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SITUATION ASSESSMENT OF WASH FACILITY INTERVENTION IN IDEMILI NORTH, ANAMBRA EAST AND NNEWI LOCAL GOVERNMENT AREAS OF ANAMBRA STATE, NIGERIA

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ABSTRACT

This paper assessed WASH Facility interventions in Anambra State Nigeria, in other to evaluate operational status and identify issues affecting its sustainability. The study was conducted in 13 communities, from Ndemili North, Anambra East and Nnewi Local Government Areas. A mix of purposive and random sampling techniques were adopted for this study. A total of 17 facilities were purposively identified; 13 water supply and 4 toilet facilities, while random sampling was used to select 650 respondents. Data collection was done using structured questionnaire, focus group discussions and physical observations. The data collected were analysed using Likert scale rating of 1 – 5, averages, tables and charts. The findings revealed that 42% and 20% of water supply and sanitation facilities respectively were functional in the study area, meanwhile 58% and 80% were not functional respectively. Further analysis on water supply facility functionality indicators rated on Likert scale showed that 30% were in good conditions, 20% were neither in good or deplorable condition and 50% were in deplorable condition. Toilet facility functionality showed that 17% were in a very good conditions, 33% were neither in good nor in deplorable condition and 50% were deplorable condition. Evaluation of sustainability of the WASH facilities interventions revealed that only 21% of the communities have skilled artisans who can carry out minor maintenance in the event of break down. About 43% of the community members do not know how to communicate facility challenge to appropriate authorities, while 93% of the communities do not have any system of water tariff collection to provide fund for minor maintenance. Also, 86% of the communities, do not have functional WASHCom in place which are supposed to carry out monitoring activities, provide inventory of facilities with challenges and carry out awareness campaign. The analysis revealed huge gap in the WASH Facility interventions management and therefore recommended that existing WASH management practices be strengthened by providing regular training of skilled artisans, creatiing more awareness in communities, creating a self-sustaining financial system and strengthening WASHComs

KEYWORDS: *WASH intervention, Assessment, Anambra, WASH-Facility, Functionality.*

1.0 Introduction

Adequate access to water can improve productivity, food security, support an improved public health system and reduce poverty among people living in the rural areas. The management of available water and sanitation facilities plays a vital role in ensuring its sustained benefit. Population growth, climate change and other factors are persistently increasing pressure on water system, thereby increasing water demand to grow up to 30 percent by 2030 which will be accompanied with water relate hazards. This situation is gradually manifesting as about half of the world's population is already suffering from severe water shortage for at least one month per year (IPCC, 2022). According to FAO, 1.5 billion people in developing countries belong to smallholder household and 80% of these households are operating under water scarce environment, thus the need to provide adequate water supply and sanitation facilities. The investment in water infrastructure and its operation can promote sustained productivity and employment leading to economic transformation.

In 2018, Nigeria's Water, Sanitation and Hygiene (WASH) sector was declared to be in a state of emergency and approximately 60 million Nigerians were living without access to basic drinking water (World Bank, 2021). In the rural areas, 39 percent of households lack access to basic water supply, only half have access to improve sanitation while 29 percent defecate in the open. In order to address this situation, the building of water supply and sanitation (WASH) infrastructure to increase service level in households required a drastic action (Hannah, Lynch, Mao, Miller, Young and Krause, 2020; Dil, Anjali, and Tetsushi, 2022; Nkeka, Tafadzwa, Chester, and Moses, 2022; and Gnanasekaran, Jayaraj, Yazhini, Mohanraj, Babu, Rajendran and Rajendra, 2024).

Such investment in water supply infrastructure WASH is expected to have great impact on its access, job creation, protection of the environment and improved resilience to climate change. In Nigeria, as far back as 2013, the African Development Bank invested over USD 1 billion to provide potable water to millions of households in Nigeria; the National Action Plan for Water Supply and Sanitation was launched in 2012, and recent the National Development Plan 2021 – 2025 which set goals of increasing access to water supply and sanitation by 2030 and ending open defecation by 2025 in compliance with the SDGs 6.1 and 6.2. To this end, the Nigerian government planned to invest 1.6 trillion naira over five years to provide water and sanitation to 90% of the population; building about 2,300 water points and provide 6,546 hygiene facilities and sanitation compartment in 2021 alone (Ezra and Fidelis (2023). In an attempt to complement the effort of the Nigerian government to ensuring universal access to sustainable and safely managed WASH services, by 2030, the World Bank and other development partners including the European Union, WaterAid, UNICEF, Safe the Children Foundation etc. are providing supports to WASH services. This paper carried out an assessment on the WASH facilities provided in Anambra and Delta States of Nigeria. The objective is to map out the functionality of available WASH facilities intervention in the state; and identify various challenges affecting the functionality of the facilities and provide sustainable recommendation.

2.0 Methodology

2.1 Description of Study Area

Anambra State is situated in the southeastern region of Nigeria within the Lower Niger River Valley. It shares boundaries with Delta State to the west, Imo State to the south, Enugu State to

the east and Kogi State to the north. The state has a total land mass of approximately 4,844 square kilometres. The state has a monsoon tropical climate with wet and dry season, a population of 4.1 million as at 2006 census and predominantly dominated by the Igbo ethnic group with diverse cultural heritage. Anambra state provide sufficient study area for this research due to its attraction of WASH intervention project from European Union, UNICEF, WaterAid and Safe the Children foundation. The study was conducted across three Local Government Areas (Idemili South, Anambra East and Nnewi Local Government Areas where the WASH Facility interventions are located). 17 WASH Facility intervention were enumerated as shown figure 1.

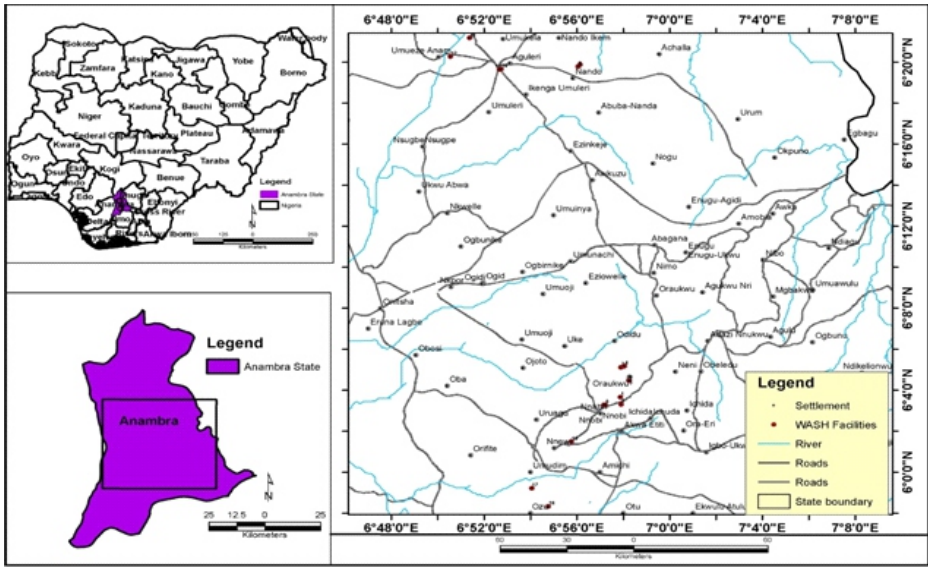

Figure 1: Map of WASH Facility Surveyed in the study area

Table 1: Description of WASH Facilities Visited in Figure 1		
WASH Facility Points	Community	Facility Type
1	Eziama Nnoka	Motorised Borehole
2	Abo Nnokwa	Motorised Borehole
3	Echemnankwo-Nnob	Motorised Borehole
4	Isieke Alor	Motorised Borehole
5	Umuoshi Alor	Motorised Borehole
6	Nnobi Central School	Toilet
7	Alor Central School	Toilet
8	Umuoshi primary School Ojoto	Toilet
9	Amajana Nando	Motorised Borehole
10	Toilet Central School Nando	Motorised Borehole
11	Umundeze Community	Motorised Borehole
12	Umuobaanam Bh	Motorised Borehole
13	Egbeagu Eziagulu	Motorised Borehole
14	St Mary Sch Ugwunadagbe	Toilet
15	Nnewi High Sch	Motorised Borehole
16	Umunnalam Umudim	Motorised Borehole
17	Ebeleogo Umudim	Motorised Borehole

2.2 Sampling

A purposive sampling method was adopted to conduct a survey in three Local Government Areas with WASH interventions either by the government of Nigeria or its Development Partners in the State; they include Idemili South, Anambra East and Nnewi Local Government Areas (LGAs). This was followed by adopting a

total population sampling on all the available WASH facilities in the selected areas since the population is a manageable size. The survey included WASH facilities provided for communities, schools, hospitals, as well as markets. sanitation officers. During the reconnaissance survey, 13 water supply and 4 toilets facilities were identified. A total of 650 respondents were randomly interviewed; 50 from each community with WASH facility intervention.

2.3 Datta Collection

Data for the study were collected with the administration of questionnaire to facility users (household), focus group discussions with community members, and physical observation to assess the condition of the infrastructure. The following parameter were used to ascertain the functionality of WASH facilities: access road, quality of water source, facility usage, source of water contaminated, facility design effect, storage tank capacity, water pump status, panel control switch, pipe reticulation and tap head. Accessibility, water supply, toilet utilization, design suitability, status of hand wash facility and faecal management system of the facilities were used to assess the hygiene provisions in the toilet facilities. Data collected were analysed using descriptive statistics, tables and chats.

Facility functionality indicators were rated on a likert scale of 1 – 5 ('Strongly Disagree', 'Disagree', 'Not Sure', 'Agree' and 'Strongly Agree') to assess the degree to which the facilities functioned on the average. 'Strongly Disagree' or 'Strongly Agree' implies there indicator could be in a very good condition or highly deplorable/effected state depending on the statement; 'Not sure' implies it is not a major challenge; and 'Disagree' or 'Agree' implies that the functionality indicator could either be in good condition or deplorable/affected state.

3.0 Results and Discussion

The water supply facilities were located in Eziama Nnokwa, Abo Nnokwa, Echemnankwo-Nnobi, Isieke Alor and Umuoshi Alor communities in Idemili South LGA; in Anambra East LGA, the communities were Eziagulu Otu-Aguleri, Egbeagu Eziagulu Nando, Umundenze and Umu Oba Anam (Otuocha); in Nnewi LGA, the communities with water supply facilities include Ugwunadagbe, Nnewi High School, Umunnalam Umudim and Ebeleogo Umudim. Meanwhile Sanitation facilities were located in Nnobi Central School, Alor Central School, Umuoshi primary School Ojoto and Ikem-Ifite Nando. The facilities were identified under the guidance of the Anambra State Rural Water Supply and Sanitation Agency.

3.1 Status of Water Supply and Sanitation Facilities in the Study Area

Figure 2 is a chat showing the percentage of water supply and sanitation facilities. It shows that only 42% and 20% of boreholes and toilet facilities were functional. This implies that a greater percentage of the WASH intervention facilities in the study area were not functional.

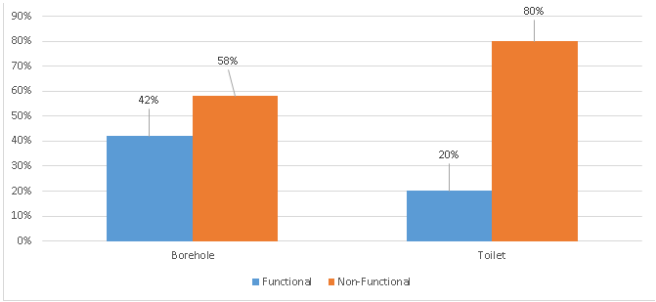

Figure 2: % Functional and Non-Functional Boreholes

Figure 3 shows water supply facility functionality indicators rated on likert scale. The chart showed that 10% Agree with positive statement, 20% Disagree with positive statement, 40% Agree with negative statement, 10% Disagree with negative statement, and 20% were not sure on positive statements. This result was summarized as follows:

30% of the functionality indicators are in good conditions- 'Agreed' to positive statement or disagree to negative statement;

20% of the functionality indicators where neither classified as being in good or deplorable condition - Neither 'Agree' nor 'Disagree' to the statement; and

50% of the functionality indicators were in deplorable condition - 'Agreed' negative statement or 'Disagree' to positive statement

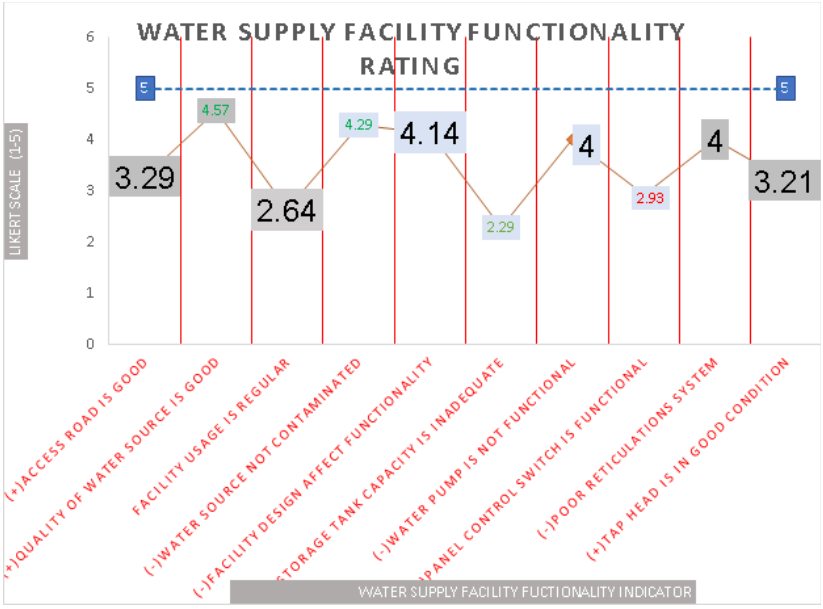

Figure 3: Water Supply Facility Functionality Rating

1. Access Road is good: Access road was rated on the average of 3.29. This rating is between 'Not Sure' and 'Agree'; it suggest that only a few number of the facilities have good access road. This access path to some water supply facilities in the study area were overtaken by bushes.
2. Quality of water source is good: The sources of water for all the water supply intervention facilities in the areas is boreholes. Quality of water source is rated on the average of 4.57. This rating indicates that the quality of the water source from the users' perception based of colour, taste and physical hardness is very good condition for use.
3. Facility usage is regular: In many locations, the water supply intervention facilities were not functioning during the survey as indicated in Figure 3. It was rated 2.64 (between 'Disagree' and 'Not sure'). This rating is as a result of completely abandonment of some of the facilities due to some facility operation system fault such as: damage of solar panels and thunder protector by weather storm, and poor facility maintenance as most of the scheme do not have facility manager, and as such cannot self-sustain itself.
4. Source of water is not contaminated:

Contamination of water source is rated 4.29 (Strongly Agree). This rating is between 'Agree' and 'Strongly Agree'. It indicates that there were less visible sources of water contamination as perceived by users over the period of time the facilities have been utilized.

5. Facility design affect usability: Water supply facility design was averagely rated 4.14. This rating is between 'Agreed' and Strongly Agree'. The rating indicates that the design of the facilities have significant effect on the usability. Some areas of concerns with design include: water point lacked soak pit, security lights are easily affected by strong wind, small power cable is used to operate pumps leading to lesser pumping capacity, angle of solar panels allow for rain storm removal, storage tank platform not well drained; angle iron constructed below half the tank height which allow falling of tank during wind storm, and the perimeter fencing could not secure the facilities from vandalisation.
6. Storage tank capacity is adequate: The water storage tank provided in the area is 12000 Litres from 3 tanks of 4000Litres each. The inadequacy of water storage capacity of the facilities is rated at 2.29 (between 'Disagree' and 'Not Sure'); implying that the tank capacity is adequate to store water for users in the communities with functional interventions.
7. Water pump is not functioning: The functioning of water pumps is averagely rated 4 (between 'Disagree' and 'Not Sure'). This rating indicates that many of the water pumps installed during the intervention which are in deplorable conditions.
8. Control panel switch is functional: The switch of the solar panel is important to regulate the volume of water pumped to the overhead tanks. The rating is given as 2.93. This indicates that some of the facilities have developed control panel switch fault. This is as a result of lack of installed control valve to storage tank which led to spillage of overflow water on the control panel switch.
9. Poor reticulations: The reticulation system is averagely rated at 4 ('Agree'). This implies that the reticulation system of water supply is averagely in deplorable state. The main issue result from crossing reticulation pipes on motorist pathway and similarly, burring of reticulation pipe in poorly constructed drainage which collapse and cause damage pipes resulting to leakages.
10. Tap heads is good: tap head is a water supply key facility component used to control the flow of water from the storage tank into water collection containers. The tap head condition is of good state and is rated 3.21 (between 'Not Sure' and 'Agree'). This rating indicate that some of the tap heads are in good condition. Although, a good number is suggested to be in deplorable state. This could be as a result of poor management, being that most of the facilities do not have designated manager to oversee its functionality.

Figure 4 shows toilet facility functionality indicators rated on Likert scale with all positive statements. The chart showed that 17% Agree, 50% Disagree and 33% were not sure on positive statements.

This result was summarized as follows:
17% of the functionality indicators was in a very good conditions
50% of the functionality indicators where deplorable condition
33% of the functionality indicators were in deplorable condition

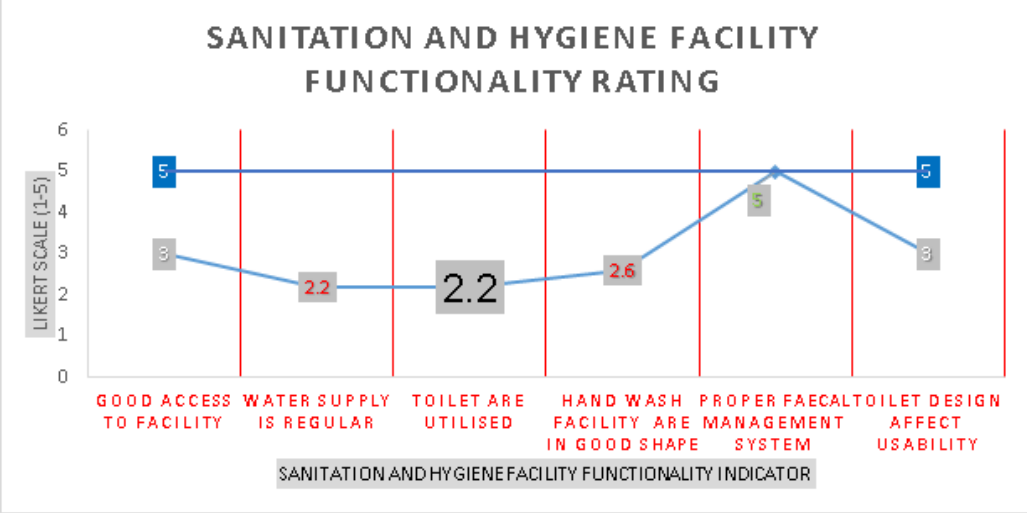

Figure 4: Sanitation and Hygiene Functionality Rating

1. Good access to facility: Accessibility to toilets facility could either encourage or discourage its usability. When a toilet facility is located where it could be easily located by abled body individuals and the physically challenged, the rate of utilization will be higher. Good access road is rated 3 (Not sure). This shows that accessibility on the average scale is not really considered a challenge by users.
2. Water supply is regular: Sanitation basically depends on constant availability of water. It therefore implies that irregular water supply can prevent the usability and functionality of toilet facilities. Regular water supply was averagely rated 2.2 (between 'Disagree' and 'Not Sure'). This suggest that most of the toilets water supply structures are in deplorable state and as such do not have regular water supply. This could be one of the reasons for its abandonment or under-utilization of the facilities.
3. Toilet are utilized: This indicator show the level of utilization of this facilities provided through interventions. The Likert scale chat shows that toilet facility utilization of the toilet facility is rated 2.2 (between 'Disagree' and 'Not Sure'). The implication is that most of the toilet facilities have been abandoned, and possibly due to related circumstances such as irregular water supply, poor management system, design related issue with personal privacy at the urinals as shown in the Figure 3.
4. Hand wash facility are in good shape: Wash hand basin is necessary for both sanitation and personal hygiene after using the toilet or urinal. The functionality of this component of the toilet facilities is rated 4.5 (between 'Agree' and 'Strongly Agree') as seen in figure 4. This shows that the component were provided for, still in place and in good shape, although may not be put in use in most locations due to the challenges similar challenges such as such as irregular water supply, poor management system and design related issue as indicated in Figure 3.
5. Proper fecal management system: Fecal management of the toilet facilities focused on the collection, storage and evacuation of faeces. This indicator is rated 5 (Strongly Agree). This indicates that all the toilet facilities were constructed with appropriate design to manage collection, storage and evacuation of faeces.

6. Toilet design affect usability: Toilet design could either encourage or discourage its uses. Proper design will encourage all categories of individual including the physically challenged to patronize. The toilet design affecting usability is rated 3 ('Not sure'), implying that there are few aspects in the design that may not encourage high patronage as identified. They include; low urinal separators which prevent privacy to users, opened ventilators to dangerous reptiles as the environment is basically surrounded by trees and bushes and the use force-lift pump which posed difficulty to manually pump water to toilet water storage tanks.

3.4 Sustainability indicators of the WASH Intervention Facilities Management

Figure 4 present a summary of the result of sustainability measures in intervening communities in terms of availability of skilled persons, empowerment of users through information sharing, sustainable maintenance financing system of the facilities and availability of functional WASHCom.

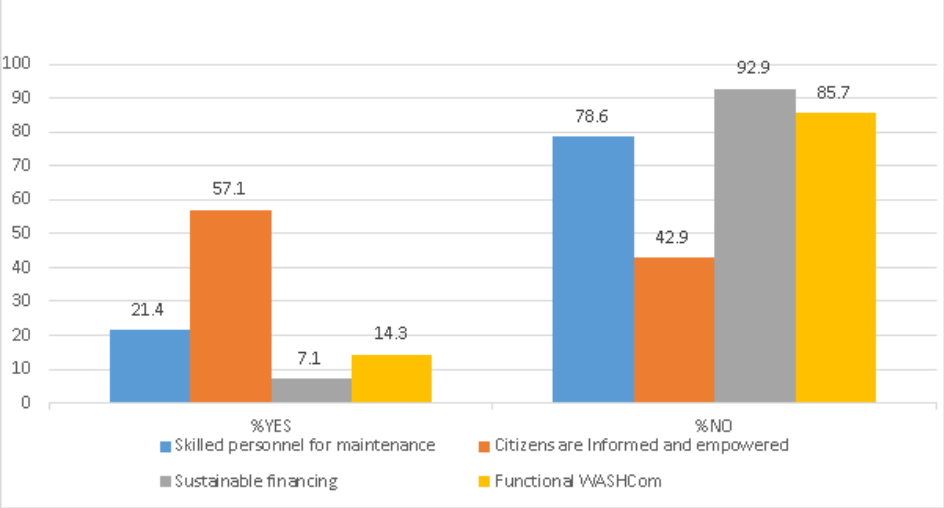

Figure 4: Sustainability Measures for WASH facility Management in the Study Area

The finding revealed that only 21% of the communities where there are WASH facility intervention have skilled artisans who can carry out minor maintenance of the facilities in the event of break down. In many cases, the community members have to travel far in other to get the services of such artisans who in turn respond at will of convenience. The result also showed that about 43% of the community members are not aware of what to do or who to contact when there is failure of the facilities. Thus, break down that requires little maintenance could lead to a total abandonment of the facility due to information gap. One big challenge identified in the findings is lack of sustainable financing system as about 93% of the communities do not have any system of water tariff collection. The collection of tokens as water tariffs is meant to provide fund for immediate and minor maintenance need of the facility. The constant request for community contribution anytime there is a minor maintenance need can lead to withdrawal of some well-meaning community individuals but with tariffs, they may be no need for such contributions when the need arise. It was also discovered that 86% of the communities, do not have functional WASHCom in place. The lack of functional WASHCom have the tendency of undermining the effort of the interventions as the

committee are supposed to carry out monitoring activities on the WASH facilities (toilets and water supply), provide inventory of facilities with challenges and carry out awareness campaign in communities of interventions.

4.0 Conclusion

The study carried out an assessment of sustainability of WASH facilities intervention project in Anambra State. Although there are evidence of interventions for WASH facilities in Anambra State, these facilities have been significantly underutilized in many locations. The findings revealed that 42% of the water supply intervention facilities and 20% of the toilet facilities where functional. The analysis revealed huge gap in the WASH interventions facility management and therefore recommended that existing WASH sustainability management practices be strengthened in communities of the state by providing regular training for potential artisans who may be capable of maintaining the WASH facilities in intervening communities. By doing this, minor maintenance of these facilities can be taking care of at the community level, at the same time serves as a source of employment to the artisans. More awareness need to be created in communities on how to engage the Local Government and the State Rural Water Supply and Sanitation Agency (RUWASSA) in the event of major repairs and maintenance of water supply facility components when the need arise. Also, a self-sustaining financial system should be set up in communities where a person (s) will be assigned with the sole task of managing the facilities and collection of little token from users as a means of raising fund necessary for maintenance; as was the case in Egbeagu, Umundenze community, where one man was entrusted with the responsibility of maintenance from token realized and as a source of income for his daily upkeep. This has kept the scheme operational for about nine years. Lastly, there is the need to strengthen WASHCom in communities where there are interventions because they are engine room that can monitor latrine and spread hygiene messages in community and public places such as schools, health centres and markets; take inventory of WASH intervention facilities, noting the challenges and bring same to the appropriate authorities. With these sustainability measures in place, the sustenance of WASH intervention facilities in the state in other to address issues of shortage of water supply and ending open defecation in accordance with the SDGs can be achieved.

REFERENCE

Ezra, I. and Fidelis O. (2023). The Importance of Clean Water and Sanitation in Nigeria. Available at https://southernvoice.org/the-importance-of-clean-water-and-sanitation-in-nigeria/

Dil, B.R., Anjali, S. and Tetsushi, S. (2022). WASH Facilities Prevalance and Determinants. Evidence from 42 developing Countries. *Frontier in Environmental Science*. Doi: 10.3389/fenvs.2022.1013657

Gnanasekaran, S., Jayaraj, V., Yazhini, A.B., Mohanraj, P.P., Babu, C., Rajendran, N., and Rajendra, V. (2024). A Comprehensive Evaluation of Water Sanitation and Hygiene in Health Facilities: A Systematic Review and Metal-Analysis. *Journal of Hospital Infection*. Vol. 151, p. 116-130. https//doi.org/10.1016/j.jhin.2024.06.018

Hannah, D.M., Lynch, I., Mao, F., Miller, J.D., Young, S.L., and Krause, S. (2020). Water

and Sanitation for all in a Pandemic. Nature Sustainability, 3(10), 773 – 775. https://doi.org/10.10.1038/s41893-020-

Nkeka, P. T., Tafadzwa, M., Chester, K., and Moses, J. C. (2022). Barriers and Facilitators to WaterSanitation and Hygiene Practices in Southern Africa: A Coping Review. *PLOS One Journals*. https://doi.org/10.1371/journal.pone.0271726

Intergovernmental Panel on Climate Change (2022). Climate Change 2022: Impact, Adaptation and Vulnerability. The Working Group II Contribution to the IPCC Sixth Assessment Report. Available at https://www.ipcc.ch/report/ar6/wg2/

World Bank 2021. Nigeria: Ensuring Water Sanitation and Hygiene for All. Available at https://www.worldbank.org/en/news/feature/2021/05/26/nigeria-ensuring-water-sanitation-and-hygiene-for-all