

Assessment of Rural-Urban Environmental Sanitation Practices in Lafia Local Government Area of Nasarawa State, Nigeria

Mu'azu Audu Zanuwa, Faruk I. Gaya, Abdu Ali, Adamu Muhammad Kamal and Jamilu Haruna Dalibi

Department of Geography Federal University Kashere, Gombe State, Nigeria
Email: zanwamuazu@gmail.com

Abstract

In spite of many decades of development planning and assistance, much of the rural and urban population in Lafia LGA of Nasarawa State have inadequate sanitation practices. Inadequate sanitation constitutes threat to bodily health and degrades the environment. The study assessed environmental sanitation practices in rural-urban area of Lafia LGA of Nasarawa State, Nigeria. Descriptive and contextual cross-sectional survey design was adopted, limiting the study to four electoral wards namely; Chiroma, Gayam, Assakio and Adogi wards. A systematic random sampling technique was used to select the respondents for the study. Three hundred and eighty-five (385) copies of the questionnaires were administered on household heads and only 349 copies were returned. The study findings revealed that 54.1% of the respondents in the study area do not have waste containers in their homes because they dispose their waste indiscriminately at home and only 45.6.1% of the respondents disposed of their waste into waste containers (dustbin) in their homes. However, 60.6% of the respondents in the rural wards dispose their solid waste into drainage channels and bushes around them, while 58.3% of the respondents in the urban wards dispose their solid waste through open dumping system. Based on the findings, the study recommended that Government and community organizations should provide street by street temporary waste collection containers that are not more than 100 metres from the households.

Keywords: Environment sanitation, Lafia, Nasarawa, Rural-urban and Sanitation practice

Introduction

Adequate environmental sanitation is fundamental to human health, survival and development (World Health Organisation & United Nation International Children Emergency Fund, 2010). Today, 3.6 billion people lack safely managed sanitation services (WHO/UNICEF, 2021). Unsafe hygiene practices are widespread, compounding the effects on people's health. The impact on child mortality rates is devastating with more than 297 000 children under five who die annually from diarrhoea diseases due to poor sanitation, poor hygiene or unsafe drinking water (WHO/UNICEF, 2021). Regional disparities in sanitation coverage are huge. Whereas 99% of people living in industrialized countries have access to improved sanitation, in developing countries, only 53% have such access (WHO/UNICEF, 2021). Within developing countries, urban sanitation coverage is 71% while rural coverage is 39% (WHO/UNICEF, 2021). Consequently, at present the majority of people lacking sanitation live in rural areas; this balance will shift rapidly as urbanization increases.

An Environmental Sanitation Day was created in Nigeria by the Environmental Sanitation Edict between 1972 - 1973 and was revived by the Federal Military Government of Nigeria in 1980. The aim of the Environmental Sanitation Day was to increase awareness and enhance the commitment of Nigerians towards sound environmental practices. The Edict identified one-day cleaning in a

month as a civic responsibility for households. Residents were mandated to clean their homes, streets, neighbourhood surroundings, drainage channels, markets and civic buildings in this process. To complement Environmental Sanitation project, states and local governments set up Solid Waste Management Authorities (SWMAs), agencies and units to provide guidelines and policies on how waste should be disposed of and managed through community participation (Achor, 2013).

Egun (2010) defines an environment as the immediate surroundings of man at any given point in time. It is the surroundings, the condition that you live or work in and the way that they influence how you feel or how effectively you work. However, a wider definition of the environment is, 'land including without limitation any building structure or receptacle in an over or under it, water including without limitation surface, coastal and ground waters and air including without limitation the atmospheres within any natural or man-made structure or unacceptable above or below the ground (Egun, 2010).

According to National Environmental Sanitation Policy 2004, sanitation obtain the hygienic means of promoting health through prevention of human contact with the hazards of waste as well as the treatment and proper disposal of sewage or wastewater. Hazards can either be biological, chemical, microbiological or physical agents of diseases. Providing sanitation to people requires a system approach, rather than exclusively focusing on the toilet or wastewater treatment plant itself. The experience of the user, waste collection methods, transportation or conveyance of waste, waste treatment, and re-use or disposal all need to be thoroughly considered (Conant, 2005). Environmental sanitation refers to the collection of action and policies aimed at improving or maintaining the standard of core environmental conditions affecting the well-being of people. These conditions include a clean and safe water supply, clean air, efficient and safe waste disposal procedures, protection of food from chemical and biological contaminants, and suitable housing in safe and clean surroundings (Banjo, Adebambo & Dairo, 2009).

Access to water supply and sanitation is a fundamental need and a human right. It is vital for the dignity and health of all people (Mohammed, 2011). Water, sanitation and good hygiene practices have the potential to prevent at least 9.1% of the global disease burden and 6.3% of all deaths (Mohammed, 2011). One of the most important benefits of water, sanitation and hygiene is to provide barriers to transmission from the environment to the human body of diarrhoeal disease, which is responsible for an estimated 21% of fatalities of under-fives in developing countries or 2.5 million deaths per year (Mohammed, 2011).

The problems with sanitation are intensified when there is inadequate drainage and waste removal. Where sanitation is poor, many people defecate in the open, or into plastic bags or paper and thrown out with the household garbage. Excreta can accumulate rapidly in open areas and on garbage piles. Uncollected garbage is also frequently dumped in drainage channels, which quickly become clogged (Mohammed, 2011).

Apart from health, the relevance of sanitation also lies in several fields of development making it one of the key factors that underpin the MDGs (Baffoe, 2015). Sanitation is an important factor in economic development, as it is estimated that every dollar invested in sanitation returns in average nine dollars of economic benefit, mostly by reducing health costs, allowing greater investment in education, and therefore significantly increasing the Gross Domestic Product (Baffoe, 2015).

The provision of sanitary infrastructure varies from the developed world to the developing world. In high-income countries, there is 100 percent coverage in the provision of sanitation facilities (Yaw, 2010). There is increasing use of the private sector in the provision of the facilities even though the government provides most of the facilities. In middle-income countries, a number of sanitation infrastructures are available but it is often in poor condition. The service delivery systems are most often than not underfunded, mismanaged and lack maintenance (Yaw, 2010). Lower-income countries have serious sanitation problems. They have less sanitation infrastructure than high and middle income countries and their institutions and management systems are incapacitated (Yaw, 2010).

In Nigeria, for several years now, many governments (both civilian and military) have been emphasizing the need for sustained environmental sanitation. Up till today, the effects of all these are far from reality. Various efforts to ensure that the overall good sanitation practice is maintained and sustained in the country have yielded little or no result (Ige & Adetunji, 2014).

Human population is concentrated in both rural and urban areas. These two areas generate wastes from various sources which need sustainable sanitation practices. In fact, most of the law, campaigns, technology, and development strategies to enhance environmental sanitation is minimal at one region or part of the community. Improvements in this component of health can substantially reduce the rates of morbidity and the severity of various diseases and improve the quality of life of large proportion of people in developing countries like Nigeria and rural and urban areas in Lafia LGA of Nasarawa State in particular. It is against this backdrop that it became important to assess the rural-urban environmental sanitation practices in Lafia Local Government Area of Nasarawa State, Nigeria.

Description of the Study Area

Lafia LGA is located between latitudes $8^{\circ} 8' - 9^{\circ} 7' N$ of the equator and longitude $8^{\circ} 8' - 9^{\circ} 7' E$ of Greenwich meridian in North Central Nigeria. It is one of the thirteen local government area of Nasarawa State. It shares boundaries with Plateau State in the East, Wamba, Nasarawa-Eggon and Akwanga Local Government Areas in the North and North-Eastern part and its Southern part is bounded with Obi Local Government Area. It is also bounded with Awe Local Government Area toward the Western part and shares boundary with Doma Local Government Area to the South-Western part (Nasarawa State Government, 2001). Lafia Local Government Area has a total population of 330,712 (National Population Commission, 2007). The population of Lafia was projected from 2006 national population census figure at 3.1 growth rate to 526,494 in 2021 (Author Field Survey, 2021). The Local Government Area is made up of thirteen (13) electoral wards (Fig. 1).

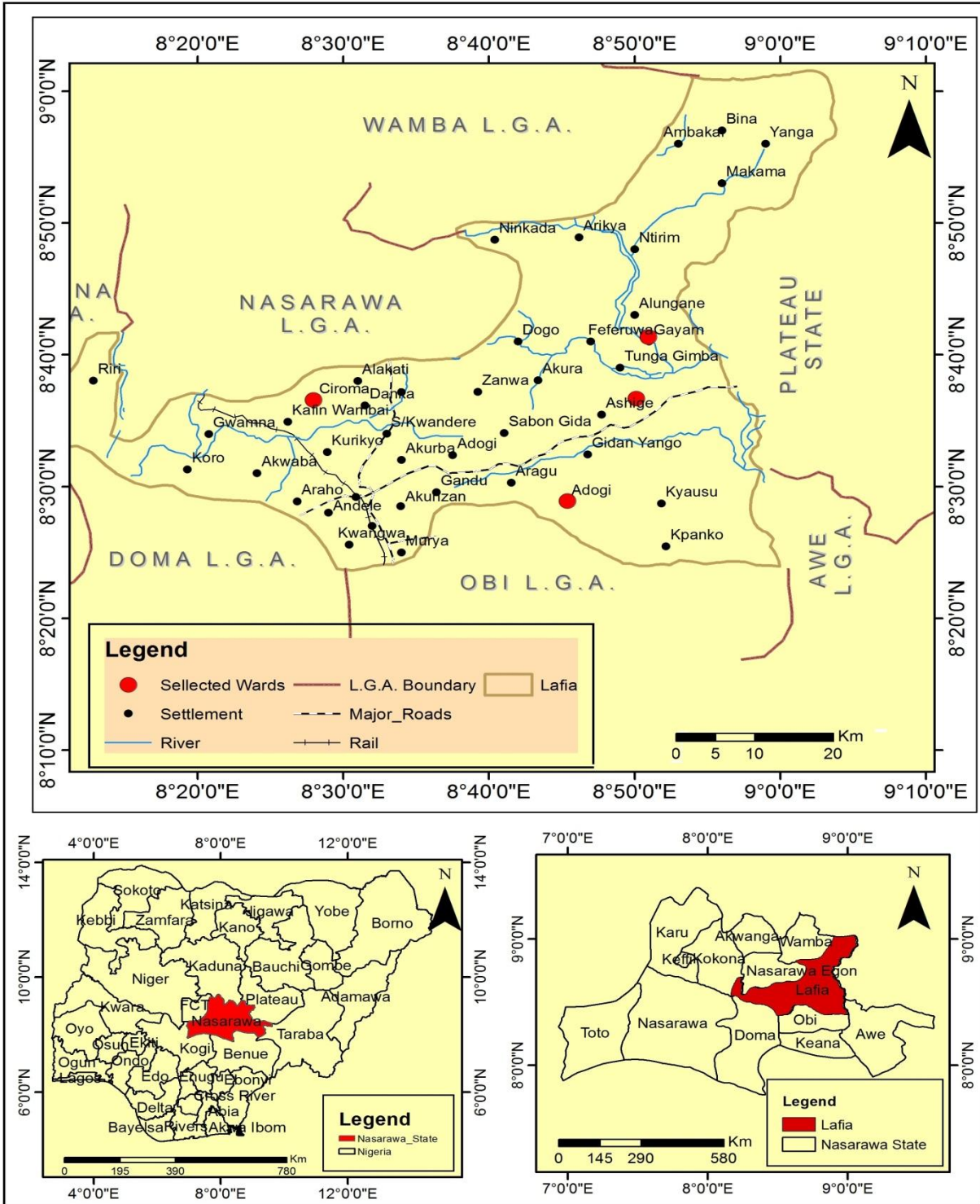


Figure 1: Map of Lafia LGA Showing Sampled Wards
 Source: Adapted from Administrative Map of Nasarawa State, 2021

Methodology

A descriptive and contextual cross-sectional survey was used to carry out the study. The study cut across four (4) out of the thirteen electoral wards in Lafia Local Government Area of Nasarawa state, two wards from rural wards (Assakio and Adogi wards) and two wards from urban (Chiroma and Gayam wards), with the highest population were selected. A systematic random sampling technique was used to select the respondents for the study on the interval of every 30th house in the urban ward and 20th house in the rural ward respectively. The target respondents were the household heads in each of the wards in the study area. To determine the sample size of this study (Krejcie & Morgan, 1970) method of determining sample size was adopted to select 385 respondents in the study area. Since the projected population of the study area, which is 485,668 falls within the range, the sample size of 385 was adopted (Table 1). The size of the sample population of each ward was determined by the formula.

$$\frac{n}{N} \times Q$$

Where n = population of Wards

N= total population of Wards

Q= total no. of questionnaire = 385

Three hundred and eighty-five (385) copies of the questionnaire were administered. In each wards systematic random sampling techniques was adopted in administering questionnaire to the respondents based on the households to ensure spatial coverage. Three hundred and forty-nine (349) copies of the questionnaire were duly filled and returned for data analysis, while thirty-six (36) questionnaire were not returned. Descriptive statistics were used to analyse the data (tables and percentages).

Table 1: Sample Size

Wards	No of Households	Sample Size	Return Questionnaire
Ciroma	13, 031	130	119
Gayam	55, 904	108	95
Assakio	8, 068	81	76
Adogi	6, 595	66	59
Total	83598	385	349

Source: Field Survey, 2021

Results of the Findings

This section presents and discusses results based on the data collected. The presentation is done in subsection, household environmental sanitation practices and challenges of environmental sanitation.

Sanitation Practices

The result of the findings on sanitation practices in the study area is presented in Table 2 which shows that 65.9% and 54.1% of the respondents in both rural and urban wards in the study area do not have waste containers (dustbin) within their homes. They respondents dispose their solid waste indiscriminately at home. This shows that dumping of refuse into the dustbin is not practiced in the study area with only 34% and 45.6% of the respondents in both rural and urban wards that

dump their refuse into dustbins. This practice of not dumping waste in dustbins at home is not environmental friendly and might result in some health challenges related to improper sanitation.

Table 2: Sanitation Practices

Availability of dustbin	Rural		Urban	
	Frq	%	Frq	%
Yes	46	34	98	45.6
No	89	65.9	116	54.1
Total	135	100	214	100
Methods of disposing wastewater	Rural		Urban	
	Frq	%	Frq	%
Run freely on ground	84	62.3	144	67.2
Watering vegetable	24	17.7	2	0.93
Discharged Into soak away	27	19.9	68	31.7
Total	135	100	214	100
Methods of disposing solid Waste	Rural		Urban	
	Frq	%	Frq	%
Open Dumping	14	10.3	125	58.4
Refuse pit	12	8.8	9	4.2
Burning	27	20	9	4.2
Drainage & bush	82	60.6	71	33.1
Total	135	100	214	100

Source: Field Survey, 2021

With regard to covering of dustbins, the study findings revealed that about 37.8% of the respondents cover the solid waste container, which is proper and 62.1% of the households do not cover the solid waste container as they are left unprotected; which might expose household members to the risk of waste contamination.

As shown in Table 2, the findings of this study indicated that 62.3% of the respondents in the rural wards use unsafe wastewater disposal methods (thrown freely on ground) and do not have appropriate wastewater disposal systems. The respondents discharge wastewater into street surface or vacant space outside their premises, or within the premises. About 31.7% of the respondents in the urban wards discharge wastewater into soak away and only 19.9% of the respondents in the rural wards discharged wastewater into soak away. 17.7% of the respondents in the rural wards use their wastewater for watering vegetable. Allowing wastewater to run directly on the ground or watering vegetable is unethical to the environment and human health. This may cause health related disease associated with improper sanitation practices like cholera. With this, the only method that is proper for disposing wastewater is to dispose wastewater into soak away or channel it into drainage system.

The findings of this study agreed with the United Nations Children Emergency Fund (2006) on enhancing sanitation services delivery in Ejura-Sekye Dumase District of Ghana. The study findings revealed that most of the households dispose wastewater in their premises, whilst others outside their premises. The latter wants to prevent unpleasant conditions within their premises. The practice of reuse of wastewater is either limited or not practiced at all.

The findings of this study also agreed with Beumer *et al* (2002) study conducted in Tanzania which indicated that 75.1% of the households use unsafe wastewater disposal methods and do not have appropriate type of wastewater disposal systems. About 39.1% of households have discharged wastewater into street surface, while over 32.7% of households have discharged within premises and 3.3% households use open ditch.

Table 2 shows that 60.6% of the respondents in the rural wards usually dispose their domestic waste into drainage channels, gutter and bushes around them. Only 33% of the households in the urban wards dispose their solid waste into drainage and bushes around, while 58.3% of the respondents in the urban wards dispose their solid waste through open dumping. Burning of solid waste is more frequently practiced in the rural wards (19.9%) than urban wards (4.1%). Open pit method of disposing solid waste is more practiced among rural respondents (8.8%) than urban respondents (4.2%). Majority of the respondents obviously dispose their waste through unfriendly methods to the unconventional environment. The most appropriate method of disposing solid waste is the use of government approved dump site facility. This practice of open dumping particularly around houses represents a major health risk to residents. Poorly managed waste presents a health risk to communities. This is primarily because improperly disposed waste can be a source of contaminants and breeding sites of parasitic organism.

This finding also agreed with Mohammed's (2011) study conducted in Dukem town, Ethiopia. Findings indicated that 46.8% of the households use unsafe solid waste disposal methods (open field disposal), in which more than one-quarter (28.1%) of households use burning of waste within premises. 13.6% of households dispose their waste outside premises anywhere and 5.1% of households dispose their waste within their premises anywhere.

Environmental Sanitation Challenges

Table 3 revealed that 64.8% of the respondents in the rural wards identified weak institution (sanitation agency) as a critical challenge that hindered them from practicing environmental sanitation that is sustainable to the environment. This is due to inadequate awareness and enforcement from the institution in charge of monitoring sanitation exercise, while in the urban wards, 33.5% of the respondents pointed out poor knowledge of waste disposal practice as a major environmental sanitation challenge in their respective houses, which affect their level of sanitation and subsequent impact on the environment.

Table 3: Environmental Sanitation Challenges

Challenges	Rural		Urban	
	Frq	%	Frq	%
Inadequate space	8	5.8	27	12.6
Poor knowledge of waste-disposal practice	28	20.6	72	33.5
Financial problem	12	8.8	25	11.6
Weak institution (sanitation agency)	87	64.8	90	42.3
Total	135	100	214	100

Source: Field Survey, 2021

Problems of Improper Sanitation Practices

Table 4 shows that 38.6% of urban wards pointed out that stench of the offensive odour in their area is caused by inappropriate sanitation practice by the localities. In the rural wards, 22.9% of

respondents identified spread of diseases as a fundamental problem caused by inappropriate sanitation practice in their area. Inappropriate solid waste and wastewater disposal provide breeding site for flies and dogs, which spread germs that may causes diarrheal and other diseases.

Table 4: Problems of improper Sanitation Practices

Problems	Rural		Urban	
	Frq	%	Frq	%
Flooding of Environment	31	22.8	56	26.1
Esthetics of Environment	26	19.1	47	21.9
Offensive odour	47	34.7	82	38.6
Spread of Diseases	31	22.9	29	13
Total	135	100	214	100

Source: Field Survey, 2021

The findings of the study agreed with Olajide's (2014) findings which revealed that the improper environmental sanitation practices by households in Katsina Metropolis cause mosquitoes infestation, flies and rodent's infestation, contamination of food, spread of communicable diseases and sources of an offensive odour.

Conclusion

This study has assessed the rural-urban environmental sanitation practices in Lafia Local Government Area of Nasarawa State, Nigeria. The findings of the study have shown that there is low environmental sanitation practice in the study area, most especially in the rural wards of the study area. Waste water management practices in the study area fall short of the required expectation as most of the respondents use unsafe wastewater disposal method (thrown freely on ground). The study identifies weak institution (sanitation agency) as a significant challenge that hinders the households in the study area from practicing environmental sanitation that is sustainable to the environment. The result of the study shows that improper sanitation practices in the study area cause air pollution, flooding, bad smell, and spread of some disease like cholera malaria in the area.

Recommendations

Based on the findings of the study, the following recommendations are made;

- i. Non-Governmental Organization (NGOs) and Government Environmental Sanitation agencies should embark on effective enlightenment campaign on the dangers associated with inappropriate waste and wastewater disposal in Lafia LGA communities.
- ii. Also, Government and community organizations should provide street by street temporary waste collection containers at designated sites that are not more than 100m from each household, collection and transportation of the collected should not be more than three (3) days in a week, as this will encourage people to dispose their waste properly.

References

- Achor, P.N. (2013). *Curbing and Mitigating Indiscriminate Dumping of Waste through Effective Stakeholder Relations in Nigeria: An unpublished PhD thesis submitted to Marketing Department, University of Nigeria, Nsuka, Enugu State.*
- Baffoe, A. (2015). *The Effect of Sanitation on Economic Activities: The Case of Tema New Town Marke, Ghana.* An Unpublished Thesis Submitted to the University of Ghana.
- Banjo, A.D., Adebambo, A.A. and Dairo, O.S. (2009). Inhabitants' perception on domestic waste disposal in Ijebu Ode, Southwest Nigeria. *African Journal of Basic and Applied Sciences.* 1 (3-4): Pp7
- Conant, J. (2005). *Sanitation and Cleanliness for a Healthy Environment* (PDF). Berkely, California, USA: The Hesperian Foundation in collaboration with the United Nations Development Programme (UNDP), Sida Pp2
- Egun, N. K. (2010). Effect of channeling wastewater into water bodies: A case study of The Orogodo River in Agbor, Delta state. *Journal of Human Ecology.* 31(1): 47 – 52.
- Ige, S. O. and Adetunji, A.A. (2014). Examine Some Socio-Economic Factors Affecting Household Sanitation in Ado-Ekiti, Ekiti State, Nigeria. *Journal of Environment and Earth Science,* 4(9); 1-39.
- Krejcie, R.V., Morgan, D. W. (1970). Determining Sample Size for Research Activities in Education and Psychological Measurement *Journal of Education and Psychology:* 30(607-610), Pp. 5
- Mohammed, A.I. (2011). *Assessing environmental sanitation in urban setting of Duke town, Ethiopia.* Unpublished Master thesis on public Health, Department of Health Studies, University of South Africa
- National Environmental Sanitation Policy (2004). Federal republic of Nigeria developed by Federal Ministry of Environment, Abuja, Pp 2
- National Population Commission (NPC)(2007). Federal Republic of Nigeria Official Gazette No. 24, Vol. 94. Government printer com.
- Nasarawa State Government (2001). Nasarawa State Government Official Gazette Ministry of Information Lafia. Pp 3
- Olajide, K.A. (2014). Household Environmental Sanitation Practice in Katsina Metropolis, Katsina State, Nigeria. *Journal of International Letters of Natural Science,* 15(1); 91-100.
- United Nations International Children's Emergency Fund (2006). *Progress for children: report Cardon water and sanitation.* New York: Available at www.org/downloads/media/sanitation/10thingspdf. Accessed on March 2021 Pp8-15. UNICEF
- United Nation Children Emergency Fund. (2006). *Water, Sanitation and Hygiene Strategy.* UnitedNations,NewYork,<https://www.google.com/search?q=United+Nation+Children+Emergency+Fund.+2006.Water%2C+Sanitation+and+Hygiene+Strategies%3A+United+Nations%2C+New+York%2C+U.+S.+A.&sourceid=chrome&ie=UTF-8>.
- World Health Organisation and United Nation Children Emergency Fund (2010). *Joint Monitoring Programme for Water Supply and Sanitation.* Estimates for water and Sanitation. Available at www.org/downloads/media/sanitation/10thingspdf. Accessed on March 2021.Pp5-12
- World Health Organisation and United Nation Children Emergency Fund. (2021). *Joint*

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*Monitory Programme on Progress of Household Drinking Water, Sanitation and
Hygiene. Estimates for water and Sanitation. World Health Organization Geneva.
Accessed on July, 2021 Pp17-25*

Yaw, O. A. (2010). *Enhancing sanitation services delivery in the Ejura-Sekye dumase District of
Ghana*. Unpublished Master of Science thesis submitted to College of Architecture and
Planning. Kwame Nkrumah University of Science and technology, Kumasi, Ghana.