only 6.6% of schools have access to basic hygiene facilities. while most schools have dedicated handwashing spots within the premises, soap is mostly missing at the handwashing spots thereby rendering 93.4% of the schools to having limited access to hygiene facilities. Most schools lack separate toilets for female students. Consequently, 92% of female students are not comfortable with the use of toilet facilities and around 92% of schools in Kebbi State have no dedicated budget for the operation and maintenance of WASH services.

TABLE 4: WASH BASELINE DATA FOR SCHOOLS ACROSS 10 LGAS

LGA	% of Schools with Access to Improved Water Sources	% of Schools with Access to Basic sanitation facilities	% of Schools with Basic hygiene Facilities
Argungu	50	7	11
Augie	50	14	2
Koko-Besse	50	17	3
Maiyamma	83	13	7
Gwandu	100	42	6
Kalgo	33	11	3
Bunza	33	0	0
Dandi	83	14	8
Ngaski	100	17	15
Suru	33	0	0

(d) Community WASH Infrastructure and Functionality- In public spaces, such as community centers, markets, town squares, etc., 64% of water supply facilities are motorized boreholes, 24% are hand pumps. Furthermore, pipe-borne water from the state water board constituted 3%, and others constituted 9%. From these, 89% are not functional. From the percentage of non-functional facilities, 80% were found to be repairable. Over 93% of public water supply facilities have no established monitoring team from the state or local government levels.

The rate of water facility repairs is generally low. About 40% of WASH facilities are not accessible to people with special needs. The functionality of public toilets is fair at 58%. However, these are mostly unimproved facilities with limited water supply. Most of the sanitation/hygiene facilities (53%) in the studied LGAs are separated based on Gender.

e) Summary of WASH Indicators- Across the 10 LGAs, only 7% of households have access to safely managed drinking water, while 38% have access to basic water supply. On the other hand, up to 27% have limited access to water supply, while about 28% rely on unimproved water sources services.

For sanitation services across the 10 LGAs, 42% of households have access to basic sanitation facilities, 0.2% are safely managed, 41% use improved facilities which are shared between two or more households (limited), and 16.8% of households practice open defecation. In terms of hygiene services across the 10 LGAs, 44% of the households have handwashing facility on premises with soap and water (basic), 34% have handwashing facility on premises without soap and water (limited), and in contrast, 22% have no hygiene facilities.

1. INTRODUCTION

Green Habitat Initiative (GHI) entered into a cooperative agreement with USAID to implement The Project for Improved Sustainability of Integrated WASH Services (I-WASH) in Nigeria, targeting mainly Kebbi and Sokoto States. The project's primary goal is to reduce waterborne diseases and associated socioeconomic challenges through an integrated, participatory, and innovative approach that focuses on improving reliable and inclusive access to WASH services in health centers, schools, and unserved/underserved communities within Kebbi and the Sokoto States.

The project is informed by data from WASH-NORM II (2019) report which indicates that less than 22% of the average population in Kebbi State have access to improved water supply. In terms of percentage of population that accesses unimproved water supply, Kebbi State is the third highest in Nigeria, only better than Zamfara and Sokoto States respectively. Similarly, only 7.8% of the population in Kebbi State use safely managed sanitation services and ranked 31st out of the 36 states of Nigeria. Similarly, only 25.5% percent of its population have access to basic sanitation services, while only 43.6% have access to basic hygiene services. Across all WASH indices, Kebbi State ranks well below the national average.

Region wise, schools in the northwest have the least access to wash services (12%) compared to other geopolitical zones. Lack of access to basic sanitary facilities is one of the reasons why female absenteeism at school increases. Overall, Nigeria has the world's highest number of out of school children and most of them are found in our target area. It is also reported that only 41.7% of the health centers have WASH facilities. 11.5% and 18.8% have only water facilities and sanitary facilities only. A whopping 28% of them have no single WASH facility. An estimated 4 out of 10 schools in our target region do not have any WASH facility. About 6.2% have a water facility and only 13.7% have a latrine.

Water scarcity in the region is exacerbated by climate change and other natural disasters such as drought and flooding. These disasters and inadequate access to WASH services contribute to

outbreak of waterborne diseases, economic losses, worsening learning, living, and working conditions in health centers, schools and communities.

2. OVERVIEW OF WASH SERVICES IN KEBBI STATE

Public data on WASH services for Kebbi state is scarce. Visits to the State Ministry of Water Resources and Kebbi State Rural Water Supply and Sanitation Agency (RUWASSA) revealed that there is a weak data management system in place. This finding further validates the need for this baseline study and also the I-WASH activity in general.

The best presentation of the current status of WASH services in the state is the data presented in the WASH NORM report (2019). The Tables 5, 6 and 7 highlight the findings of the national mapping exercise on water supply, sanitation, and hygiene services. It is pertinent to note that the sampling size for the national mapping was very sparse and therefore subject to further analysis with better data such as the one contained here in this report.

In the area of water supply services, Kebbi state ranks well below national averages for all composite indicators. Over 50% of households use unimproved water sources against a national average of 14.1%. This is very alarming and calls for immediate action to improve access to at least basic water supply. Currently, only about 39% of households have access to basic water supply against a national average of 70%.

TABLE 5: ACCESS TO WATER SUPPLY SERVICES IN KEBBI STATE (SOURCE: WASNORM, 2019)

Composite Indicator	HH members using improved drinking water sources	HH members using Improved drinking water sources accessible within the premises	HH members using basic water supply services	HH members using limited water supply services	HH members using unimproved water sources
Kebbi State	40.4	13.2	39.1	1.3	50.5
National Average	74.6	31.2	70.0	4.9	14.1

The ratio of persons to water sources in Kebbi State is presented as follows; Motorized Borehole 1:12,794; Hand pumps 1: 7,640; Urban scheme 1: 233,799; Semi-urban scheme 1: 63,739; and Village scheme 1: 67,245.9. It suggests that the existing public water supply facilities are inadequate. More water supply infrastructure is needed to provide especially rural dwellers with basic water supply [45].

As for sanitation, the numbers are slightly better against the national average when compared to the water supply. For households using limited sanitation facilities, Kebbi state has a score of 6.7% which is twice better than the national average of 16.7%. Similarly, on open defecation, Kebbi is above the national average with 17.8% of households practicing OD. These numbers make it very clear why Kebbi State continues to rank as one of the top states with recurring cases of cholera outbreaks in Nigeria.

TABLE 6: ACCESS TO SANITATION SERVICES IN KEBBI STATE (SOURCE: WASNORM, 2019)

Composite Indicator	HH members using improved sanitation facilities	HH members using Limited sanitation facilities	HH members using basic sanitation services	HH members using improved sanitation facilities with handwashing facility and soap	HH members practicing open defecation
Kebbi State	41.1	6.7	34.7	10.6	17.8
National Average	59.9	16.1	43.8	16.7	23.1

TABLE 7: ACCESS TO HYGIENE SERVICES IN KEBBI STATE (SOURCE: WASNORM, 2019)

Composite Indicator	HHs with soap observed in their house	HHs with fixed place for handwashing with water and soap present	HH heads that demonstrated proper handwashing with water and soap under running water	HHs where handwashing facility is not available on premises	HHs member with limited hygiene services (where handwashing facility is available on premises without soap and water)
Kebbi State	25.2	11.4	7.4	79.3	20.2
National Average	25.9	15.1	10.0	69.0	25.7

For hygiene practice, Kebbi State ranks below the national average across all indices as presented in Table 7.

2.1. GOAL AND OBJECTIVES OF STUDY

The goal of the baseline survey is to establish baseline data of WASH services in communities, schools, and health centers across 10 LGAs of Kebbi State.

The study has the following objectives:

a) Understand the level of accessibility to water, sanitation, and hygiene services.

b) To determine the level of access to water, sanitation, and hygiene services in Schools.

c) To determine the level of access to water, sanitation, and hygiene services in healthcare centers; To map the functionality of public WASH infrastructure and their accessibility by people within the studied communities.

d) To understand gender roles on WASH and identify inequalities

e) To determine the presence of community structures and their willingness to pay for WASH services.

The household, school, and healthcare indicators this study seeks to measure are outlined in Table 8.

TABLE 8: DISTRIBUTION OF INDICATORS BY AREAS

Parameter	Pointers
Health	Percentage of patients visiting health centers with symptoms of waterborne diseases
	Percentage of healthcare centers with adequate handwashing, waste disposal and toilet facilities
Water	Percentage of people having access to improved water supply services.
	Percentage of people with unimproved water sources as their primary source of drinking water
	Percentage of school children/students having access to improved drinking water at their schools.
Sanitation	Percentage of people having access to improved sanitation facilities
	Percentage of people practicing open defecation
	Percentage of households, school children/students who dispose of the waste appropriately
	Percentage households, students and patients practicing open defecation
Hygiene	Percentage of patients and school children/students having functional hand washing facilities at schools and health centers
	Percentage of people having access to Hygiene services
	Percentage of households, schools, and healthcare centers conducting water quality testing/treatment
Infrastructure	Percentage of functional WASH facilities (toilets and water sources) by LGAs
	Percentage of non-functional WASH facilities (toilets and water sources) by LGAs

3. METHODOLOGY

The baseline survey was conducted in 10 Local Government Areas (LGAs) of Kebbi State. In each LGA, six wards were studied, and data collection covered both urban and rural locations; the survey was conducted in the second quarter of 2021.
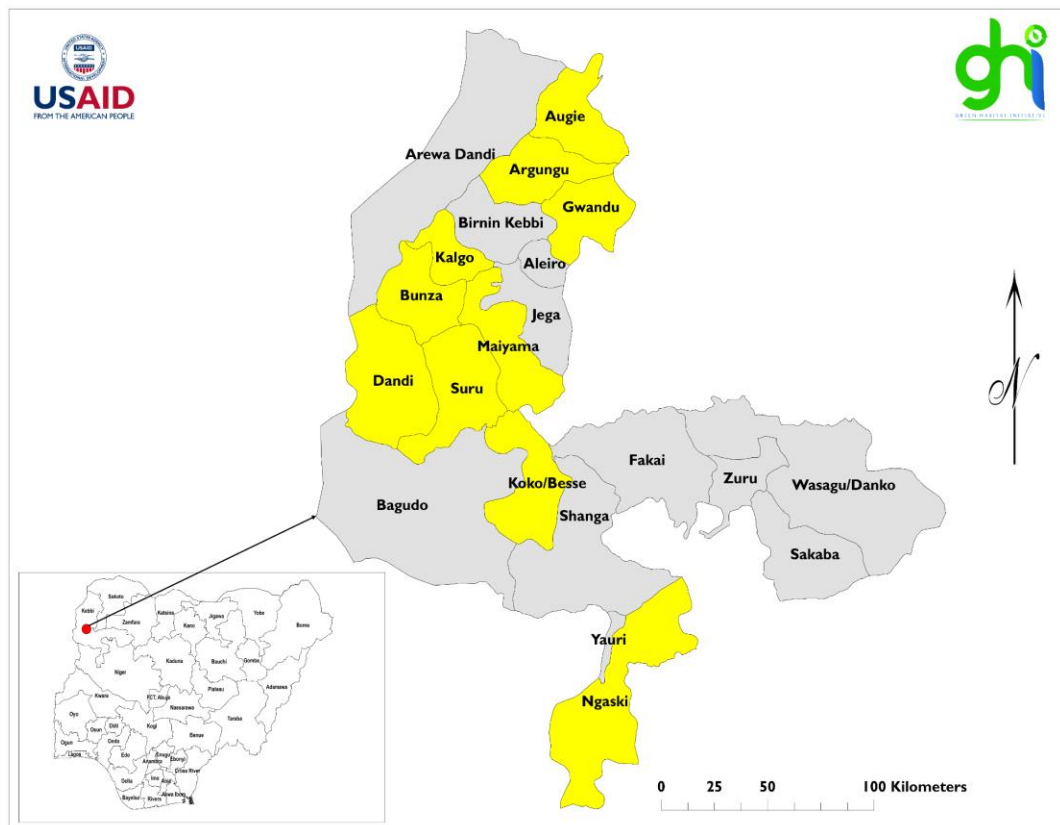
FIGURE 1: KEBBI STATE POLITICAL MAP SHOWING 10 LGAS (YELLOW) WHERE BASELINE SURVEY WAS CONDUCTED

3.1. SAMPLING METHODOLOGY

Like the WASH NORM II (2019), this baseline survey adopted the National Population Commission's Enumeration Areas (EAs) for the 2006 Housing and Population Census and the sampling frame used by the National Integrated Survey of Households (NISH) 2014-2019. The EAs and households were chosen using a two-stage sampling process. The first stage involved increasing the sample frame for the EAs, computing the sampling weight at the LGA, and the second stage involved selecting households from each EA that had been chosen.

In each ward, 25 households, one public school, and one healthcare center were studied. The assessment aimed to profile WASH needs and vulnerabilities at the LGAs, targeting households, educational and healthcare centers, and public WASH infrastructures.

In the ten LGAs studied, the total EAs were 60 from the sample frame, 1,500 households, 60 public schools, 60 health facilities, and 150 public WASH infrastructure. Enumerators were given a random sample of points to help them choose which households to interview. Every day, data were checked and cleaned to increase the accuracy of the findings.

The standard indicators were computed on Water Supply, Sanitation and Hygiene based on the WHO/UNICEF Joint Monitoring Program (JMP) definitions Data were obtained from almost 100% (recovery is more than the target) of the targeted samples out of all the samples predicted to be covered from households and institutions.

Purposive sampling from comprehensive lists of institutions provided by the Ministries of Education and Health was used to build suitable sampling frames for schools, health facilities, and mapping of public infrastructure. As a result, 60 public primary and secondary schools and 60 health facilities were covered across the 60 EAs in 10 LGAs. In addition, 150 public WASH infrastructure were mapped. The mapping was completed in each of the ten LGAs.

TABLE 9: SAMPLING FRAME

S/No.	Survey Tool(s)	Respondents/Target	Target Coverage	Samples Covered
1	Baseline Assessment on WASH Services in Household.	Head of households.	1,500	1,527
2	Baseline Assessment on WASH Services in Health Facilities.	Healthcare Workers.	60	63
3	Baseline Assessment on WASH Services in Schools.	Teachers, pupils/students.	60	67

4	Survey of Public WASH infrastructure.	Availability and Functionality of WASH infrastructure.	150	150

3.2. DATA COLLECTION

Indicators informing the survey questionnaire were developed closely with Green Habitat Initiative (GHI) and EDUCONSULT Global Services. Before starting data collection, enumerators were trained on techniques for administering the baseline questionnaires, and a pilot study was conducted at Kola community in Birnin Kebbi LGA. The pilot provided a testing a validation avenue for the team members and supervisors to suggest and recommend ways of improving the time of administering questionnaires, and overall fieldwork procedure.

The pilot study was conducted for samples listed in households, schools, and health facilities to assess the suitability and appropriateness of the questionnaires and survey execution modalities. Heads of households were identified as the primary respondents for the survey, with households self-selecting respondents if heads of households were unavailable. The data used to compute the volume of drinking water was obtained by the enumerators who counted the number of containers and their capacities. Enumerators were also requested to verify the presence of soap in the home by requesting household members to show them the soap.

3.2.1. DATA COLLECTION TOOL

Field data was collected using Kobo Toolbox, an open data kit (ODK) which is suitable for rapid data collection and management in resource constrained environments. The ODK allows for offline collection data in areas without internet coverage and users can upload the collected data when there is internet service. The ODK was found to be suitable for the survey and data integrity issues were observed.

3.2.2. ADMINISTERING OF SURVEY INSTRUMENTS

Enumerators administered the questionnaires deployed in the Kobo toolbox in person after obtaining consent to perform the interview with the respondents. Only when permission was given to the enumerator, he or she advanced with the interview and filled out the questionnaire. The same procedure was adopted in schools and health care facilities.

To ensure data collection protocols are followed and that quality assurance is maintained, the Principal Investigator and Co-Principal Investigator visited the selected LGAs/Wards to supervise

the data collection process, which resulted in improved data quality and consistency. If a particular ward chosen for the study was neither accessible nor safe, at least two attempts were made before a replacement was decided.

3.2.3. DATA MANAGEMENT AND QUALITY CONTROL

The ODK employed in this survey provides an online database management system with data quality constraints enabled to ensure reliable, consistent, and retrievable data. Each sample collected is geotagged to ensure unique samples are collected and sampling coverage is adhered to. Also, GHI was provided with the online account details to monitor the survey and ensure data quality.

3.2.4. DATA PROCESSING AND ANALYSIS

The survey data was downloaded from the ODK platform in excel format, organized, and cleaned to ensure completeness, consistency, and accuracy. Afterwards, the data was analyzed and interpreted using Excel and PAST 3 Statistical Software (Version 4.03).

3.2.5. ETHICAL CONSIDERATIONS

This baseline survey considered essential ethical criteria, including participant anonymity, fairness, beneficence, and respect. Before engaging houses in interviews, the heads of villages and communities were visited first, and the hospital and school administrators were contacted. The survey data was handled confidentially and adequately. Consent of participants was properly sought, giving them the option of declining or accepting the interview.

The consent and questionnaire were read in the respondents' native language (Hausa Language). Before the interview, the enumerators obtained permission from the respondents to access the WASH facilities within their households. Where entry is denied, the enumerator seeks help from the respondent to capture a water source or pit image while waiting outside. Those households who do not have pit or water sources within the dwellings were not observed.

3.2.6. SURVEY LIMITATIONS AND CHALLENGES

The baseline survey had some limitations and challenges that are highlighted as follows.

I. The survey was conducted in only ten (10) LGAs, and for each LGA, only six (6) wards were sampled. An average of 5 other wards was left out due to small number households (under 100), inaccessibility, security concerns or spatial skewness.

II. There was some apathy towards the enumerators. In such communities, the target population of 150 respondents per ward was not met. However, in some communities that show enthusiasm, more than 150 respondents were interviewed so that the target (1500 respondents) could be met.

III. A lot of time was taken to explain questions and WASH concepts during interviews involving teachers and school students.

IV. Similarly, translating the household questionnaire to the respondents, most of whom cannot speak English, was time consuming.

V. A lot of time was also spent by enumerators walking from the household's location to the water source in communities that rely on public or community water sources for verification of their quality and functionality.

VI. There were religious and cultural concerns in some communities where male enumerators could not have direct contact with women. In this case, female enumerators were utilized.

VII. There were a lot of security concerns in Kebbi due to mass abduction of school children and other criminal activities by bandits and local gang members. Sometimes, the team had to suspend work for days due to these conditions. For example, only one LGA was studied in the Kebbi South due to security concerns; Kambuwa wards was exchanged with Wara ward since it is closer to Birnin Yauri Axis, where over 70 school children were kidnapped during this survey.

VIII. Some households that were interviewed did not have phone numbers, and in some communities determining the most efficient mobile phone network was difficult.

4. ACCESS TO WASH SERVICES IN COMMUNITIES

Health and well-being are influenced by access to safe drinking water, proper wastewater treatment, and hygiene practices. This is recognized in the United Nations' Sustainable Development Goals for water and health. In this section, findings about the status of WASH services among households in Kebbi State are reported
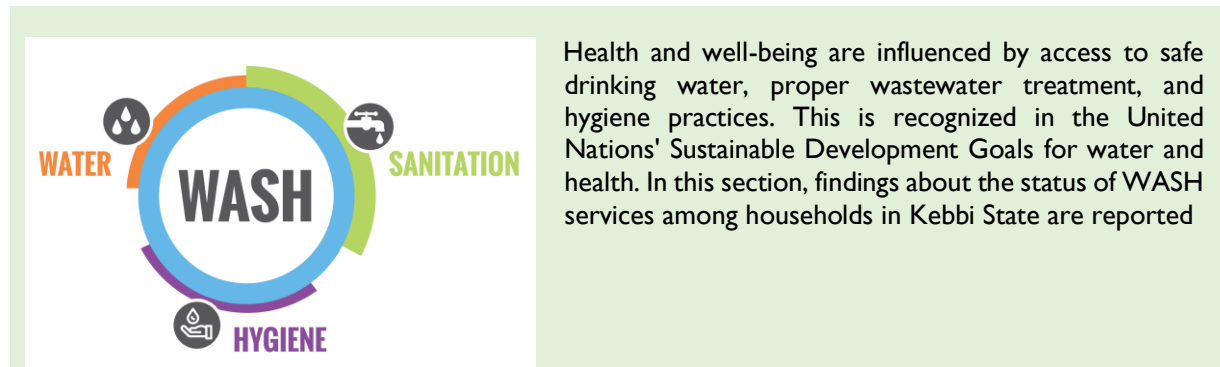
4.1. HOUSEHOLD (HH) SURVEY

4.1.1. DEMOGRAPHICS AND SOCIO-ECONOMIC CHARACTERISTICS

The respondents' socio-demographic attributes are gender, status (i.e., head of household), monthly income, number of people in a household, children under five years, occupation, and educational attainment. The objective is to present a profile of the respondents' socioeconomic and environmental attributes in the study area.

Gender

 Figure 2 summarized the sex composition of respondents in the 10 LGAs. There is a significant difference in the sex composition of the respondents based on the Kruskal-Wallis Test. Most of the interviewees in the studied LGAs are male. However, the most interesting finding was in Gwandu LGA where 76% of respondents were female and 24% were male. Possible reasons for this disparity include culture and type of occupation. Most of the men in Gwandu were at work during the survey.
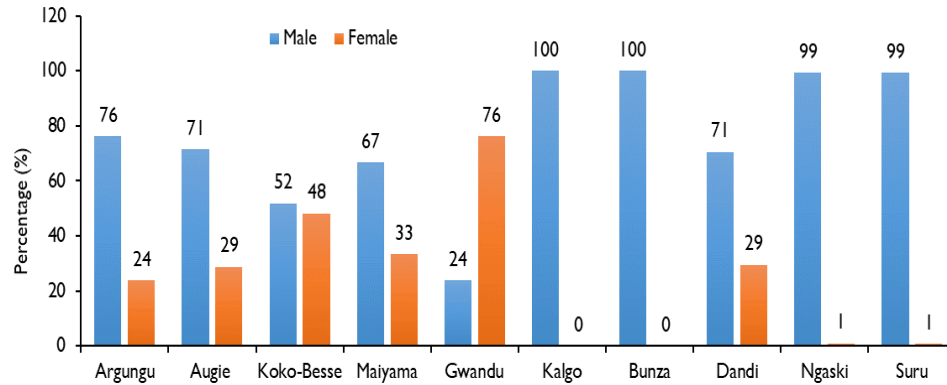
FIGURE 2: GENDER OF RESPONDENTS BY LGAs

Age of Respondents

The age composition is comparable in all LGAs. Although most of the respondents are in this group (26-45), there is a significant difference in age composition among the studied population, as revealed by ANOVA test on the studied LGAs. Generally, the percentage of respondents aged 26-45 is over 40% in the studied LGAs. Figure 3 showed the relative aged composition of the respondents by LGAs.
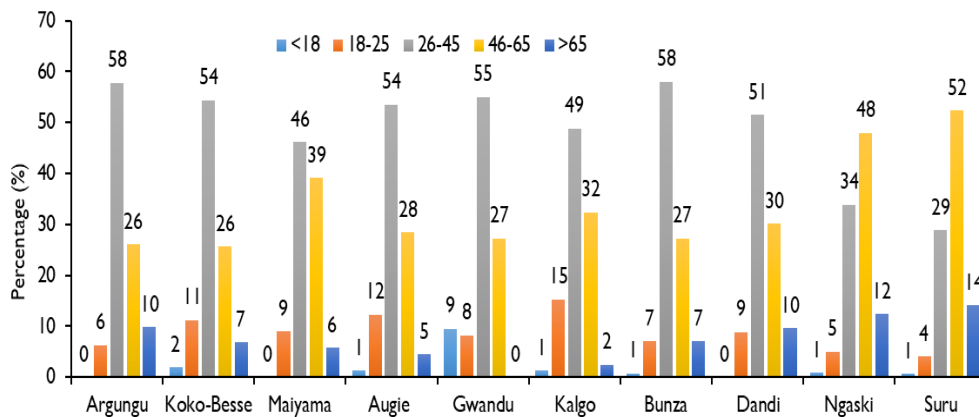
FIGURE 3: AGE OF RESPONDENTS IN %

Status of Respondents

Figure 4 shows the status of respondents (i.e., head of households) in the studied LGAs.

NOTE: Most of the respondents in the entire studied LGAs are heads of households. However, in Gwandu and Kalgo LGAs over 80% of the respondents are not heads of HHs.
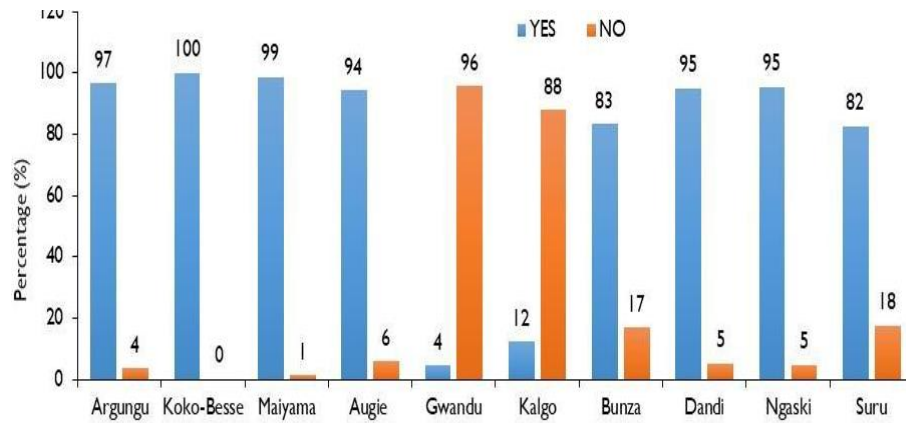
FIGURE 4: STATUS OF RESPONDENTS (I.E., HEAD OF HOUSEHOLD) BY LGAS IN %

Number of People in Household

Figure 5 shows the average number of people in households in the studied LGAs. The household's mean number of people showed that Suru and Bunza LGAs have the highest number of people in the household. Mean household numbers were lowest in Koko-Besse LGA, especially the Gwadabawa ward and Argungu LGA. The number of households varies with sampling wards and the studied LGAs.
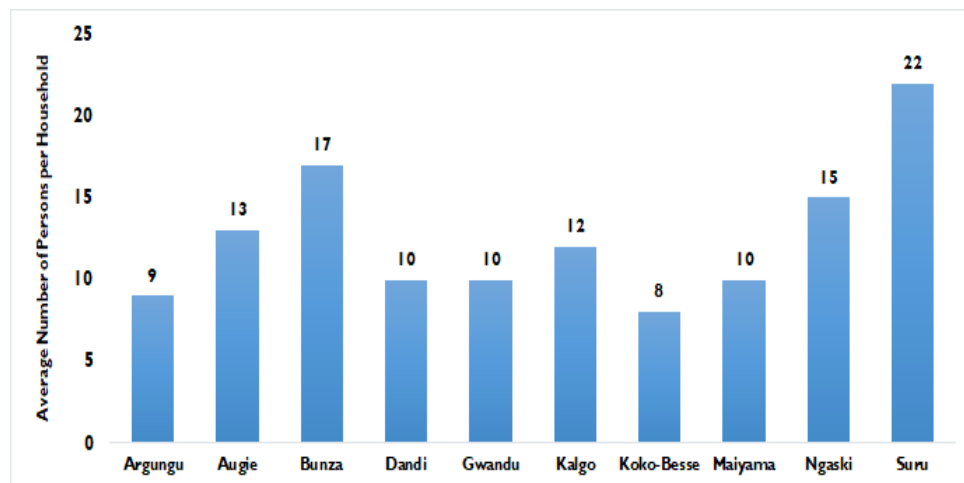
FIGURE 5: MEAN NUMBER OF PEOPLE PER HOUSEHOLD BY LGAS

Household's Monthly Income

Monthly income was highly variable between households (HH) and sampling LGAs. As shown in Figure 4.5, most households in the studied LGAs have income below ₦30,000. The percentage of HH having income below ₦30,000.00 are lowest in Argungu, and Dandi LGAs (Figure 6). However, 22% and 18% of Gwandu and Koko-Besse LGAs have monthly income above ₦100,000 respectively. The relative percentages by income group by LGAs is depicted in Figure 6. Thus, HH are much richer in Gwandu and Koko-Besse LGAs.
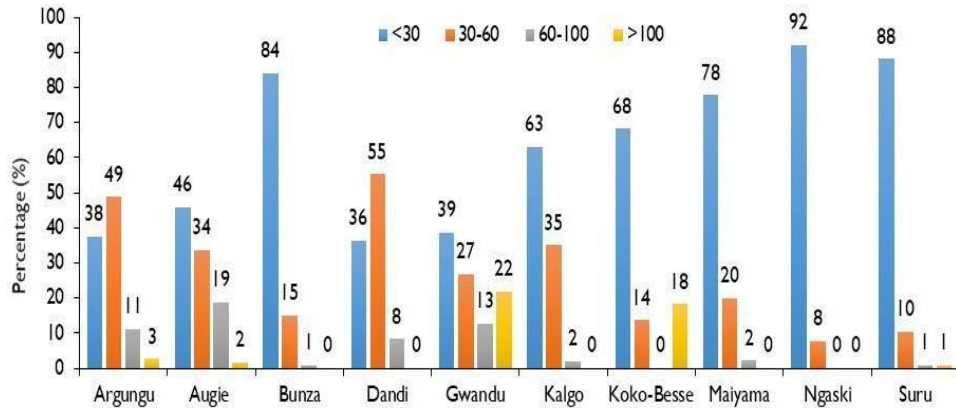
FIGURE 6: % OF HOUSEHOLD INCOME BY LGAS

Presence Children Below Five-Years in HHs

Most households in the studied Wards and LGAs have children under five years of age (Figure 7). For example, in Argungu LGA, 87% of households have children <5 years. Accordingly, there is no significant difference between the sampling wards and LGAs regarding the number of children below five years. Results are comparable with all the sampling wards and LGAs (Figure 7).

NOTE: Figure 7 shows the relative percentage of children below five years by LGAs. Overall, the Dandi LGA has the lowest number of children below five-years (81%).
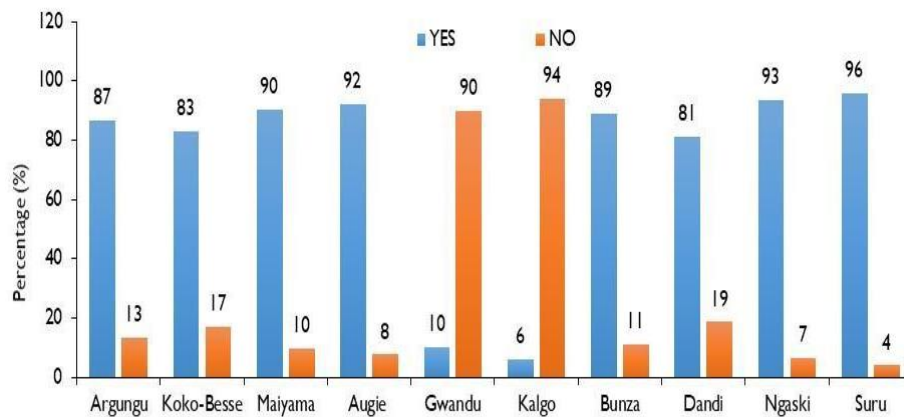
FIGURE 7: PERCENTAGE OF CHILDREN BELOW FIVE YEARS IN HHS BY LGA

Occupation of Respondents

Farming is the primary occupation of the respondents in Argungu, Koko-Besse, Maiyamma, Augie, Gwandu, Kalgo, Bunza, Dandi, Ngaski and Suru LGAs. Except for Gwandu and Kalgo LGAs, over 50% of respondents are farmers (Table 10). The Kruskal-Wallis test showed a significant difference between the sampling wards and LGAs. Table 10 presents the variation of occupation

of respondents/households by LGAs. However, 71% of respondents in Gwandu LGA are artisans. Likewise, 70% of respondents are civil servants in Kalgo LGA.

Occupation	Argungu	Koko-Besse	Maiyamma	Augie	Gwandu	Kalgo	Bunza	Dandi	Ngaski	Suru
Farmer	85	77	78	88	6	6	54	72	76	55
Civil Servant	6	6	5	8	11	70	4	13	2	9
Artisan	3	1	1	1	71	13	0	2	0	0
Trader	6	16	13	4	4	12	8	13	12	3
Other	0	0	3	1	9	0	34	0	9	33

NOTE: Except for Gwandu and Kalgo, more than 50% of the respondents in the studied LGAs are farmers.

Educational Level

The dominant education received across the LGAs is Quranic education. The highest figures are in Argungu and Koko-Besse with about 64% of respondents (Figure 8).

NOTE: Quranic education is the primary form of education obtained by respondents in the studied LGAs. The literacy level is highest in Kalgo, although only 10% have attained tertiary education level. The worst is Gwandu where no respondent was found to have a tertiary education and only about 18% have completed secondary school.
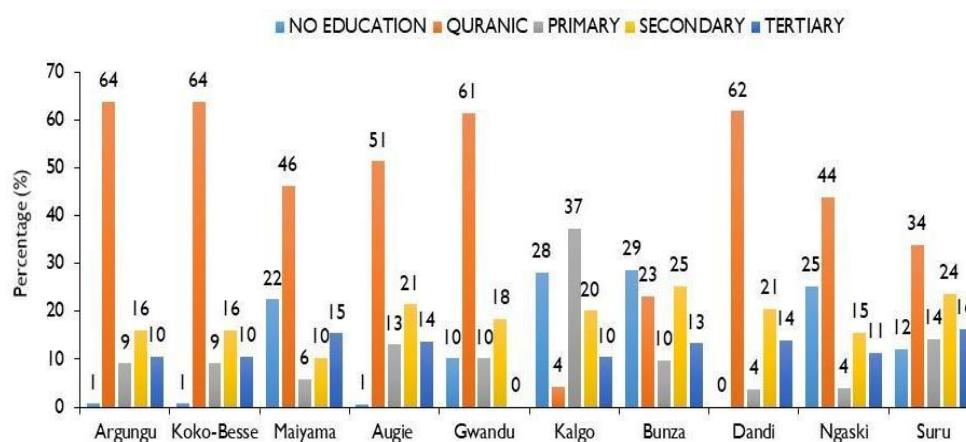
FIGURE 8: % OF RESPONDENTS EDUCATIONAL LEVEL/ATTAINMENT BY LGAS.

4.1.2 STATUS OF WATER SUPPLY

Primary Sources of Drinking Water

The major source of drinking water in the studied LGAs is protected dug well. Across the 10 LGAs, 36% of respondents mentioned that protected dug wells were their primary source of drinking water.   However, in communities located near the rivers or having complex geology like Ngaski, domestic water is sourced from Rivers/Stream (Table 11).

NOTE: The percentage of households using protected wells are highest in Bunza and Koko-Besse LGAs. The number of households using unprotected wells is 45%, 49% and 50% in Augie, Argungu and Dandi, LGAs.

TABLE 11: PRIMARY SOURCES OF DRINKING WATER

Source Of Water (%)	Argungu	Koko-Besse	Maiyamma	Augie	Gwandu	Kalgo	Bunza	Dandi	Ngaski	Suru
Piped Water from State Water Board	2	1	6	3	0	0	18	4	2	9
Borehole	28	27	26	24	18	14	11	24	15	47
Protected Dug Well	20	72	53	28	6	16	70	21	42	35
Protected Spring	0	0	0	0	19	51	0	0	0	0
Rainwater (Store in A Container Until Used)	0	0	1	0	0	2	1	0	0	0
Unprotected Spring	0	0	0	0	50	18	0	1	0	0
Unprotected Dug Well	49	0	15	45	4	0	0	50	0	0
River/Stream	1	0	0	0	4	0	0	0	41	9
Other (Specify)	0	0	0	0	0	0	0	0	0	0

Secondary Sources of Drinking Water

As for secondary sources of drinking water, 40% of respondents across the LGAs mentioned it was a borehole. Table 12 presents the percentage of households by LGA relying on boreholes as their secondary sources of drinking water.

TABLE 12: SECONDARY SOURCES.

Other Sources of Drinking Water (%)	Argungu	Koko-Besse	Maiyamma	Augie	Gwandu	Kalgo	Bunza	Dandi	Ngaski	Suru
Piped Water	5	2	1	4	12	8	2	4	1	2
Public Tap	2	1	1	2	8	2	15	13	0	3
Borehole	45	21	11	47	65	45	41	38	43	41
Protected Dug Well	9	45	64	12	13	35	40	6	40	54
Protected Spring	0	30	13	0	0	0	0	0	0	0
Rainwater	0	0	0	1	2	0	0	0	0	0
Unprotected Spring	0	0	1	0	0	0	0	0	0	0

Unprotected Dug Well	32	0	6	24	71	8	I	0	0	0
SURFACE WATER	7	0	I	7	0	0	0	5	7	0
Others	0	0	0	2	0	0	2	35	7	0

NOTE: Use of unprotected springs was 30% Koko-Besse and 13% in Maiyamma LGAs. 71% of HH in Gwandu LGAs used unprotected dug wells. In Argungu the rate was 32% and 24% in Augie LGAs. Thus, intervention by state actors is required.

Households' reliance on boreholes as secondary source of drinking water is highest in Gwandu LGA. The use of boreholes as a secondary source of water is over 40% in the studied LGAs, except in Maiyamma and Koko-Besse LGAs. Use of public tap is highest in Bunza and Dandi LGAs (Table 12).

Storage Capacity

There is a significant variation concerning storage capacity both between the sampling wards and LGAs. For example, most households in Argungu LGA (51%) and Koko-Besse LGA (47%) have storage capacity between 100-200 liters (Figure 9). On the other hand, in Maiyamma LGA, 61% have storage capacity below100 liters.
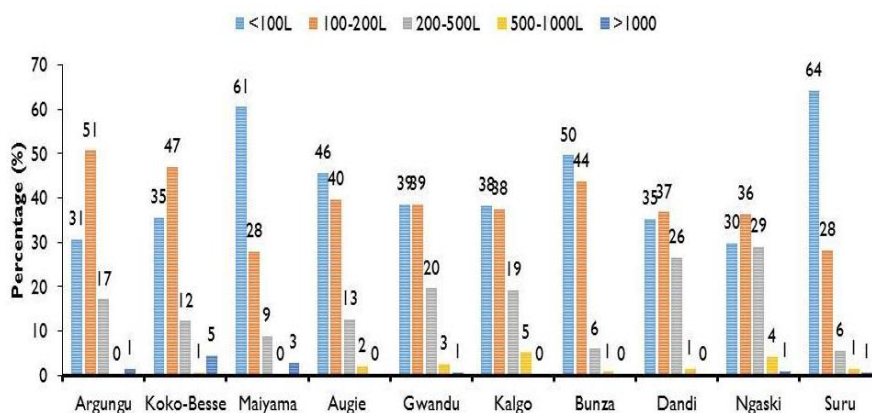
FIGURE 9: STORAGE CAPACITY

Source of Water for Animal Needs

Groundwater is the primary source of water for animals in the studied LGAs as shown in Figure 10. For example, 62% of animals in Argungu LGA drink water from unprotected dug well. Likewise, most of the animals in Koko-Besse LGA (59%) drink water from protected dug wells. The situation is similar in Maiyamma LGA. Over 90% of animals are fed from protected wells.
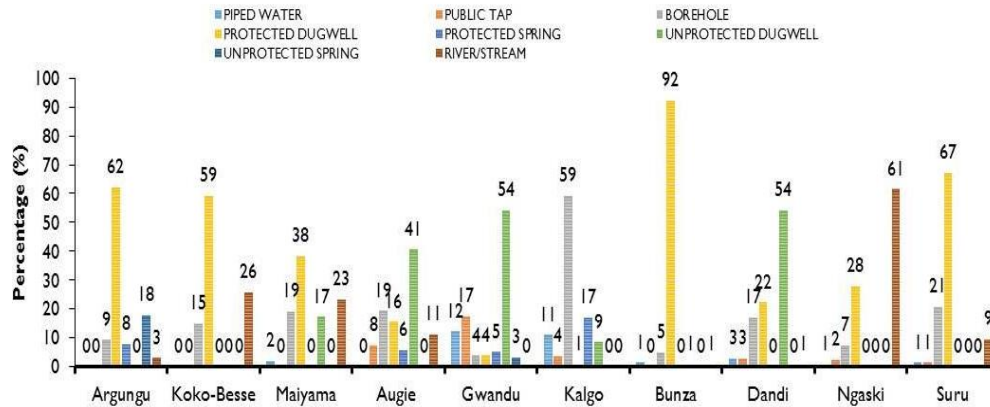
FIGURE 10: SOURCE OF WATER FOR ANIMAL NEEDS.

Water Sharing with Animals

In Argungu, Koko-Besse, Maiyamma, Augie and Gwandu LGAs, over 80% of households share water sources with animals, as indicated by in contrast, 73% of households do not share water sources with animals. A different condition was observed in Suru LGA, where 70% of the households do not share water sources with animals (Figure 11). It implies that those LGAs have adequate surface water bodies to feed their animals near the grazing fields.

NOTE: Gwandu, Kalgo and Suru LGAs have the highest number of HH that do not share water with animals; water sharing with animals was highest in Dandi LGA.
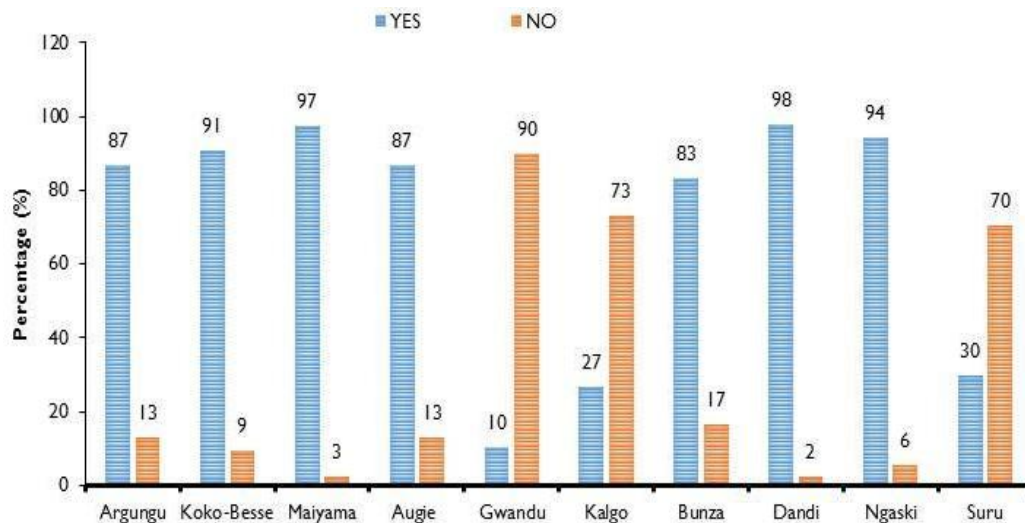
FIGURE 11: WATER SHARING WITH COMMUNITY MEMBERS.

Problems Associated with Collecting Water

The studied LGAs are characterized by varying problems associated with collecting water. There are seasonal shortages at the primary water source, permanent shortage at the main water source,

and pollution (or smell). 26% of households in Argungu LGA face seasonal shortages at the water source.

However, Lani and Gwadabawa (Koko-Besse) are located on weathered Basement Complex terrain. The situation in Augie is similar to that of Argungu, where 30% face seasonal shortages at the primary water source. A significant problem in Gwandu LGA also relates to seasonal shortages. 30% of the households lack adequate water during the dry season.

Access to Drinking Water Services Ladder by LGAs (%)

According to the baseline study, 38% of the population across the 10 LGAs studied have access to basic water supply services, while a meagre 7% have access to safely managed water supply services. On the other hand, up to 29% rely on unimproved water sources, as shown in Figure12. The study also revealed that Koko-Besse, Augie, Bunza, and Maiyamma are the LGAs with the highest number of people having access to basic drinking water supply services, with over 50% of population having access to basic water supply services, compared to less than 30% of HHs in Gwandu and Ngaski local government.
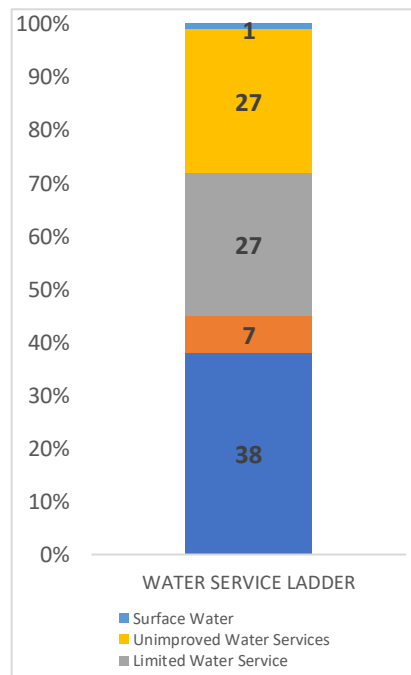
FIGURE 12: WATER SERVICE LADDER ACROSS 10 LGAS.

FIGURE 13: ACCESS TO WATER SUPPLY

NOTE: The access to basic water supply across the 10 LGAs is 38% (Figure 12). This survey result is in agreement with the WASH NORM II (2019) report which ranks Kebbi State at 39%. However, there is much improvement in terms of safely managed drinking water across the 10 LGAs which stood at 7%, which is much higher than the 0.6% reported by WASHNORM II (2019). It should be noted that the sampling size of this baseline survey is more detailed compared to the national scale adopted by WASHNORM II (2019). In addition, this baseline survey covered only 10 LGAs out of 21 in Kebbi State, which implies that further variation with WASHNORM II (2019) could be observed.

Water Quality

Most of the studied communities are not well informed about simple water quality assessment and are similarly unaware of the hazards posed by some land use practices that could lead to water contamination. Thus, they do not have an understanding of potential sources of pollution. The percentage of households having clean water by LGA as depicted by Figure 14 showed that Koko-Besse, Bunza and Suru LGAs have better drinking water. The presence of insects in or around the water was highest in Gwandu (25%). Argungu has the highest percentage of water with taste (25%).
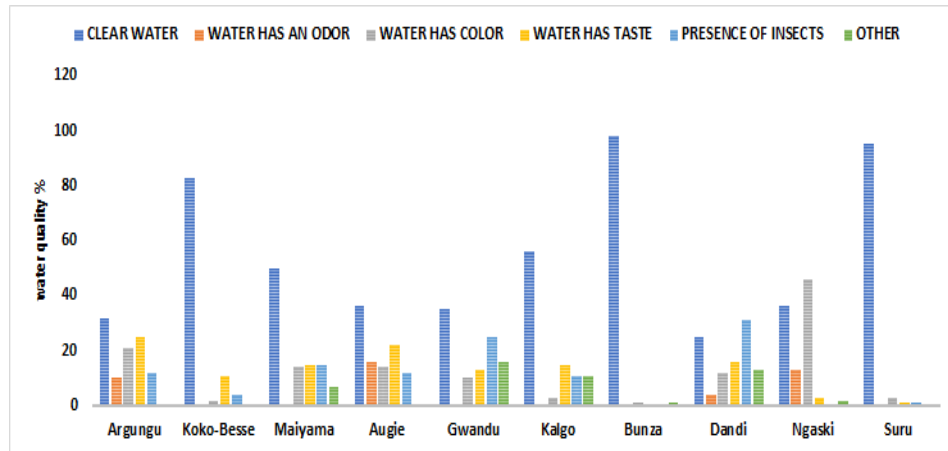
FIGURE 14: BASIC WATER QUALITY ASSESSMENT

Potential Sources of Pollution

Figure 15 shows the presence of pollution sources where over 50% of the wards and LGAs, there were no major point-source pollution. However, in Ngaski LGA, 69% of the households have pollution sources near their houses/water points.

NOTE: The primary pollution sources, especially in rural communities, come from improper disposal of organic wastes such as animal dung, open defecation, and the use of agrochemicals. Major pollution sources are mainly dumpsites and contaminated water found close to water points. Poor knowledge of good hygiene and sanitation practices, and weak regulations concerning proper waste disposal were identified as significant factors responsible for improper disposal in communities. In addition, across the entire 10 LGAs, not a single improved system for waste disposal was found.
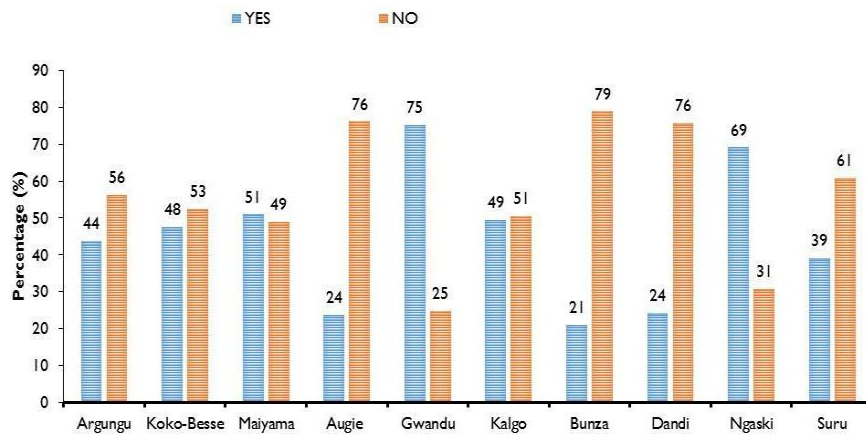
Figure 15: Presence of Pollution Sources Near Water Points

Location of Water Source

In Argungu LGA, 41% of water sources are in houses, 10% are in schools, 2% in health care centers, and 48% rely on community sources. The scenario is the same in Koko-Besse LGA, where 59% of households obtained water from inside the house, 1%, in schools, 0% in health centers and 40% from community sources (Figure 16).

Kalgo LGA has the highest number of households with water sources in the house (76%), followed by Augie (61%) and Dandi LGAs (61%). However, Suru and Ngaski have the highest number of households relying on community sources.
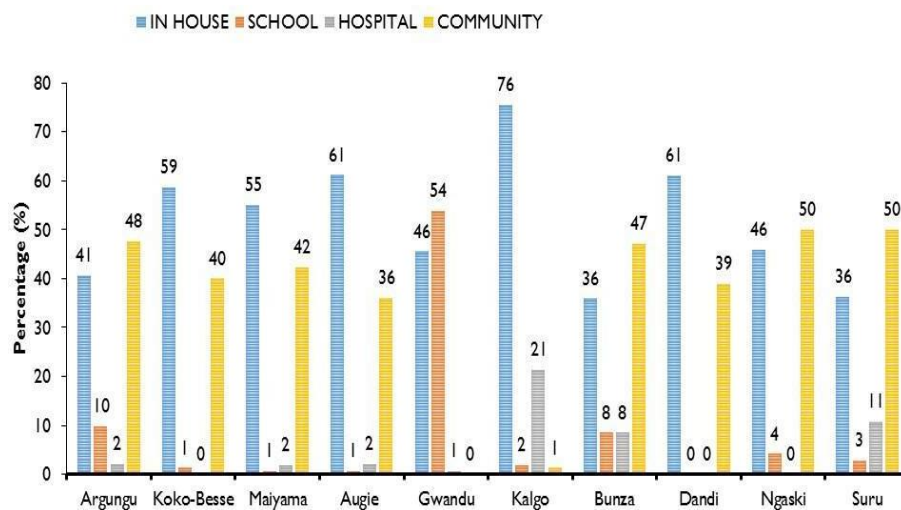
FIGURE 16: LOCATION OF WATER SOURCE.

Pollution Control and Protection of Water Sources

Protection of water sources is critical to mitigating contamination. Contamination can occur from varying pollution sources such as unclean utensils used for drawing water, contact with animals, feces and others.

Water Sharing with Other Communities

Water sharing between communities is influenced by many factors, including geology, drainage, climate, safety concerns and government policy. The geological setting can necessitate citing of more productive wells or boreholes in specific locations, the drainage system can bring different communities to share the water, climate (drought) and safety concerns can force other communities to go beyond their localities in search for water especially.
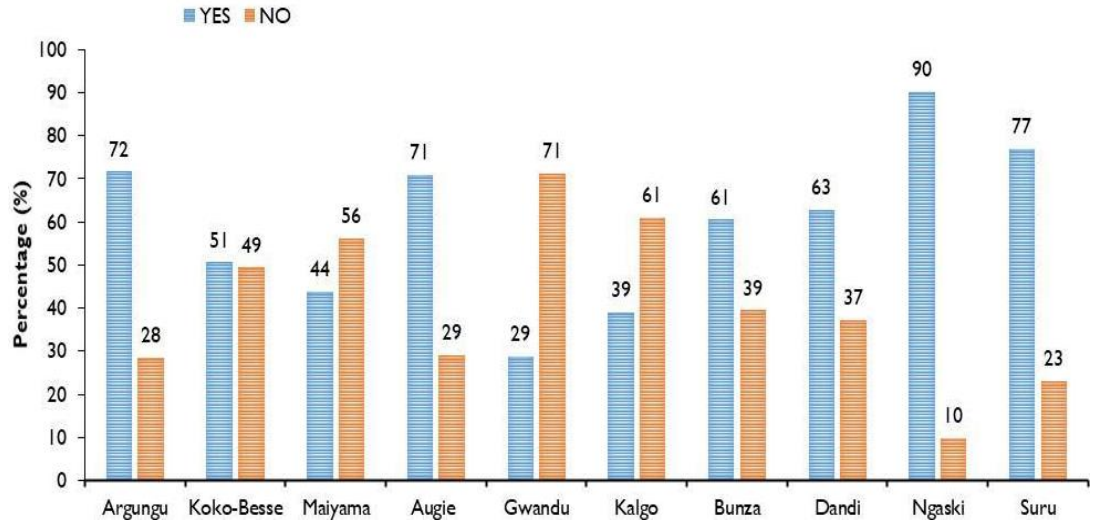
FIGURE 17: WATER SHARING WITH OTHER COMMUNITIES

Results show that over about 60% of the respondents across the 10 LGAs move outside their immediate community to fetch water (Figure 17). The worst cases are in Ngaski (90%), Suru (77%) and Argungu (72%). However, in Gwandu LGA, up to 71% of respondents claimed they do not share water

NOTE: Water sharing between communities is mainly influenced by shortages which are either permanent or seasonal. Other factors include hydrogeological settings. It should be noted that Ngaski (90%) is underlain by a basement complex with hard rock aquifers.

4.1.3 STATUS OF SANITATION SERVICES AND PRACTICES

The status of sanitation and hygiene practices in Kebbi State was investigated, and the results are presented in the following sections.

Access to Sanitation Services Ladder by LGAs (%)

According to the study, less than 1% of households across the 10 LGAs have access to safely managed sanitation facilities, while approximately 42% have access to basic sanitation facilities. Dandi, Maiyamma, Bunza and Gwandu have the most households with access to basic sanitation, while Suru has the fewest, with only 16% of households having basic access to improved sanitation facilities as shown in figure 18 below.
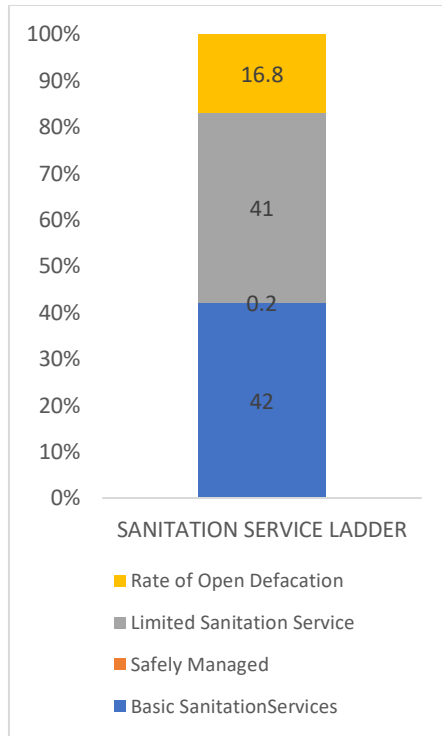
FIGURE 18: ACCESS TO SANITATION SERVICES
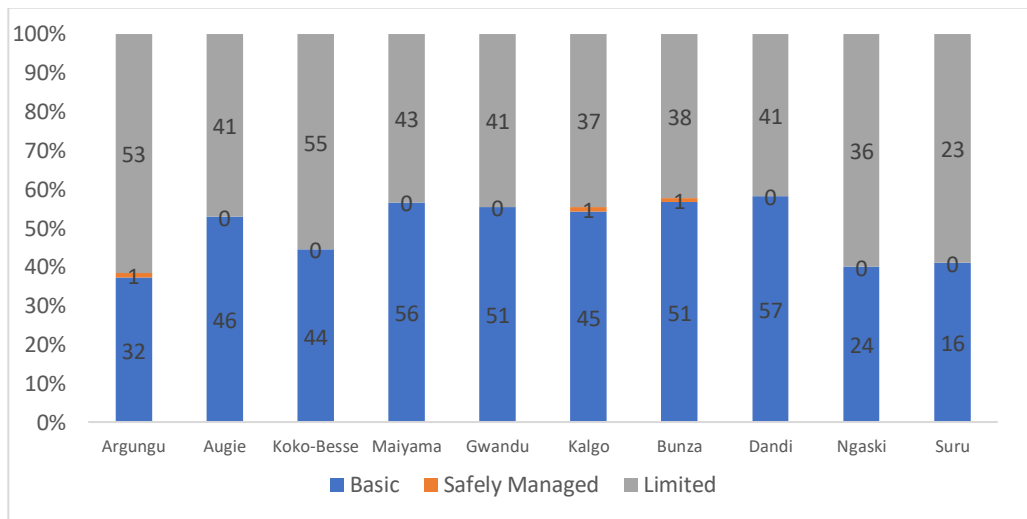
FIGURE 19: SUMMARY OF ACCESS TO SANITATION ACROSS 10 LGAS

Types of Toilets

As indicated by Table 13, the percentage of respondents using water systems is generally low. Only 1% of respondents in Argungu and Bunza LGAs use toilets with water cistern. On the other hand, pit latrine is the most widely used type of toilet. Suru LGA has the highest percentage of respondents who do not have a pit latrine.

The pit latrine used among the respondents in Suru LGA is only 25%, and 12% use pour flush, and 1% use ventilated improved pit latrine. This implies that open defecation is highest in Suru LGA. Likewise, the use of hanging/pit toilets was highest in Argungu LGA (40%). In Koko-Besse, ventilated improved pit latrines (VIP) are used by 40% of the respondents.

TABLE 13: TYPES OF TOILET FACILITIES

Type Of Toilet Facility	Argungu	Koko-Besse	Maiyamma	Augie	Gwandu	Kalgo	Bunza	Dandi	Ngaski	Suru
Water System	1	0	0	0	0	0	1	0	0	0
Pour-Flush	3	12	11	8	7	15	17	0	5	12
Ventilated Improved Pit Latrine	5	40	36	3	14	14	1	18	29	1
Pit Latrine	37	42	41	76	58	52	71	80	24	25
Hanging Toilet/Latrine	40	6	12	0	14	1	0	0	0	0
Open Defecation (Bush, River Etc.)	8	0	0	13	5	8	0	2	0	0
No Toilet	6	1	1	0	0	1	3	0	41	61
Other	0	0	0	0	0	8	7	0	0	1

NOTE: Generally, pit latrine is the most widely used toilet type in the studied LGAs. However, Ngaski and Suru LGAs have the highest number of HH without a toilet. However, the use of open fields was recorded highest in Augie, Argungu, Kalgo, Gwandu and Dandi respectively.

4.1.4 STATUS OF HYGIENE SERVICES

Access to Hygiene Services Ladder by LGAs (%)

Overall, 44% of households in the 10 LGAs studied have basic hygiene facilities, 34% have limited access to facilities, and 22% do not have hygiene facilities as shown in figure 20.
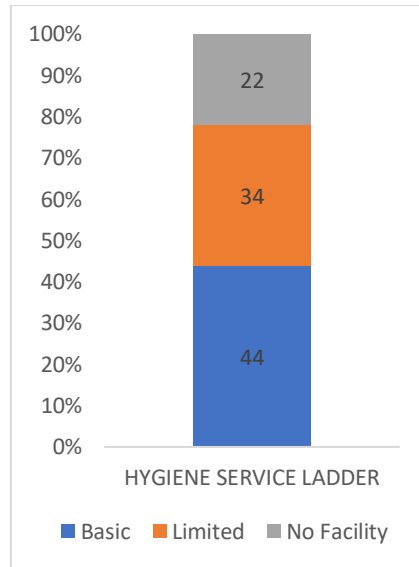
FIGURE 20: HYGIENE SERVICE LADDER ACROSS 10 LGAS
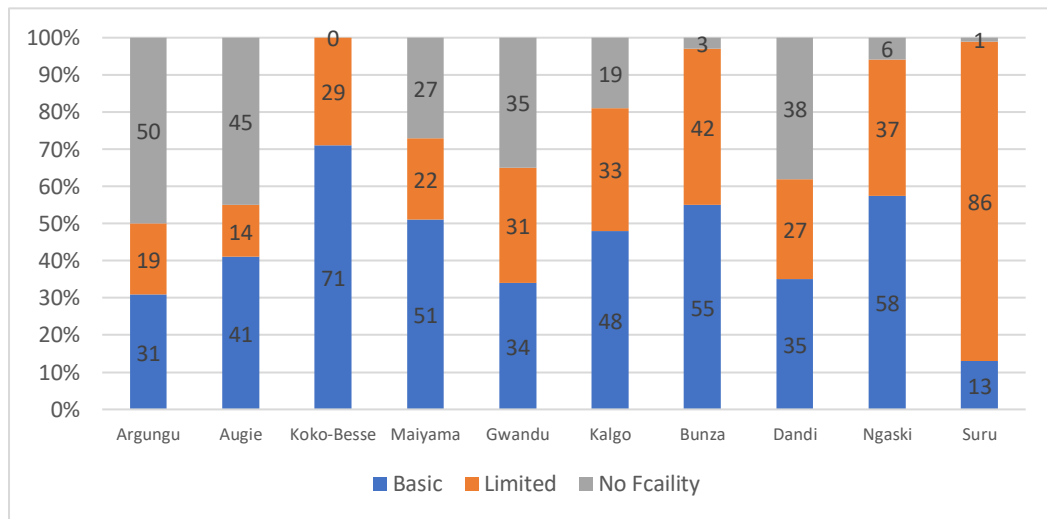
FIGURE 21: ACCESS TO HYGIENE SERVICES

According to the study, Koko-Besse LGA appears to be the best in terms of good hygiene practice, with over 70% of households having access to basic hygiene facilities, followed by Ngaski, Bunza, and Maiyamma, where more than 50% of households have access to basic hygiene facilities, while in Suru, only 13% of households have access, while the majority of households (86%) have access to limited hygiene facilities.

Prevalence of Waterborne Diseases

Results on the prevalence of waterborne diseases amongst age groups of under 5 years and over 5 years are presented in Figure 22. Augie, Gwandu and Dandi have the worst reports of waterborne diseases across the 10 LGAs. The three LGAs are well above the total average of 38% with each one of them having an average of about 50%.

NOTE: For the age group under 2, the worst cases are in Dandi, Gwandu, Argungu and Augie. The implication here is that sources of drinking water might be contaminated.
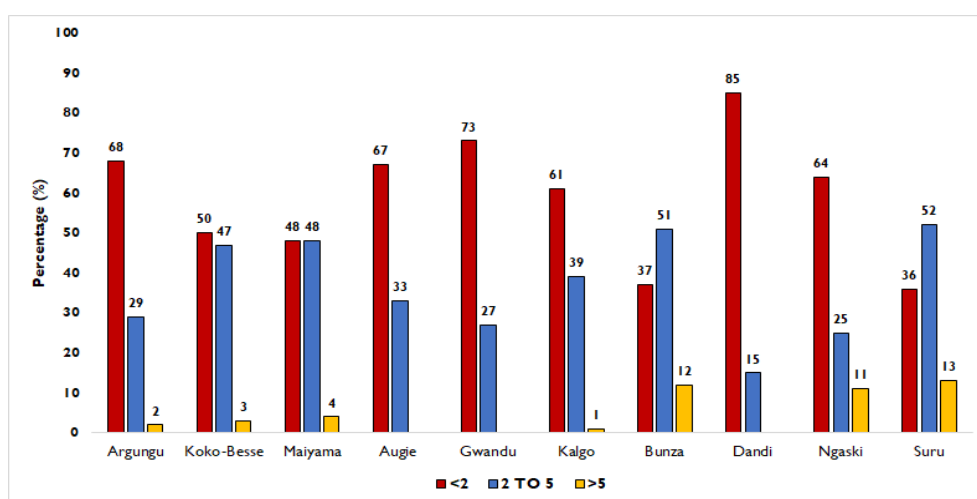
Figure 22: Percentage of Reported Cases of Waterborne Disease in Children by Respondents in HHs in the Last 14 Days

Table 14 shows that across the 10 LGAs, the age group under 2 has about 59% while 2 to 5 make up about 37% with 5% going to children over 5 years.

TABLE 14: AVERAGE NUMBER OF WATERBORNE DISEASE CASES IN LAST TWO WEEKS IN CHILDREN ACROSS 10 LGAS

WATERBORNE DISEASES BY AGE GROUP	AVERAGE ACROSS 10 LGAs
<2	58.9
2 TO 5	36.6
>5	4.6

Menstrual Hygiene Management (MHM)

The use of washable cloth was over 70% in nine out of ten LGAs. The menstrual pad is used by only 2% in Argungu LGA and 5% in Augie LGA. Ngaski (43%) and Suru (30%) LGAs have a high number of menstrual pads per household (Figure 23) with Kalgo being the highest (97%).
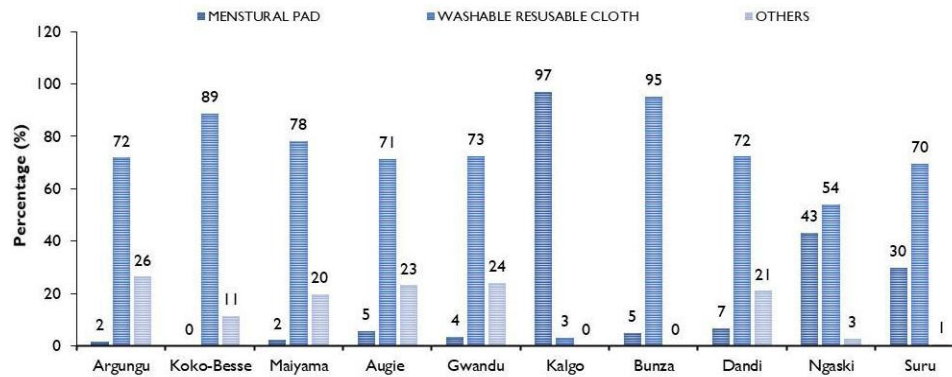
FIGURE 23: MENSTRUAL HYGIENE MANAGEMENT

NOTE: The use of menstrual pads is likewise influenced by income, hygiene education and location. Women that are living in more urbanized communities (pad is commonly marketed) or having more educated women with more income are likely to use menstrual pad than those in rural communities with low income and education.

Gender-based Barriers to Access Water Service

Due to some cultural and religious norms in various societies, access to water sources may be limited or restricted in public spaces based on gender bias. In this survey, respondents were asked about restrictions and barriers to accessing public water sources. The results are summarized in Figure 24. In Argungu LGA, barriers and restrictions were not observed. The entire public water sources are accessible to both men and women.

However, 11% of water sources are not accessible to women or men in Augie LGA. This means in the case where the water source is located in a compound or household, men are likely not to be allowed into such premises due to cultural and religious sensitivies. The reverse is the case against females where the water source is located in public spaces. The major factor that defines the challenge of access is the location of water sources.

NOTE: Water sources located in public spaces are mainly restricted to men since culture and religion (Islam) have recommendations concerning the movement of women. The findings across the 10 LGAs present varying levels of tolerance and flexibility in Kebbi state.

Over 90% of respondents in Gwandu and Kalgo LGAs have some restrictions from accessing water sources (Figure 24). However, the absence of restrictions was highest (100%) in Argungu LGA. Possible reasons for this are the culture and location of water source.
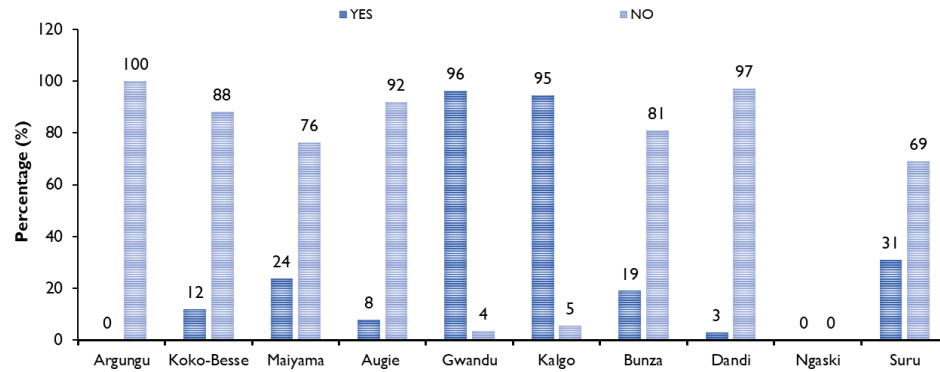
Figure 24: Gender-Based Barriers to Access Service.

4.1.5 SUMMARY OF FINDINGS IN HOUSEHOLDS

For WASH services in households, the most significant findings are listed as follows:

- Monthly income was highly variable between households and LGAs. Monthly HH income ranged between ₦30,000 to ₦60,000 ($75 to $150).

- Farming is the respondents' primary occupation, and Quranic education is the primary type of education obtained by respondents in the studied LGAs.

- Maiyamma LGA has the highest percentage (15%) of respondents with a tertiary education, while Kalgo ranks overall best across education levels. Generally, literacy level is low in Kebbi State, especially among the rural population.

- Most households have children below five years of age.

- The primary source of drinking water in the studied LGAs is groundwater, though the proportion of households fetching water from unprotected water sources is considerably high across the entire 10 LGAs.

- About 50% of households in Gwandu obtain water from unprotected sources with the worst case observed in Dandi LGA (69%).

- It has been observed that at Giwatazo and Andarai (Maiyamma LGA), the number of households fetching water from long distances (>1km) is high. Likewise, Lani and Gwadabawa (Koko-Besse) face the same challenge because they are situated on weathered basement complex terrain.

- Most communities do not have basic knowledge about water treatment and sanitation.

- The primary pollution sources, especially in rural communities, come from improper disposal of organic wastes such as animal dung, open defecation, and agrochemicals.

- Coping strategies during water shortages showed 28% of households in Argungu rely on unsafe water sources. The figures are worse in Koko-Besse (50%) and Maiyamma (49%) use unsafe water sources.

- The pit latrine is the most widely used toilet type across the 10 LGAs. In addition, at least 40% of households were found to share toilet facilities. The worst case was observed in Ngaski where over 60% of households in Ngaski LGA share toilet facilities.

- Emptying latrines is not widely practiced in Kebbi State. However, the situation is different in Gwandu LGA, where the groundwater table is relatively higher. Household members are compelled to empty their pits due to this phenomenon.

- Regarding households' waste, 47.06% of waste is disposed of at the designated areas in Augie LGA. However, 46% is disposed of at the household pit, and 45% is disposed of at a waste bin in a household or street area in Koko-Besse LGA. The scenario is the same in the entire studied LGAs.

- Cases of waterborne disease were highest in Suru and Kalgo.

- About 70% of households use washable cloth for managing menstrual hygiene.

4.2. SURVEY OF HEALTH CENTERS

4.1.2. DEMOGRAPHICS

Status of Respondents

Health workers (respondents) in this study were classified by their status and role at the health centers. They include "In-charge", "Assistant in charge", "In-charge maternity", "Assistant Maternity," "In charge of the dispensary", "Staff", "Routine Immunization (RI) provider", "HOD Record", "Midwife", "Community Health Extension Workers (CHEW)", "Lab Scientist" and "Volunteer". The relative percentages of these workers as contained in Table 15.

TABLE 15: DESIGNATION OF INTERVIEWED STAFF ACROSS 10 LGAS.

Position of Interviewed Staff:	%
In-charge	40
Assistant in-charge	23
In-charge Maternity	2
Assistant Maternity	2
In-charge Dispensary	1
Staff	15
RI provider	11
HOD Record	2
Midwife	1
CHEW	3
Lab Scientist	1
Volunteer	1

Table 15 presents the summary across the 10 LGAs. Figure 25 shows the respondents by status in health centers for each LGAs.
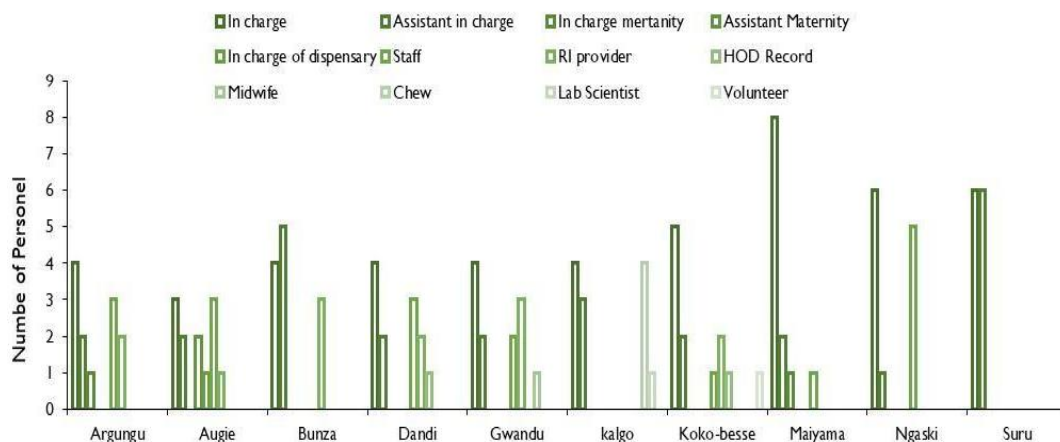
FIGURE 25: DESIGNATION OF INTERVIEWED STAFF.

Gender

Table 16 showed the sex composition of the respondents across the 10 LGAs. Most of the respondents are male (86%), and only 14% are female. Thus, Figure 26 illustrates the gender variability of health workers. In places like Ngaski, Kalgo, and Bunza, no female officer was seen.

TABLE 16: % SUMMARY OF GENDER ACROSS 10 LGAs

Gender	%
Female	14
Male	86
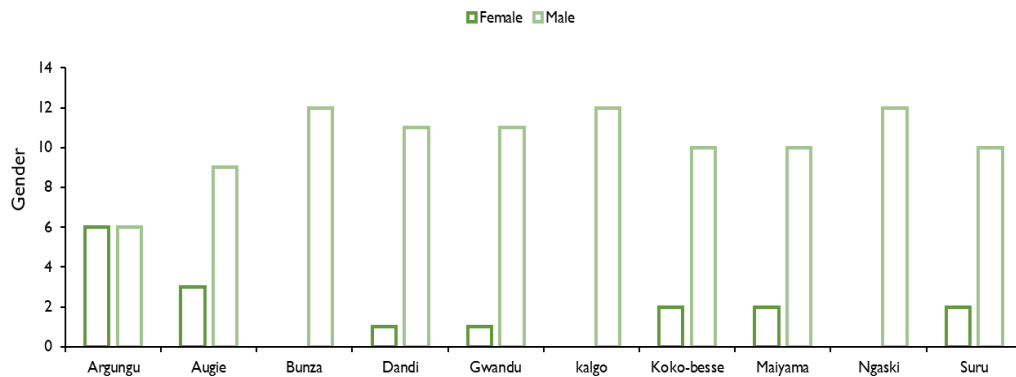
FIGURE 26: GENDER OF STAFF

Type of setting health center is located in

Table 17 and Figure 27 showed the location of health centers by Studied LGAs. 83% of the studied health Centers are in rural areas and are primary health centers.

TABLE 17: LOCATION OF HEALTH CENTERS ACROSS 10 LGAs

Type of Setting Health Centre is Located	%
Rural	83
Semi-urban	12
Urban	5
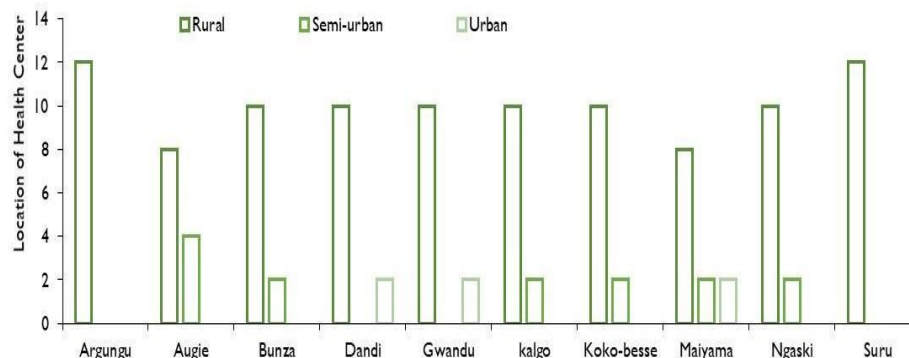
FIGURE 27: LOCATION OF HEALTH CENTER IN LGAs

Type of Health Center

Table 18 shows the types of health centers available in the studied LGAs. 90% are primary health centers (PHCs), 3% of the facilities are General Hospitals, 2% are Dispensaries, Maternity, Other and health clinics. Figure 28 shows the type of health centers by LGAs.

TABLE 18: TYPE OF HEALTH FACILITY ACROSS 10LGAS

Type of Health Centre	%
Primary Health Care Center	90
General Hospital	3
Dispensary	2
Maternity	2
Other	2
Health Clinic	2
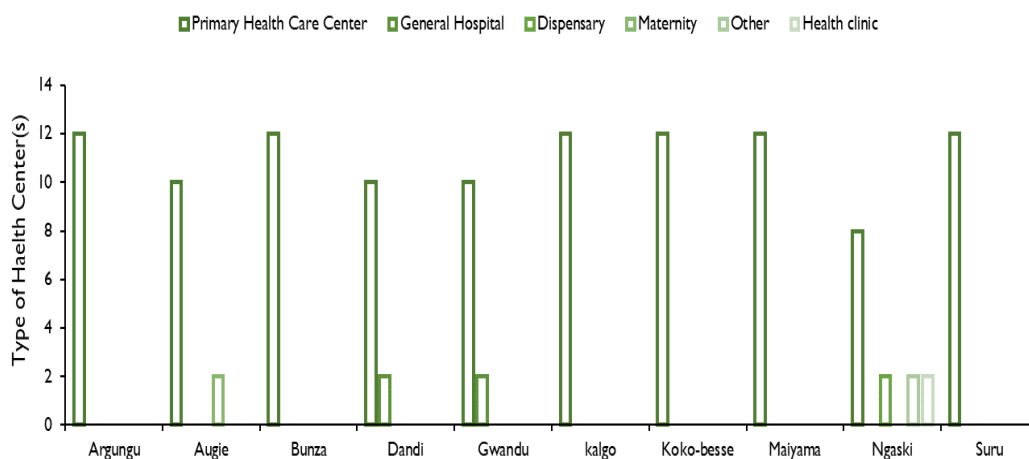
Figure 28: Type of Health Facility in LGAs.

Management of Health Facility

TABLE 19: MANAGEMENT OF HEALTH FACILITY ACROSS LGAS

LGA	Public
Argungu	11
Augie	12
Bunza	12
Dandi	12
Gwandu	12
Kalgo	12
Koko-Besse	12
Maiyamma	12
Ngaski	12
Suru	12

As shown in Table 19 the government manages the entire studied health facilities.

Number of Patients Visiting Health Center

The total number of patients received over a period 3 months is 21,060, 15,220, 798, 18,480, 11,494, 1,090, 4,892, 19,364, 10,824, and 1,690 for Argungu, Augie, Bunza, Dandi, Gwandu, Kalgo, Koko-Besse, Maiyamma, Ngaski, and Suru respectively (Table 20). The mean number of patients by LGAs shown in Figure 4.65 is 1,755, 1,268, 67, 1,540, 958, 91, 408, 1,614, 902, and 141 in Argungu, Augie, Bunza, Dandi, Gwandu, Kalgo, Koko-Besse, Maiyamma, Ngaski, and Suru respectively over a period of 12 weeks.

Number of Patients	Argungu	Augie	Bunza	Dandi	Gwandu	Kalgo	Koko-Besse	Maiyamma	Ngaski	Suru
Sum	21,060	15,220	798	18,480	11,494	1,090	4,892	19,364	10,824	1,690
Mean	1,755	1,268	67	1,540	958	91	408	1,614	902	141
Max	5,040	4,250	120	6,000	2,580	250	1,266	2,520	1,800	400
Min	240	50	25	360	220	40	30	600	300	45
Stdevp	1,734	1,465	33	2,001	797	74	430	726	469	127

Mean patients attending hospitals is highest in Argungu. Bunza has the lowest mean number of patients visiting health centers, whereas, Argungu LGA has the highest mean number of patients visiting health centers (Table 20).

Number of Personnel at Health Centers

Concerning staff availability, the total and mean number of staff by LGAs was highest (289 and 24 in 6 health centers) in Kalgo LGA (Table 21). Significant factors affecting the availability of health worker's personal motivation. The motivational factors include financial rewards, career development, continuing education, hospital infrastructure, resource availability, hospital management and recognition/appreciation.

TABLE 21: NUMBER OF HEALTH WORKERS AT HEALTH CENTERS PER LGA

Number of Staff per Health Center	Argungu	Augie	Bunza	Dandi	Gwandu	Kalgo	Koko-Besse	Maiyamma	Ngaski	Suru
Sum	98	176	166	248	289	188	149	137	210	80
Mean	8	15	14	21	24	16	12	11	18	7
Max	19	27	24	70	65	39	25	17	43	14
Min	2	5	8	4	6	2	3	5	9	2
Stdevp	6	7	6	23	21	13	8	4	12	4

Budget for the operation and maintenance of WASH Services

As shown in Table 22, 79% of health centers lack a budget for operating and maintaining WASH Services in health centers. Argungu, Gwandu, Ngaski and Suru do not have any budgetary allocation for O&M services (Figure 29).

TABLE 22: % SUMMARY OF BUDGET FOR THE OPERATION AND MAINTENANCE OF WASH SERVICES ACROSS 10 LGAS

Budget	%
No	79
YES	21
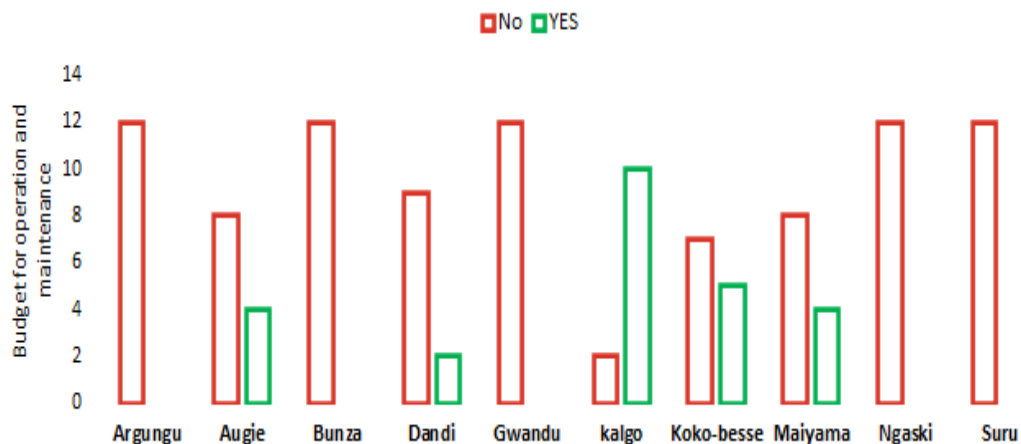
FIGURE 29: BUDGET FOR THE OPERATION AND MAINTENANCE

Table 23 shows that 85% of health centers rely on the government to provide the budget for operating and maintaining WASH Services in health centers. It is interesting to note that in Figure 30, Gwandu and Koko-Besse generate some budgetary allocation from

Provision of Budget	%
Health Centre Administration	11
Government	85
Community	4
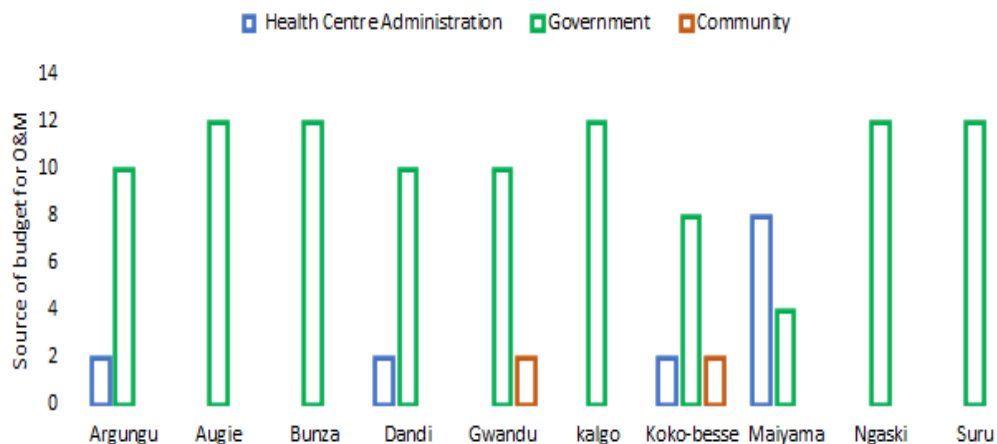
FIGURE 30: SOURCE OF BUDGET (%).

Support from Development Partners (E.g., Water Aid, UNICEF, USAID, WHO etc.)

Most (94%) of the studied health centers received Support from partners such as USAID, Water Aid, UNICEF, WHO etc., as shown in Table 24 and Figure 31.

TABLE 24: PERCENTAGE SUMMARY OF SOURCE SUPPORT FROM DEVELOPMENT PARTNERS ACROSS 10 LGAs

Support from Development Partners	%
No	6
Yes	94
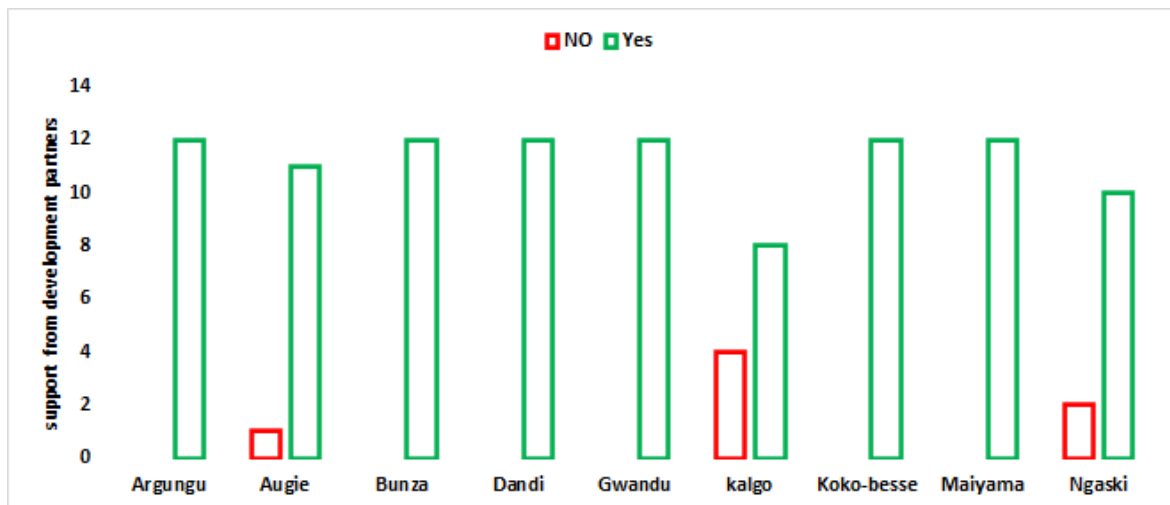
FIGURE 31: LGAs WHERE SUPPORT WAS RECEIVED FROM PARTNERS

Major Development Partner(s) of Health Centers

Table 25 indicates that 55% of the Support came from WHO, and other donor's/development partners such as USAID, UNICEF, The Global fund, IHP among others accounted for 36% of the support. Figure 32 shows activities of each development partner in respective wards.

TABLE 25: LIST OF MAJOR DEVELOPMENT PARTNERS

Support and supporting partner(s)	%
World Health Organization (WHO)	55
European Union (EU)	9
Other	36
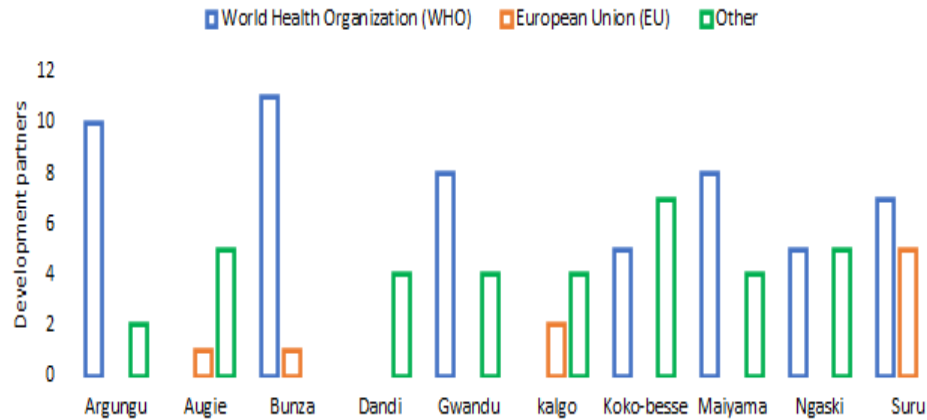
FIGURE 32: DEVELOPMENT PARTNERS AND THEIR IMPACT (NUMBER OF INFRASTRUCTURE AND SERVICES ESTABLISHED) BY LGAs.

4.1.5 STATUS OF WATER SUPPLY

Primary Source of Drinking Water

Table 26 and Figure 33 showed the primary sources of drinking water at healthcare centers. 2% have piped water on the premises, and 51% have tube wells or boreholes. 13% relied on unprotected dug wells 6% have a protected dug well on the premises.

TABLE 26: PRIMARY SOURCE OF DRINKING WATER ACROSS 10 LGAs

Primary Source of Drinking Water	%
Piped water on the premises	2
Tube well or borehole on the premises	51
Unprotected dug well	13
Protected dug well on the premises	6
Protected rainwater collection on the premises	1
other sources	3

From Table 26 1% collects protected rainwater on the premises and 3% relies on other sources, such as buying from vendors or sourcing from the neighborhood. Tube wells or boreholes on the premises are the most widely used and dependable water supply sources in health centers. Groundwater is naturally pure and is accessible at the point of need. However, it can be contaminated by poor storage and handling.
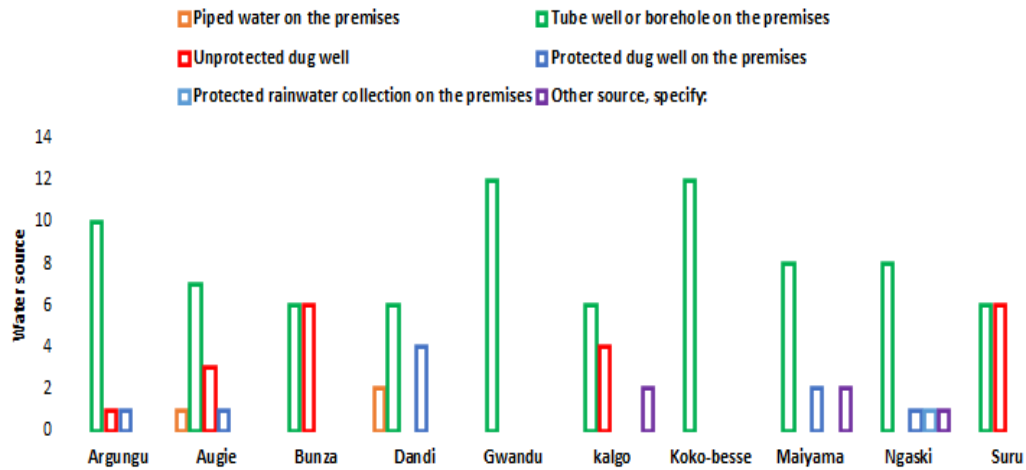
Figure 33: Primary Source of Drinking Water in Health Centers

Access to Improved Water Supply in Health Centers

Figure 34 presents access to improved water sources in healthcare centers across the 10 LGAs, where Gwandu, Dandi and Ngaski LGAs averaging over 90% appear to have the highest percentages of HCs with access to improved water sources while Bunza (25%), Suru (33%) and Kalgo (35%) are having the least in this regard.
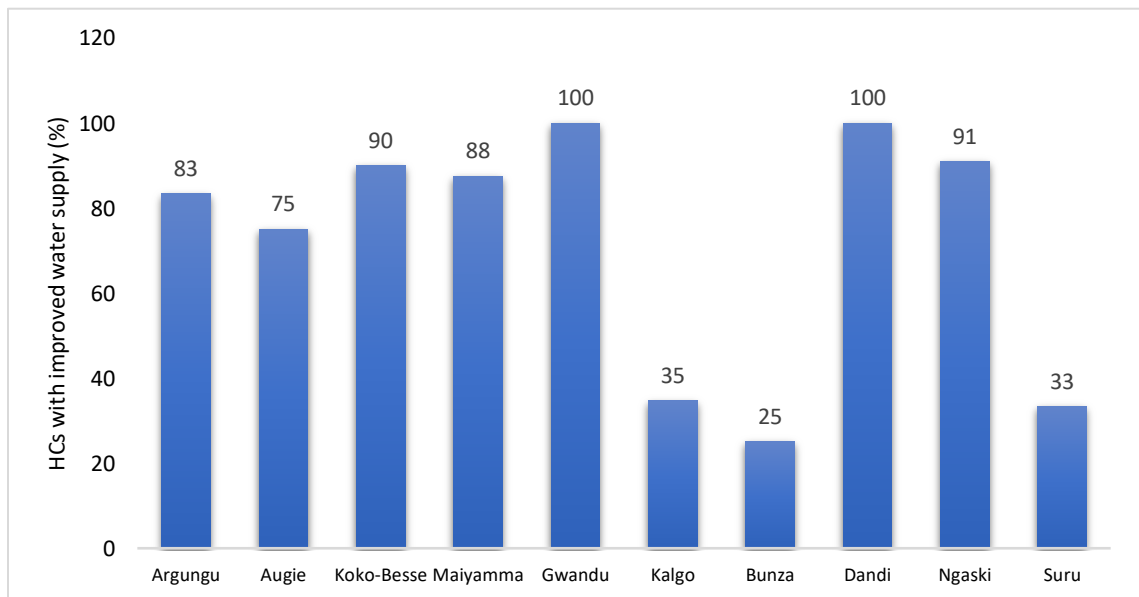
FIGURE 34: % OF HCS WITH ACCESS TO IMPROVED WATER SOURCES

Water source Construction/sponsorship

Most of the water sources (58%) are jointly constructed by either the Federal Ministry of Water Resources (FMWR), Kebbi state government or respective LGA. Others such as philanthropist, Ward Development Committee (WDC), and World Bank as summarized in Table 27 and Figure 35. 10% were constructed by RUWASSA and 8% by UNICEF.

TABLE 27: WATER SOURCE CONSTRUCTION/ SPONSORSHIP ACROSS 10 LGAS

Water Source Construction/sponsorship	%
RUWASSA	10
UNICEF	8
FMWR, State and LGA	58
Others (Philanthropist, WDC, World Bank)	24
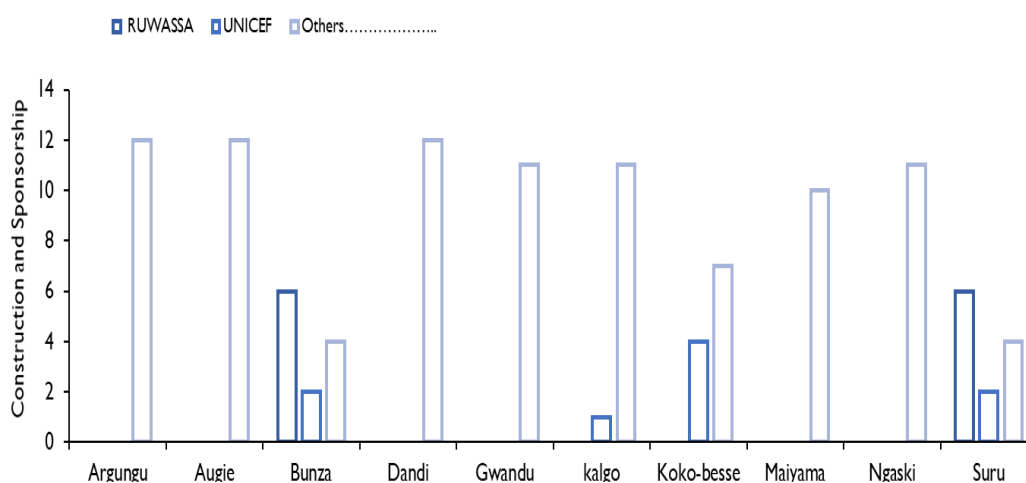
FIGURE 35: WATER SOURCE CONSTRUCTION/SPONSORSHIP

Adequacy of Water Supply and functionality

From Table 28, about 80% of the health centers surveyed have adequate water with water sources on the premises all year round. However, 12% were found to be lacking access to basic water supply mainly due to non-functional facilities while about 8% face seasonal shortages. Figure 36 presents the detailed survey by LGA which highlights Bunza, Kalgo Maiyamma and Suru as not having adequate water (all year-round service).

TABLE 28: ADEQUACY OF WATER SUPPLY ACROSS 10 LGAS

Adequacy	%
No, never enough water	12
Yes, enough water all year	80
Yes, sometimes, only seasonally	8
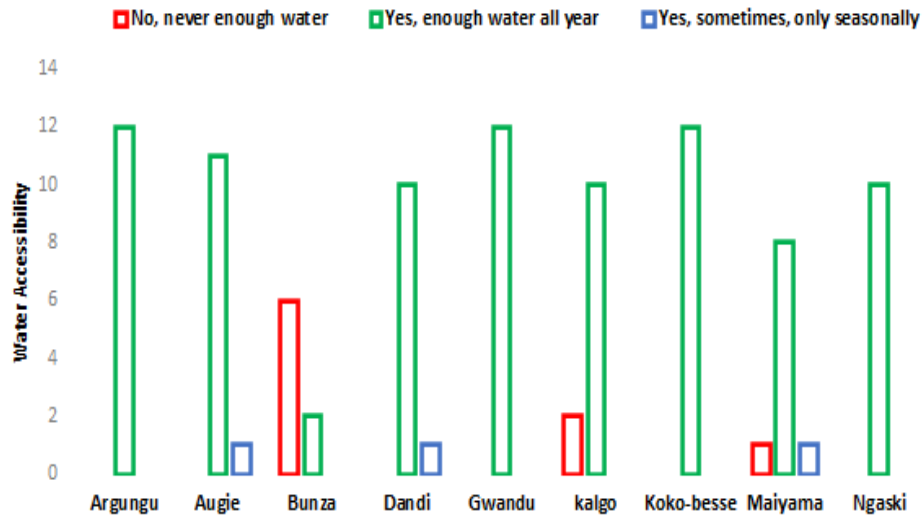
FIGURE 36: ADEQUACY OF WATER SUPPLY.

Alternative Water Supply Source(s)

From Table 29, most health centers (74%) have alternative water sources such as nearby hand pump, dug-well etc. within the premises.

However, 26% have to obtain water from other sources such as neighborhood, vendors etc.

TABLE 29: ALTERNATIVE WATER SUPPLY SOURCE(S) ACROSS 10 LGAS

Alternative Water Supply Source(s)	%
No	26
Yes	74
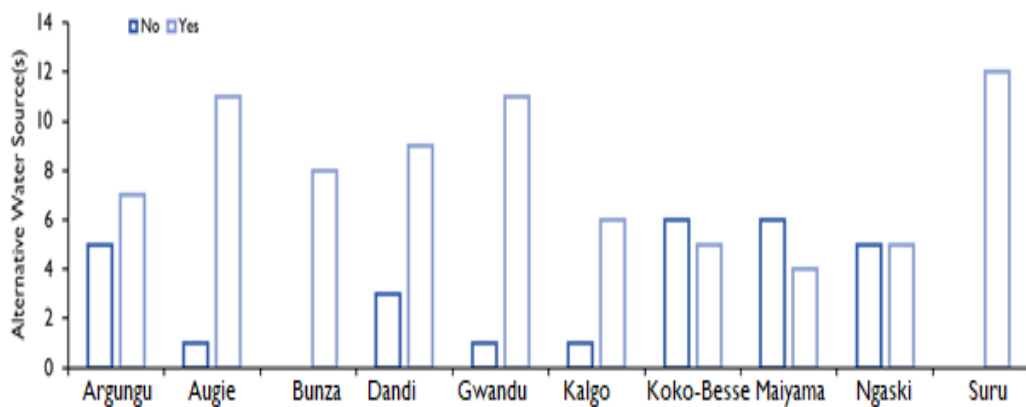
FIGURE 37: ALTERNATIVE WATER SUPPLY SOURCE(S)

Written Operation and Maintenance guidelines

There are no written guidelines (or documents) concerning operation and maintenance of water supply in 92% of health centers in studied LGAs, as indicated by Table 30 and Figure 38.

Operation/Maintenance	%
No	92
YES	8
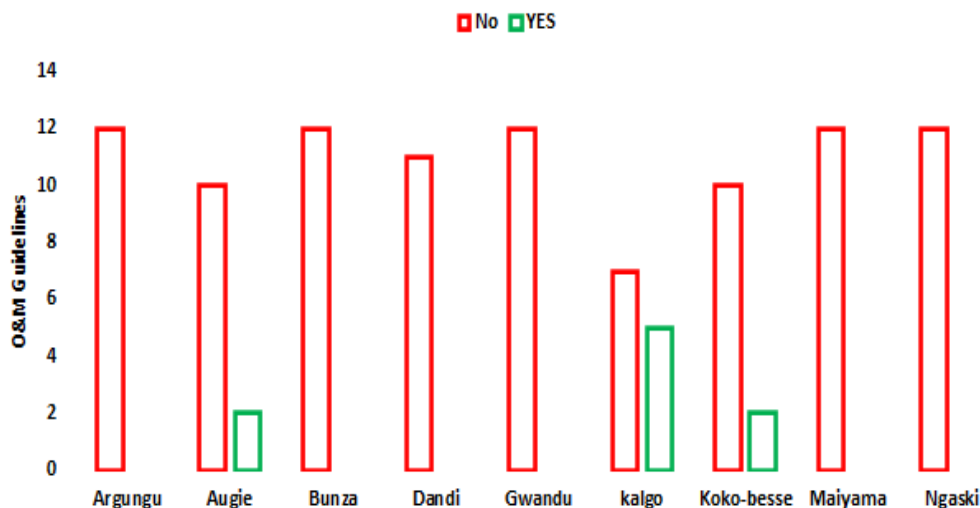
FIGURE 38: EXISTENCE OF WRITTEN OPERATION AND MAINTENANCE GUIDELINES

Presence of Written Policy on WASH Services and Accessibility

TABLE 31: WRITTEN POLICY ON WATER ACCESSIBILITY

There is no written policy on water accessibility in 96% of health centers in the studied LGAs (Table 31). Figure 39 highlights Augie, Kalgo and Koko-Besse as the only LGAs were written policy on WASH services was found across the 10

Availability of Written Policy on Water Accessibility	%
No	96
YES	4
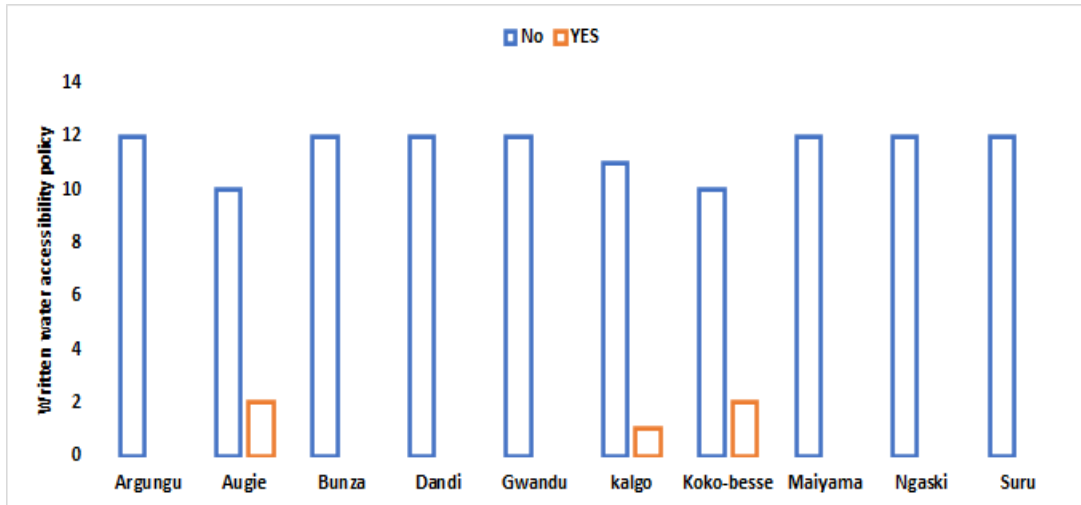
FIGURE 39: WRITTEN POLICY ON WATER ACCESSIBILITY

Presence of Non-functional Water Facility

48% of health centers have non-functional water sources (Table 32). The rate of non-functionality of water sources (mainly boreholes) has to do with the health centers' financial incapacity to fix them. Improved water supply sustainability requires more funds and borehole mechanics. It is interesting to note that Suru is the only LGA where a non-functional borehole in health center (Figure 40).

TABLE 32: AVAILABILITY OF NON-FUNCTIONAL WATER FACILITY ACROSS 10 LGAS

Non-functional Facilities	%
No	52
Yes	48
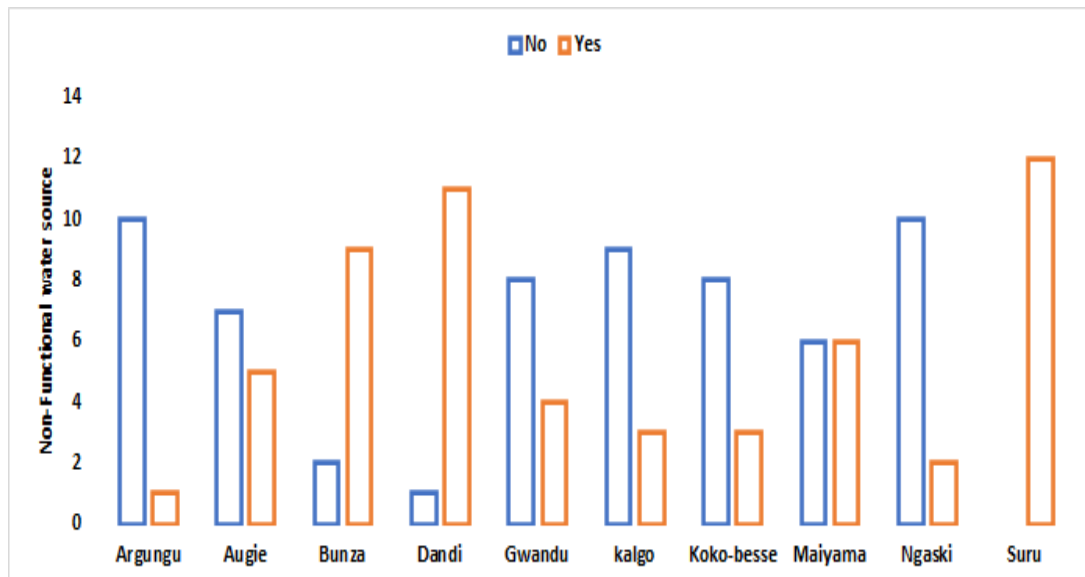
FIGURE 40: AVAILABILITY OF NON-FUNCTIONAL WATER FACILITY.

Number of Non-functional Water Facility

Table 33 showed the number of water sources breakdown in the studied LGAs. Mean water source breakdown was highest in Dandi LGA and lowest in Argungu and Suru LGAs (Figure 40). Data from the 2015 Nigeria National Water and Sanitation Survey to identify the extent, timing, and reasons for the failure of water points' evaluation revealed that more than 38% of all improved water points are non-functional. The results indicate that nearly 27% of the water points are likely to fail in the first year of construction, while nearly 40% are likely to fail in the long run (after 8–10 years).

TABLE 33: NON-FUNCTIONAL WATER FACILITY.

Number of Non-functional Facility	Argungu	Augie	Bunza	Dandi	Gwandu	Kalgo	Koko-Besse	Maiyamma	Ngaski	Suru
Sum	1	26	17	11	4	5	9	10	2	14
Mean	1	5	2	11	4	2	3	2	2	1
Max	1	11	3	11	4	3	4	2	2	2
Min	1	1	1	11	4	1	1	1	2	1
Stdevp	0	5	1	0	0	1	1	0	0	0

Possible reasons behind these failures include location, and underlying hydrogeology, which significantly impact functionality. Other factors, specifically those controlled in the design, implementation, and operational stages, also contribute significantly.

As water points age, their likelihood of failure is best predicted by factors that cannot be modified and the technology used. Much can be done at the design, implementation, and operational stages to improve the sustainability of water points. Mean nonfunctional water facilities by studied LGAs as presented are Argungu (1), Augie (5), Bunza (2), Dandi (11), Gwandu (4), Kalgo (2), Koko-Besse (3), Maiyamma (2), Ngaski (2), Suru (1).

Cases of Water-Borne diseases (Cholera, Diarrhea, Typhoid, etc.) per week

Weekly averages of cases of water-borne diseases (Cholera, Diarrhea, Typhoid, etc.) are shown in Figure 41. Overall, Gwandu LGA has the highest number of waterborne cases.
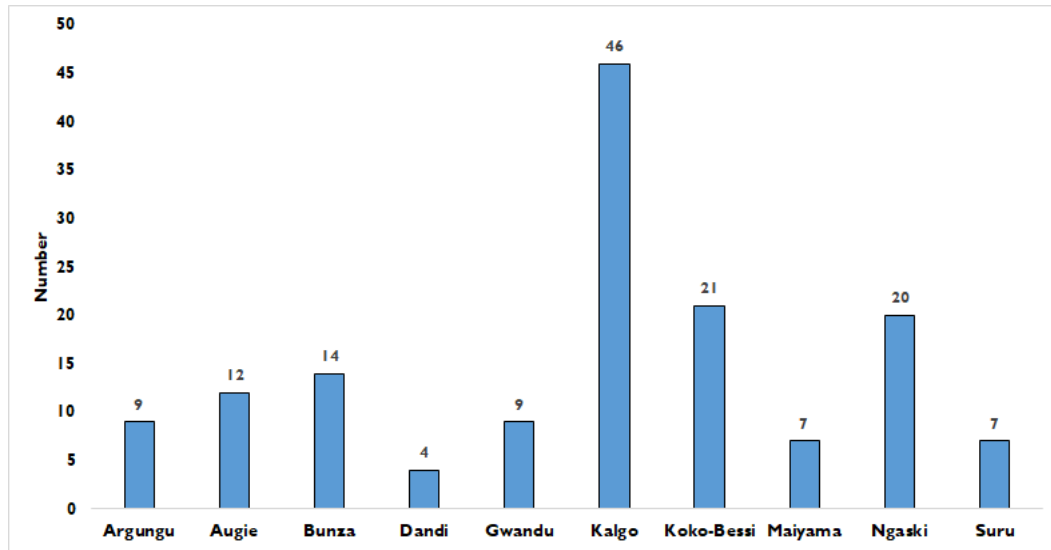
FIGURE 41: AVERAGE NUMBER OF WATERBORNE DISEASE CASES PER WEEK

Accessibility to Persons with Special Needs

TABLE 34: ACCESSIBLE TO PERSONS WITH SPECIAL NEEDS

Accessibility	%
No	20
Yes	80

Accessibility of water sources to persons with special needs is high in health centers, as shown in Table 34.

It is worthy to note that all water points in health centers sampled in Suru and Bunza are accessible to persons with special needs (Figure 42).
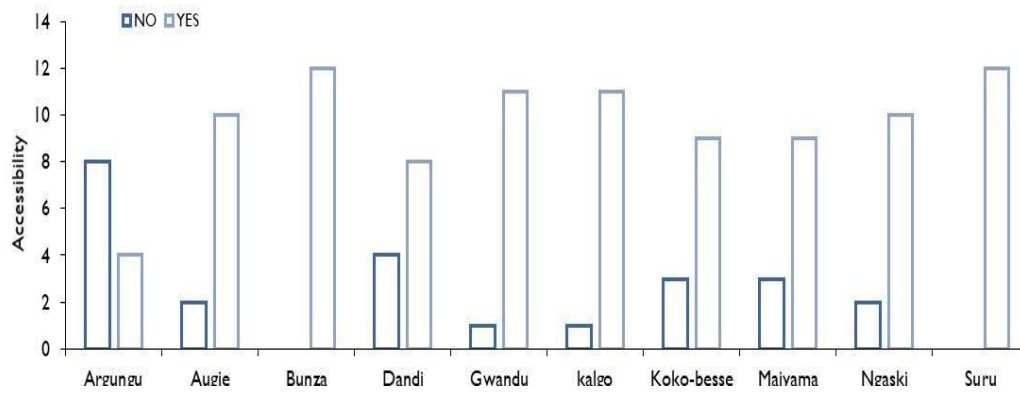
FIGURE 42: ACCESSIBILITY OF WATER FACILITIES TO PERSONS WITH SPECIAL NEEDS

4.1.6 STATUS OF SANITATION AND HYGIENE PRACTICES

Types of Toilet facility at Health Centre

Table 35 summarized the toilets used by patients and workers at the healthcare centers. The proportion of toilet facilities are: Flush/pour flush toilets connected to sewer (60%), pit latrines with slab (25%), Pit latrines without slab (7%), Water cistern (2%), Composting toilets (1%), No toilets or latrines (6%).

Figure 43 highlights Gwandu having only Pour flush toilet facilities.

TABLE 35: TYPE OF TOILET FACILITY ACROSS 10 LGAS

Type of toilets/latrines	%
Flush/pour flush toilets connected to a sewer	60
Pit latrines with slab	25
Pit latrines without a slab	7
Water cistern	2
Composting toilets	1
No toilets or latrines	6
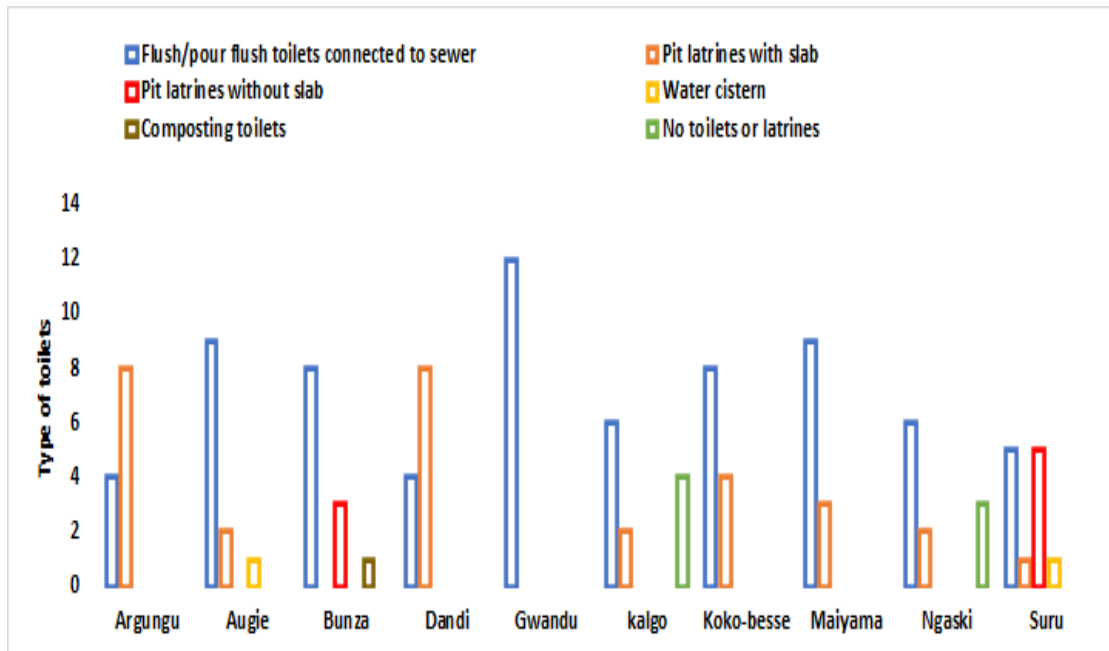
FIGURE 43: TYPE OF TOILET FACILITY

Access to Basic Sanitation Services in Health Centers

Access to basic sanitation facilities in healthcare centers across the ten LGAs are highlighted in Figure 44 below showing Argungu with 85% as the LGA with the highest percentage of HCs with access to basic sanitation facilities while Ngaski with 24% have the least access to basic sanitation facilities.
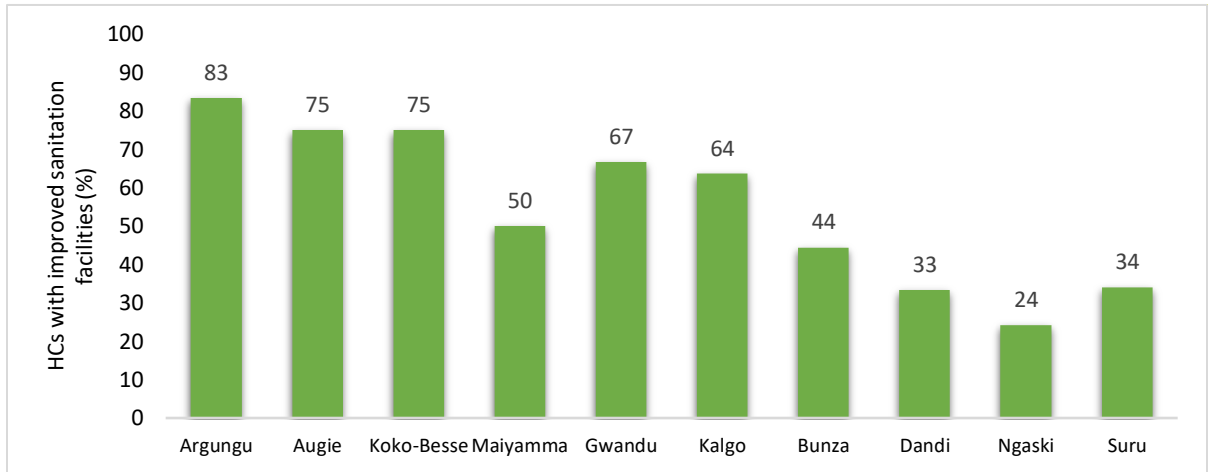
FIGURE 44: % OF HCS WITH ACCESS TO BASIC SANITATION FACILITIES

Toilet Cubicles/Latrines

TABLE 36: TOILET CUBICLES ACROSS 10 LGAS

Toilet Cubicles	%
1-5	78
5-10	22

78% of the toilet facilities have 1-5 cubicles, and 22% have 5-10 cubicles, as shown by Table 36. Figure 45 shows that Argungu, Dandi. Koko-Besse and Maiyamma only have 1-5 units, highlighting the inadequacies in these locations.
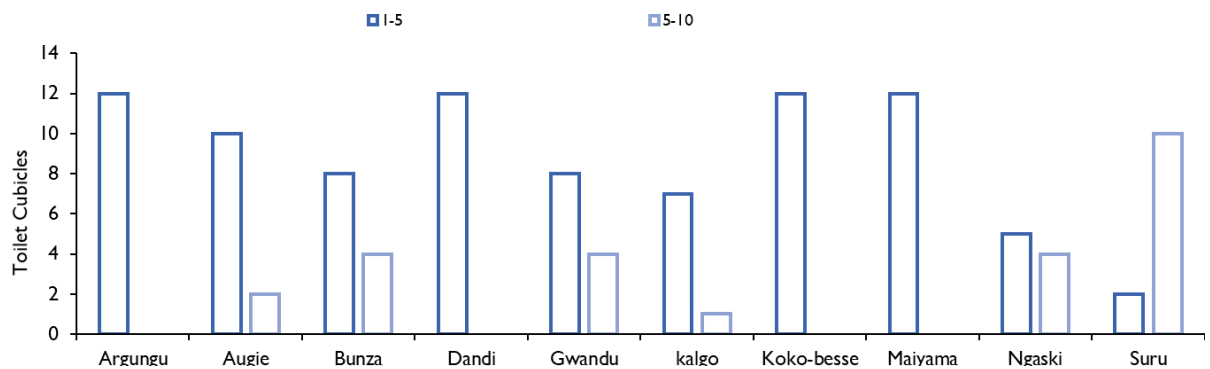
FIGURE 45: TOILET CUBICLES

Staff Toilet

Table 37 showed that 70 health centers have toilets for their staff. Presence of staff toilet is highest in Gwandu (Figure 46)

TABLE 37: STAFF TOILET ACROSS 10 LGAS

Staff's Toilet	%
No	30
Yes	70
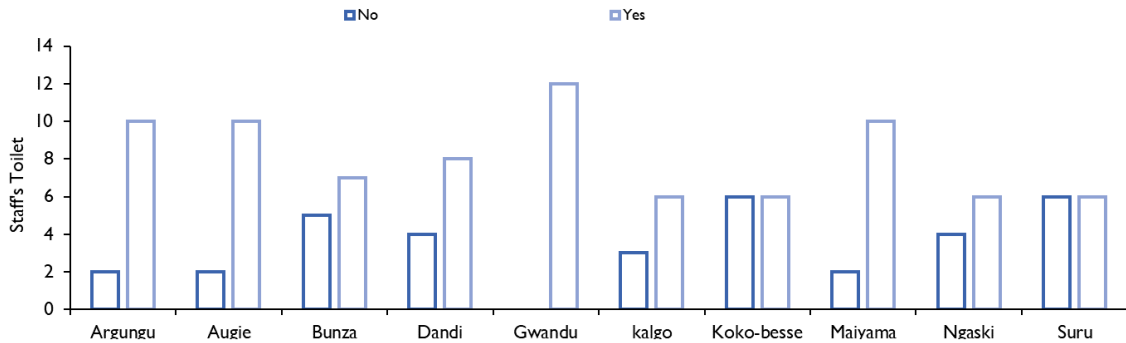
FIGURE 46: AVAILABILITY OF STAFF TOILET

Female staff Toilet

Across the 10 LGAs, about 34% of health centers have no toilets exclusively for female staff. Only 66% noted that their centers have exclusive toilets for female staff (Table 38). From Figure 47 absence of toilets for female staff is least in Gwandu.

TABLE 38: FEMALE STAFF'S TOILET ACROSS 10 LGAS

Female staff's Toilet	%
No	34
Yes	66
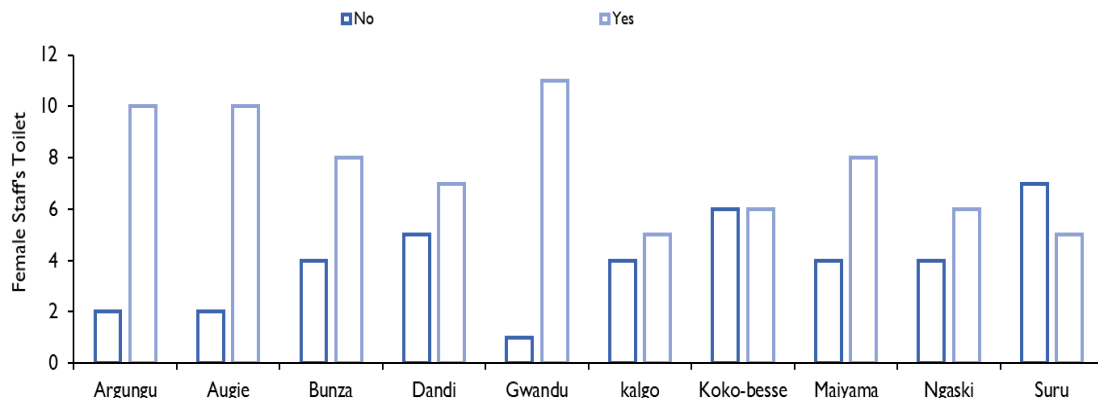
FIGURE 47: AVAILABILITY OF TOILET FOR FEMALE STAFF.

Functionality of Patients' Toilets

Across the 10 LGAs, 23% of toilets were found to be non-functional, while 38% are used but do not have water supply or have other technical problems which have not been resolved. Meanwhile, 39% were found to be functional (Table 39). Figure 48 shows that Dandi, Bunza, Kalgo, Maiyamma, Ngaski and Suru have the highest number of non-functional toilets.

Table 39: Functionality of Toilets for Patients Across 10 LGAs

Functionality	%
Non-Functional	23
Used but not convenient due to technical faults	38
Functional	39
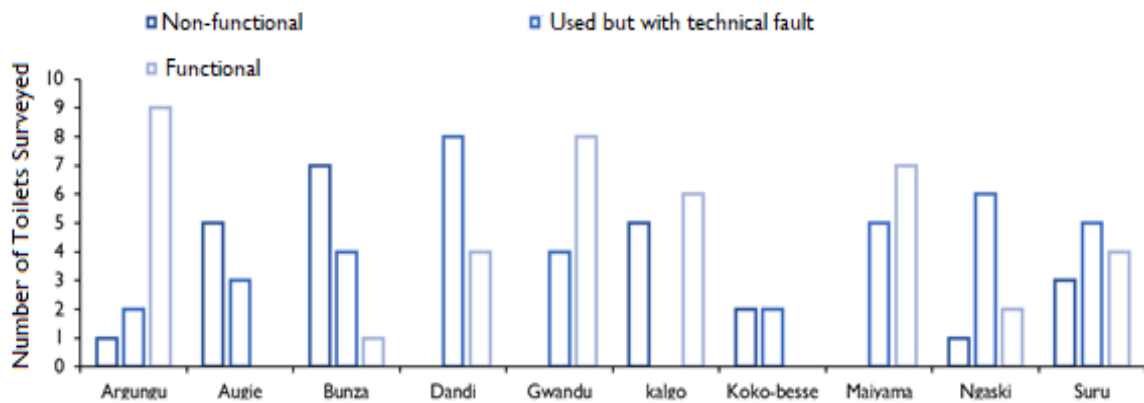
FIGURE 48: FUNCTIONALITY OF TOILET FACILITY

Accessibility of Toilet Facilities to Persons with Special Needs

Table 40 showed that 34% of the toilets/latrines are not accessible to those with special needs. Meanwhile 66% were found to be accessible to those with special needs. The best numbers are in Bunza, Ngaski, Suru, Maiyamma and Gwandu (Figure 49).

TABLE 40: ACCESSIBILITY OF TOILETS TO PERSONS WITH SPECIAL NEEDS ACROSS 10 LGAS

Accessibility	%
No	66
Yes	34
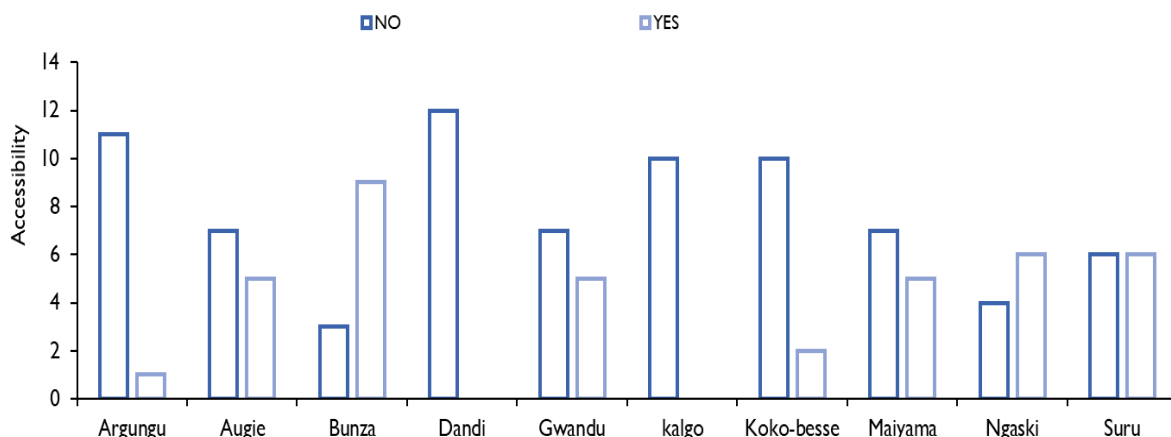
FIGURE 49: ACCESSIBILITY OF TOILET FACILITY

Restrictions to Toilet Accessibility

Concerning restrictions to toilet use, 13% of toilets are accessible only at specific times (such as breaks), 36% are accessible any time upon request of the key, and 52% can be accessed any time without the key (Table 41) Restrictions were observed most in Argungu, Maiyamma, Bunza and Suru (Figure 50).

TABLE 41: RESTRICTED ACCESS TO TOILET ACROSS 10 LGAS

Always Accessible	%
No, only at specific times (such as breaks)	13
Yes, any time upon request of the key	36
Yes, any time without the key	52
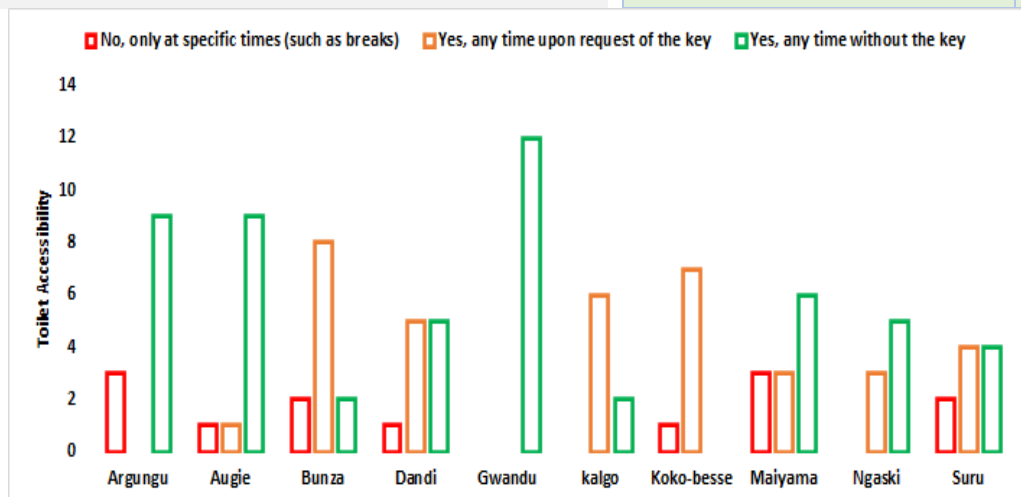
FIGURE 50: ACCESS TO TOILETS FOR PERSONS WITH SPECIAL NEED

Maintenance of Toilet Facilities

There is significant variation concerning toilet cleaning at healthcare centers. For example, 26% are cleaned 2 - 4 days per week, 5% are cleaned Less than once per week, 41% are cleaned Once per day, 9% are cleaned once per week, and 20.00% are cleaned twice per day or whenever needed (Table 42). Figure 51 shows Gwandu, Argungu and Augie to have the highest

TABLE 42: TOILET CLEANING FREQUENCY ACROSS 10 LGAS

Toilet Cleaning	%
2 - 4 days per week	26
Less than once per week	5
Once per day	41
Once per week	9

number of times toilets are cleaned. Worst cases are in Kalgo and Koko-Besse.	Twice per day or whenever needed	20
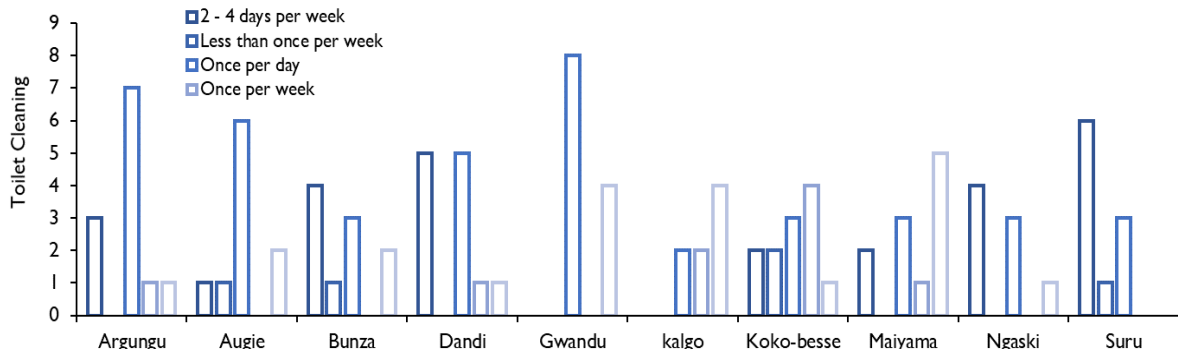
FIGURE 51: TOILET CLEANING FREQUENCY

Responsibility for Toilet Construction

There is variability in whom to contact/write to in case of need to construct toilet facilities in health care centers. As indicated by Table 43, 4% write to RUWASSA, 19.82% write to PHCDA, and 77% write to other bodies including Hospital Administrations, LGA, Ward development committee (WDC), Employed staff, Kebbi State Government etc. in Figure 52

TABLE 43: GOVERNMENT AGENCIES THAT SUPPORT CONSTRUCTION OF TOILET FACILITIES IN HEALTH CARE CENTERS ACROSS 10 LGAS

Contact	%
RUWASSA	4
PHCDA	20
Others	77
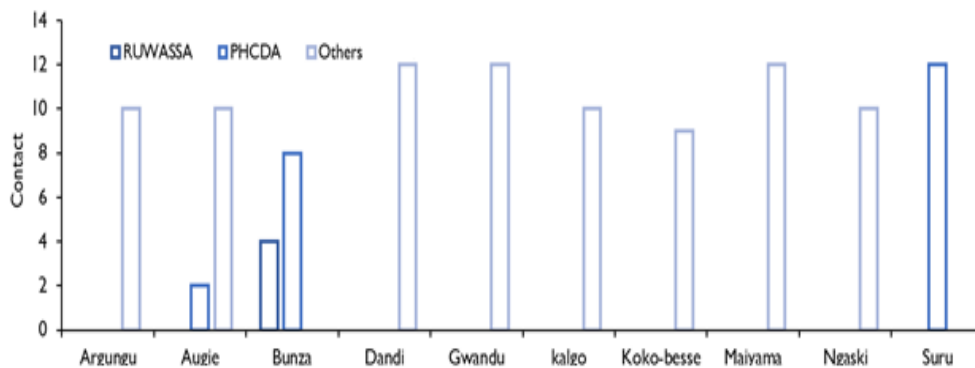
FIGURE 52: GOVERNMENT AGENCIES THAT SUPPORT CONSTRUCTION TOILET FACILITIES IN HEALTH CARE CENTERS

Responsibility for Construction of Water Facility

The responsibility of constructing water facilities is to be shared by many stakeholders, summarized in Table 44. The LGAs provide 63% of the water sources whereas, Hospital Administration constructs 8%. The government (State) constructs 2%. However, the FGN is responsible for the provision of 11%. The PHCs provided 5%, and Ward Development Committees (WDCs) accounted for 4%. The variability by LGAs is further illustrated in Figure 53.

TABLE 44: LIST OF OTHER AGENCIES ACROSS 10 LGA

Other Agencies	%
Hospital Administrations	8
LGA	63
Ward Development Committee (WDC)	5
Employed staff	1
Kebbi State Govt	2
Government	11
Government and WDC	1
PHC Administration	5
WDC	4
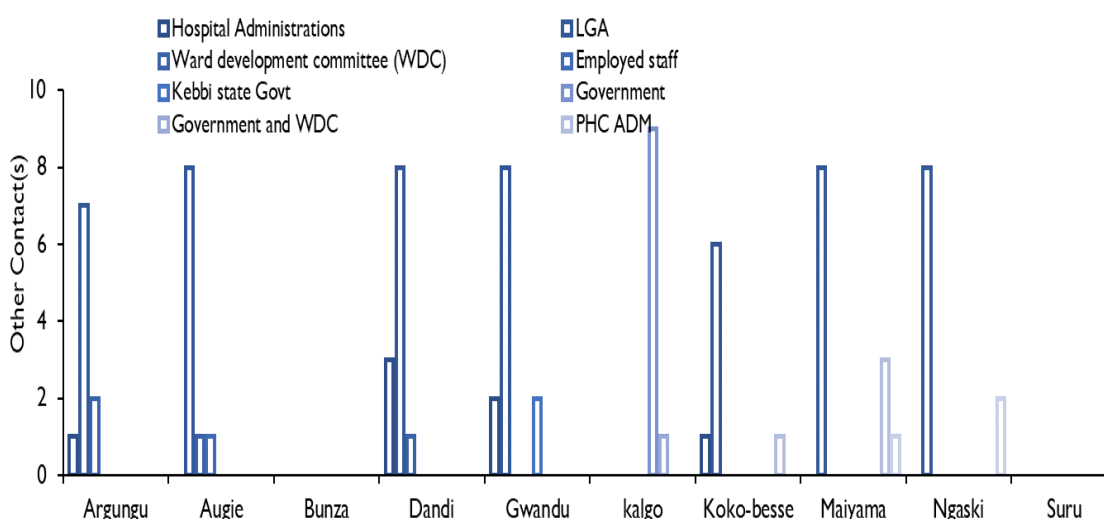
Figure 53: Agencies Involved in construction of Water Facilities in Health Centers

4.2.4 STATUS OF SANITATION INFRASTRUCTURE IN HEALTH CENTERS

The status of Sanitation Infrastructure in health centers (HCs) is presented in this section.

Solid Waste Disposal

Table 45 summarizes information concerning the status of sanitation infrastructure. 5% of healthcare centers empty their bins 2 - 4 days per week, 2% (Less than once per week), 69% (Once per day), 2% (Once per Week), and 22% (Twice per day or whenever needed). Figure 54 presents the variability of frequency of emptying waste bins by health centers and by LGAs.

Table 45: Waste Disposal Across 10 LGA

Waste Disposal	%
2 - 4 days per week	5
Less than once per week	2
Once per day	69
Once per week	2
Twice per day or whenever needed	22
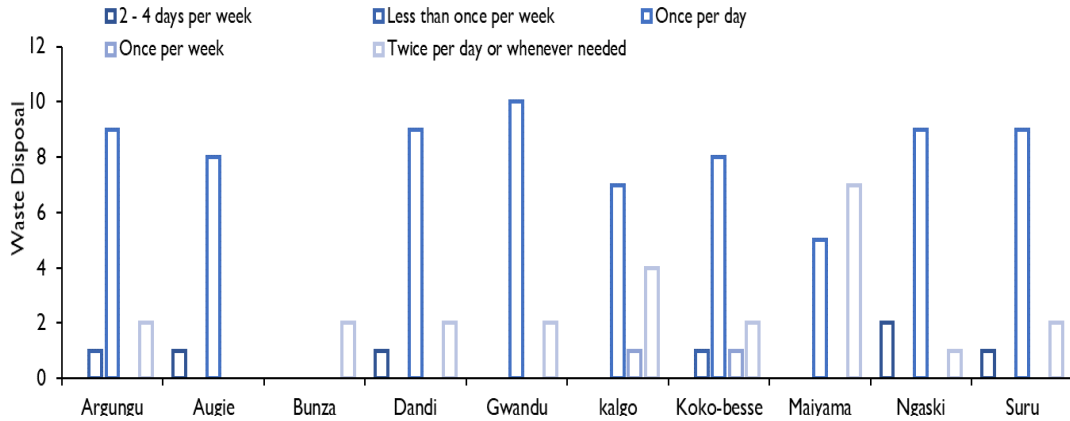
FIGURE 54: WASTE DISPOSAL

Emptying Soakaways

Similarly, 2.08% of healthcare centers empty their soakaways 2 - 4 days per week, 35% less than once per week, 38% once per day, 4% once per week, and 21% twice or whenever needed (Table 46). Emptying soakaways by health centers (HCs) is highly variable and LGAs (Figure 55).

TABLE 46: FREQUENCY OF SEWAGE DISPOSAL ACROSS 10 LGA

Soakaways Emptying Schedule	%
2 - 4 days per week	2
Less than once per week	35
Once per day	38
Once per week	4
Twice per day or whenever needed	21
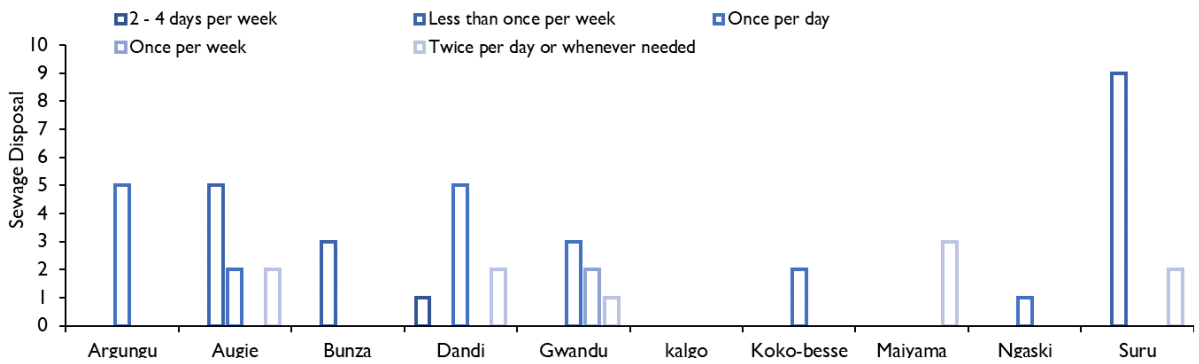
FIGURE 55: FREQUENCY OF SEWAGE DISPOSAL

Disposal Mechanisms for Menstrual Hygiene Waste

About 92% of healthcare centers in Kebbi State have appropriate disposal mechanisms for menstrual hygiene waste (Table 47). Figure 56 presents findings in respective LGAs where Argungu, Augie, Kalgo and Koko-Besse Standout as the only LGAs where menstrual waste is not properly disposed of.

TABLE 47: PRESENCE OF APPROPRIATE DISPOSAL MECHANISMS OF ACROSS 10 LGA

Availability of Appropriate Waste Disposal	%
No	8
Yes	92
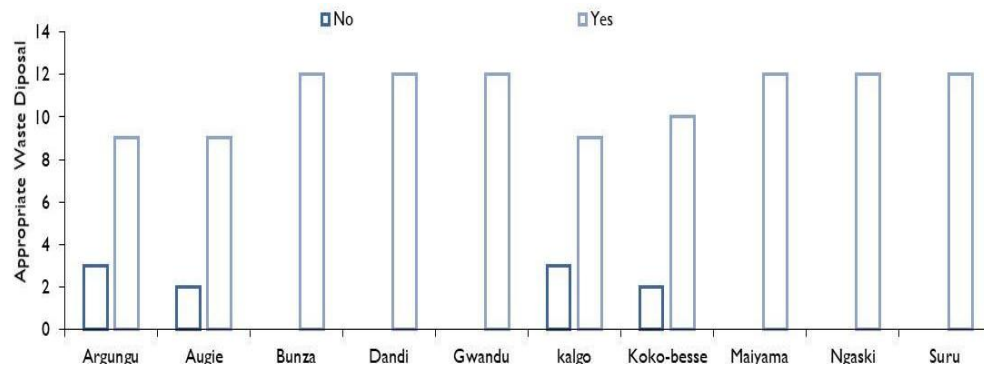
FIGURE 56: PRESENCE OF APPROPRIATE DISPOSAL MECHANISMS FOR MENSTRUAL HYGIENE WASTE IN HEALTH CENTERS

Mode of Disposing Medical Wastes

Table 48 presents the average percentage for different modes of waste disposal in health centers across 10 LGAs in Kebbi State. 45% of medical wastes are buried, 5% are disposed of using incinerators, and 50% are disposed of using other means such as burning. Worst cases of medical disposal are in Argungu, Gwandu Kalgo, Maiyamma and Suru (Figure 57).

TABLE 48: MODE OF DISPOSAL ACROSS 10 LGAS

Mode of Disposal	%
Burying	45
Incinerators	5
Others	50
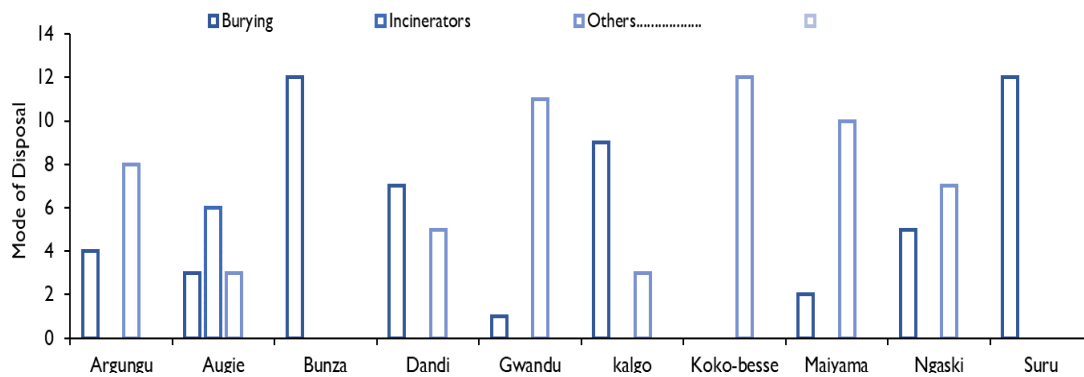
FIGURE 57: MODE OF DISPOSAL OF MEDICAL WASTE

4.2.5. STATUS OF HYGIENE FACILITIES IN HEALTH CENTERS

The status of hygiene facilities in health care centers are presented in this section.

Presence of Handwashing Facilities in Health Centers

Eighty-seven (87%) of health centers (HCs) have handwashing facilities; 13% do not (Table 49). Bunza, Koko-Besse and Maiyamma LGAs have the highest number of handwashing facilities (Figure 58). Availability of handwashing facilities in HCs is due to COVID-19 Pandemic response by state and federal governments as well as support from donor organizations. Figure 58 shows Argungu, Augie, Dandi, Ngaski and Suru as the only LGAs where health centers here found without handwashing facility.

Table 49: Availability Hand Washing Facility in Health Centers Across 10 LGAs

Availability	%
No	13
Yes	87
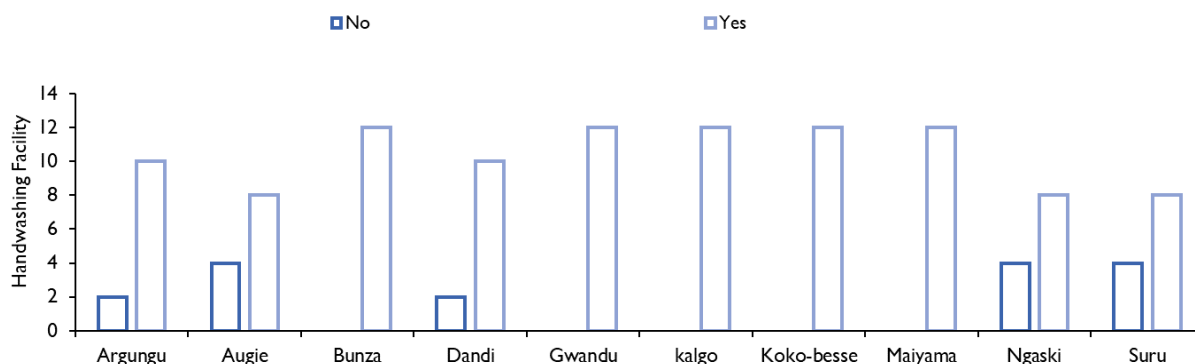
FIGURE 58: AVAILABILITY OF HANDWASHING FACILITY

Availability of Water at Handwashing Spots in Health Centers

The availability of water is 82% within HCs in the studied LGAs. 10% had no water at the handwashing spot. Moreover, 8% rarely have water when needed (Table 50) Figure 59 highlights Argungu, Augie, Bunza, Dandi, Ngaski and Suru as having limited water supply at handwashing spots.

TABLE 50: AVAILABILITY OF WATER AT HANDWASHING SPOT ACROSS 10 LGAS

Availability of Water	%
No, never	10
Rarely	8
Yes, always	82
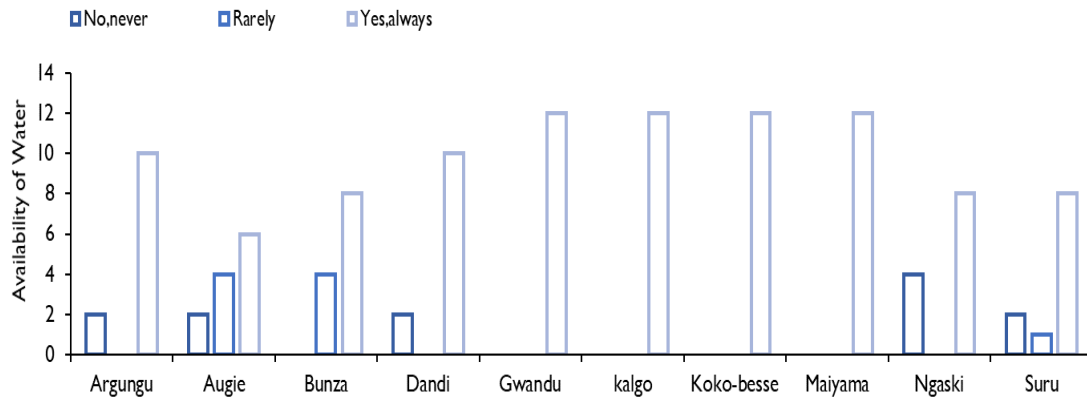
FIGURE 59: AVAILABILITY OF WATER AT HANDWASHING SPOT

Availability of Soap for Handwashing

Table 51 summarized the availability of soap by HCs and by LGAs. At least 69% of HCs have soap at handwashing spots, 18% rarely have soap, and 13% never have soap (Figure 60). The availability of soap can be influenced by the health centers' available resources (Budget) [110, 111].

TABLE 51: AVAILABILITY OF SOAP AT HANDWASHING SPOT IN HEALTH CENTERS ACROSS 10 LGAS

Availability of Soap	%
No, never	13
Rarely	18
Yes, always	69
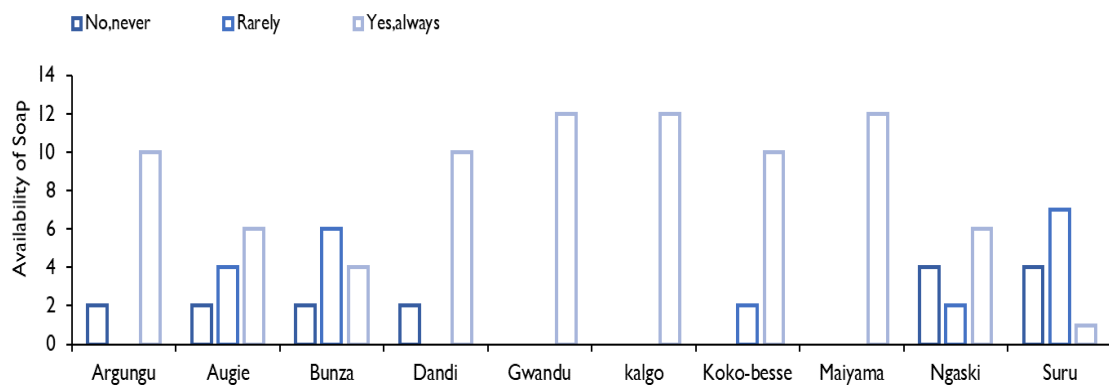
FIGURE 60: AVAILABILITY OF SOAP AT HANDWASHING SPOT IN HEALTH CENTERS

Access to Basic Hygiene Facilities in Health Centers

Amongst the ten LGAs studied, the percentage of healthcare centers with access to basic hygiene facilities is highest in Gwandu, Kalgo and Dandi LGAs and lowest in Suru LGA.
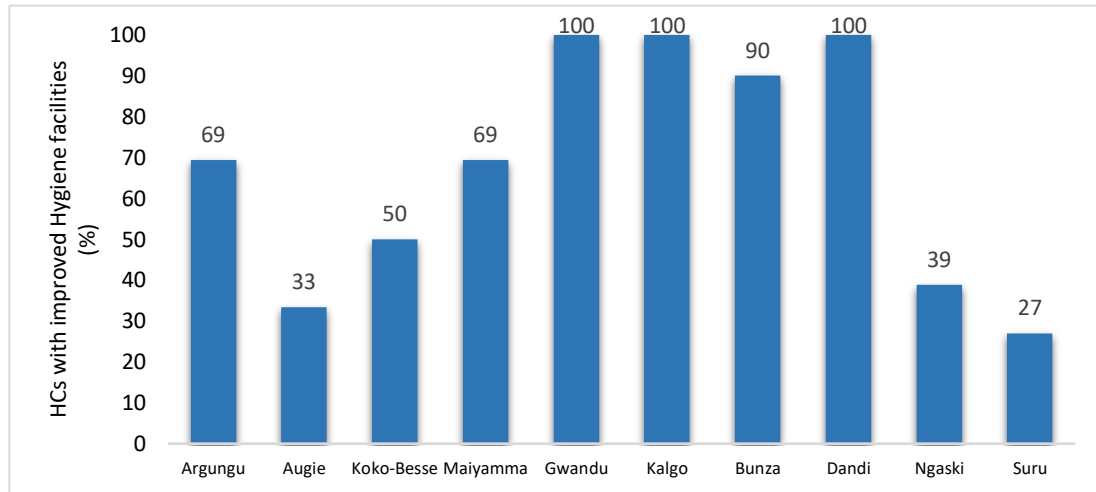
FIGURE 61: % OF HCS WITH BASIC HYGIENE FACILITIES

Accessibility of Handwashing Facilities by Patients

As indicated by Table 52, 85% of HCs have accessible handwashing facilities. HCs in Bunza, Kalgo and Maiyamma LGAs have accessibility to handwashing facilities Figure 62).

TABLE 52: ACCESSIBILITY TO HANDWASHING FACILITY IN HEALTH CENTERS ACROSS 10 LGAS

Accessibility to Handwashing Facility	%
No	15
Yes	85
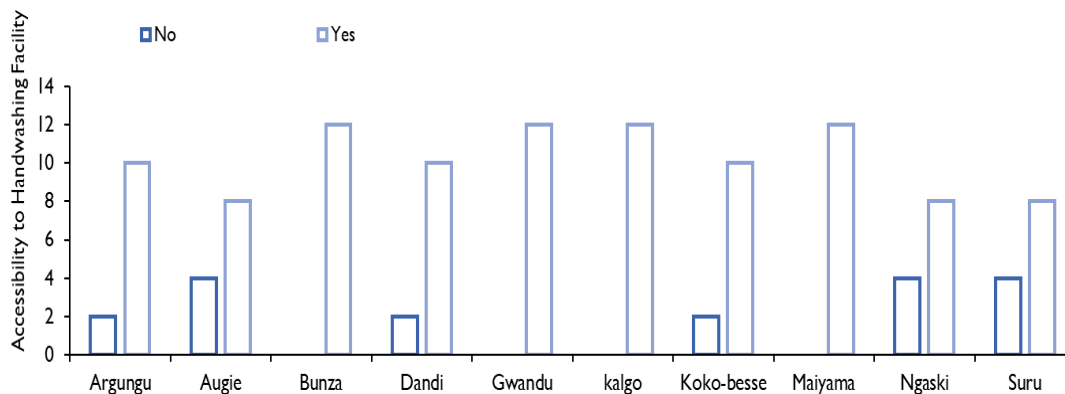
FIGURE 62: ACCESSIBILITY TO HANDWASHING FACILITY

Toilet Cleaning Schedule in Health Centers

Table 53 shows that across the 10 LGAs in Kebbi State, 61% of healthcare centers lack a cleaning schedule. Bunza, Kalgo and Ngaski have the highest number of facilities with cleaning schedules (Figure 63).

TABLE 53: TOILET CLEANING SCHEDULE ACROSS 10 LGAS

Cleaning Schedule	%
No	61
Yes	39
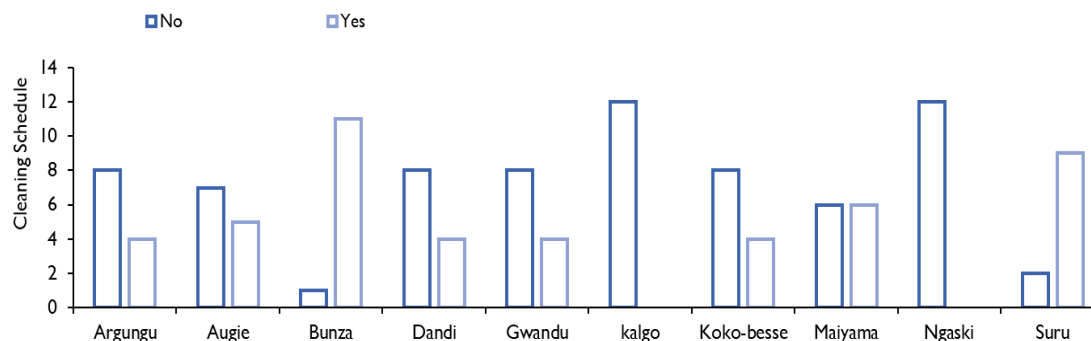
Figure 63: Cleaning Schedule

Daily Maintenance Checks of Toilet Facilities

Concerning how often checks are made on toilet facilities in health centers across the 10 LGAs, 3% have less than one check per day, 52% are cleaned once per day, 21.82% do not conduct checks regularly, and 24% (Table 54). Daily checks are more frequent in Gwandu, Kalgo and Maiyamma (Figure 64).

TABLE 54: DAILY CHECKS ON TOILET FACILITIES ACROSS 10 LGAS

Daily Checks on Toilet Facilities	%
Less than once per day.	3
Once per day.	52
Such checks are not conducted regularly.	22
Twice or more per day.	24
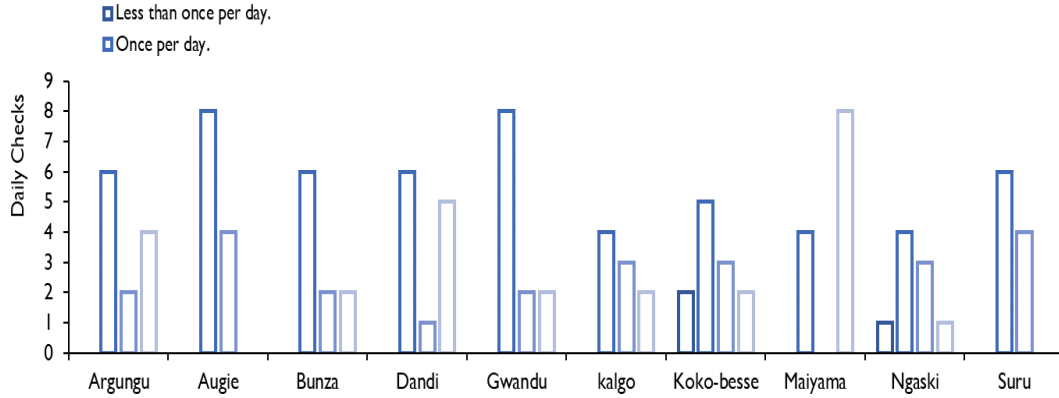
FIGURE 64: DAILY CHECKS ON TOILET FACILITIES.

Pool of Toilet Cleaners

Table 55 presents the relative proportion of cleaners in healthcare centers. Most of the cleaning services (60%) in healthcare centers are conducted by PHC laborers. Government cleaning services constitute 33%, while Janitors make up only 6%. Suru LGA had the highest number of government cleaning services (Figure 65). Other pools include PHC Cleaners, Junior Staff (Medical Staff).

TABLE 55: SIZE OF CLEANER(S)

Cleaner(s)	%
Gov't. Cleaning services	33
Janitors	6
Patients	2
PHC laborer(s)	60
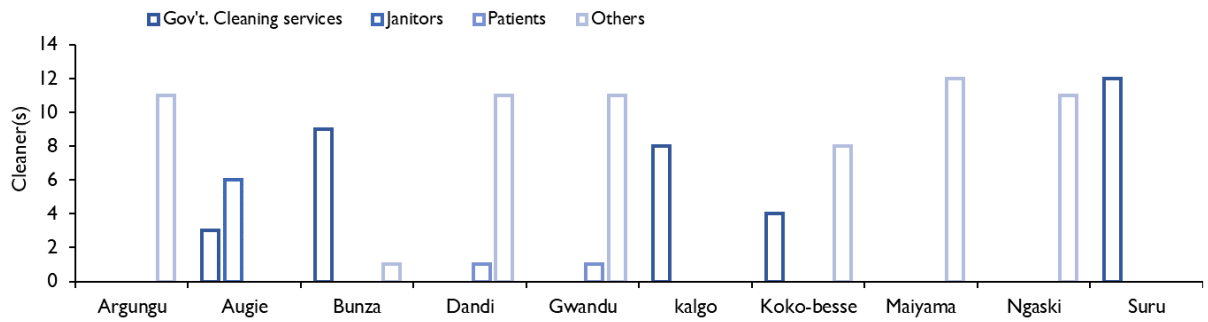
Figure 65: Pool of Cleaner(s)
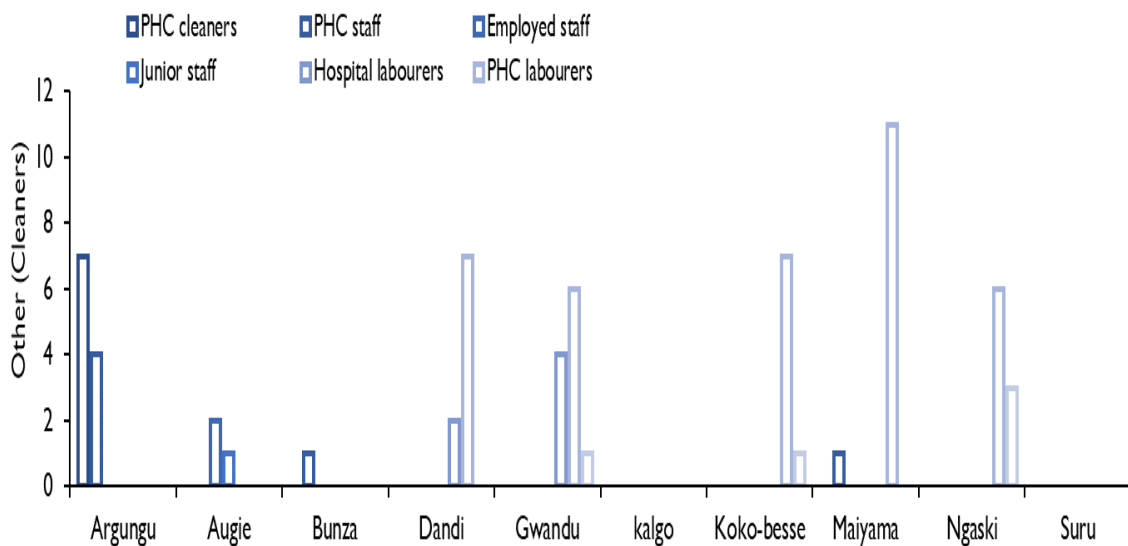
FIGURE 66: OTHER POOL OF CLEANERS

4.2.5 KNOWLEDGE OF WASH SERVICES IN HEALTH CENTERS

Hygiene Promotion

Table 56 shows that 66% of hygiene promotion in HCs involved medical staff reminding and educating patients on Handwashing. It is followed by educational/informative reminders or posters hanging at strategic locations within school premises constituted 24%. The group handwashing activities are not widely practiced; only 6% of HCs conduct it. From Figure 67, it seems that Argungu LGA has the best mix of hygiene promotion programs.

TABLE 56: HYGIENE PROMOTION ACROSS 10 LGAS

Hygiene Promotion	%
Educational/informative reminders or posters hanged at strategic locations within school premises	24
Group Handwashing activities	6
Medical staffs remind and educate patients on Handwashing	66
Hygiene education included in the curriculum	3
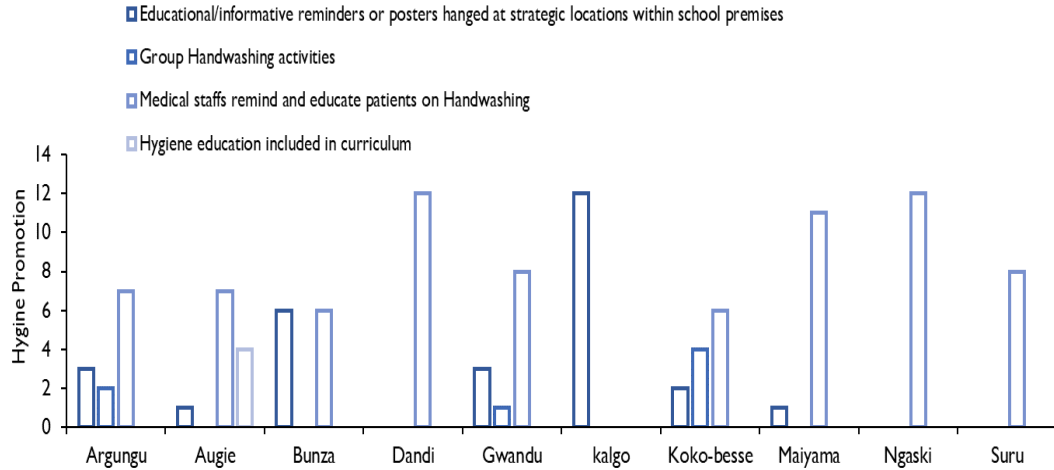
FIGURE 67: HYGIENE PROMOTION.

Staff Training on Menstrual Health and Hygiene Promotion/Education

Ninety-four percent (94%) of HC staff have been trained on menstrual health and hygiene promotion/education (Table 57) Figure 68 shows that Argungu, Gwandu, Kalgo and Koko-Besse are the only LGAs with Staff that have no training on menstrual health and hygiene promotion.

TABLE 57: HYGIENE EDUCATION ACROSS 10 LGAS

Capacity Building	%
No	6
Yes	94
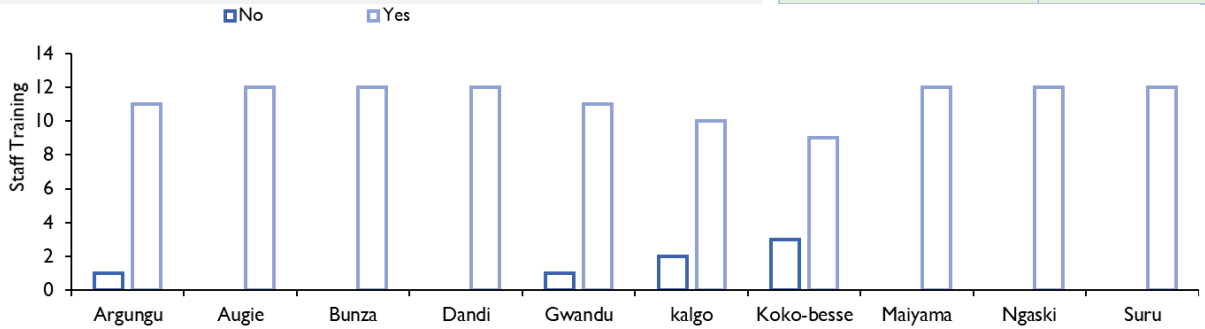
FIGURE 68: HYGIENE EDUCATION

4.2.6 SUMMARY OF FINDINGS IN HEALTH CENTERS

For WASH services in healthcare centers, the most significant findings are listed as follows:

- 40% of respondents to this survey are the heads of Primary Healthcare Centers.

- In terms of sex composition, 14% are female, and 85.83% are male.

- 83% of healthcare centers surveyed are located in rural areas, 12% in semi-urban areas, and 5% in urban areas.

- Health facilities in urban areas are more fortified with an improved water supply and have more access to maintenance services.

- 63.7% of the healthcare centers studied have improved water sources, while 36.3% rely on an unimproved water source as their primary source of basic drinking water supply.

- In terms of health facility management, the entire studied healthcare centers are public.

- The average number of patients attending healthcare centers over a period of 12 weeks in Argungu LGA is 1755. The average for Augie, Bunza, Dandi, Gwandu, Kalgo Koko-Besse, Maiyamma, Ngaski and Suru, respectively, is 1268, 67, 1540, 958, 91, 408, 1614, 902, 141.

- Gwandu LGA has the highest number of Health workers.

- However, 79% of the studied healthcare centers have no reliable or steady budgetary allocations: only 21% have the budget for healthcare maintenance, though not adequate.

- Most of the studied healthcare centers (94%) receive support mainly from foreign donors such as UNICEF, WHO, USAID, etc.

- 92% of healthcare centers have no written operation and maintenance plan.

- Basic/improved sanitation facilities are available in 78.3% healthcare centers, while unimproved sanitation facilities are available in 21.7%.

- 78% of the toilet facilities have 1-5 cubicles, 22.12% have 5-10 cubicles, 29.57% have no separate toilets for staff, and 70.43% have separate toilets that patients exclusively use.

- 70% of healthcare centers have segregated toilets for patients.

- 70% of health centers have dedicated toilets for female staff.

- 45% of medical wastes are buried, 4.92% are disposed of using incinerators, and 50.00% are disposed of using other means such as open burning.

- 60% of healthcare centers lack a cleaning schedule.

- 55.2% of the healthcare centers studied have hand-washing facilities on the premises with soap and water (basic) while 44.8% without soap and water (limited).

4.3 SURVEY OF SCHOOLS

In this section, we present the status of WASH services in schools across 10 LGAs in Kebbi State. Results are summarized below.

4.3.1 SCHOOL DEMOGRAPHIC
Position of Interviewed Staff

Table 58 presents the status of respondents in the studied schools. 21% are Assistant Headmasters, 7% are Classroom Teachers, 33% are Headmasters, 10% are Principals, 18% are Staff, and 11% are Vice-principals.

Table 58: Position of Interviewed Staff Across 10 LGAs

Position of Interviewed Staff	%
Ass. Headmaster	21
Classroom Teacher	7
Headmaster	33
Principal	10
Staff	18
Vice Principal	11

Most of the respondents are Headmasters (Figure 69), implying that primary schools are most studied in this survey.
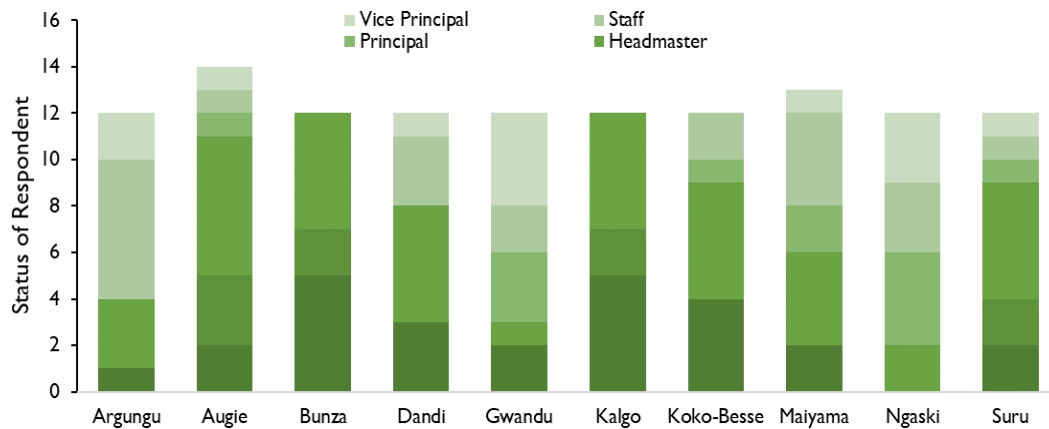
FIGURE 69: POSITION OF INTERVIEWED STAFF.

Gender Divide Amongst Teaching Staff

Across the 10 LGAs surveyed, most of the teaching staff (97%) are male; only 3% are female. Besides Augie, Argungu, and Kalgo LGA, the remaining LGAs Have no female staff (Table 59). Figure 70 highlights that female staff were only found in Argungu, Augie and Kalgo.

TABLE 59: STAFF GENDER ANALYSIS ACROSS 10 LGAs

Gender	%
Female	3
Male	97
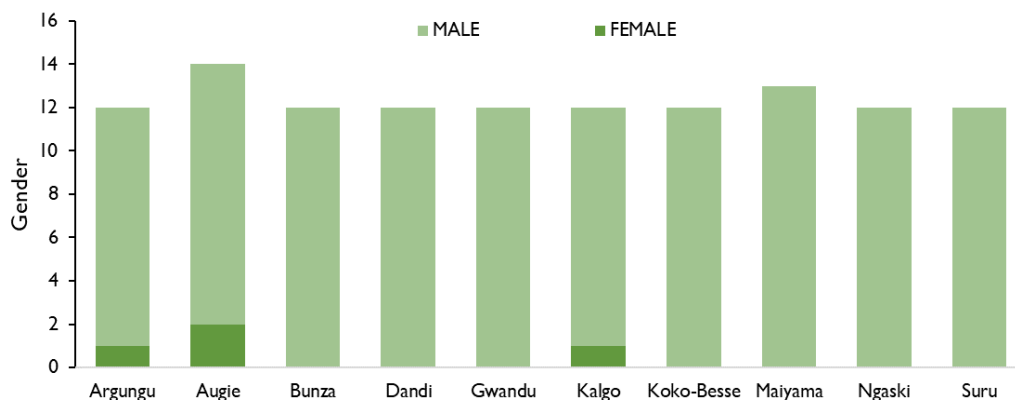
FIGURE 70: GENDER OF STAFF TEACHERS IN SCHOOLS

Location of School

Most of the studied schools (85%) are located in rural areas (Table 60). However, 11% are located in semi-urban areas, and only 5% are in urban areas. Figure 71 showed the variability of school location by LGAs. Table 56: School Location Across 10 LGAs

TABLE 60: LOCATION OF SCHOOLS ACROSS 10 LGAs

School Location	%
Rural	85
Semi-urban	11
Urban	4
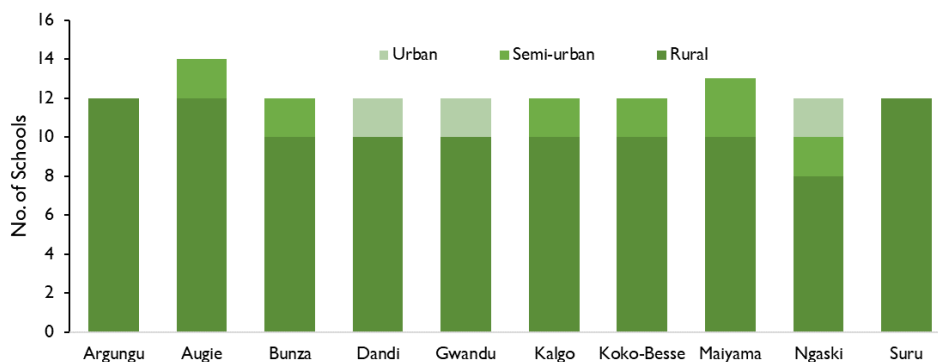
FIGURE 71: LOCATION OF SCHOOLS SURVEYED

School Type

Table 61 shows that most (74%) of the studied schools are primary, 15% are senior secondary schools, and 11% are junior secondary schools. However, in Bunza and Kalgo LGS, only Junior secondary schools were studied, mainly due to the accessibility of communities (Figure 72).

TABLE 61: SCHOOL TYPE ACROSS 10 LGAs

School Type	%
Junior secondary school	11
Primary school	74
Senior secondary school	15
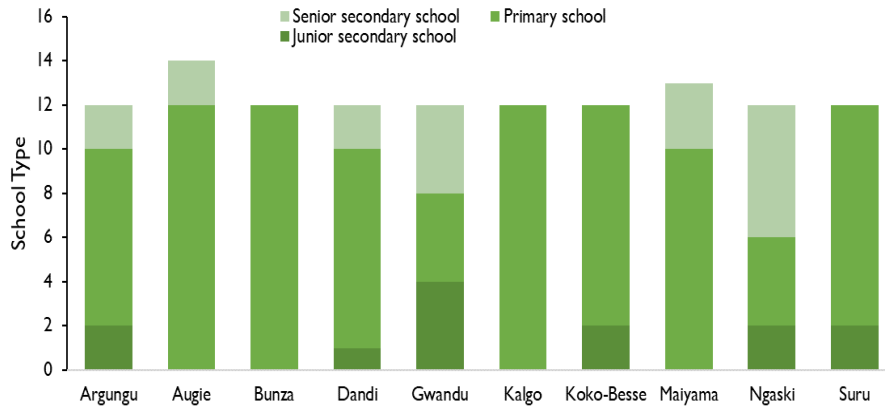
FIGURE 72: TYPE OF SCHOOLS

School Ownership

Ninety-eight percent (98%) of the studied schools are mixed (both boys and girls), whereas 2% are exclusively boys (Table 62). Figure 73 shows that the only exclusively boys' schools were found in Dandi LGA.

TABLE 62: GENDER COMPOSITION OF PUPILS/STUDENTS ACROSS 10 LGAs

Gender composition of School.	%
Exclusively Boys	2
Mixed (Boys and Girls)	98
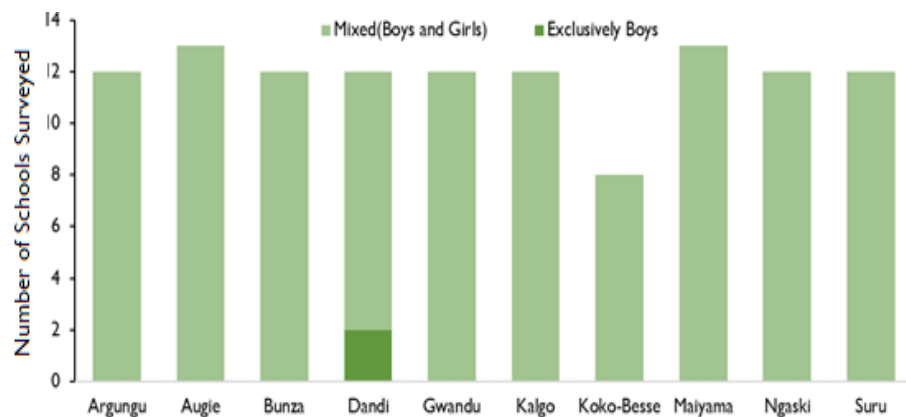
FIGURE 73: GENDER COMPOSITION IN SCHOOLS

Number of Shifts Operated by Schools

Most schools (99%) run morning shift (8am-1pm) and only 1% runs afternoon shift (Table 63). The afternoon session is run only in Gwandu LGA.

TABLE 63: SCHOOL SESSIONS ACROSS 10 LGAs

School Sessions	%
Afternoon (1pm-4pm) only	1
Morning (8am-1pm) only	99

School Enrollment and Student Population

Table 64 shows the estimated number of students enrolled in schools. Ngaski LGA has the highest number (mean) of students that attend school, whereas school enrollment is least in Bunza LGA. The average number of enrolled students across the 10 LGAs is 7978.

TABLE 64: STATISTIC OF STUDENTS

No. of Students	Argungu	Augie	Bunza	Dandi	Gwandu	Kalgo	Koko-Besse	Maiyamma	Ngaski	Suru
SUM	7,735	10,194	5,880	12,064	10,164	7,048	4,832	8,646	12,380	8,346
MEAN	645	728	490	1005	847	587	403	665	1032	696
MAX	1406	1250	919	2500	1623	1200	845	1001	2616	1500
MIN	250	266	204	472	482	219	82	391	268	160
Stdevp	385	353	258	699	392	373	283	213	830	565

Number of Female Pupils/Students

Mean female students attending schools was highest in Ngaski LGA (435) and lowest in Koko-Besse LGA (81), as shown in Table 65. Thus, it is not clear why Koko-Besse is lagging in terms of girl child education. Ngaski, Gwandu and Augie have the highest number of females enrolled in school with an estimated figure of 5,222, 4,038 and 3,440 pupils respectively. As for male enrollment in these three LGAs, they are 7,158, 6,128 and 4907 respectively. These figures represent less than a 2:1 ratio of males to females.

TABLE 65: STATISTIC OF FEMALE STUDENTS

Male Students	Argungu	Augie	Bunza	Dandi	Gwandu	Kalgo	Koko-Besse	Maiyamma	Ngaski	Suru
SUM	2,715	3,440	2,160	2,884	4,038	3,432	650	2,843	5,222	2,890
MEAN	226	246	180	240	337	286	81	219	435	241
MAX	559	507	519	492	826	700	243	326	978	645
MIN	106	63	73	0	130	19	4	96	123	35
Stdevp	154	173	159	168	235	248	96	81	338	218

Number of Male Pupils/Students

Table 66 shows that male students/children are highest in Dandi LGA (mean=765) and lowest in Koko-Besse LGA (mean=158). Koko-Besse LGA has the lowest number of children/students attending schools).

TABLE 66: STATISTIC OF MALE STUDENTS

	Argungu	Augie	Bunza	Dandi	Gwandu	Kalgo	Koko-Besse	Maiyamma	Ngaski	Suru

SUM	4,907	6,510	3,720	9,182	6,128	3,606	1,264	5,801	7,158	5,456
MEAN	409	501	310	765	511	301	158	446	597	455
MAX	950	790	490	2,500	797	514	305	700	1,638	1,100
MIN	121	165	129	250	301	100	69	289	143	125
Stdevp	264	232	137	781	169	155	89	138	509	370

Staff Strength

Table 67 reveals that Augie LGA has the highest number of staff (Mean=23) while Maiyamma LGA has the lowest number of staff (Mean=10), followed by Suru and Argungu LGAs.

TABLE 67: NUMBER OF STAFF

	Argungu	Augie	Bunza	Dandi	Gwandu	Kalgo	Koko-Besse	Maiyamma	Ngaski	Suru
SUM	138	316	242	255	196	166	162	136	180	130
MEAN	12	23	20	21	16	14	14	10	15	11
MAX	22	44	35	44	29	35	36	18	38	33
MIN	7	4	8	8	4	6	2	7	4	2
Stdevp	5	13	10	13	9	10	12	3	11	10

Male Staff (Teachers)

Male staff are highest in Dandi LGA and lowest in Suru LGA (Table 68). On the other hand, Koko-Besse LGA has the lowest male staff.

TABLE 68: STATISTIC OF MALE STAFF

Male Staff	Argungu	Augie	Bunza	Dandi	Gwandu	Kalgo	Koko-Besse	Maiyamma	Ngaski	Suru
SUM	108	244	200	228	144	115	78	123	162	88
MEAN	9	17	17	19	12	10	10	9	14	7
MAX	17	30	30	41	17	25	27	13	30	22
MIN	6	4	8	6	4	5	2	7	4	2
Stdevp	4	10	7	13	5	5	10	2	9	7

Female Staff (Teachers

In Maiyamma LGA, the entire studied schools have no female staff. On the other hand, the mean number of female staff is highest in Augie LGA. For example, as shown in table 69.

TABLE 69: STATISTIC OF FEMALE STAFF

Female Staff	Argungu	Augie	Bunza	Dandi	Gwandu	Kalgo	Koko-Besse	Maiyamma	Ngaski	Suru
SUM	30	70	42	44	52	51	18	5	18	42
MEAN	3	5	4	4	4	4	2	0	2	4

MAX	6	19	15	7	14	25	9	1	8	11
MIN	0	0	0	1	0	0	0	0	0	0
Stdevp	2	6	5	2	5	7	4	0	3	4

4.3.2 STATUS OF WATER SUPPLY

Key findings from the survey of water supply services in schools are presented in this section.

Budget for the Operation and Maintenance (O&M) of WASH Services in Schools

Table 70 shows that ninety-three percent (93%) of schools have no budget for WASH services (i.e., water supply). The 7% are mainly derived from the Parents Teachers Association (PTA) Fund. Figure 74 highlights Koko-Besse, Gwandu and Augie to have a Budget for O&M.

Budget	%
No	93
Yes	7

Figure 74: Availability of Budget for Operation and Maintenance of Water Facilities in Schools

Funding for School WASH Services

With regards to the budget provision for school WASH services, 13% is derived from School Administration, 1% comes from PTA, and the government provides 85% as summarized in Table 71. Figure 75 shows that Maiyamma has the least support from the Government for O&M.

TABLE 71: SOURCE OF BUDGET FOR OPERATION AND MAINTENANCE ACROSS 10 LGAS

Provision of Budget	%
Government	85
Other	2
Parents of Students	1
School Administration	13
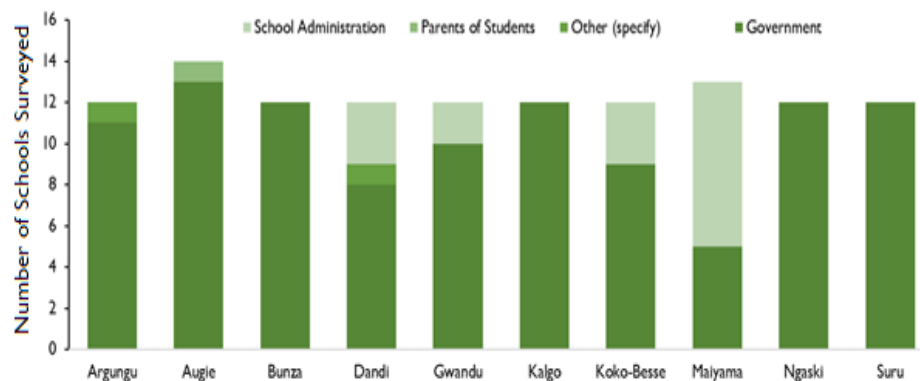
FIGURE 75: PROVISION OF BUDGET

Primary Source of Drinking Water in Schools

As shown in Table 72. 68% obtain their water from improved sources on the school premises. On the other hand, 32% of schools obtain their water from unimproved sources.

TABLE 72: PRIMARY SOURCE OF WATER IN SCHOOLS ACROSS 10 LGAs

Primary Source of Water in Water Schools	%
Improved source on-premises	68
Unimproved source off-premises	32

Water Adequacy in Schools

Most schools' water sources provide adequate water required; 11% of schools' water sources are adequate only seasonally (Table 73). However, 24% have not enough water. Argungu, Augie, Gwandu and Ngaski have the worst numbers in this category (Figure 76).

TABLE 73: ADEQUACY OF WATER SOURCE IN SCHOOLS ACROSS 10 LGAs

Adequacy	%
Do not know	3
No, never enough water	24
Yes, enough water all year	62
Yes, sometimes, only seasonally	11
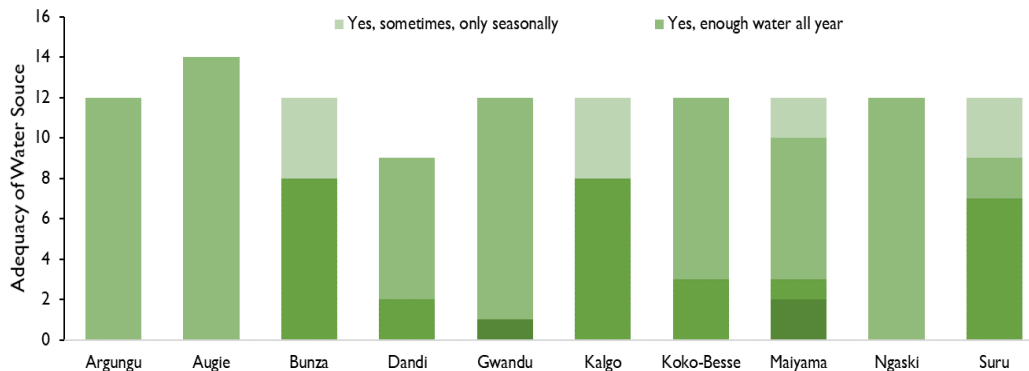
FIGURE 76: ADEQUACY OF WATER SOURCE IN SCHOOLS

Access to Improved Water Supply in Schools

Figure 77 shows percentage of schools with access to improved water sources as primary source of drinking water across ten LGAs where Ngaski and Gwandu LGAs have 100 percent of schools with access to improved water sources whereas Kalgo, Bunza and Suru have number of schools with least access to improved water sources.
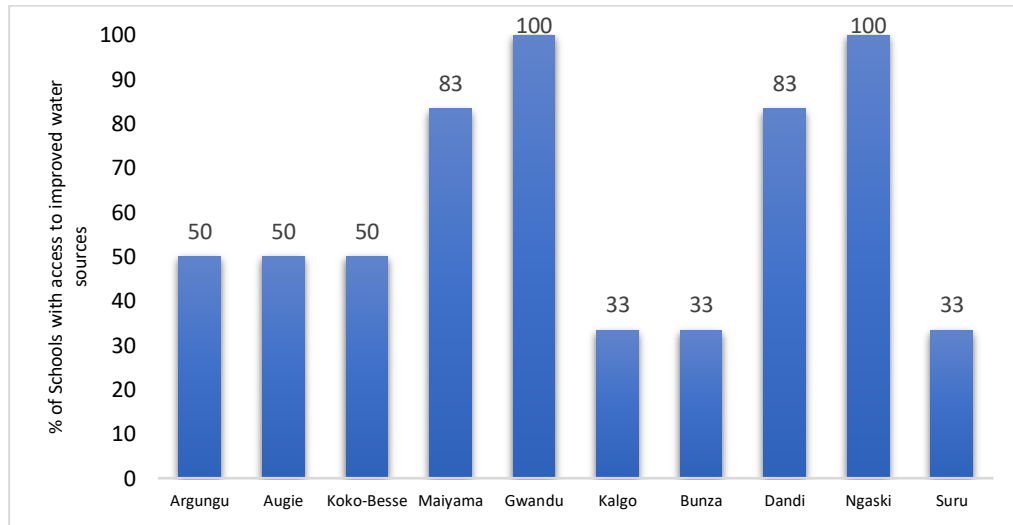
FIGURE 77: % OF SCHOOLS WITH ACCESS TO IMPROVED WATER SUPPLY

Operation and Maintenance Plan in Schools

There is no written plan to operate and maintain WASH services (96%) in schools in Kebbi State (Table 74). Figure 77 shows Maiyamma ranks the highest, having some guidelines on O&M in schools while Dandi, Suru and Gwandu rank the lowest with little or no plan.

TABLE 74: OPERATION AND MAINTENANCE IN SCHOOLS ACROSS 10 LGAS

Operation and Maintenance	%
No	96
Yes	4
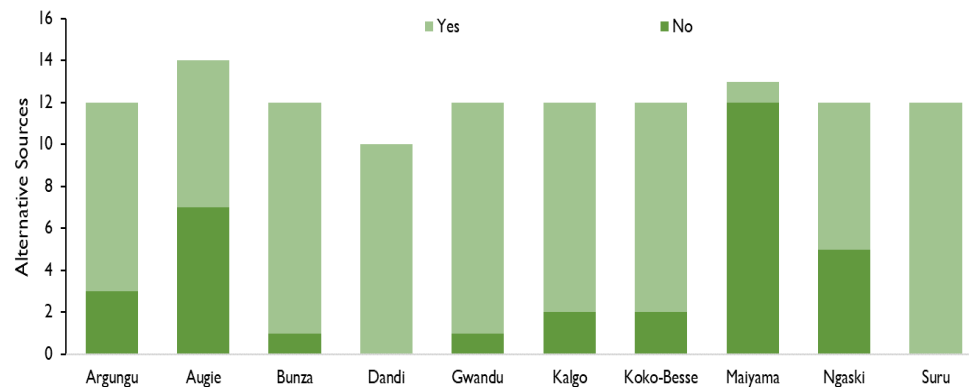
FIGURE 78: AVAILABILITY OF OPERATION AND MAINTENANCE PLAN IN SCHOOLS

4.3.3 STATUS OF SANITATION AND HYGIENE

This section presents the status of sanitation and hygiene practices in schools.

Functionality of Water Facilities in Schools

Regarding functionality of water-facilities within the school premises across the 10 LGAs, 57% of water supply facilities are functional, and 43% are non-functional, as shown in Table 75. From Figure 79, Gwandu has the highest number of non-functional water facilities in schools.

TABLE 75: FUNCTIONALITY OF WATER FACILITY IN SCHOOLS ACROSS 10 LGAs

The functionality of Water Facility	%
No	43
Yes	57
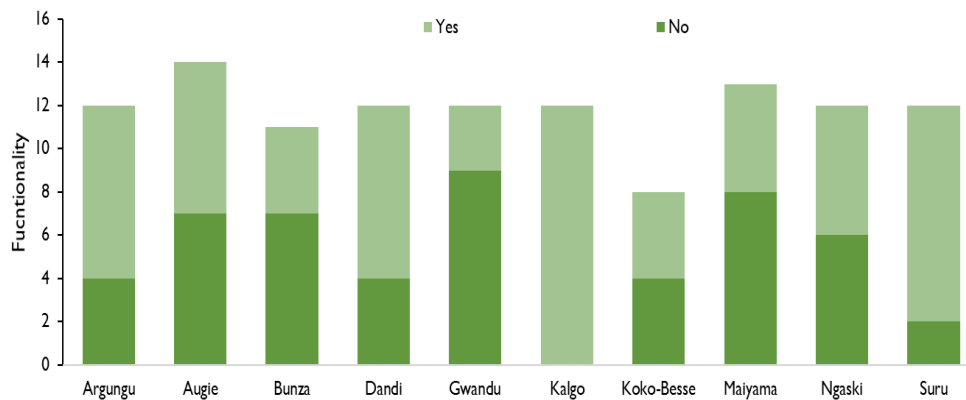
FIGURE 79: FUNCTIONAL WATER FACILITY IN SCHOOLS

Access to Basic Sanitation Service in Schools

Figure 80 gives account schools with access to basic sanitation facilities across the ten LGAs, where Gwandu LGA has the highest percentage with 42% of schools having access to basic sanitation facilities whereas Suru and Bunza LGA completely lack schools with access to basic sanitation facilities.
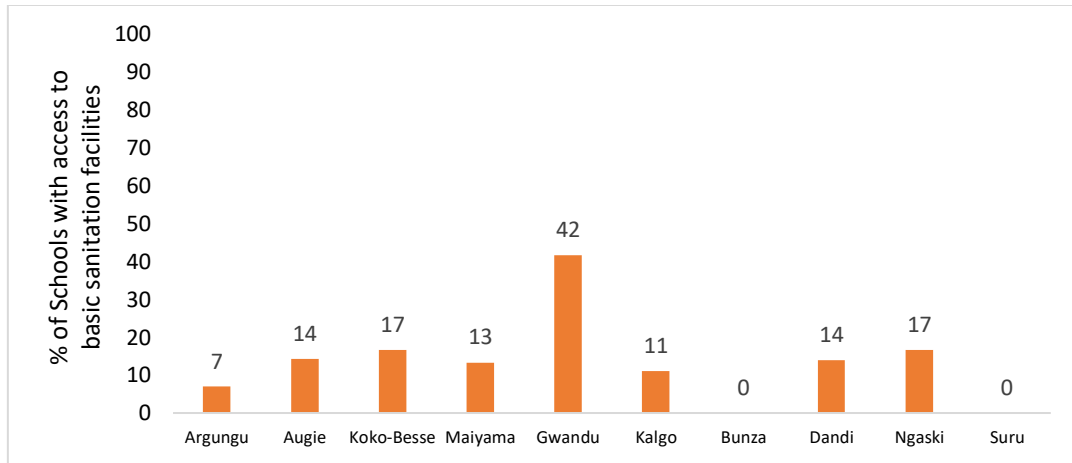
FIGURE 80: % OF SCHOOLS WITH ACCESS TO BASIC SANITATION FACILITIES

Type of Toilet Facilities in Schools

There are various types of toilets used in schools (Table 76). Across the 10 LGAs, 5% are composite toilets, 4% are pits without the slab, and 15% are connected to sewer. Pit latrines with slabs constitute the majority of toilets (50%) used in schools. Argungu ranks the worst in this regard (Figure 80).

TABLE 76: MAJOR TOILET TYPE IN SCHOOLS ACROSS 10 LGAS

Type of Toilet	%
Composting toilets	5
Flush/pour flush toilets connected to onsite storage	25
Flush/pour flush toilets connected to a sewer	15
Pit latrines with slab	50
Pit latrines without a slab	4
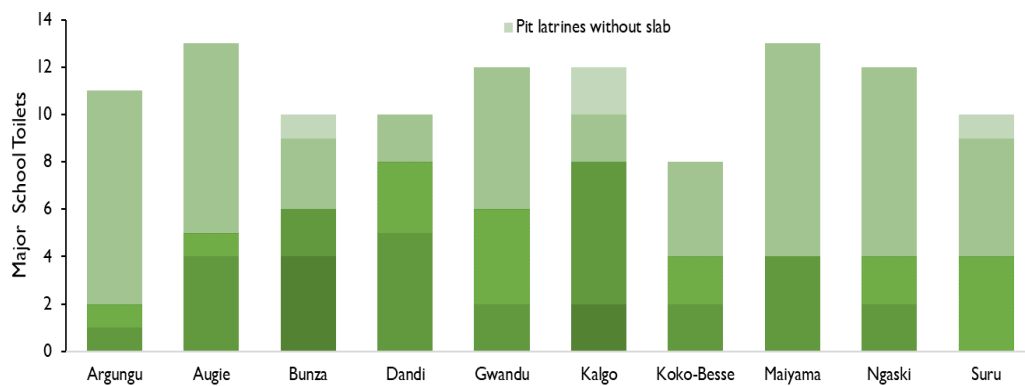
FIGURE 81: MAJOR TOILET TYPES IN SCHOOLS

Number of Toilets, Cubicles/Latrines

As shown in Table 77, 64% of toilets in schools have 1-5 cubicles, 30% have 6-10 cubicles across the LGAs. Schools with toilet cubicles >10 are only 7%. In addition, the proportion of toilets and number of students is relatively low. Maiyamma, Gwandu and Argungu have the lowest number of toilets amongst the LGAs. Ngaski has the highest number of toilet facilities (Figure 81).

Toilet Cubicles	%
1-5	64
6-10	30
11-15	4
16-20	3
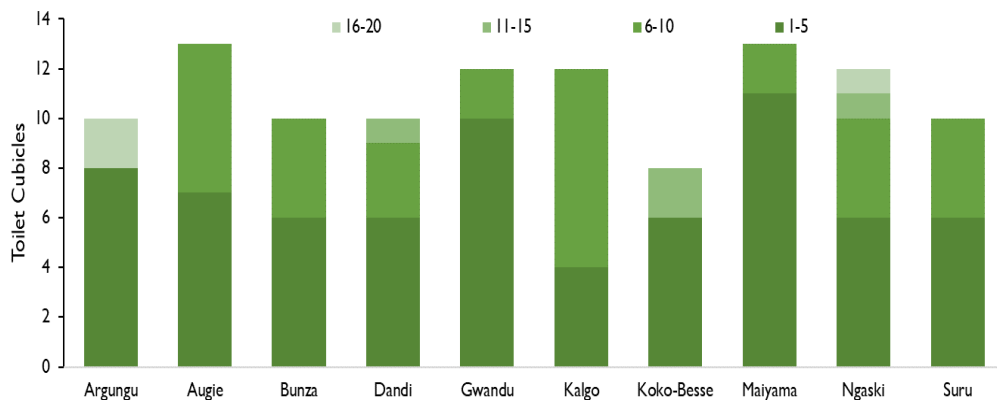
FIGURE 82: TOILET CUBICLES IN SCHOOLS

Segregation of Staff's Toilet in Schools

Most schools (55%) do not have segregated toilets for their staff (Table 78). In some schools, both staff and students are involved in open defecation. From Figure 82, Koko-Besse, Bunza and Augie have the worst numbers while Gwandu appears to be ranking as having the highest number of segregated toilets for staff.

Table 78: Segregation of Staff's Toilet in Schools Across 10 LGAs

Staff's Toilet	%
No	55
Yes	45
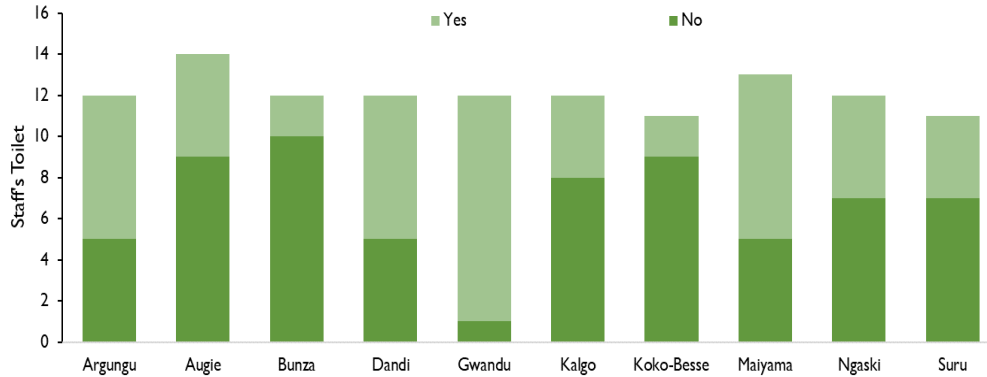
FIGURE 83: SEGREGATION OF STAFF TOILET

Exclusive Toilet Facilities for Female Students

Similarly, across the 10 LGAs, 61% of schools have no separate toilet for female students, as shown in Table 79. From Figure 83 it is evident that Gwandu overall ranks best in terms of gender sensitivity.

TABLE 79: FEMALE STUDENT'S TOILET IN SCHOOLS ACROSS 10 LGAS

Female Student's Toilet	%
No	61
Yes	39
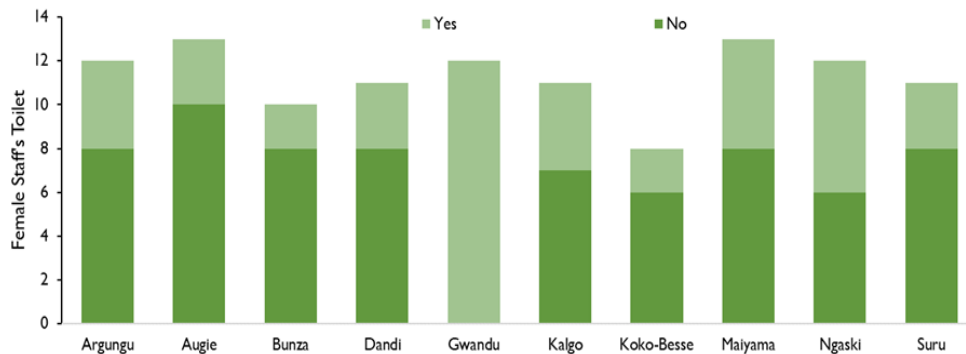
FIGURE 84: FEMALE STUDENT'S TOILET

Segregation of Toilets

Likewise, 70% of female students' toilets are not well distanced from male toilets (Table 80). The primary factor accounting for this is the lack of gender considerations while allocating or constructing school toilets. Therefore, there is a need for the design and construction of separate female toilets in schools.

TABLE 80: SEGREGATION OF TOILETS IN SCHOOLS ACROSS 10 LGAS

Toilet Separation	%
No	70
Yes	30
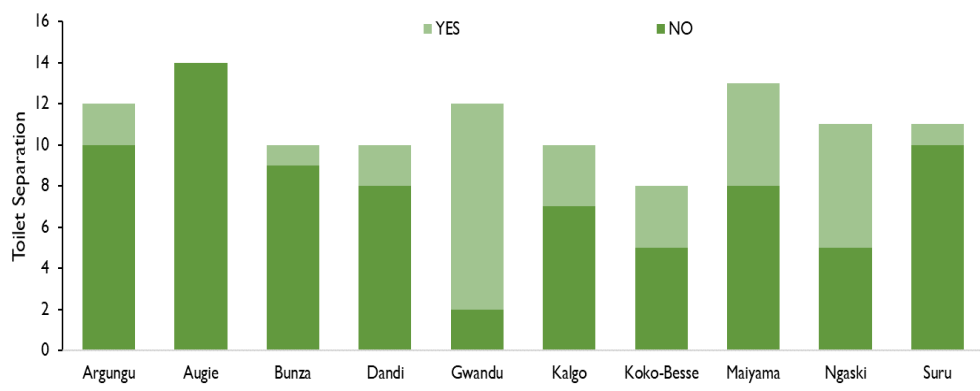
FIGURE 85: SEGREGATION OF STUDENT TOILETS IN SCHOOLS

Toilet Comfortability and Accessibility in Schools

About 92% of female student's/school children said they were not comfortable (e.g., privacy, sexual harassment, etc.) with their toilets due to close proximity to male toilets and other associated problems (Table 81). This is further illustrated across the LGAs in Figure 86. Argungu, Augie, Bunza and Suru rank the worst in this regard.

Comfortability	%
No	92
Yes	8
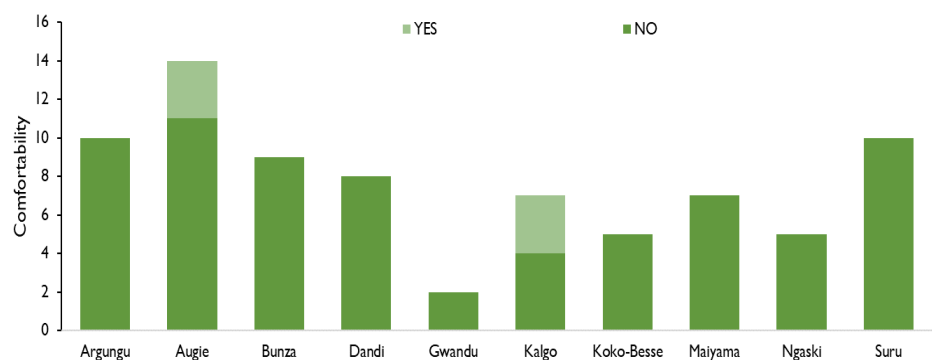
Figure 86: Female Students Comfortability in Toilet-use

Toilet Adequacy in Schools

As shown in Table 82, the adequacy of student toilets is extremely low (16%). In most public primary schools, the provision of toilets is prioritized by authorities.

Figure 87 shows that trend across the LGAs where toilets in schools do not meet student needs.

TABLE 82: ADEQUACY OF STUDENT'S TOILET IN SCHOOLS ACROSS 10 LGAs

Adequacy of Student's Toilet	%
No	84
Yes	16
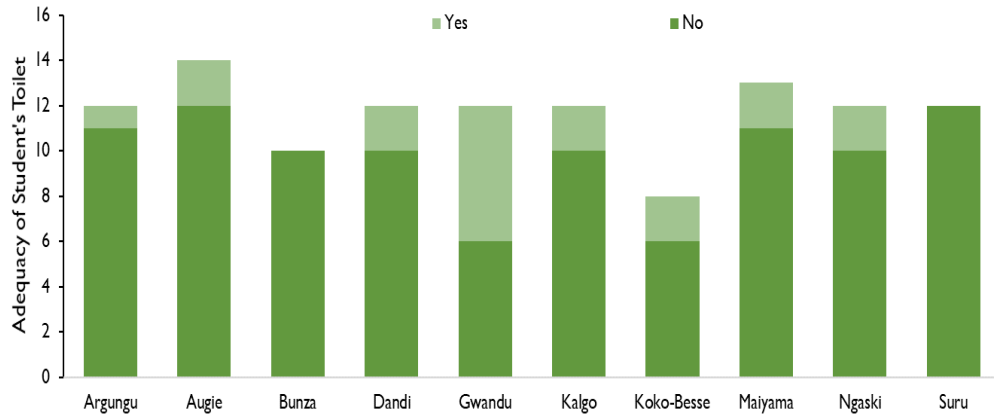
FIGURE 87: ADEQUACY OF STUDENT'S TOILET.

Coping Strategy

Open defecation was the primary coping strategy among school children around school premises (78%) across the 10 LGAs, as shown in Table 83. Figure 88 shows that some children (mainly female) have to go home, thereby missing school hours.

TABLE 83: COPING STRATEGIES IN SCHOOLS ACROSS 10 LGAS

Coping Strategy and Consequence	
Miss some class hours	1
Miss some class hours Open defecation around school	14
Open defecation around school	78
Other	6
Open defecation around school	1
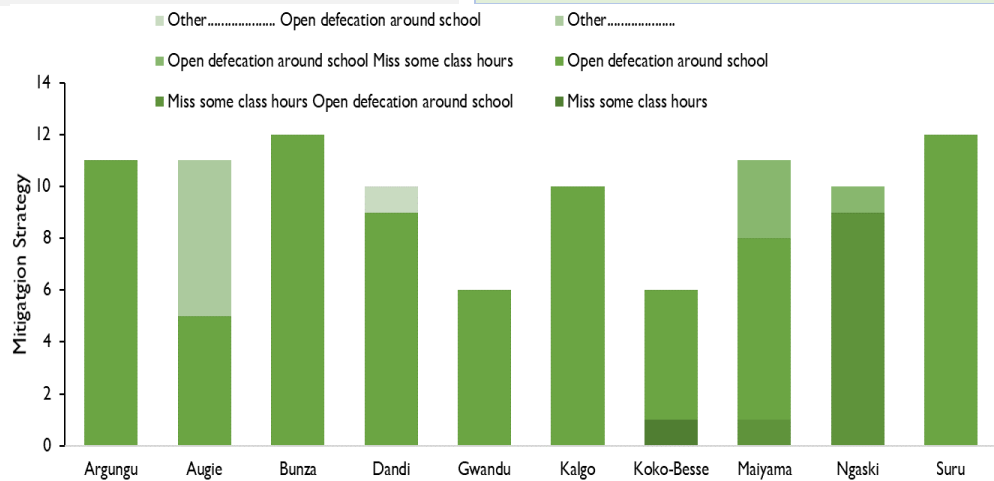
FIGURE 88: STUDENT TOILET COPING STRATEGIES AND CONSEQUENCE

Maintenance of Toilet Facilities

Table 84 presents the schedule and frequency of toilet cleaning in schools. The challenge is that from previous data we have seen how most of the toilets in these schools are in a state of comatose. Consequently, the percentages presented here only represent the few

TABLE 84: MAINTENANCE OF TOILET FACILITIES IN SCHOOLS ACROSS 10 LGAS

Toilet Cleaning	%
2-4 days per week	31

toilets that exist. 27% are rarely cleaned, and 31% are cleaned 2-4 days per week. Those cleaned daily constituted 19%, though 16% are cleaned once per week. From Figure 89, Gwandu, Ngaski and Suru are the worst cases in this regard.

Once per day	19
Once per week	16
Rarely cleaned	27
Twice per day or whenever needed	7
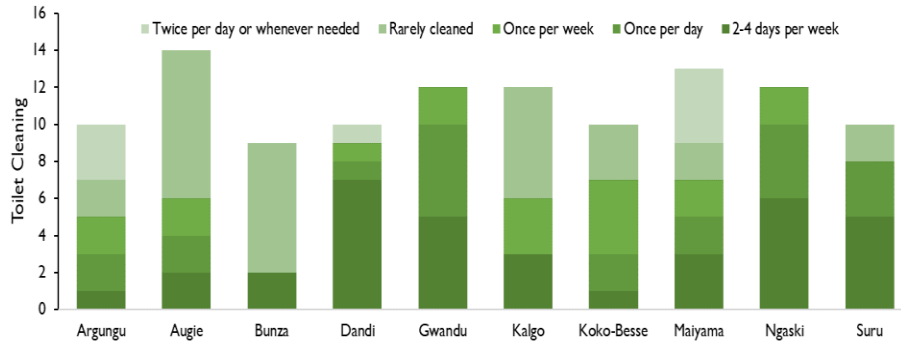
FIGURE 89: TOILET CLEANING

Water Availability and Adequacy in Toilet Facilities

Concerning water availability and sufficiency in toilets, 96% of schools across the 10 LGAs lack adequate water for optimum hygiene practices (Table 85). This is an alarming statistic. It highlights the precarious situation students are in the studied areas. Figure 90 highlights the uniform phenomena across board. Only Suru, Augie, Bunza and Maiyamma show some positive signs.

TABLE 85: DISPOSAL METHOD OF WASTE IN SCHOOLS ACROSS 10 LGAS

Water Adequacy	%
No	96
Yes	4
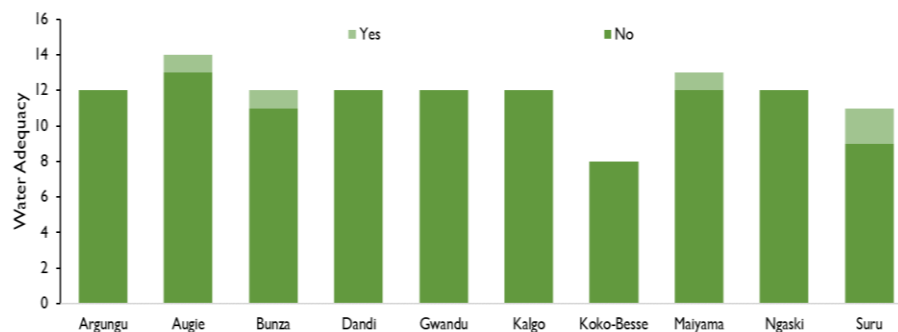
FIGURE 90: WATER ADEQUACY.

4.3.4 STATUS OF SANITATION (WASTE MANAGEMENT) IN SCHOOLS

The status of sanitation services for waste management is presented in this section.

Solid Waste Disposal (Bins) in Schools

Table 86 shows that across the 10 LGAs, 60% of schools dispose of their waste daily. However, 25% are rarely cleaned, though 5% are cleaned at least twice per day or whenever needed. Figure 90 shows the Gwandu ranks as the worst LGA.

TABLE 86: WASTE DISPOSAL IN SCHOOLS ACROSS 10 LGAS

Waste Disposal	%
2-4 days per week	9
Once per day	60
Once per week	1
Rarely cleaned	25
Twice per day or whenever needed	5
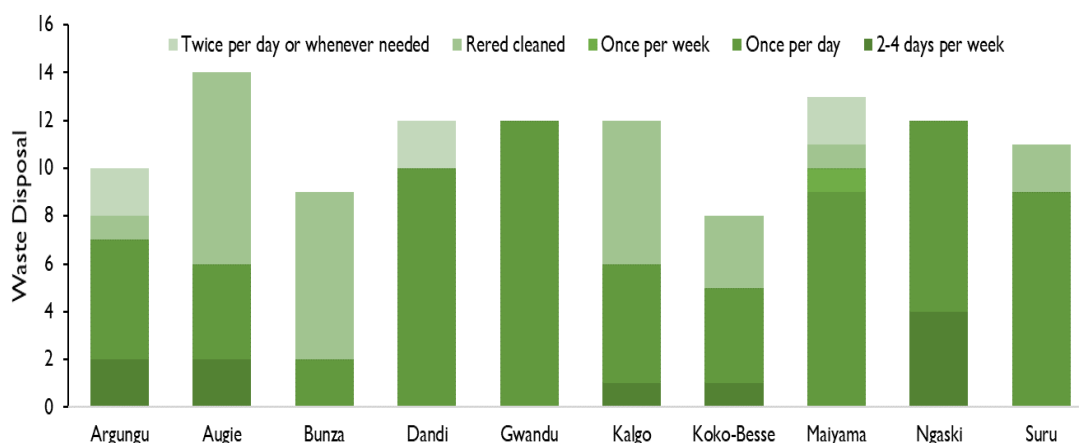
FIGURE 91: WASTE DISPOSAL IN SCHOOLS

Mode of Waste Disposal in Schools

The mode of waste disposal varied across the LGAs is presented in Figure 92. Overall, controlled burning on the premises was practiced by only 4%; while 56% practice open burning on-premises, and 39% dump waste openly on the premises (Table 87). Argungu, Augie and Suru rank worst in this regard (Figure 92).

TABLE 87: DISPOSAL METHOD OF WASTE IN SCHOOLS ACROSS 10 LGAS

Disposal Method	%
Controlled burning on the premises	4
Openly burned on-premises	56
Openly dumped on-premises	39
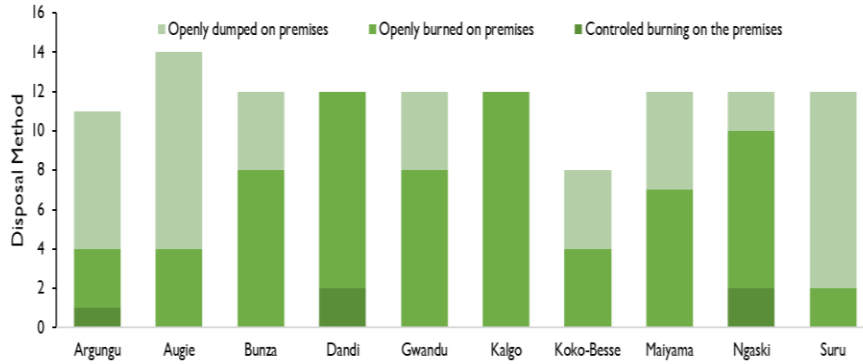
FIGURE 92: DISPOSAL METHODS PRACTICED IN SCHOOLS

4.3.5 STATUS OF HYGIENE AND HANDWASHING IN SCHOOLS

The status of hygiene facilities is presented in this section.

Availability of handwashing facilities

Table 88 shows a summary of all LGAs where 68% of schools have no handwashing facilities. Schools in Suru ranked worst with not a single hand washing facility recorded (Figure 93). This is also alarming considering the current challenges posed by the COVI-19 Pandemic.

TABLE 88: HAND WASHING FACILITIES IN SCHOOLS ACROSS 10 LGAS

Handwashing Facilities	%
No	68
Yes	32
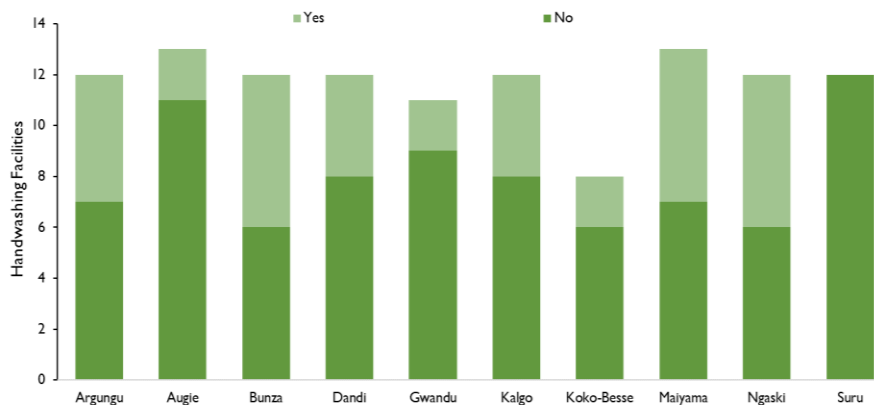
FIGURE 93: HAND WASHING FACILITIES IN SCHOOLS

Availability of Water at Handwashing Spot

Table 89 shows that 68% of schools have water at the handwashing spot while 32% lack water. Worst cases are in Suru and Gwandu as shown in Figure 94.

TABLE 89: WATER AVAILABILITY IN SCHOOLS ACROSS 10 LGAS

Availability of Water	%
No	68

Yes	32
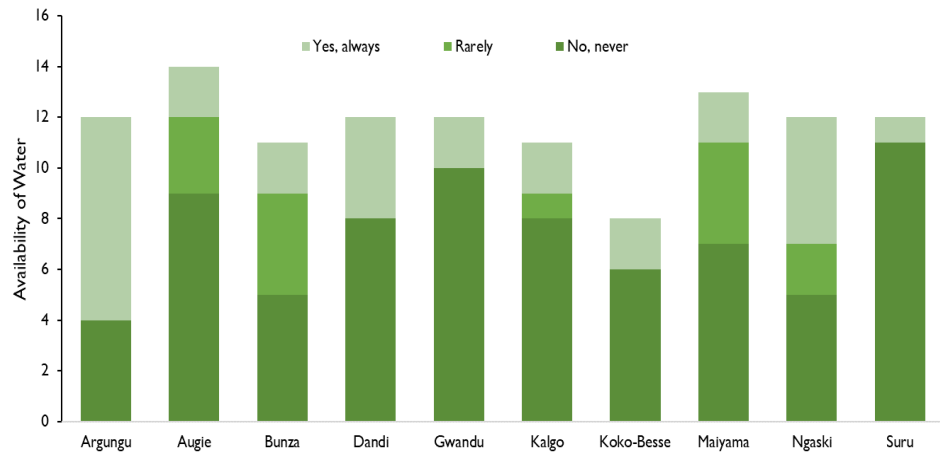
FIGURE 94: AVAILABILITY OF WATER AT HAND WASHING SPOT

Availability of Soap at Handwashing Spot

Only 19% of schools have soap at handwashing spots (Table 90) while 72% of schools do not have soap, and 9% rarely have soap at handwashing. Figure 95 shows Suru, Kalgo, Gwandu and Bunza to have the worst records.

TABLE 90: AVAILABILITY OF SOAP FOR HANDWASHING IN SCHOOLS ACROSS 10 LGAS

Availability of Soap	%
No, never	72
Rarely	9
Yes, always	19
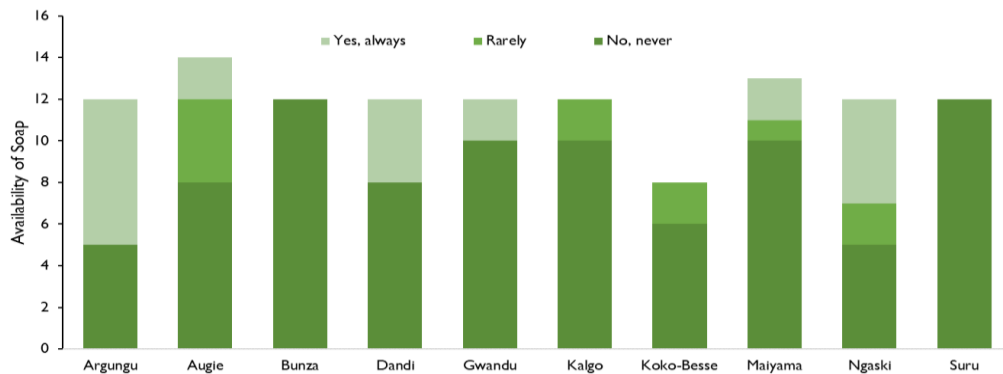
FIGURE 95: AVAILABILITY OF SOAP AT HANDWASHING SPOT IN SCHOOLS

Access to Basic Hygiene Facilities in Schools

Access to basic sanitation facilities in schools is shown in figure 96 below, where Ngaski with the highest has 15% of schools with access to basic hygiene facilities while Suru and Bunza each have no presence of basic hygiene facilities. Although most of the schools have handwashing spots but

are limited with soaps or water at the handwashing stations thereby limiting their access to the facility.
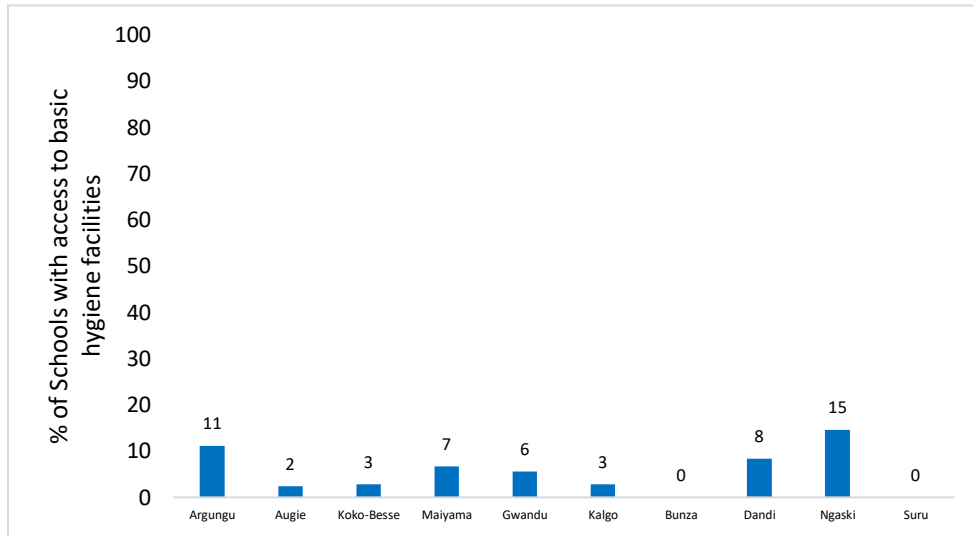
FIGURE 96: % OF SCHOOLS WITH ACCESS TO BASIC HYGIENE FACILITIES

Hygiene Promotion at the School

Unlike health centers, schools have in their curriculum topics relating to physical and health education. Therefore, it is expected that schools are providers of hygiene education. Table 91 shows that 55% of the studied LGAs have "Hygiene Education" in their curriculum. In addition, in some schools (23%), teachers remind and educate students on handwashing, and this is part of the school curriculum, which teaches pupils/students both personal and environmental hygiene. Figure 96 presents the variability across 10 LGAs.

TABLE 91: HYGIENE PROMOTION ACTIVITIES IN SCHOOLS ACROSS 10 LGAS

Hygiene Promotion	%
Hygiene Education included in the curriculum	55
Extra-curricular activities on handwashing	2
Group handwashing activities	5
Informative reminders or posters hanged at strategic locations within school premises.	16
Teachers remind and educate students on handwashing.	23
Others (specify).	0
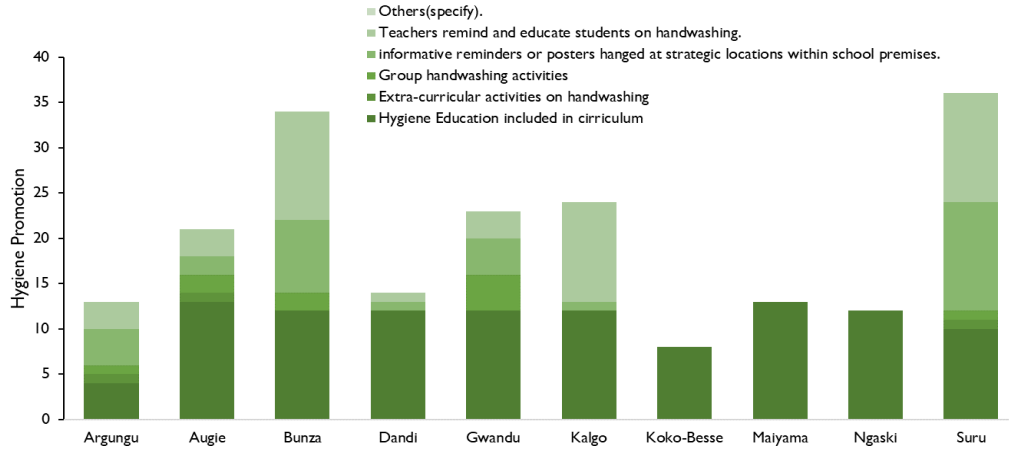
FIGURE 97: ACTIVITIES FOR HYGIENE PROMOTION IN SCHOOLS

Provision of Menstrual Hygiene Management (MHM) in the schools

Unfortunately, the provision of MHM in the schools is generally low (Table 92). Female students are usually sent home during school hours, leading to missing classes. Most discussions relating to MHM are considered personal and left for parents to handle. Few schools in Gwandu, Bunza, and Augie and Ngaski have provisions of MHM (Figure 98).

Table 92: MHM provisions in Schools Across 10 LGAs

MHM provisions in schools	%
No	93
Yes	7
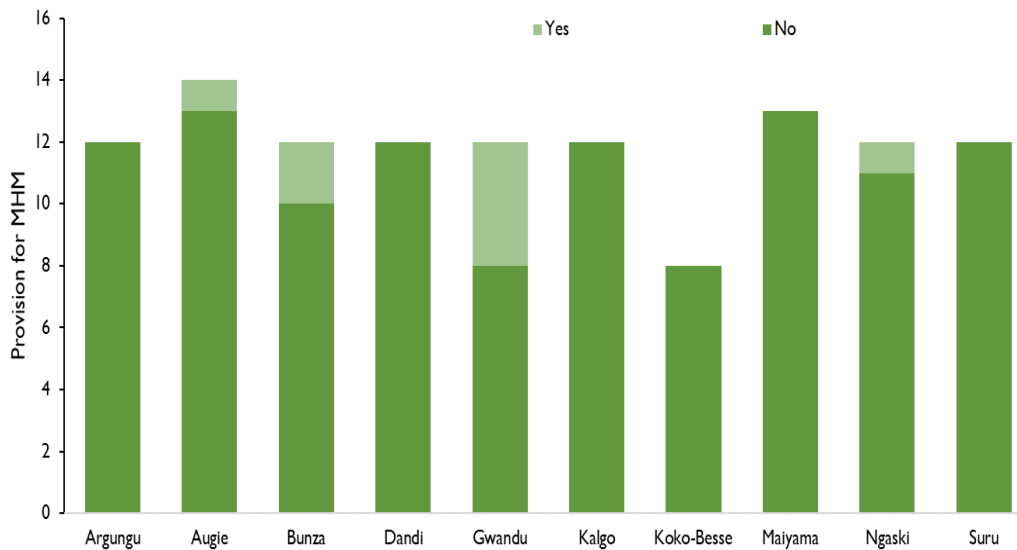
FIGURE 98: MHM PROVISIONS.

MHM product Provides to Girls in the school

As shown in Table 93, 7% of schools have provisions for MHM. Menstrual hygiene education/information constitutes only 35%. Others (mainly advised by female staff/teachers) also constitute 35%. Only 3% of these schools have private space for girls. Figure 99 shows the variability across LGAs. It is important to note that Suru doesn't have anything which is very troubling.

TABLE 93: MHM PRODUCT PROVIDES TO GIRLS IN THE SCHOOL ACROSS 10 LGAs

MHM	%
Private space for girls	3
Free Menstrual hygiene products	3
Sanitary bins for safe disposal of used sanitary hygiene products	6
Menstrual hygiene education/information	35
Others (specify	53
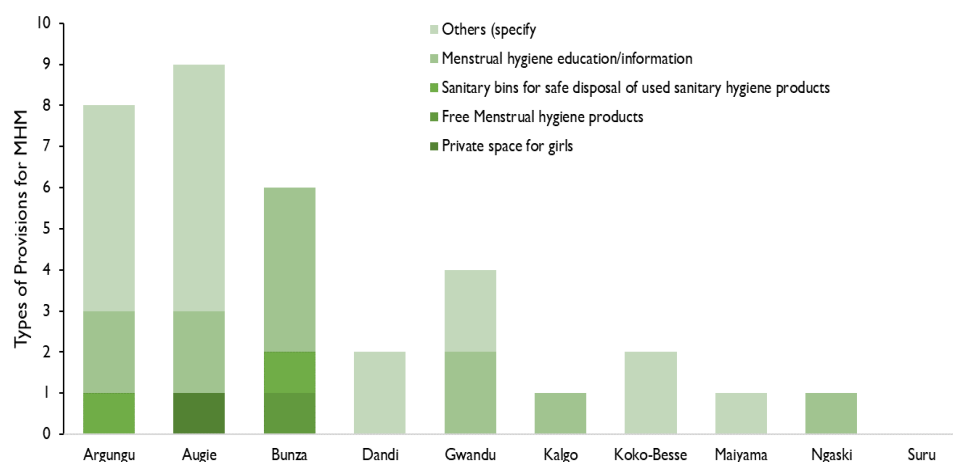
FIGURE 99: MHM PRODUCT PROVIDES TO GIRLS IN THE SCHOOL

4.3.6 SUMMARY OF FINDINGS IN SCHOOLS

For WASH services in school, the most significant findings are listed as follows:

- Results showed that 21.14% of the respondents are Assistant Headmasters, 7% are Classroom Teachers, 33% are Headmasters, 10% are Principals, 18% are Staff, and 11% are Vice-principal.

- Based on gender Composition of School Teachers, 3% are female, and 97% are Male.

- The number of students attending schools. The total number of students by LGA is 7735, 10194, 5880, 12064, 10164, 7048, 4832, 8646, 12380, and 8346 for Argungu, Augie, Bunza, Dandi, Gwandu, Kalgo, Koko-Besse, Maiyamma, Ngaski, and Suru, respectively.

- The total number of female students by LGAs is 2715, 3440, 2160, 2884, 4038, 3432, 650, 2843, 5222 and 2890 for Argungu, Augie, Bunza, Dandi, Gwandu, Kalgo, Koko-Besse, Maiyamma, Ngaski, and Suru, respectively

- The total number of staff by LGAs is 138, 316, 242, 255, 196, 166, 162, 136, 180, and 130 for Argungu, Augie, Bunza, Dandi, Gwandu, Kalgo, Koko-Besse, Maiyamma, Ngaski, and Suru, respectively.

- 93% of schools in Kebbi State have no budget for operation and maintenance. Concerning responsibility for providing the budget, 85% of respondents indicated that the government is responsible for providing budgetary allocation.

- Most schools (53%) in the studied LGAs obtain drinking water from tube wells or boreholes on the premises. Thus, 62% of schools have enough water at all times.

- 46.9% of the schools studied have improved water sources on the school premises, while 53.1% rely on an unimproved water source as their primary source of basic drinking water.

- 96% of schools have no adequate water at the toilet.

- According to the survey, only 12.5% of the schools studied have basic/improved sanitation facilities, while 87.5% have unimproved sanitation facilities.
- Only 6.6. % of the schools studied have hand-washing facilities on the school premises with soap and water (basic) while 93.4% without soap and water (limited).

- Results showed that 55% of schools do not have separate toilet facilities for staff. In addition, 61% of schools lack separate toilets for female students.

- Where children have no coping strategies (81%), they resort to open defecation

- Regarding the frequency of toilet cleaning, 13% of school toilets are cleaned less than once per day, 22% are cleaned once per day, 56% do not have regular cleaning, and 8.85% are cleaned at least twice per day. Lastly, 95% of the cleaning services are conducted by students.

5   SURVEY OF PUBLIC WASH INFRASTRUCTURE AND FUNCTIONALITY

The public WASH infrastructure and their functionality were surveyed across the 10 LGA. Results are presented in the following sections.

5.1   STATUS OF PUBLIC WATER FACILITIES

Type of Water facility

TABLE 94: TYPE OF WATER FACILITY

Type of Water facility	%
Pipe-borne water from the state water board	3
Borehole	4%
Motorized Borehole	68
Hand pump	24
Others	5

Table 94 shows the types of WASH infrastructure available in the studied LGAs. 64% are motorized boreholes, 24% are hand pump, boreholes constituted 4%, Pipe-borne water from state water board constituted 3%, while others constituted 5%. Figure 100 shows the variability of the type of water facility in the studied LGAs.
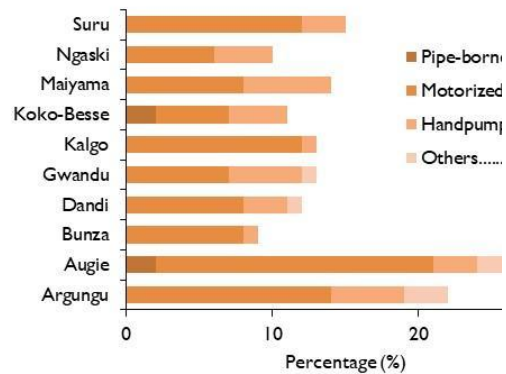
FIGURE 100: TYPE OF WATER FACILITY.

The Functionality of Water Facilities

TABLE 95: FUNCTIONALITY OF WATER FACILITIES ACROSS 10 LGAS

Functionality	%
No	89
Yes	21

Table 95 shows the functionality of the water supply in the studied LGAs. 89% are not functional. Significant reasons for non-functionality include lack of budget for operation and maintenance, lack of stakeholder inclusion before, during, and after projection completion, absence of written guidelines on the operation and maintenance of water facilities and lack of workforce (artisan) to repair water facilities, especially in rural communities. As shown in Figure 101, the functionality of water facilities is highest in Argungu and Augie LGAs; lowest in Kalgo, Maiyamma and Suru.
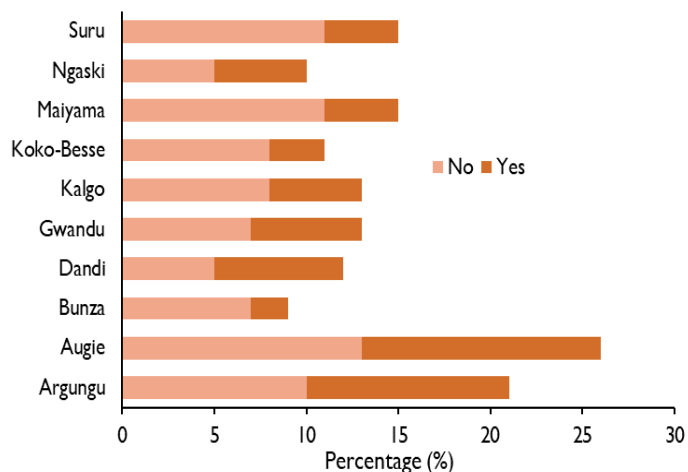
FIGURE 101: FUNCTIONALITY

Condition of non-functional water facilities

TABLE 96: REPARABILITY OF WATER FACILITIES

How repairable is the facility	%
Highly repairable	37
Repairable	43
Indifferent	14
Not repairable	4
Completely damaged	1

Table 96 shows the level of reparability water supply facilities in the studied LGAs   43% are repairable, 37% are highly repairable, 14% are indifferent. However, 4% are not repairable, while 1% is entirely damaged (Figure 102).
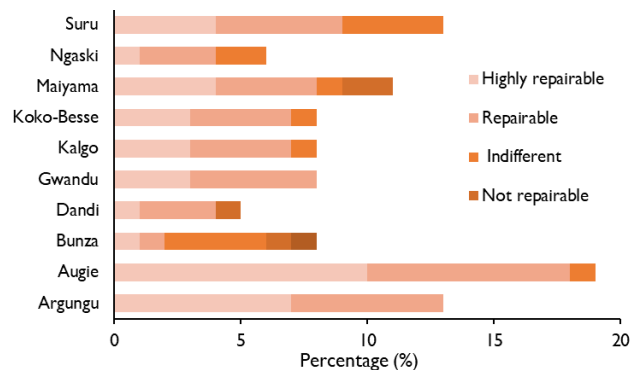
FIGURE 102: REPARABILITY

Operation and Maintenance of Public Water Facilities

TABLE 97: SUMMARY OF WATER FACILITY MANAGEMENT ACROSS 10 LGAS

Responsible for Water Facility management	%
Government	88
Other	12

Table 97 shows that the government is responsible for most water supply facilities' repairs (88%). However, 12% of water facilities are managed by the community, school, health center's administration, and philanthropists. From Figure 103, Argungu appears to have the largest contribution from other sources.
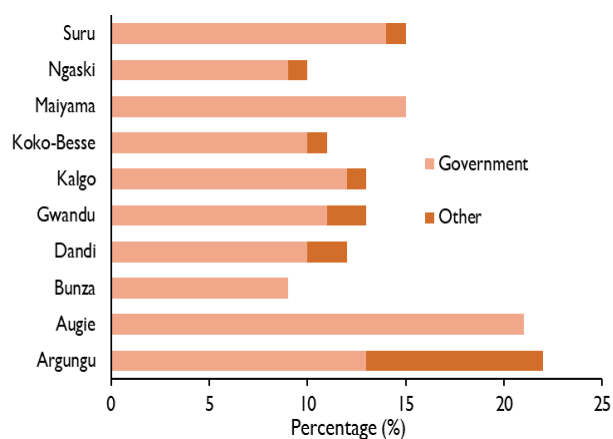
FIGURE 103: RESPONSIBILITY FOR WATER RESOURCES MANAGEMENT.

Established Monitoring Team

TABLE 98: PERCENTAGE OF ESTABLISHED MONITORING TEAM ACROSS 10 LGAS

Established Monitoring Team	%
No	93
Yes	7

Table 98 shows that 93% of studied communities and water supply facilities have no established monitoring team. However, as shown in Figure 104, Bunza, Gwandu, and Ngaski have no monitoring teams. Thus, the lack of monitoring was a significant problem concerning the O&M of water facilities.
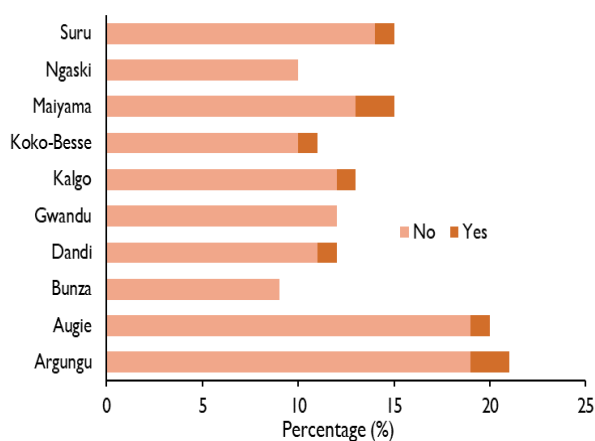
FIGURE 104: ESTABLISHED MONITORING TEAM.

Borehole Down-time

TABLE 99: DURATION OF REPAIRS ACROSS 10 LGAs

Duration of Repairs (Days)	%
0	9
1	0
2	1
3	1
5	1
7	1
8	1
12	1
45	4
200	19
300	28
365	34
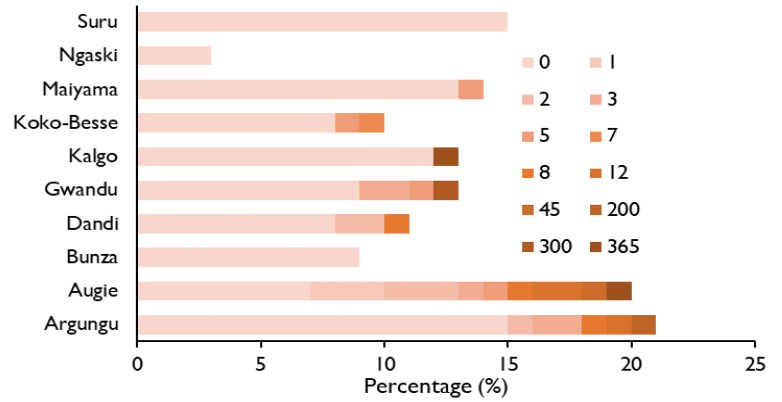
FIGURE 105:DURATION TO REPAIRS.

Many of the studied water facilities (19%) take more than 200 days to repair (Table 99). 28% take 300 days, and 34% take 365 days to repairs. Augie and Argungu LGAs have the highest water facilities that take longer without repairs (Figure 105). There is no officially established mechanism for the operation and maintenance of water facilities.

Sources of funds for maintenance and repair

Table 100: Sources of Funds Across 10 LGAs

Sources of funds	%
Regular community contribution (Before breakdown).	19
Occasional contribution (After breakdown).	2
Government sources	72
Philanthropists/ NGOs	4
Other	4
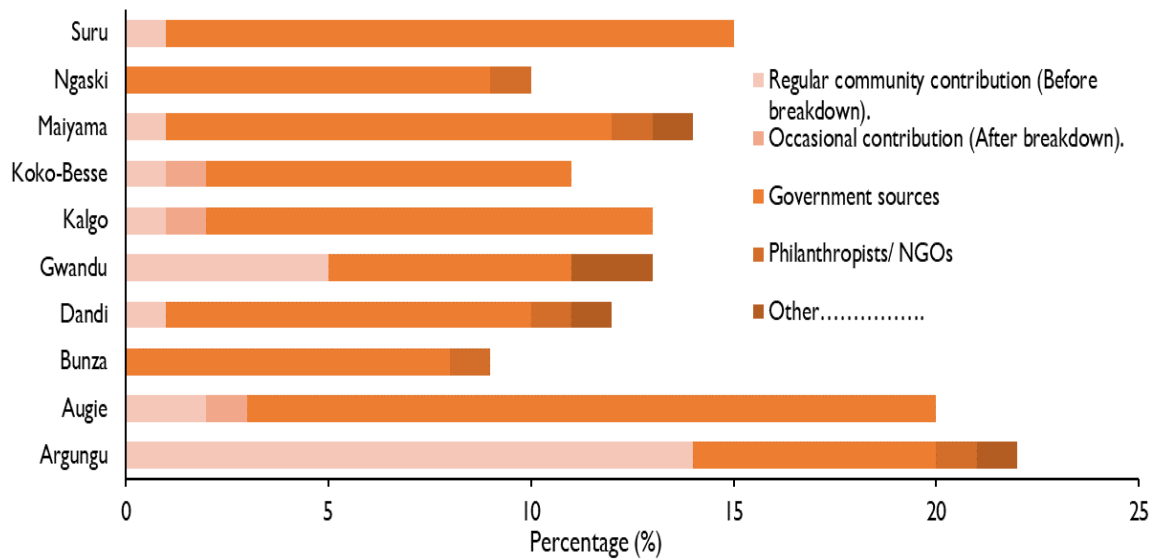
FIGURE 106: SOURCES OF FUNDS.

Table 100 summarizes the sources of funds for maintenance and repairs. 72% come from the government, 19% are derived from regular community contributions, 2% are occasional contributions, philanthropists/NGOs provide 4%, and others (mainly community) contribute 4% (Figure 106).

Other Sources of Funding

TABLE 101: OTHER SOURCES OF FUNDING ACROSS 10 LGAS

Others	%
Hospital administration	20
NGOs	20
Not completed	20
PHC administration	40

Table 101 shows the proportion of funding derived from other sources, including PHC/Hospital administration (60%) NGOs 20%. However, 20% of the assessed water supply facilities are incomplete projects, so they have never been operational (Figure 107).
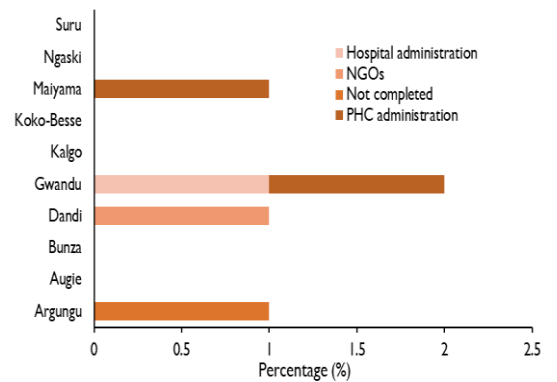
FIGURE 107: OTHER SOURCES OF FUNDING.

Water Quality

Water Quality	%
Clear water (colourless)	66
Turbid	2
Others	32

Table 102 shows that most of the water facilities (66%) have clear or colorless water; only 2% turbid, while others (including the availability of insects, solids etc.,) constituted 32%. Best case was found in Argungu, and worst is Suru (Figure 108).
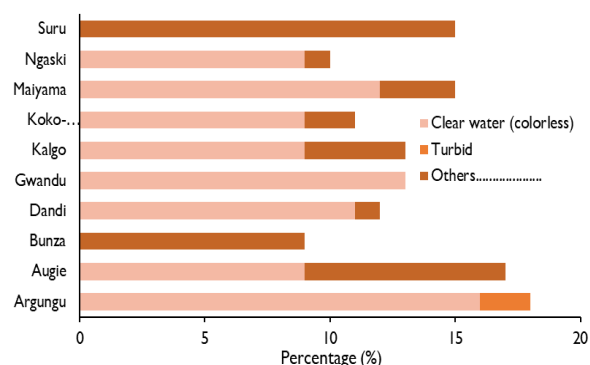
FIGURE 108: WATER QUALITY

Water Quality Analysis for Public Facilities

Table 103: Testing Water Quality for Public Water Facilities Across 10 LGAs

Testing Public Water Quality	%
Yes	23
No	1
Do not know	76

Table 103 revealed that 76% of the existing water supply facilities have no account of water quality analysis. Currently, there is no policy guidelines regulating water resources development, water quality standard or established mechanism for water quality monitoring in Kebbi State. In contrast, 23% had water quality analysis (Figure 109). These are mainly constructed by other partners, e.g., UNICEF, which requires data on water quality concerning their projects.
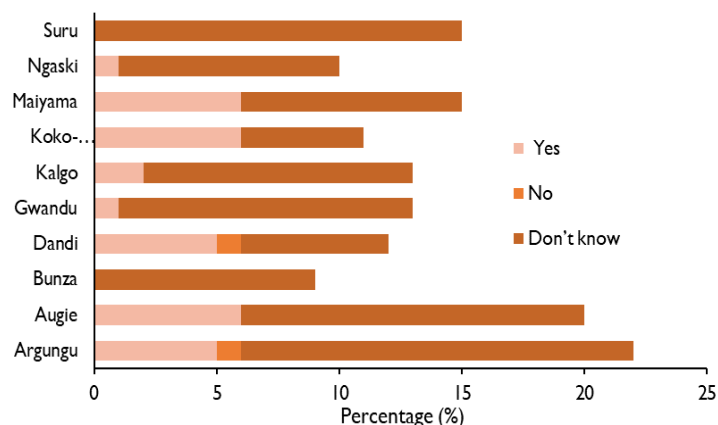
FIGURE 109: TESTING WATER QUALITY FOR PUBLIC FACILITY

Estimated Number Users of Public Water Facility

TABLE 104: STATISTIC OF ESTIMATED USERS OF WATER FACILITY ACROSS 10 LGAS

Summary	Argungu	Augie	Bunza	Dandi	Gwandu	Kalgo	Koko-Besse	Maiyamma	Ngaski	Suru
Sum	56,550	42,200	26,500	27,500	20,300	41,500	26,000	33,500	25,000	35,050
Mean	2,570	2,110	2,944	2,292	1,562	3,192	2,364	2,233	2,500	2,337
Max	10,000	5,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Min	50	50	100	100	100	500	1,000	1,000	1,000	100
Stdevp	2,203	1,849	1,569	1,532	1,051	1,264	1,367	1,223	1,360	1,832

From Table 104, Argungu has the highest number of public water users across the 10 LGAs surveyed. This ties into previous observations about the LGA where it has the highest number of functional boreholes and better sources of funding for repairs etc.

Accessibility to Persons with Special Needs

Table 105: Accessible to Persons with Special Needs

Accessible to people with limited mobility or vision	%
No	40
Yes	60

Table 105 shows that 40% of water facilities are not accessible to people with limited mobility or vision. Kalgo LGA has the highest number of inaccessible water facilities (Figure 110). In contrast, all the assessed water facilities in Suru LGA are accessible. However, there is no State Water Supply Policy that covers people with special needs in Kebbi State.
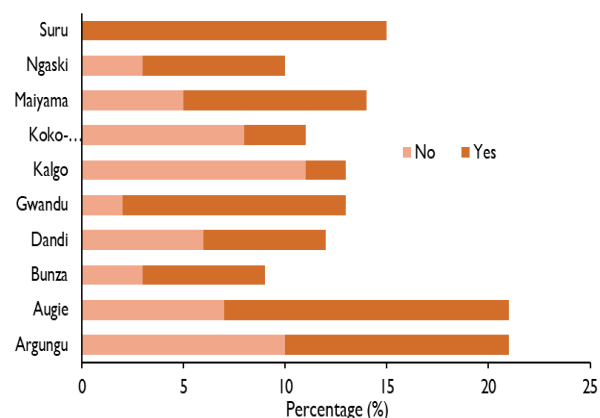
FIGURE 110: ACCESSIBILITY TO PERSONS WITH SPECIAL NEED

5.2 STATUS OF PUBLIC SANITATION FACILITIES

Type of Public Toilet Facility

Table 106: Type of Public Toilet Facilities Across 10 LGAs

Type of Toilet facility	%
WC	2
Pour Flush	21
VIP	55
Pit Latrine	23

Ventilated Pit Latrine (VIP) was the primary type (55%) of toilets used in public places in the studied LGAs (Table 106) shows the types of WASH infrastructure type of toilet facility available in the studied LGAs. It is followed by Pit Latrine (23%) and Pour Flush (21%). The use of VIP was highest in Maiyamma and Gwandu LGAs (Figure 111).
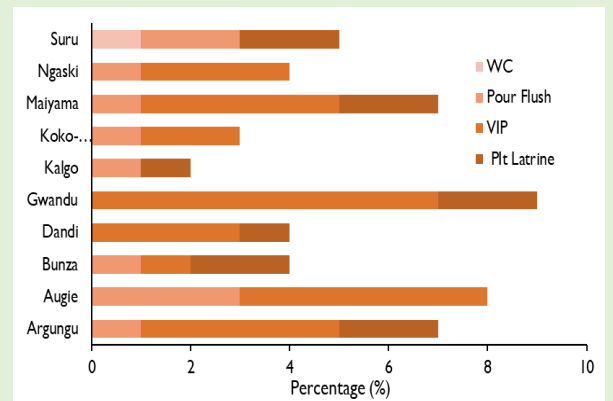
FIGURE 111: TYPE OF PUBLIC TOILETS

The functionality of Public Toilet Facilities

Table 107: Functionality of Public Toilets Across 10 LGAs

Functionality	%
Yes	58
No	42

The functionality of toilets in the studied LGAs is relatively High (58%), as shown in Table 107. The functionality of toilets is higher in Gwandu, Maiyamma, and Suru LGAs (Figure 112).
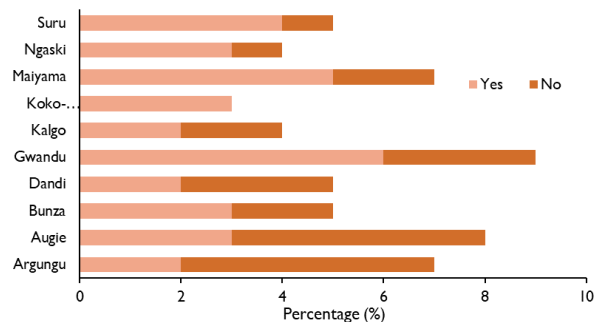
FIGURE 112: FUNCTIONALITY OF PUBLIC TOILETS

Management of Toilet Facilities

Table 108: Management of Public Toilets Across 10 LGAs

How is it managed?	%
Government	88
Individual	2
Other	11

FIGURE 113: MANAGEMENT OF PUBLIC TOILETS

Most of the assessed toilets are managed by the government (88%), as shown in Table 108. Government entirely manages toilets in Augie, Koko-Besse, Maiyamma, and Suru (Figure 113). Meanwhile, some toilets in Bunza LGA are managed by individuals (2%), as shown in Figure 113. Other actors in toilet facility management are Hospital administration, Mosque committee, NGOs, schools, and UNICEF (Table 109).

Other Management

TABLE 109: OTHER MANAGEMENT

Others	%
Hospital administration	17
Mosque committee	17
NGOs	33
School administration	17
UNICEF	17

FIGURE 114: OTHER MANAGEMENT

Table 109 shows the proportion of toilet management by other actors. NGOs manage 33% of these toilets. In Dandi LGAs, these toilets are exclusively managed by UNICEF (Figure 114). Half of the assessed toilets are managed by the school and hospital administration in Gwandu LGA.

Down-Time of Public Toilet Facilities

TABLE 110: DOWNTIME BEFORE REPAIRS

Downtime Before Repairs	%
1 day	1
3 days	1
11 days	1
14 days	1
Dk (Don't Know)	94

Table 110 shows that most (94%) of the respondents cannot estimate the duration of toilet repairs. Again, the lack of an established policy/framework for operation and maintenance was the primary factor.
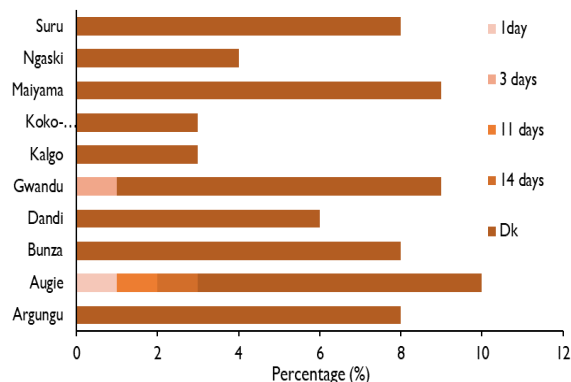
FIGURE 115: DOWNTIME BEFORE TOILET REPAIRS

Source of Funds for Maintenance and Repairs

TABLE 111: FUNDS FOR MAINTENANCE AND REPAIRS

Funds for maintenance and repairs	%
Regular community contribution (Before breakdown)	7
Government sources	82
Philanthropists/ NGOs	6
Other	6

Most funds (82%) for toilet repairs are provided by the government (Table 111). Regular community contribution (Before breakdown) contributes 7%, while NGOs and philanthropists contribute 6%. Gwandu LGA has the highest contributions from Philanthropist (Figure 116)
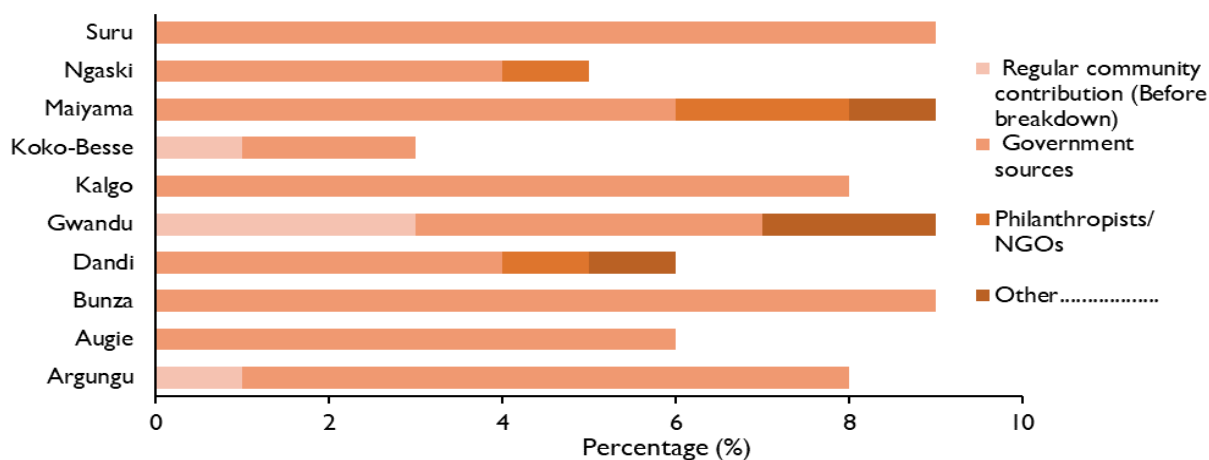
FIGURE 116: FUNDS FOR MAINTENANCE AND REPAIRS

Other Sources of Funding

Others	%
Hospital administration	25
PHC Admiration	50
School administration	25

Table 112 shows other contributors to toilet maintenance and repairs in the studied LGAs. For example, the PHC/Hospital Administration contributes funds in Gwandu LGA. However, School Administration provides funds in Dandi LGA (Figure 117).
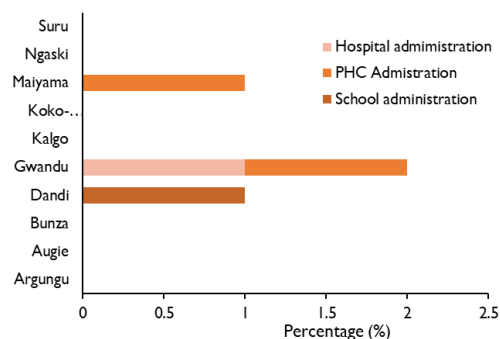
FIGURE 117: OTHER SOURCES OF FUNDING

5.3   SUMMARY OF FINDINGS ON PUBLIC WASH FACILITIES

For public WASH services, the most significant findings are listed as follows:

- All the sample wards have public WASH facilities. Concerning water facilities, 68% are motorized boreholes, 24% are hand pumps, Pipe-borne water from the state water board constituted 3%, while others constituted 5%.

- Across the 10 LGAs, 89% of water facilities were found to be non-functional. Significant reasons for non-functionality include lack of budget for operation and maintenance and weak local government WASH units.

- 43% are repairable, 37% are highly repairable, 14% are indifferent.

- 93% of studied communities and water supply facilities have no established monitoring team

- The rate of water facility repairs is generally low due to a lack of budget for operation and maintenance.

- Estimated water user per water facility ranged from 50 to 100, in Argungu LGA persons with a mean value of 2570 persons per water facility.

- 40% of water facilities are not accessible to people with limited mobility or vision.

- Ventilated Pit Latrine (VIP) was the primary type (55%) of toilets used in public places in the studied LGAs.

- The functionality of toilets in the studied LGAs is relatively High (58%); NGOs manage 33% of these toilets.

- Most (94%) of the respondents cannot estimate the downtime before toilets are repaired.

6 COMMUNITY COMMUNICATIONS AND INFORMATION SERVICES
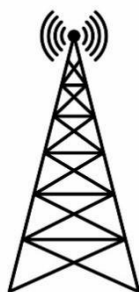
Mass communication is critical for advocacy and effective messaging at all levels of the society. The I-WASH Activity will be conducting a number of advocacy programs to promote behavioral change in the areas of gender equality, sanitation and hygiene as well as sustainable operation and maintenance of WASH facilities. To achieve this, it is valuable to know the dominant sources of information and channels of communication in communities. The findings of the survey are presented in the following sections.

6.1 COMMUNICATION CHANNELS IN COMMUNITIES

Information and its dissemination are seen as critical resources for people and communities in rural and urban areas. However, the lack of information provision concerning WASH services remains a problem. Thus, an alarming information gap exists between the provision of WASH services and knowledge of WASH in communities.

Several channels and methodologies are being used to bring information to the audience, such as the media, internet, institutions, social functions, town-criers. However, in the traditional African settings where most residents are illiterates, passing information to such categories of people is usually carried out using town-criers. This medium of information dissemination is found to be effective, cheap, reliable and straightforward. Other means of disseminating information include radio jingles, television programs, outreaches, and community mobilization.

Sources of Information

TABLE 113: RESPONDENTS' SOURCES OF INFORMATION ACROSS 10 LGAS

Sources of Information	AVERAGE
Radio	62
Television	8
Town Criers	16
Other	13

From Table 113, most households in Kebbi State rely on radio and town criers for information. Table 114 shows that 37% of respondents in Argungu LGA rely on radio, 9% (television), 38% (town criers) and 17% (other sources). The reliance on the radio was highest in Bunza, followed by Ngaski and Suru LGAs.

TABLE 114: RESPONDENTS' SOURCES OF INFORMATION

Sources of Information	Argungu	Koko-Besse	Maiyamma	Augie	Gwandu	Kalgo	Bunza	Dandi	Ngaski	Suru
Radio	37	67	61	36	40	72	94	37	89	90
Television	9	1	12	22	8	9	2	11	3	9
Town Criers	38	1	2	27	39	17	4	33	2	0
Other	17	32	25	14	14	3	0	20	6	1

Community Mobilization Channels

TABLE 115: COMMUNITY MOBILIZATION CHANNELS

Mode Of Community Mobilization	Average
Radio/Television	54.9
Social Media	3.4
Town Criers	14.3
Announcement In Place of Worship	21.8
Other	5.8

Community mobilisation for WASH services is fundamental to inform, sensitize and obtain the buy-in of the community. When respondents were asked on the major channels that they were usually mobilized, about 55% across the 10 LGAs said it was through radio. Up to 22% mentioned it was through announcements in their places of worship while 14.3% noted it was through town criers (Table 115). It can also be seen that town criers are utilized the most in Argungu (38%), Gwandu (33%) and Dandi (26%). As for announcements in places of worship, Dandi is highest with 42%, then Gwandu and Koko-Besse at 36% respectively and finally 34% in Argungu.

TABLE 116: COMMUNITY MOBILIZATION CHANNELS

Mobilisation	Argungu	Koko-Besse	Maiyamma	Augie	Gwandu	Kalgo	Bunza	Dandi	Ngaski	Suru
Radio/Television	18	62	64	25	20	67	93	20	87	93
Social Media	2	0	4	10	6	3	2	1	5	1
Town Criers	38	1	0	20	33	16	3	26	4	2
Announcement In Place Of Worship	34	36	13	39	36	13	2	42	2	1
Other	8	1	20	6	5	2	0	11	2	3

Respondents noted that a number of campaigns relating to sanitation and hygiene have been aired on radio to educate people about the importance of personal and environmental hygiene. In addition, dramas and print media (mainly boards) are also used to enlighten people on WASH.

Household Mobilization

Table 117: % Mobile Network Used by Households

Available Network				
LGA	MTN	Glo	Airtel	9mobile
Argungu	30	21	26	23
Koko-Besse	47	21	29	3
Maiyamma	43	16	20	21
Augie	32	16	31	20
Gwandu	29	20	30	21
Kalgo	26	25	26	24
Dandi	27	23	27	23
Ngaski	28	26	26	20
Suru	26	25	25	24

Although Radio and other means of community mobilization are still in use, it appears that telecom services among households are gaining ground. Table 117 shows the available telecom service in Argungu, Koko-Besse, Maiyamma and remaining Local Government Areas. The MTN telecom service has been used by 30% of the households in Argungu LGA. The GLO, Airtel, and 9mobile are 21%, 26%, and 23%. In Koko-Besse, LGA 47%, 21%, 29%, and 3% of households used MTN, GLO, Airtel, and 9mobile/Etisalat telecom services. In Maiyamma LGA, 43%, 16%, 20% and 21% of households used MTN, GLO, Airtel, and 9mobile telecom services.

Overall, the MTN Telecom Service is the most available and widely used network by households. Details on the relative percentages of other telecom services and the efficiency are contained in Table 118 based on several samples' ANOVA (Kruskal-Wallis Non-Parametric Test), a significant difference existed in Koko-Besse LGA. In terms of availability, the MTN telecom service is the most widely used network in these LGAs. In addition, MTN telecom service is the most efficient network. For example, the efficiency is 78% in Argungu, 46% in Koko-Besse and 85% in Maiyamma.

TABLE 118: MOST EFFICIENT TELECOM SERVICE USED BY HOUSEHOLDS.

Most Efficient Network	Argungu	Koko-Besse	Maiyamma	Augie	Gwandu	Kalgo	Bunza	Dandi	Ngaski	Suru
MTN	78	46	85	75	36	31	82	55	73	91
GLO	13	0	3	0	56	4	8	21	7	1
AIRTEL	5	37	10	23	1	64	9	20	16	8
ETISALAT	4	6	3	2	7	1	1	3	4	0

6.2 SUMMARY OF FINDINGS ON COMMUNITY COMMUNICATIONS AND INFORMATION SERVICES

For community communications and information services, findings are listed as follows:

- Radio is the primary source of information in the studied communities/LGAs. Use of radio was highest in Bunza, followed by Ngaski and Suru LGAs.

- Dandi LGA has the lowest use on the radio and relies on town criers.

- Thus, information concerning WASH services and related campaigns that aim to improve sanitation and hygiene in communities can be aired through Radio. Moreover, it provides the cheapest means of reaching remote places.

- MTN is the most efficient network (62%) in health centers and schools.

7   SURVEY OF GENDER ROLES IN WASH

During the baseline survey, gender roles were studied to understand the dynamics across the 10 LGAs. Results are presented in the following section.

7.1   GENDER ROLES IN WATER SUPPLY

Responsibility for Fetching Water

Seventy percent (68%) of the respondents in the studied LGAs revealed that the father fetches water (Table 119). Over 50% of the water used by the household is fetched by the head of household(s) except for Bunza, Kalgo, and Suru LGAs. Culture and religion, which limit the movement of women and children, have been identified as the primary factors influencing water sourcing.

TABLE 119: RESPONSIBILITY FOR FETCHING WATER

Responsibility For Fetching Water	Argung u	Koko-Besse	Maiyamm a	Augi e	Gwand u	Kalg o	Bunz a	Dand i	Ngask i	Sur u
Father	70	94	99	95	70	39	46	59	61	49
Mother And or Children	30	6	1	5	30	61	54	41	38	51
Other	0	1	1	1	1	1	0	0	1	0

Suru, Bunza, and Kalgo LGAs have a higher proportion of mothers/children (>50%) who fetch water for household use. Other sources of water supply, such as buying from vendors, are insignificant in the studied LGAs.

Rate of Water Consumption

The households' water consumption rate is influenced by many factors such as family size, income, and seasonality. Attaining a balance between demand and supply is a significant challenge to state actors. While water availability is not an issue in some localities, some communities struggle with water accessibility due to environmental and climatic factors limiting water resources.

Likewise, these factors can also affect the consumption rate. Table 120 summarizes the rate of water consumption by LGAs. There is a considerable disparity in terms of water consumption across Kebbi State. 48% of households consumed less than 200 liters per day, whereas 39% consumed 200-500 liters per day in Argungu LGA. 10% consumed 500-1000 liters per day, and 2% consumed >1000 liters.

TABLE 120: PERCENTAGE RATE OF WATER CONSUMPTION

Daily Consumption	Argungu	Koko-Besse	Maiyamma	Augie	Gwandu	Bunza	Kalgo	Dandi	Ngaski	Suru
<200	48	39	64	53	43	74	64	42	26	60
200-500	39	47	33	39	4	20	28	39	65	39
500-1000	10	12	3	8	43	3	8	17	8	1
>1000	2	1	0	0	11	4	0	2	1	1

Water Use by Gender

Table 121 shows the rate of water consumption among household members. Mothers appeared to be the highest users of water in the household. In Argungu LGA, for instance, water use by mothers constituted 95% of the entire households. The rate of water use by mothers was 97% in Koko-Besse and 98% in Maiyamma. The situation is similar across Kebbi State.

Table 121: Water Use by Gender

Water Use	Argungu	Koko-Besse	Maiyamma	Augie	Gwandu	Kalgo	Bunza	Dandi	Ngaski	Suru
Father	1	2	1	5	3	0	4	8	8	9
Mother	95	97	98	94	18	7	53	90	88	86
Children	4	1	1	1	79	93	43	2	3	5

7.2   GENDER ROLES IN SANITATION

Women and girls are significantly affected by inadequate sanitation facilities. Issues around menstruation and reproductive health, which require a certain sanitation standard for women to live in comfort and dignity are typically unmet in rural settings.

In the water and sanitation sector (WSS), women and girls are disproportionately affected by inadequate sanitation because of gender-related differences - cultural and social factors, thereby making them the burden-bearers of sanitation. Gender refers to the social differences and relations between men and women that are learned and socially constructed. It differs from society and can change over time. In this section, status of gender roles, disparity observed in the 10 LGAs studied are presented.

Sharing of Toilet Facilities

Toilet sharing between household members is expected in the studied communities/LGAs. Traditionally, an entire household uses a single pit. However, in some instances, more than one household can share a pit latrine. This survey revealed that an average of 50% of HHs in the studied LGAs share toilet facilities (Table 122)

Sharing Toilet Facilities	Argungu	Koko-Besse	Maiyamma	Augie	Gwandu	Kalgo	Bunza	Dandi	Ngaski	Suru
Yes	62	56	43	48	44	45	43	41	60	59
No	38	44	57	52	56	55	57	59	40	41

NOTE: 60% of households in Ngaski LGA share toilet facilities. The percentage of toilet sharing is summarized in Table 122. Toilet sharing is the highest in Argungu LGA (62%).

Disposal of Infant Feces

Infant feces (<60 months) are disposed of by women in the studied communities/LGAs using different means summarized in Table 123. For example, in some communities, it is dropped into the toilet (household or public toilet), washed, or flushed into soakaways, buried, burnt, thrown in trash/solid waste, left on the ground in the yard, left or thrown outside premises or thrown into the waterway.

TABLE 123: DISPOSAL OF INFANT FACES

Infant Feces (<60 Months)	Argungu	Koko-Besse	Maiyamma	Augie	Gwandu	Kalgo	Bunza	Dandi	Ngaski	Suru
Dropped Into Toilet (Household or Public Toilet)	32	26	60	29	56	1	15	55	21	11
Washed Or Flushed into Soak Away	5	18	14	15	2	1	11	2	26	6
Buried	1	0	1	1	11	10	0	1	0	0
Burnt	0	0	1	1	2	4	1	0	0	1
Thrown In Trash/Solid Waste	10	31	9	19	16	19	5	26	4	8
Left On Ground in Yard	7	3	1	0	5	21	3	1	2	8
Left Or Thrown Outside Premises	42	7	4	28	7	9	20	13	23	11
Thrown Into Waterway	3	15	9	2	0	27	35	0	23	47
Other	0	1	1	4	0	9	11	2	2	7

NOTE: 47% of Infant feces are thrown away in Suru LGA, 35% in Bunza LGA, 27% is disposed of into waterways in Kalgo LGA. Likewise, 42% is left or thrown outside the premises in Argungu LGA, 27% in Kalgo LGA. Thus, most of the sampled LGAs have considerable proportions of households that do not adequately dispose of infant feces. Possible reasons for these unsafe practices include a lack of primary health education (especially women) since most respondents are ignorant of the effects of improper feces disposal on the health and environment.

Emptying Pit Latrine

Table 124 shows that pit latrines have been emptied by 48% of households in Argungu LGA, 45% do not, and 6.48% have no idea. 50% of households in Augie LGA have never emptied their pit. 63% of households have no idea concerning emptying the pit latrine in Koko-Besse LGA. This situation is similar in Maiyamma LGA, as 61% have no idea concerning pit emptying. However, 59% of households in Gwandu LGA had emptied their pit. In Bunza LGA, 88% had no idea concerning pit emptying, and 58% of households in Dandi had never emptied their pit. Only 9% of households had emptied their pit in Suru LGA.

TABLE **124**: E**MPTYING** P**IT** L**ATRINE**

Emptying Pit Latrine	Argungu	Koko-Besse	Maiyamma	Augie	Gwandu	Kalgo	Bunza	Dandi	Ngaski	Suru
Yes (Emptied)	48	22	12	44	36	24	4	25	24	9
No (Never Emptied)	45	15	28	50	59	19	8	58	34	39
Dk (Don't Know)	6	63	61	6	5	57	88	17	41	52

Generally, pit emptying is not widely practiced in Kebbi State. It is, however, gender-sensitive, mainly carried out by men. A common practice is constructing a new pit after the existing pit is filled or has collapsed. It is common in Gwandu LGA, where the groundwater table is relatively higher. Once a pit is successfully constructed, it will be managed appropriately, including emptying since a new pit cannot be guaranteed due to shallow groundwater levels, especially around ancient Gwandu town.

7.3 SUMMARY OF FINDINGS ON GENDER ROLES IN WASH

For gender roles in WASH, summary of findings are listed as follows:

- Seventy percent (70%) of the respondents in the studied LGAs revealed that the father fetches water. However, in Suru, Bunza, and Kalgo a higher proportion of mothers/children (>50%) fetch water for household use.

- There is a considerable disparity in terms of water consumption across Kebbi State.

- Mothers are the highest user of water in the household.

- Most of the sampled LGAs have considerable proportions of households who do not adequately dispose of infant feces, with 27% of respondents in Kalgo disposing of feces in waterways.

8 INSTITUTIONAL ANALYSIS

8.1 STATE POLICIES AND GUIDELINES ON WASH AND WATERSHED MANAGEMENT

The Federal Ministry of Water Resources (MWR) is in charge of developing national policy and strategy advice for the public provision of Water, Sanitation, and Hygiene (WASH) services. Each state is responsible for enacting and enforcing national legislation and policy, as well as determining the institutional framework for service delivery. State Ministries of Water Resources are responsible for policy, regulation, and monitoring.

During the baseline assessment, interviews were conducted with Directors of Planning Research and Statistics at Kebbi State Ministries of Water Resources, Health, Environment and Education as well Rural Water Supply and Sanitation Agency (RUWASSA). The interviews revealed that there were no existing laws regulating and guiding the WASH Sector. There are no policy documents dedicated to the management of watersheds and river basins for sustainable WASH services.

8.2 WASH DATA MANAGEMENT, MONITORING AND EVALUATION

As mentioned in the previous section, investigations into relevant government agencies highlighted very poor data management systems in general and specifically for WASH. For example, at RUWASSA, there is no dedicated Information Technology unit. There is no schedule, register or record for data acquisition, retrieval, sharing etc.

Similarly, there are no monitoring and evaluation systems put in place to track WASH activities in the state. There is a very limited record of WASH facilities and infrastructure for the state and no means to determine their status and functionalities. Overall, RUWASSA and its parent Ministry have a mechanism in place to collect, warehouse, and report WASH service data into the WASHIMS platform, according to the findings. Other findings revealed that neither the state Ministry of Water Resources nor RUWASSA have received donor support to set up a system or

technology to remotely and frequently monitor and transmit data on borehole functionality across the state.

All of the institutions assessed have weak or partial data sharing and utilization culture by top executives to make informed decisions, strategic planning, and budgetary allocation to improve WASH services. This has provided a severe challenge to chief executives in terms of data access and use in order to make informed decisions, policy formulation, or budgetary allocation for WASH service enhancement, Health, Education and Environment.

For the data sharing question on WASH services, none of the institutions assessed gave a (Yes) response. This suggests that data is underutilized throughout the institutions, which is evident because there is no mechanism in place to transfer data and no designated individuals in charge of WASH service data management and information systems.

Due to a lack of resources, none of the institutions published an annual or quarterly report on operations, according to the assessment. In the case of RUWASSA and its parent Ministry, the assessment discovered no existing mechanism or data to determine which locations/LGAs are best suited for WASH interventions when the state government or other donors seek to support WASH services.

8.3   SUMMARY   OF   FINDINGS   ON   INSTITUTIONAL ASSESSMENT

For institutional analysis, summary of findings are listed as follows:

- No approved State WASH and Watershed Management Law or Policy.

- The State Ministry of Water Resources and RUWASSA do not have adequate data management systems.

- Monitoring and evaluation systems are also absent.

9 SUSTAINABILITY OF WASH SERVICES

This section presents findings on governance structures for WASH services in Kebbi State and across the 10 LGAs.

9.1 WASH GOVERNANCE STRUCTURE IN COMMUNITY

WASH Services in Kebbi State are under the purview of the Ministry of Water Resources and directly operationalized by the Rural Water Supply and Sanitation Agency (RUWASSA). RUWASSA is primarily responsible for the delivery of water, sanitation, and hygiene services across the state in collaboration with Ministries of Health, Education and Environment.

The Kebbi State RUWASSA has received a lot of donor support from agencies such as the Japan International Cooperation Agency, UNICEF, and others. In recent years, RUWASSA has successfully established WASH Units in local government authorities across the entire state. The LGA WASH Unit comprises local government staff pooled from various departments such as works, health, education, and environment.

During the baseline survey, WASH Units for various LGAs were engaged to get a fair assessment of their setup and capacities. Overall, findings showed that the Units exist but have very little activity due to the absence of dedicated funding for operation and maintenance services across the LGAs.

At the community level, Water, Sanitation and Hygiene Committees (WASHCOM) were observed in some of the LGAs. Their role varied from place to place. Table 125 presents the various roles that WASHCOMS play across the 10 LGAs. For operation and maintenance services, WASHCOMs are most active in Argungu (55%), Maiyamma (57%) and Suru (61%).

Table 125: Role of WASHCOM

Role Of WASHCOMS	Argungu	Koko-Besse	Maiyamma	Augie	Gwandu	Kalgo	Bunza	Dandi	Ngaski	Suru

Operation And Maintenance Only	55	37	57	55	4	16	27	56	44	61
Advisory Role Only	6	40	35	5	36	39	14	10	39	21
Advisory Role	32	21	8	33	48	34	25	34	16	14
Other	6	3	0	7	12	10	34	0	1	5

Community Mobilization

Community mobilization for WASH is essential. Table 126 shows that meetings are held at community levels to discuss issues relating to water management. More than 50% of households in Argungu, Maiyamma, Kalgo, Bunza Ngaski and Suru LGAs hold meetings concerning water management in their localities.

TABLE 126: COMMUNITY MOBILIZATION

Holding of Community Meeting on WASH	Argungu	Koko-Besse	Maiyamma	Augie	Gwandu	Kalgo	Bunza	Dandi	Ngaski	Suru
Yes	56	48	58	45	61	30	66	43	81	82
No	44	52	42	55	39	70	34	57	19	18

Water Management Meetings

As shown by Table 127, meetings relating to water management are organized at community levels by Community Head, WASHCOM and other institutions such as religious centers (mosques).

TABLE 127: PERSONS/COMMUNITY LEADERSHIP RESPONSIBLE FOR ORGANIZING MEETING COMMUNITY MEETINGS

Organise Meeting	Argungu	Koko-Besse	Maiyamma	Augie	Gwandu	Kalgo	Bunza	Dandi	Ngaski	Suru
Community Head	88	94	97	82	60	86	70	95	73	78
WASHCOM	6	1	1	4	39	14	7	0	7	18
Other	5	5	2	14	1	0	23	5	20	5

Over 80% of such meetings are organized by traditional institutions (Village heads) in Argungu LGA, 6% by WASHCOMS and 5% by other institutions, mainly mosques and neighborhoods. In Augie LGA, 82% of such meetings are organized by village heads. The situation is comparable to Koko-Besse LGA, where Village Heads organize 94% of such meetings.

The scenario is the same for all the studied LGAs. However, 39% of meetings are organized by WASHCOMS, 60% by Village Heads, and 1% by others. Therefore, it is apparent that WASHCOMS are not doing enough in these LGAs concerning mobilization and discussions centering on water resources management.

Willingness to Pay for Improved Water Supply

Table 128 shows the percentage of respondents who are willing to pay for improved water supply. It is interesting to note that across 9 out of 10 LGAs, there is more than 80% willingness to pay. Conversely, in Kalgo LGA, respondents were not very positive about readiness to pay for improved water supply.

TABLE 128: WILLINGNESS TO PAY FOR IMPROVED WATER SUPPLY

Willing To Pay for Improved Water Supply	Argungu	Koko-Besse	Maiyamma	Augie	Gwandu	Kalgo	Bunza	Dandi	Ngaski	Suru
Yes	98	97	98	88	98	1	97	94	96	87
No	2	3	2	2	2	99	3	6	4	13

9.2 PRIVATE SECTOR ENGAGEMENT

The private sector in the context of this report refers to the segments of the society that provide sales of services, products or provide financial support to the management, operation and development of WASH in rural communities. They include borehole mechanics, spare part dealers, toilet business owners etc.

9.2.1 Borehole Mechanics

Local Area Mechanics (LAMs) are artisans in the community that repair broken boreholes, especially hand pumps. Across the 10 LGAs surveyed, Suru and Bunza LGAs have the highest percentage responses on the availability of LAMs, whereas Dandi and Koko-Besse LGAs have the lowest percentages. The presence of LAMs in a community means that services for operation and maintenance of boreholes are accessible.
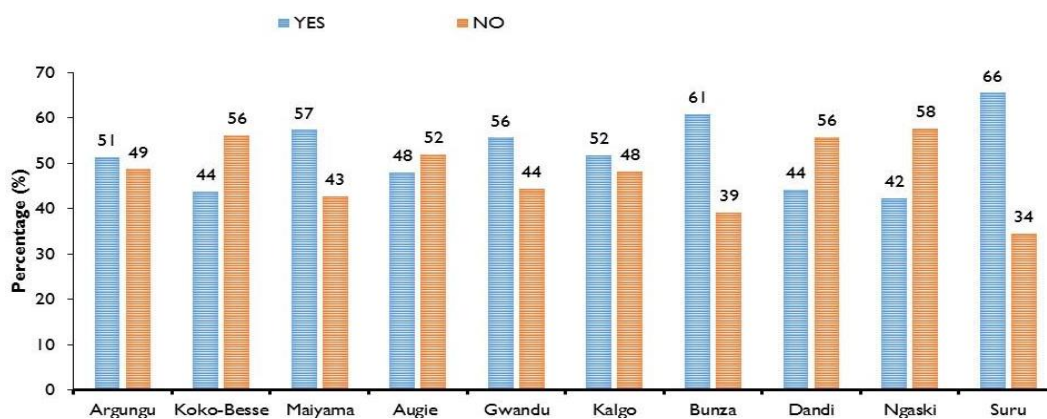

FIGURE 118: AVAILABILITY OF BOREHOLE MECHANICS

9.2.2 Spare Parts Dealers

Spare-parts dealers sell water supply and plumbing products in the community. They are critical to the development, affordability and overall access to WASH services. Figure 119 presents that percentage of respondents regarding the presence of spare-parts dealers in the locality. During the baseline study, it was observed that most of the spare-part dealers are located in the major towns in each LGA respectively. None was found in the council wards.

Some of the major spare-dealers were found in Argungu Town, Tambuwal, Birnin Kebbi, Gwandu Town and Dogon Daji Town. The spare-part dealers noted that they usually get their supplies from Sokoto and Onitsha (Anambra State). Their main customers are the LAMs who the communities usually contract to either install a new facility or repair a broken one for them.
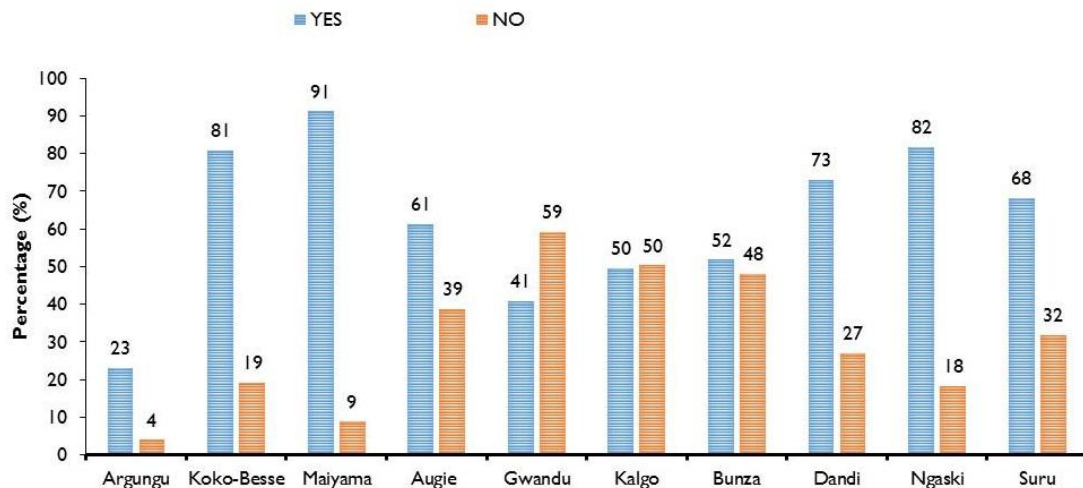

FIGURE 119: PRESENCE OF SPARE-PARTS DEALERS

9.2.3 Toilet Business Owners

During the baseline survey, no toilet business owner was found across the LGAs except in Gwandu.

This presents a good investment opportunity.

9.3 SUMMARY OF FINDINGS ON SUSTAINABILITY OF WASH SERVICES

For sustainability of WASH services, summary of findings are listed as follows:

- There are LGA WASH Units established in all the surveyed LGAs

- The LGA WASH Units are poorly staffed and not well equipped. and No State WASH and Watershed Management Law and Policy water.

- WASHCOMs were found in the LGAs and they play various roles in the community.

- Communities do mobilize themselves and hold meetings regarding O&M of facilities.

- These community structures are very weak.

- Most LGAs showed strong willingness to pay for improved water supply.

- LAMs were found in most of the LGAs and are usually engaged by the local community for the installation and repair of facilities.

- Spare-parts dealers are mainly located in the big townships and usually obtain their goods from outside the State.

- Only one toilet business owner was found in Gwandu LGA.

10 RECOMMENDATIONS AND CONCLUSION

A detailed baseline survey of WASH services was conducted across 10 LGAs of Kebbi State including Argungu, Koko-Besse, Maiyamma, Bunza, Dandi, Ngaski, Suru, Gwandu, Kalgo and Augie. The survey covered households, health centers, schools and other public spaces. Overall, about 1,500 households, 60 Schools, 60 health Centers and 150 public WASH Facilities were sampled.

In light of the findings from the baseline study, the following recommendations are proposed;

I. Water supply should be improved as only about 38% of households have access to basic water supply.

II. The status of sanitation in schools is alarming where more than 87% of schools lack access to basic toilet facilities. Sanitation in schools should be given priority for future WASH interventions.

III. The State Universal Basic Education Board should institute the setting up of WASH Clubs in Schools to promote sanitation and hygiene activities in schools. A desk officer at the board should be mandated to promote, manage and support the clubs across the schools in the State. The Board should also initiate various mentoring and rewarding systems such as presenting club members with certificates of training and leadership, honorary badge/pins to motivate club members.

IV. Results showed very poor respondents' knowledge on basic sanitation and hygiene habits. Educational and advocacy programs on hygiene promotion must be increased through radio and TV programs.

V. LGA WASH Units should be well equipped and funded to provide basic operation and maintenance services for respective LGAs.

VI. The LGA WASH Unit should also have good number of staff pooled from various departments of the LGA such as health, works, environment and others to ensure a strong and highly technical team that will serve respective LGAs especially in the areas of advocacy for better sanitation and hygiene practice.

VII.   The SUBEB and SPHDA should key into the activities of the LGA WASH Units to ensure that WASH facilities in schools and PHCs in respective LGAs are well managed and are in good working condition.

VIII.   The State must dedicate funding for O&M of WASH facilities through the RUWASSA in collaboration with the LGA WASH Units.

IX.   The Ministry of Environment should enforce laws that prohibit and mitigate open dumping of waste. Open dumping of waste in public spaces, streams and rivers was observed to cause serious contamination of water sources.

X.   Private Sector segments of WASH have not been fully explored. There are a lot of business and investment opportunities in toilet business as well as O&M services.

XI.   RUWASSA needs to improve the current draft policy on water to ensure climate change hazards, water resources protection and management are well captured to promote sustainability of WASH services.

XII.   RUWASSA requires more funding and support from the State government to improve its ICT facility and data management services.

XIII.   The Kebbi State Government should pass the water policy into law.

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Appendix

PDF

Household Baseline
Assessment on WAS

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Health Center
Baseline Assessment

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Schools Baseline
Assessment on WAS

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Mapping of Public
WASH infrastructure

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