ENVIRONMENTAL SANITATION PRACTICES IN UNIVERSITY OF BENIN AND ITS IMPLICATIONS FOR HEALTH POLICY AND DELIVERY

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CHAPTER ONE
INTRODUCTION

1.1 Background of the study

The world Health Organization (WHO) (2008) defined environmental sanitation as the control of all those factors in man's physical environment, which exercise or may exercise a deleterious effect on his physical development, health and survival. Environmental sanitation is a conventional actions or an essential process of collecting and safely disposing all kinds of waste within the environment with the intention of protecting and promoting the individual health and quality of life of communities. Environmental sanitation generally includes the provision of facilities and services for the safe disposal of waste, the maintenance of hygienic conditions and the prevention of diseases (WHO, 2017). Adequate environmental sanitation practices remains a panacea to public health intervention that is essential for social and economic development especially in developing countries like Nigeria. Environmental sanitation practice is a frontrunner to the enhancement or development of health, well-being and economic productivity and benefits the individual, household and community should enjoy (WHO) (2004) and Mara, Lane, Scott, and Trouba (2010).

World Health Organization defined sanitation as the means of collecting and disposing excreta and community liquids, waste in a hygienic way. So as not to endanger the health and welfare and also for the social and environmental effects, it may have on people; people have been suffering from one disease to another without knowing the problems of their illness, the situation and due to distress or dirty environment. Cleanliness is next to Godliness. Similarly, Iheke (2010) sees sanitation as the process of keeping places clean and hygienic especially by providing a sewage system and a clean water supply. Sanitation refers to all

conditions that affects the health of people in a geographical area. Billions of people still live without access to sanitation facilities and are unable to practice such basic hygiene as washing their hands with soap and water.

In 1950 the world health organization's expert committee on environmental sanitation defined environmental sanitation as the control of community, water supplies, excreta and waste water disposal, refuse disposal, vector of diseases, housing conditions, food supplies and handling conditions, food supplies and atmospheric conditions and the safety of the working environment.

Sanitation can be seen as the policy and practice of protecting health through hygienic measures. In the view of the World Health Organization (WHO) (2007), sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and faeces. It has been realized that improving sanitation is known to have a significant impact on health both in households and across communities (WHO, 2007). Environmental problems have grown in complexity especially with the advent of radiation and chemical hazards. Meanwhile the world needs for the basic sanitation services (like drinking water supply, excreta and waste water disposal), have greatly increased as a result of rapid population growth and highly expectations.

All over the world, poor environmental quality is increasingly recognized as a major threat to social and economic development and even to human survival (Acheampong, 2010). The impacts of environmental deterioration are severe on developing countries thus hindering and undermining their development (Bello, 2007). In theview of Vivienne (2014), environmental sanitation is the practice of collection, reuse and disposal of human excreta and domestic wastes with the overall objective to protect the school health. In an attempt to keep the environment clean, it is the

human lives that are paramount. The concept of environmental sanitation entails the control of water supplies, excreta disposal, waste water disposal, refuse disposal, vectors of diseases, housing conditions, food supplies and the safety of the working environment (Acheampong, 2010). Mmom and Mmom (2011) opined that effective environmental sanitation in cities is a function of positive environmental behavior and availability of facilities and services. Thus, Daramola (2015), Olowoporoku (2014) and Afon and Faniran (2013) complimented that availability of adequate environmental sanitation facilities and enabling environmental sanitation policies positively influence the achievement of a healthy living environment.

Daily environmental sanitation exercise should be encourage to keep the environment either by employing in order to kill dangerous animals like snake, scorpion, reptiles among others.

In school hostels, there are problems of over-crowding and these affects the health of the students in the hostel. Overcrowding of the student hostels with less and unkept inadequate toilets, with no sanitation facilities are dangerous to the well-being of the individuals. This happens mostly in the girl's hostel were I don't care life is put in place by the students living in the school environment even with little though inadequate sanitation facilities. Therefore, seminars should be organized in institutions to help educate students, more especially girls in the hostel on menstrual hygiene, sanitation hygienic practices, and cleanliness in the surroundings to make everywhere in the environment conducive for teaching, learning and health ground that will be free flies to petch on dirt's, toilet etc. and later petch on uncovered foods which when consumed is dangerous to human health.

1.2 Statement of the Problem

Environmental sanitation is the practice which promotes the desire for living a health

life and a life full of colour, purpose, goals, enthusiasm and zeal. A beautiful environment solemnly depends on a good environmental sanitation practice as the environment is clean and the citizens are totally free from illness and diseases of any kind that is associated to environmental problem. Environmental sanitation practices is fundamental to healthy living and need to be given more attentions. Despite the fact that environmental sanitation practices enable us to keep our environment clean, protect us from diseases, infections, water borne diseases, pollution, improve our health and living habits, gives an opportunity to recycle waste materials, improves cleanliness of our streets, roads, villages and cities, enhances the beauty of area, location and generate a sense of belonging, control the quality of certain products, edible items, meat, vegetables and drinking water quality among others, and that dirty environment encourage and invites dangerous animals like snake, scorpion, reptiles etc., in university of Benin Ekehuan campus, daily and proper environmental sanitation practices are not encourage or carried out with limited or no available facilities and the behaviour and willingness of the students and staff towards environmental sanitation practices are poor being an institution of higher learning. With this premise, the researchers seek to investigate environmental sanitation practices in University of Benin (Ekehuan campus) and its implications for health policy and delivery.

1.3 Objectives of the study

1.3.1 General objective

The general objective of this study is to investigate environmental sanitation practices in University of Benin (Ekehuan campus) and its implications for health policy and delivery.

1.3.2 Specific Objectives

1. To identify the causes of poor environmental sanitation practices and the problem associated with unclean environment.

2. To examine the policy put in place and the pattern employed towards environmental sanitation application.
3. To examine the implications of environmental sanitation practices to healthy living
4. To investigate the availability of sanitation facilities as well as materials or tools used for environmental sanitation.
5. To examine the behaviour and willingness of the people towards environmental sanitation.
6. To proffer lasting solution to poor environmental sanitation application.

1.4 Research Questions

In order to find answers to the objective of this study, the researchers formulated the following research questions.

1. What are the likely causes of poor environmental sanitation practices and the problem associated with unclean environment?
2. What is the policy put in place and the pattern employed towards environmental sanitation application?
3. What are the implications of environmental sanitation practices to healthy living?
4. Are sanitation facilities as well as tools available to carryout effective environmental sanitation?
5. Are there positive behaviour and willingness of the people towards environmental sanitation?

6. What are the lasting solutions to poor environmental sanitation application?

1.5 Significance of the study

This study will be of tremendous importance to the following people:-

To the students:- It will enable students to better understand and cultivate a clean environment because cleanliness is next to Godliness and to know the needs of regular environmental sanitation as well as, healthy living will be enhanced and students will be free from diseases and sicknesses associated to poor environmental sanitation practices.

To the staff and the university management: - This study will help the staff and university management to provide adequate sanitation facilities that will enable the labourers to keep the environment clean and tidy, also provide fund for buying disinfectant, antiseptic and chemicals to fumigating the environment against dangerous animals like snake, scorpion, reptiles etc. and also daily, weekly or monthly payment of the labourers as the case may be. The management also serves as a mediator between the management and the students.

Government: - The study will help the government in policy formulation and regulation, that is, it will enable them to formulate policy for students to keep the environment clean.

1.6 Scope of the study

The scope of the study was delimited to determining the environmental sanitation practices and its implication for health policy and delivery in University of Benin Ekehuan campus.

1.7 Operational Definitions of Terms

1. **Environment:** Environment is an all-embracing term describing the terrestrial, aquatic and atmospheric systems of the world. In its widest use, it refers to all the biophysical features, organic and inorganic resources and all bio-diversity disposable to humankind.
2. **Sanitation:** The state of cleanliness of a place, community or people particularly relating to those aspects of human health including the quality of life determined by physical, biological, social and psychological factors in the environment.
3. **Environmental sanitation:** Environmental sanitation refers to activities aimed at improving or maintaining the standard of basic environmental conditions affecting the well-being of people.
4. **Practice:** The actual application or use of an idea, belief, or method, as opposed to theories relating to it
5. **Implications:** The action or state of being involved in something. The conclusion that can be drawn from something although it is not explicitly stated
6. **Health:** The state of being free from illness or injury.
7. **Policy:** A deliberate system of principles to guide decisions and achieve rational outcomes. A policy is a statement of intent, and is implemented as a procedure or protocol.
8. **Delivery:** To carry and turn over (letters, goods, etc.) to the intended recipient or recipients.

CHAPTER TWO
LITERATURE REVIEW

2.1 Environmental Sanitation

Environmental sanitation therefore involves controlling the aspects of waste that may lead to the transmission of diseases. Included in the term waste management are water, solid waste and industrial waste. According to the International Water and Sanitation Centre, the term environmental sanitation is used to cover the wide concept of controlling all the factors in the physical environment which may have an impact on human health and well-being (IRC, 2006, p.7). In developing countries, environmental sanitation normally includes drains, solid waste management, and vector control, in addition to the activities covered by sanitation (DFID, 1998).

According to Tecer (2007), environmental deterioration, extinction, or pollution in many vital earth systems such as air, water, soil, forest and biological diversity have required countries to develop policies for protecting and developing the earth and promoting global cooperation on these issues. Atasoy (2005) stated that environmental problems have become globalized and have reached the stage where they present a threat to life on earth. He further stated that the situation has led to the review of people's relationship with nature, their attitudes and behaviors towards the environment, the duties and responsibilities assumed by the individual towards nature, and the redefinition of ecological culture and environmental awareness. This research is therefore, focused on a review of students' perception of environmental sanitation.

About 10% of the global burden of disease and one third of all annual deaths in low- and middle-income countries resulting from inadequate water, sanitation, and hygiene is believed to be due to poor sanitation Mara, Lane, Scott, and Trouba (2010) and (WHO) (2017). Furthermore, a correlation has also been observed between

poverty, child infancy and diseases that are associated with poor sanitation especially in developing countries with inadequate sanitation which poses a significant public health risk, children in particular are most vulnerable to ill health Prüss-üstün, Bos, Gore, and Bartram, (2008). Therefore, interventions targeted at sanitation improvements can significantly enhance health and wellbeing of the population by preventing, reducing the severity and impact of diseases associated with poor sanitation Merchant, Jones, Kiure, Kupka, Fitzmaurice, G., et al. (2003).

In developing countries, majority of people in the rural communities lack sanitation and even with urbanization, the provision of improved sanitation remains a continuous challenge due to the inability to cope with the associated increase in population as communities move from rural, semi urban to urban development Mara, Lane, Scott, and Trouba (2010). Also according to Daramola (2012), the population growth in Nigerian cities is not accompanied by a corresponding increase in the provision of environmental sanitation facilities. So in addressing these challenges of sanitation in the semi urban and urban communities, the provision of sanitation infrastructure serves only as a means to an end, as the attitude and behaviour of the individuals, households and labourers that will help do the clean-up. Environments should be formulated and fumigated community as a whole, determines the end Bello (2007).

2.2 Conceptual Framework

The concept of environmental sanitation refers to activities aimed at improving or maintaining the standard of basic environmental conditions affecting the well-being of people. These conditions include

1. Clean and safe water supply,
2. Clean and safe ambient air,

3. Efficient and safe animal, human, and industrial waste disposal,
4. Protection of food from biological and chemical contaminants,
5. Adequate housing in clean and safe surroundings. Sanitation is also referred to hygiene (Business Dictionary, 2010).

There are three actors in environmental sanitation management. These include generators which comprise households, businesses and government institutions. They generate waste and use sanitation services. Service providers form the next group of actors and they include private companies contracted to provide sanitation services. The managers constitute the third group of actors and they include government agencies or departments responsible for planning, organizing, staffing, directing and controlling, activities to good environmental sanitation in given area. Managers and service providers are required to render satisfactory sanitation services. When these service providers fail to effectively carry out their responsibilities, it results in poor environmental sanitation condition. When the generators do not appropriately dispose of waste, they promote poor environmental sanitation condition. All these negative activities when left unchecked, lead to deteriorating health conditions of the people, increased health cost, environmental pollution and increased cost of providing sanitation services. These therefore call for a new management approach to improve sanitation.

The two management strategies that could be adopted to improve environmental sanitation are behavioural management and regulatory management. These management strategies involve activities that would ensure that people understand the consequences of poor environmental sanitation practices and the benefits that would accrue to everyone if people adopt good behaviour towards the sanitation. This could be done through education. The other complimentary management

strategy is regulatory management. This involves activities that would ensure that people comply with good sanitation standards which can be done through enforcement of sanitation regulations. The tools for achieving these strategies are through education and enforcement. When people are well educated about environmental sanitation, they become proactive and can organize themselves to secure facilities that would ensure good sanitation condition in their locality, even when these are not provided by the local government. When these two management strategies are well implemented, they would lead to good environmental sanitation condition.

2.3 The Need for Environmental Sanitation Management

Poor sanitation gives many infections the ideal opportunity to spread: plenty of waste and filth for the flies to breed on, and unsafe water to drink, wash with or swim in. Among human parasitic diseases, schistosomiasis (sometimes called bilharzias) ranks second behind malaria in terms of socio-economic and public health importance in tropical and subtropical areas. The disease is endemic in 74 developing countries, infecting more than 200 million people. Of these, 20 million suffer severe consequences from the disease (WHO and UNICEF, 2008). Sound environmental sanitation management ensures that appropriate intervention are introduced and implemented to promote behaviour change.

Poor environmental sanitation or hygiene also has tremendous economic costs. The health impact of inadequate environmental sanitation leads to a number of financial and economic costs including direct medical costs associated with treating sanitation-related illnesses and lost income through reduced or lost productivity and the government costs of providing health services. Additionally, poor sanitation also leads to reduced income from tourism (due to high risk of contamination and

disease) and clean-up costs. A World Bank country environmental analysis conducted in Ghana has shown that health cost resulting from poor water, sanitation and hygiene is equivalent to 2.1% of Annual Gross Domestic Product (GDP). (UNICEF, 2008).

The significant economic benefits of good environmental sanitation are not well known; the media often emphasize on health benefits, but the time savings and opportunity cost are equally important stories. Environmental sanitation management ensures that there is prudent allocation of limited resources tailored to the needs of the people to ensure economic sustainability. On one hand, a healthy people produce more and miss fewer days and on the other hand, a healthy community is often a more lucrative market for goods, services and investment.

Every dollar spent on improving sanitation generates economic benefits (about nine times) that far exceed the required sanitation investments. The cost of inaction is enormous. Achieving the MDG for sanitation would result in $66 billion gained through time, productivity, averted illness and death. It is estimated that a 10 year increase in average life expectancy at birth translates into a rise of 0.3-0.4 percent in economic growth per year (WHO, 2008).

Poor environmental sanitation practices also affect the environment in diverse ways. In regions where a large proportion of the population are not served with adequate water supply and sanitation, sewage flows directly into streams, rivers, lakes and wetlands, affecting coastal and marine ecosystems, fouling the environment and exposing millions of children to disease. Particularly in the context of urbanization, indiscriminate littering, domestic wastewater, sewage and solid waste improperly discharged presents a variety of concerns as these promote the breeding of communicable disease vectors as a result of air, water and soil pollution.

Poor waste management also contribute to a loss of valuable biodiversity. In the case of coral reefs, urban and industrial waste and sewage dumped directly into the ocean or carried by river systems from sources upstream, increase the level of nitrogen in seawater. Increased nitrogen causes overgrowths of algae, which in turn, smother reefs by cutting off their sunlight.

Improved environmental sanitation management reduces environmental burdens, increases sustainability of environmental resources and allows for a healthier, more secure future for the population.

2.4 Historical Perspectives

Environmental Sanitation has remained consistently poor in Nigeria for a long time. Consequently, there is high morbidity and mortality from sanitation related diseases (National Environmental Sanitation Policy (2005).This scenario, which is associated with impoverishment and poor standard of living among the populace, has been of great concern to successive Governments and efforts albeit piecemeal and uncoordinated, have been made at various times/levels to complement the socio-cultural norms of sanitation practices in the communities.

Culturally, certain norms guide the maintenance of adequate sanitation in the communities. For instance, women and children, particularly the girls, sweep the homes/surroundings and empty refuse bins. There are also cultural festivals that emphasize cleanliness in various communities and many such festivals still persist till today.

During the pre-independence era (1900 – 1960), several legislative controls were put in place to address the problem of Environmental Sanitation. Among these were:

1. Cantonment Proclamation of 1904 on the Layout and Sanitation of GRA;

2. Public Health Act of 1909 on Environmental Sanitation;
3. Township Ordinance No. 29 of 1917 on Sanitation and Environmental Management;
4. Lagos Colony Ordinance of 1928 – Outbreak of Bubonic Plague;
5. Mineral Act of 1945 – Trench and Drainage Pollution, etc.;
6. Town and Country Planning Ordinance of 1946 – cap 123 (West), cap 130 (North) and cap 155 (East);
7. Building Lines Regulation of 1948;
8. Local Government Ordinance 1950/54-58;
9. Public Health Laws of 1957 – to Combat Overcrowding, Diseases and Squalor.

During this era, adequate sanitation was maintained by enforcement of Public Health Laws through routine house to house inspection. The benefits of the legislative and other measures at this time were however not universal because they were restricted to privileged areas.

In the immediate post-independence era (1961 – 1980), legislation and authority on Environmental Sanitation were derived from the Nigerian Constitution as stated in the concurrent, exclusive and residual lists. Nonetheless, routine house to house inspection was still effective in the maintenance of Environmental Sanitation. However, political interference with the statutory role of Sanitary Inspectors led to the collapse of the house to house inspection programme and contributed to the poor sanitary conditions in the country.

In the current dispensation (1981 – date), all tiers of Government have developed legislative/regulatory instruments to further address the issue of sanitation. These include:

1. Harmful (Toxic) Waste Criminal Provision Decree 42 of 1988;
2. Federal Environmental Protection Agency (FEPA) Decree No. 58 of 1988 and No. 59 of 1992 as amended;
3. National Policy on Environment (1989) & 1999 as amended;
4. National Environmental Protection (Effluent Limitations) Regulations S.1.8 of 1991 – mandatory for industries to install anti-pollution equipment and for effluent treatment;
5. National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations S.1.9 of 1991;
6. National Environmental Protection (Management of Solid and Hazardous Wastes) Regulations S.1.15 of 1991;
7. Environmental Impact Assessment (EIA) Decree No. 86 of 1992;
8. Nigerian Urban and Regional Planning Decree No. 88 of 1992;
9. National Urban Development Policy, 1992;
10. Guidelines on Hazardous Chemical Management 2001;
11. Guidelines on Pesticides Management and Handbook on Safe and Effective Use of Pesticides 2001;
12. Blueprint on Municipal Solid Waste Management in Nigeria 2001;
13. The Blueprint on Handbook on Waste Management 2001;
14. The Blueprint on Environmental Enforcement 2001;
15. Promulgation of State Edicts/Laws and Local Government Bye-laws.

Further efforts include the creation at various times of several State and Local Government Agencies responsible for sanitation and lately, the creation of the Federal Ministry of Environment in 1999.

Despite all these efforts, Infant Mortality and Child Mortality Rates have remained

high at one hundred (100) and two hundred and one (201) per thousand (1,000) live births respectively, mainly due to diseases such as malaria, diarrhoea and acute respiratory infections. In addition, about 50% of Nigerians suffer at least one acute episode of malaria every year with grave socio-economic implications in terms of productivity and cost of medications. National Environmental Sanitation Policy (2005).

2.5 Policy Declaration

Nigeria, endowed with abundant and diverse resources, is committed to protecting its environment. However, the country's climatic and ecological diversity has implications on the intensity of human activities, nature and character of waste generated, and environmental sanitation. It has, therefore, become imperative that the settlement environment and its resources should be managed judiciously to enhance sustainable national socio-economic development.

A National Environmental Sanitation Policy is therefore, being put in place, to serve as a veritable instrument for securing quality environment for good health and social well-being of present and future generations. National Council on Environment Nigeria 15th July 2004.

The Federal government being aware of the important role Environmental Sanitation Plays in the maintenance of sound public health agrees that a specific policy is required to address it. The National Environmental Sanitation Policy shall therefore, have deriving from it, relevant Legislation, National Policy Guidelines, National Environmental Sanitation Action Plan, Official Statements and Decisions, which shall establish specific or general limits to which various Environmental Sanitation activities must comply to assure safety of the populace.

The National Environmental Sanitation Policy as an integral part of the overall

National Development Strategy shall therefore, seek to stimulate, promote and strengthen all Government regulations concerned with:

1. Housing and Urban Development
2. Food Security
3. Water Supply
4. Sanitation related endemic diseases and illnesses
5. Flood and Erosion Control
6. Drought Control
7. School Health Services
8. Environmental Education

The National Policy recognizes the roles and contributions of the Federal Ministries of Health, Housing and Urban Development, Water Resources, Information, Agriculture and Rural Development, Culture and Tourism; as well as External Support Agencies; the Academia; Organized Private Sector; Civil Society Organizations and the Communities, in the nation's drive towards achieving sound Environmental Sanitation for sustainable development. The National Policy also recognizes the need to harmonize all efforts and functions of these Stakeholders, so as to avoid duplication and waste of meager resources.

It is against the background of these that, the development of the National Policy was collaboratively done by all Stakeholders in order to promote an accelerated sound Environmental Sanitation in the country. While the National Policy recognizes the need to provide technical support and infrastructure necessary to all tiers of Government, it enjoins all Stakeholders to make annual budgetary provisions for implementing relevant programmes on Environmental Sanitation and to disseminate the contents of the National Policy to ensure sustainable environment and poverty

reduction.

2.6 Reviewing Environmental Sanitation Policy

Against the background of changing natural realities and the environment demanding proactive action, the move by the Federal Government to review Nigeria's environmental sanitation policy is a step in the right direction as the country could no longer afford to be negligent on issues of the environment.

Minister of the Environment, Mrs. Laurentia Laraba Mallam, the other day, in Abuja, during the inauguration of an Inter-Ministerial Committee on the National Environmental Sanitation (NES), announced that the Federal Government had commenced the process of reviewing the National Environmental Sanitation Policy.

The review has become imperative because some information contained in the extant NES policy, which was developed 10 years ago, have fallen short of international best practices. Changes in public health practices, which have evolved since the NES policy was inaugurated, for example, are inhibiting sound public health.

And according to her, with the current trend of developmental challenges and advent of new areas of sanitation practice, it is absolutely imperative for Nigeria to review the existingNES policy in order to comply with international best practices and also harmonize grey areas that are of concern to stakeholders for the overall maintenance of sound public health.

The ministry is, as a result, in the process of re-strategizing on all goals and achievable implementation plans for national environmental sanitation.

That has also informed the need to broaden existing membership of the standing inter-ministerial committee to include more stakeholders. The new members of the NES committee would be drawn from relevant federal ministries and extra-ministerial departments, donor agencies, the armed forces, para-military

organizations, NGOs and bilateral organizations.

The minister outlined the terms of reference to include the review of the 2015 NES policy document and its guidelines; development of strategic NES action plan and its implementation; plan and organize the National Environmental Sanitation Day (**NESD),** which holds on June 28 yearly, and carry out other activities necessary for the smooth implementation of the NES policy and its guidelines nationwide.

It is indeed regrettable that environmental sanitation across the country has been relegated to the background, according to the minister, stressing that many people hardly complied with the monthly exercise observed in many states.

Meanwhile, good sanitation is fundamental in the fight against poverty and preventable diseases which was why the international community, in 2008, agreed to reduce the population of persons without access to basic sanitation by 2015 as part of the Millennium Development Goals (MDGs).

However, the title of the new policy document on the "environment sanitation" doesn't capture the complexity of all that the environment entails as it creates the impression that focuses only on environmental sanitation, while leaving out other aspects. As a policy document, tagging it National Environment Policy would seem more appropriate to make it all-encompassing and to include strategies to manage the various aspects of the environment, namely: land, water and air. Environmental sanitation merely represents a set of actions taken to maintain the quality of the environment with the aim of curtailing the spread of diseases. Nigeria needs that and much more on the environment.

The NES review is coming at a time when little or no attention is paid to the environment and environment is one critical aspect of life that is curiously ignored to humanity's own peril. The monthly environmental sanitation exercise, which has

become a ritual in many states, perhaps, is the only thing that reminds people about the environment. Other than that, issues of the environment suffer total neglect, especially, in official quarters with only a few state governments actually having active programmes on the environment. During the recently concluded national election campaigns, the environment was hardly an issue and no candidate at the national or state level ever outlined any concrete plans for the environment. Given the poor attitude towards the environment in Nigeria, the onus is on the Ministry of Environment to put in place laws that should compel Nigerians to pay attention to the environment. On their part, government at all levels should actively champion the cause of the environment in the national interest. With natural environmental disasters wreaking havoc in different parts of the world, all of which are attributable to climate and other changes in nature, Nigerian leaders' disinterest in the environment and in nature is nothing short of disinterest in life lived in abundance and in health

2.7 Environmental Sanitation and Public Health Issues

The failure of the numerous efforts to address the problem of Environmental Sanitation has been attributed to various factors. Prominent among these are: unhealthy socio-cultural practices; poor Environmental Sanitation education and awareness; low literacy level; bad governance over the years; disregard for the rule of law and other forms of indiscipline National Environmental Sanitation Policy (2005).

2.7.1 Solid Waste Management

- Waste management is at the lowest ebb in most towns and communities. Most parts of the city centres do not benefit from public waste disposal services and therefore, have to bury or burn their waste or dispose it haphazardly. In most cities and peri-urban centres, refuse heaps are left unattended and where the Local Government Authorities do the collection, it is

often irregular and sporadic. The recycling of waste is negligible while methods of storage, collection, transportation, compaction and final disposal are very unsatisfactory.

- The alarming rate at which heaps of solid waste continue to occupy our cities, coupled with the fact that 87% of Nigerians use disposal methods adjudged as insanitary, has not only constituted visual blight and odour nuisance, but also encouraged the breeding of rodents, mosquitoes and other pests of public health importance, with attendant disease outbreaks.
- Furthermore, some of the waste materials are toxic; others are either non-biodegradable or not readily degradable such as “pure water” sachets and polythene shopping bags. Also included are various types of industrial/chemical waste that can contaminate soil and ground water sources if not properly disposed. Other major concern is the generation of waste from health care institutions/facilities, which contain infectious/hazardous materials that pose potential hazards to human and environmental health when improperly disposed. The improper handling and disposal of medical waste is a major threat to refuse collectors and scavengers and can result in infections such as HIV/AIDS, hepatitis, tetanus, etc. National Environmental Sanitation Policy (2005).

2.7.2 Excreta and Sewage Management

Access to basic sanitary facilities is particularly poor. It has been observed that, in urban centres, some households with water carriage system, pipe the raw sewage and silage into the public drains. According to the 2003 Nigeria Demographic and Health Survey (NDHS), 10.1% of the urban population have no toilet facilities of any kind whilst 61.1% use pit latrines and 28.7% use flush toilets. Rural areas are even

less served. The 2003 NDHS also indicated that 34.1% of rural households have no toilet facilities at all and as a result, make use of bushes and rivers. Open defecation and urination are common practices everywhere. In the per urban centres, children as well as adults defecate indiscriminately at dumpsites, gutters or any available open space in the late hours of the night and early hours of the morning. These insanitary methods of excreta and sewage management have tremendous untoward effects on the health of the public and the environment.

2.7.3 Food Sanitation

It is sad to note that a large percentage of the poor go hungry and for the percentage of those that have food, its wholesomeness is questionable. Oftentimes, food meant for sale and human consumption are displayed in open containers, thereby exposing the food to the ever-ready opportunity of contamination by dust, flies, bacteria, viruses and other microorganisms.

Most food handlers are not aware of the sound public health advice of routinely washing their hands before handling food and after using the toilet. Most are also not routinely screened for certain serious communicable infections, which can be easily transmitted through contamination of the food they prepare for sale and human consumption. The public is totally unaware of the risks that the consumption of contaminated food poses to their health and well-being. The activities of the municipal food vendors contribute significantly to the filthy environment as they discard wastes indiscriminately.

The poor state of food sanitation in the country has been shown to play a significant role in the aetiology of food borne diseases. Records from the Federal Ministry of Health shows that every year, about six hundred thousand (600,000) episodes of diarrhoea occur in children under the age of five. Similarly, there have been

increasing numbers of cases of food borne diseases over the years. In 1994, there were 3,173; 12,716; and 22,525 cases of Cholera; Food Poisoning and Typhoid/Paratyphoid fevers respectively. In 1998, the cases were 9,254; 32,411 and 68,846 respectively and by 2001, Cholera and Typhoid cases have further increased to 10,294 and 73,949 cases respectively.

2.8 Significance of Community Participation in Environmental Sanitation Management

As part of the governance debate issues concerning participation, participatory governance and participatory approaches have been investigated. From a normative perspective, a core argument is that more inclusive forms of (local) government constitute approaches to ensure broader participation in urban environment initiatives which in turn will lead to better results in implementation (Menegat, 2002)

According to Hueting (1980) and Blaikie and Brookfield (1987), the issues related to environmental degradation is not only technical or engineering ones, but more socio-economic. Thus, the understanding of such factors affecting the community's collective action is crucial to any efforts aimed at championing people's participation of such resources.

The UNEP (2000) recommends community participation in environmental sanitation problem-solving using the Participatory Hygiene and Sanitation Transformation (PHAST) approach. The PHAST approach encourages local participation in defining problems and solutions related to water, sanitation and disease control. The community itself analyses its own beliefs and practices and then decides what needs to be changed. Outside experts, such as local health personnel, water and sanitation engineers and social scientists also participate and share information with the community. This is based on the principles that; Communities can and should

determine their own priorities for disease prevention. When people understand why improved sanitation is to their advantage, they will act. Also all people, regardless of their educational backgrounds, are capable of understanding that poor environmental sanitation promotes diseases and can be harmful, and can learn to trace and describe the faecal-oral route of disease transmission in their own environment. Communities can identify appropriate barriers to block disease transmission.

Commitment from the local government to improve environment performance and establish policies for the purpose is very important. A strong commitment from the local government to be inclusive, develop political support, or show leadership will necessitate the involvement of the community. A prudent local government will involve the community in order to ensure broad commitment from all residents of the city. This will also ensure acceptance and ownership of its policies and programmes with the community. The local government has to develop and implement the necessary measures to enable various urban stakeholders to perform their tasks and implement their programmes/projects on the environment (This is a departure from the usual position of a local government as a 'provider' of services to a facilitator of action).

Community participation calls for people to participate in planning, implementing and managing their local environment. Community participation means a readiness on the part of both local governments and the citizens to accept equal responsibilities and activities in managing their surroundings (UNEP, 2005).

2.9 Environmental Sustainability

This research is based on the concept of environmental sustainability. Environmental sustainability could be defined as a condition of balance, resilience, and

interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs nor by our actions diminishing biological diversity (Morelli, 2011).A poor sanitation practice combined with its perception by students affects the school environment which this research tends to review so as to make recommendations that will promote environmental sustainability in sanitation practice.

Acheampong (2010), in his investigation on environmental sanitation management in Kumasi metropolitan area opined that sanitation is one of the most basic services in human life and improving environmental sanitation is known to have a significant beneficial impact on health both on households and across communities. He further explained that it is easy to take for granted the importance of good sanitation. However according to him, its economic and intrinsic value cannot be overstated because a clean and healthy environment can effectively help to attract investment and trade to the urban cities and to better provide services critical in meeting the needs of its growing population. In Adah's (2013) work on the attitudes of people of Nasarawa State towards environmental sanitation, a case study of Lafia Local Government Area, he asserted that the issue of environmental sanitation is nationwide, but the degree of attitude varies. The characteristic of environmental sanitation is a problem which exists by such factors as uncontrolled reuse, disposal, lack of good water supplies, well-constructed street, and pollution and most of these problems either causes diseases, or reduce the life span of the people.

Napari and Cobbinah (2014), in their research on environmental sanitation dilemma in Tamale metropolis, Ghana, indicated that poor attitudes of city residents towards environmental sanitation coupled with weak institutional facilities have affected the

development of cities in many ways. First, the poor attitude toward environmental sanitation is the major cause of choked sewerage system with solid waste as a consequence and also flooding has become a normal phenomenon accompanying rainfall in cities. This situation does not only worsen the environmental sanitation conditions but threatens the lives of residents especially during heavy downpour. Second, the poor state of environmental sanitation in the cities has contributed to various infectious diseases such as malaria, cholera and diarrhea. Also, the city residents reported high incidence of early mortality rates in the cities which they believe poor environmental sanitation is a key contributory factor. Mmon and Mmon (2011) commented in environmental sanitation and public health challenges in a rapidly growing city of the third world: the case of domestic waste and diarrhea incidence in Greater Port Harcourt Metropolis, Nigeria, that poor environmental sanitation practices exhibited in the disposal of solid wastes, wastewater and excreta, cleaning of drainage including personal, household and community hygiene significantly contribute to infant and child mortality and in order to achieve proper environmental sanitation practices, good sanitation behavior and availability of facilities and services must work in unison. They also stressed that numerous studies have shown that the incidence of many diseases is reduced when people have access to and make regular use of adequate sanitary installations.

According to Olowoporoku (2017) on his assessment of environmental sanitation situation in Nigeria, environmental sanitation should not be viewed alone from the promulgation of laws for citizens and periodic conduct of exercise only, rather it should be seen as a civic responsibility involving all levels of human activity, sound environmental sanitation management ensures that appropriate intervention are introduced and implemented to promote behaviour change and the attitude and

behaviour of the stakeholders on environmental issues determine its end. Bello (2007) assessed behavioural responses to environmental sanitation facilities in the core areas of developing countries: case study of Ikorodu, Nigeria and noted that several studies have shown that problems of environmental sanitation are not limited to a particular residential zone, studies showed that such problem occurred in the traditional core areas, urban centers, peri-urban or suburbs and various institutions like schools. He stated that it is evident that provision of adequate environmental sanitation facilities and services could at best be referred to as a means to end.

Uzum and Saglam (2006) studied high school students' environmental attitude: scale development and validation and opined that individuals, who have negative attitude towards the environment, will be insensitive to environmental problems and may adopt behaviors that damage the environment. So the enhancement of the environmental knowledge of students leads to the development of positive attitudes towards the environment.

In the opinion of Vivienne (2014) on the attitudes of students and staff of Asamankese senior high school towards environmental sanitation, an individual who has a positive attitude towards the environment tends to act positively, approaches, show concern, support, and assist the environment but an individual whose attitude is negative towards the environment tends to be indifferent to it or alternate, criticize or even damage it. Aduku's (2014) assessment of the attitude of SHS students towards environmental sanitation in Ghana revealed that high expectation of school health and environmental sanitation education programme have not always been fulfilled, in many countries, schools are not safe for children due to neglect of the operation and maintenance of facilities. In addition environmental sanitation

education given to students has not always been relevant or effective. He further stated that the effective management of environmental sanitation requires strategies that bring about fundamental change in how students perceive environmental sanitation in the city and service delivery. Olawale and Olatunji (2014) studied knowledge and attitudes of people on monthly environmental sanitation programme in Osun State, Nigeria and posited that peopledid not derive any health benefits from monthly environmental sanitation programme because most of the waste disposal left at the road junction and at times people defecated at the uncompleted building as a result of lack of public toilets in core areas such as market place and motor parks which resulted to cholera and dysentery in the community. Adi (2009) revealed in his study on influence of knowledge of environmental sanitation on health practices of senior secondary school students in Taraba State that there was the need for health officials to be visiting secondary schools promoting enlightenment on environmental sanitation among secondary school students.

According to him, students who are directly controlled and enlightened have better disposition in their environmental sanitation and practice. McConville (2008) conducted a research on assessing sustainable approaches to sanitation planning and implementation in West Africa and asserted that improving sanitation is not only about installing technological systems, but also about changing the hygiene and defecation practices of the local population. Anijah, Eneji, Ubom, Dunnamah and Williams (2013)in their research on introducing environmental sanitation education in the primary school curriculum stated that environmental sanitation education as a progressive policy cannot be disputed, for it is only when the majority of the people are physically and philosophical involved that sustained environmental ethnics can

be assured. To this end environmental sanitation education should not only focus on basic hygiene and keeping the surroundings clean, but also campaigns against bad toilet habits such as indiscriminate defecation and urination as well as inefficient disposal of waste. It must also in addition concern itself with the major problems of air and water pollution.

Faiza, Wanjala, Shaviya, Barasa, Sowayi, Vincent, Johnston and Josphat (2015) conducted a research on state of sanitation and hygiene of public primary schools in Kakamega municipality, Western Kenya and observed that children spend much of their daily activities within school environment during critical developmental stages, it is crucial that the same environment be kept clean. According to them, most schools had clean compounds while some of the schools had compost pits filled up wastes which resulted in a pile of solid wastes in the school compound indicating poor solid waste management in schools. Since children lack experience to determine risks associated with their behaviours, such presence of wastes posed health risks to them. These behaviours include playing with waste, placing their fingers and other objects in the mouth and not washing hands before eating and after visiting the latrine. Preventing childhood exposure to environmental hazards may prevent injuries and many illnesses, such as respiratory infections and diarrhoeal diseases. In Latha and Ranganath's (2014) work on assessment of environmental sanitation: coordination among service providers at district level in Kolar, India, they opined that to achieve good environmental sanitation which is an essential component of primary health care, intersectoral co-ordination is the most appropriate principle to be executed. But intersectoral coordination is likely to happen more often during emergencies such as epidemics rather than on routine basis.

The inter-sectorial co-ordination is important in activities of monitoring, surveillance, fund allocation, health education and reducing duplication of work.

Pore and Randive (2014) carried out a study on environmental sanitation and personal hygiene among the slum area in Solapur city, Maharashtra India and observed that the lack of environmental sanitation and safe water has significant negative health impact on people and due to unsafe water, inadequate sanitation and unhygienic, people suffer from allergies, and diseases. According to them, unsafe drinking water, poor environmental sanitation, unsanitary food preparation, improper disposal of waste and unclean household environment constitute a major burden on health and leading to causes ill health in children.

In Anijaobi-Idem, Ukata and Bisong's (2015) work on environmental awareness and school sanitation in Calabar metropolis of Cross River State, Nigeria, they opined that the desire and need of school personal to maintain a healthy school environment depends completely on their level of awareness concerning the environment. School personnel who are aware that the environment is part of their existence tend to make their schools convenient and conducive for teaching and learning with the availability of ecofriendly facilities. Ibanga (2015), his research on assessment of environmental sanitation in an urban community of southern Nigeria, asserted that there is no significant difference between the odd participation of good environmental sanitation and practice between higher and lower educational qualification. He also stated that participation of males in sanitation is higher than that of the females.

2.10 Theoretical framework

The theoretical approach to the present study was based on theories of health which described the way and manner people believe and react to issues and problems such as service delivery, constraints and prospect of environmental sanitation by WaerAid

Nigeria. The relevant theories reviewed were used later to explain the findings of the study.

2.10.1 The Strategic Sanitation Approach (SSA)

SSA was the first attempt to introduce more responsive and less expert-driven frameworks to environmental sanitation planning. SSA was developed by the UNDP World Bank Water and Sanitation Programme in the 1980s and documented in Wright's (1997) review. The main underlying principles of SSA are that it is demand responsive and incentive-driven. This requires implementing agencies to make a greater effort in assessing what potential users want and can afford. Only then should sanitation systems and support structures be designed that are best suited to their needs. The strategic planning process differs from sectoral planning in its global approach and from the classical master planning approach in its methodology and its orientation – more flexible and responsive and less static (SuSanA, 2008a).

Key concepts of the strategic planning process are the twin principles of demand and the attention paid to incentives. The former is strongly linked to a household's ability and willingness to pay. While this has raised the debate on appropriateness of limiting demand to economic terms only - it is the first sectoral approach that specifically addresses the issue of household demand and what people actually want and are willing to pay for (SuSanA, 2008a).

The Household-Centred Environmental Sanitation approach (HCES). For the benefit of this thesis, the contemporary planning framework that stands at the centre of this thesis, the Household-Centred Environmental Sanitation approach (HCES), is discussed in more detail here.

The Household-Centred Environmental Sanitation (HCES) has been developed by experts at the Swiss Federal Institute of Aquatic Science and Technology in

response to the Bellagio Principles (Eawag/ WSSCC, 2000). The Bellagio Principles were agreed upon in the year 2000 by sector experts and define that decision making must be informed by diverse stakeholders making strategic choices, that the export of waste should be minimized, that sewage and waste should be considered a resource, and that sanitation should equally pursue human dignity, human health, and the protection of the environment.

The household-centred approach (HCES) is one of several planning and programming frameworks that have been developed in the past decades to improve planning and programming for delivery of environmental sanitation services. It provides a comprehensive analysis of urban environmental sanitation needs and a systematic approach to plan improvements.

HCES is specifically geared towards unplanned urban and peri-urban areas. It is an area-based planning approach which targets unserved or underserved urban communities. At an early stage of conceptualization, it was realized that the specific needs of these communities cannot be effectively met by starting from the perspective of the traditional city master plan. The approach was thus developed in such a way as to concentrate on those domains closest to the residents: the household and the neighbourhood. Thus, the planning approach adopted by HCES as the name implies aims to solve problems where they occur rather than exporting them downstream (Eawag, 2005). Since 2007, the HCES approach has been applied in the following countries: Costa Rica, Burkina Faso, Mali, Kenya, Tanzania, Mongolia, Nepal and Laos.

The planning process starts by focusing on household and community decisions on service needs and then moves outwards from the household to the neighbourhood, before considering the impact of the town and its hinterland. HCES adopts a neutral

approach with regard to technology choice taking into account economic factors (ability and willingness to pay) and social benefits such as privacy, dignity and convenience.

The aim is to link expression of needs at the community level with those resources available locally and those that require additional inputs from external agencies. Like other communicative planning frameworks it provides a flexible approach for working with disparate and diverse communities to reach agreement between them and formulate a common plan.

In its ten step approach, HCES works towards the empowerment of communities to organise themselves and participate in development interventions. The workshops, focus group discussions and stakeholder meetings are accompanied by exposure activities (e.g. construction of pilot facilities or sanitation bazaars) and capacity development interventions to enable community organisations or private sector service providers to absorb and utilize future infrastructure improvements. In line with environmental sustainability, the social, economic and technological aspects of conservation and reuse of resources are considered. What CLTS and HCES have in common is the realisation that in poor rural and urban contexts a significant amount of sanitation is organised by the households themselves and is not a publicly delivered service common to higher income areas.

The household-centred approach relies on a sound balance between expert-based inputs (e.g. dealing with institutional issues, enabling environment and the interface with city wide service provision) and more bottom-up processes such as problem and needs identification and defining appropriate and affordable solutions. The planning framework is open-ended and flexible and not prescriptive in nature. While great importance is attached to involving urban communities from the start, low

income communities are not always capable of and/or willing to self-finance the planning and implementation of improved environmental sanitation services. It is therefore essential to explore a multi-stakeholder and cross-sectoral approach that involves key stakeholders and decision-makers such as local governments, utilities and sector institutions. HCES demonstrates that urban communities have the ability to make substantial financial contributions to improved urban habitats.

The household-centred approach puts stakeholder participation at the centre of the 10- step planning process. Stakeholder participation in HCES should be considered during all stages – from concept development and prioritization and choice of options, through implementation, to monitoring and evaluation of outcomes. Engagement with stakeholders as early as possible in decision-making is seen as a means to reach high quality and durable decisions. This doesn't mean that external experts (outsiders) should not engage and contribute to finding appropriate solutions. But they are considered as one of many stakeholders that are to be involved.

Lessons learned from three decades of urban infrastructure planning show that "urban governance" or "enabling environments" and the local power dynamics at play are a central tenet for achieving sustainable and replicable solutions. Political will is perhaps the single most important factor in achieving sustainable improvements in un-served urban areas (Lüthi et al, 2009a). The HCES case study of the informal settlement of Waruku, Nairobi exemplifies this in many ways. After many months of community based planning with the local community and the Nairobi service provider, the entire informal settlement was razed to the ground on 11. August 2009. Inside sources say that

a son of the former President claimed ownership of the settlement area. All squatter

residents were evicted and the previously erected sanitation block was bulldozed.

2.10.2 Impacts of poor sanitation

Although urbanization offers economic opportunities, increasing human density also corresponds to increasing quantities of waste. Excessive waste accumulation leads to environmental degradation, water pollution and a multitude of related health and livelihood impacts. The growth of cities and its implications for resource consumption and climate change is already showing to be the single largest influence on global development in this century. Since the majority of urban growth will continue to occur in the cities of the developing world, what happens there will have real impacts for the rest of the world, negatively as well as positively.

The size of the urban waste problem is huge and growing. Given that an average human produces about 1.5 litres of excreta per day, a city of one million discharges 1500 cubic meters of waste daily. This does not include the volumes of grey water (more than 20 times as much) and solid waste that accumulate in streets, drains and waterways. For the majority of households served, various forms of on-site sanitation which need emptying once every year or so (sometimes more, sometime less), there is rarely any form of treatment. Faecal sludge is either discharged illicitly by both registered and unregistered truck drivers into open drains, sewers or land on the outskirts of cities.

2.10.3 Health impacts

Inadequate sanitation and water supplies and poor hygiene are critical determinants for diarrhoea diseases and infectious diseases transmitted by the faecal-oral route. Even those facilities that exist are often poorly managed resulting in serious environmental health concerns. Poor maintenance combined with over-use frequently results in latrines that are degrading and a source of disease transmission.

Poor sanitation limits the impact of drinking water quality improvements.

Acute epidemics of cholera may grab the headlines but it is the impacts of repeated gastro-intestinal infections that cause prolonged bouts of diarrhoea that are of greater concern. As a result, around 4000 people, mostly children, die every day as a result of diarrhoeal diseases (WaterAid, 2009). This accounts for more than 40% of the total number of deaths related to unsafe water, inadequate sanitation facilities and poor hygiene behaviour (ibid).

The total disease-attributable to diarrhoea in all age groups equates to 73 million disability-adjusted life years (DALYs). Taking into account the additional health burden associated with malnutrition caused by diarrhoea (approximately 20 million DALYs, this is equivalent to the burden associated with Acute Respiratory Infections (95 million DALYs). In addition, other „neglected" tropical water, sanitation and hygiene related diseases such as trachoma, schistosomiasis and chronic infestations by intestinal parasites (nematode worms), affect over one billion people globally and constitute a further health burden on 19 million DALYs. Africa and South Asia account for over half the cases of childhood diarrhoea.

2.10.4 Sanitation as a system

For this research a comprehensive definition of sanitation is adopted that includes:

i. A safe environment for urination and defecation (the so-called user interface),
ii. Collection and treatment of human waste, and
iii. Safe disposal or productive end use of treated waste (World Water Assessment Programme, 2009).

The vast majority of households will remain served by some form of on-site sanitation for the foreseeable future. These on-site technologies may be proper

septic tanks but are often some rudimentary and poorly constructed pit latrine or cesspit.

The quality of on-site sanitation technologies is assessed as steps of the sanitation ladder (JMP, 2008; Kvarnström et al, 2011). The concept of the sanitation ladder was introduced in 2005 by Lenton et a/ (2005) and adopted by the WHO/UNICEF Joint Monitoring Programme in 2008 (JMP, 2008). The sanitation ladder is now a well-established concept within the water and sanitation sector to measure progress in meeting the Millennium Development Goals (MDGs). The four-step ladder is a technology-based concept that includes the proportion of the population:

i. Practicing open defecation
ii. Using an unimproved sanitation facility
iii. Using a shared sanitation facility
iv. Using an improved sanitation facility (JMP, 2008).

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Research Design

A descriptive survey research design was employed for the study. The study aims at investigating environmental sanitation practices in University of Benin and its implications for health policy and delivery in Ekehuan campus, University of Benin.

3.2 Population of the Study

The target population of this study are the total students and staff of University of Benin Ekehuan campus in Benin City.

3.3 Sampling and Sampling Technique

The sample size of the study was determined based. A sample size of 240 was used due to the large population size of the sample.

3.4 Instrument for Data Collection

Based on the design of the study, questionnaire was used for the collection of data. The instrument was divided mainly into two (2) sections, A & B. Section A captured the required demographic data from respondents while Section B consist of phrased liket-type/scale format of questionnaire under different sub-headings precisely. The response levels were as follows: Strongly agreed (SA), Agreed (A), Don't know (DK) (U), Disagreed (D), strongly disagreed (D).

3.5 Validation of Instruments

The study instrument was made valid through, content and face validation of instrument. Draft copies of the research instrument was sent to three content experts to determine whether items are measuring what they expected to measure. In the same vein similar copies was sent to the supervisor who scrutinized the instrument as well as appropriateness of the format, wordings of the items, among

other viable instrument validating criteria.

3.6 Reliability of Instruments

This is the consistency with which a test measures what it's set out to measure. The study instrument was made reliable through test-retest reliability determination procedure because the more reliable a test is, the more confidence we may have on a test. This reliability method became peremptory to assess the internal consistency of the items of the instrument. Copies of the instruments were administered to the same sample twice. Instruments were retrieved and data were analyzed using Pearson's product moment correlation which gave a reliability coefficient of 0.6 respectively. Hence, the study instruments were considered reliable for the study.

3.7 Method of Data Collection

Data were collected through a questionnaire method. Copies of the research questionnaire were administered to students and staff in their respective offices, classes and hostels. A face to face administration was done by the researcher. Some completed instruments were retrieved immediately while another day was scheduled for some staff who may requested to take home the questionnaire.

3.8 Method of Data Analysis

All the retrieved data were analyzed using statistical package for social science (SPSS) version 20 which will be presented on frequency tables, expressed as simple percentage.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter covers the data presentation, analysis and discussion of findings on an analysis of environmental sanitation practices in University of Benin and its implications for health policy and delivery.

4.2 Data presentation and analysis

4.2.1 Record of Study Instrument Administration and Retrieval

Number of Instrument Administered	Number of Instrument Retrieved	Number of Instrument not Retrieved	Percentage Retrieved (%)	Percentage not Retrieved (%)
258	**240**	**18**	**93.0%**	**7.0%**

Source: Field survey (2018)

Table 4.2.1 above shows that the total number of instruments administered to respondents were258 out ofwhich240 were retrieved while 18 were not retrieved, a percentage retrieval of 93.0% as against 7.0%. This indicated that, the value of non-retrieval is less than 10% which is not significant. Thus, the retrieved instruments were only used for the data presentation and analysis.

Table 4.2.2: Gender distribution of respondents

Sex		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	108	45.0	45.0	45.0
	Female	132	55.0	55.0	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

The table above showed that 132 of the respondents are male representing (45.0%) responses and 108 of the respondents are female representing (55.0%) of the responses.

Table 4.2.3: Age distribution of respondents

Age		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-25 Years	42	17.5	17.5	17.5
	26-31 Years	79	32.9	32.9	50.4
	32-37 Years	67	27.9	27.9	78.3
	38-43 Years	10	4.2	4.2	82.5
	44 Years and above	42	17.5	17.5	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

It was portrayed from the table above that 79of the respondents are within the age range of 26-31 representing (32.9%), 67of the respondents are within the age range of 32-37 representing (32.9%), 42 of the respondents are within the age brackets of 20-25 and 44 and above representing (17.5%) respectively and 10of the respondents are within the age range of 38-37 representing (4.2%) responses.

Table 4.2. 4: Marital Status of the respondents

Marital status		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	120	50.0	50.0	50.0
	Married	90	37.5	37.5	87.5
	Cohabiting	30	12.5	12.5	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

It was observed from table 4.2.4 that 120 of the respondents are single representing (50.0%), 90 of the respondents are married representing (37.5%) and 30 of the respondents are cohabiting representing (12.5%) of then responses.

Table 4.2.5: Occupation of respondents

Occupation		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Undergraduate Students	78	32.5	32.5	32.5
	Postgraduate Students	91	37.9	37.9	70.4
	Academic and non-academic Staff	71	29.6	29.6	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

The table above depicted that 91 of the overall respondents were postgraduate students representing (37.9%) of the responses, 78 of the overall respondents were undergraduate students representing (32.5%) of the responses and 71 of the overall respondents were academic and non-academic staff representing (29.0%) of the responses.

Table 4.2.6: I regularly keep my environment clean to avoid snakes and other creeping things

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	90	37.5	37.5	37.5
	A	100	41.7	41.7	79.2
	DK	7	2.9	2.9	82.1
	D	31	12.9	12.9	95.0
	SD	12	5.0	5.0	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

It was confirmed from table 4.2.6 above that 100 of the total respondents representing (41.7%) agreed that they regularly keep their environment clean to avoid snakes and other creeping things, 90 0f the total respondents representing (37.5%) strongly agreed that they regularly keep their environment clean to avoid snakes and other creeping things, 31 of the total respondents representing (12.7%) disagreed that they regularly keep their environment clean to avoid snakes and other creeping

things, 12 of the total respondents representing (5.0%) strongly disagreed that they regularly keep their environment clean to avoid snakes and other creeping things and 7 of the total respondents representing (2.9%) don't know if they regularly keep their environment clean to avoid snakes and other creeping things.

Table 4.2.7: Environmental sanitation is every one's responsibility

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	135	56.3	56.3	56.3
	A	68	28.3	28.3	84.6
	DK	10	4.2	4.2	88.8
	D	14	5.8	5.8	94.6
	SD	13	5.4	5.4	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

From table 4.2.7 above, it was noted that most 135 of the respondents representing (56.3%) strongly agreed that environmental sanitation is every one's responsibility, 68 of the respondents representing (28.3%) agreed that environmental sanitation is every one's responsibility, 14 of the respondents representing (5.8%) disagreed that environmental sanitation is every one's responsibility, 13 of the respondents representing (5.6%) strongly disagreed that environmental sanitation is every one's responsibility and 10 of the respondents representing (4.2%) don't know if environmental sanitation is every one's responsibility.

Table 4.2.8: I normally engage myself in good environmental sanitation practices at least once every week

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	71	29.6	29.6	29.6
	A	80	33.3	33.3	62.9
	DK	11	4.6	4.6	67.5
	D	47	19.6	19.6	87.1
	SD	31	12.9	12.9	100.0

	Total	240	100.0	100.0	

Source: Field work (2018)

It was revealed from the above table that 80 of the respondents representing (33.3%) agreed that they normally engage their self in good environmental sanitation practices at least once every week, 71 of the respondent representing (29.6%) strongly agreed that they normally engage their self's in good environmental sanitation practices at least once every week, 47 of the respondents representing (19.6%) disagreed on the statement that I normally engage myself in good environmental sanitation practices at least once every week, 31 of the respondents representing (12.9%) strongly disagreed on the statement that I normally engage myself in good environmental sanitation practices at least once every week and 11 of the respondents representing (4.6%)don't know if they normally engage their self in good environmental sanitation practices at least once every week.

Table 4.2.9: There is very poor environmental sanitation practice in University of Benin Ekehuan campus environment.

Response Level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	123	51.3	51.3	51.3
	A	78	32.5	32.5	83.8
	DK	8	3.3	3.3	87.1
	D	15	6.3	6.3	93.3
	SD	16	6.7	6.7	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

The table above confirmed that more than half 123 of the total respondents representing (51.3%) strongly agreed that there is very poor environmental sanitation practice in University of Benin (Ekehuan campus) environment, 78 of the total respondents representing (32.5%) agreed that there is very poor environmental sanitation practice in University of Benin (Ekehuan campus)environment, 16 of the

total respondents representing (6.7%) strongly disagreed that there is very poor environmental sanitation practice in University of Benin (Ekehuan campus) environment, 15 of the total respondents representing (6.3%) disagreed that there is very poor environmental sanitation practice in University of Benin (Ekehuan campus) environment and 8 of the total respondents representing (3.3%) don't know if there is very poor environmental sanitation practice in University of Benin (Ekehuan campus)environment.

Table 4.2.10: There should be a law to govern environmental sanitation practice in University of Benin (Ekehuan campus)

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	69	28.8	28.8	28.8
	A	88	36.7	36.7	65.4
	DK	22	9.2	9.2	74.6
	D	24	10.0	10.0	84.6
	SD	37	15.4	15.4	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

In the table above, it was noted that 88 of the respondents representing (36.7%) agreed that there should be a law to govern environmental sanitation practice in University of Benin (Ekehuan campus), 69 of the respondents representing (28.8%) strongly agreed that there should be a law to govern environmental sanitation practice in University of Benin (Ekehuan campus), 37 of the respondents representing (15.4%) strongly disagreed that there should be a law to govern environmental sanitation practice in University of Benin (Ekehuan campus), 24 of the respondents representing (10.0% disagreed that there should be a law to govern environmental sanitation practice in University of Benin (Ekehuan campus) and 22 of the respondents representing (9.2%) don't know if there should be a law to govern

environmental sanitation practice in University of Benin (Ekehuan campus).

Table 4.2.11: There are many factors that militate against environmental sanitation practice in University of Benin

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	52	21.7	21.7	21.7
	A	139	57.9	57.9	79.6
	DK	10	4.2	4.2	83.8
	D	23	9.6	9.6	93.3
	SD	16	6.7	6.7	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

From the table, majority 139 of the respondents representing (57.9%) agreed that there are many factors that militate against environmental sanitation practice in University of Benin, 52 of the respondents representing (21.7%) strongly agreed that there are many factors that militate against environmental sanitation practice in University of Benin, 23 of the respondents representing (9.6%) disagreed that there are many factors that militate against environmental sanitation practice in University of Benin, 16 of the respondents representing (6.7%) strongly disagreed that there are many factors that militate against environmental sanitation practice in University of Benin and 10 of the respondents representing (4.2%) don't know if there are many factors that militate against environmental sanitation practice in University of Benin.

Table 4.2.12: There is no laid down principles on environmental sanitation practice

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	59	24.6	24.6	24.6
	A	48	20.0	20.0	44.6
	DK	26	10.8	10.8	55.4
	D	50	20.8	20.8	76.3
	SD	57	23.8	23.8	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

It was discovered from the table above that 59 of the respondents representing (24.6%) are in strong agreement that there is no laid down principles on environmental sanitation practice, 57 of the respondents representing (23.8%) are in strong disagreement that there is no laid down principles on environmental sanitation practice, 50 of the respondents representing (23.8%) are in disagreement that there is no laid down principles on environmental sanitation practice, 48 of the respondents representing (20.0%) are in agreement that there is no laid down principles on environmental sanitation practice, and 26 of the respondents representing (10.8%) don't know if there is no laid down principles on environmental sanitation practice.

Table 4.2.13: There should be a punishment to any students that refuse to observe environmental sanitation

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	56	23.3	23.3	23.3
	A	60	25.0	25.0	48.3
	DK	39	16.3	16.3	64.6
	D	47	19.6	19.6	84.2
	SD	38	15.8	15.8	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

It was depicted from the above table 4.2.13 that 60 of the total respondents representing (25.0%) agreed that there should be a punishment to any students that refuse to observe environmental sanitation, 56 of the total respondents representing (23.3%) strongly agreed that there should be a punishment to any environment or students that refuse to observe environmental sanitation, 47 of the total respondents representing (19.6%) disagreed that there should be a punishment to any environment or students that refuse to observe environmental sanitation, 39 of the

total respondents representing (16.3%) don't know if there should be a punishment to any environment or students that refuse to observe environmental sanitation and 38 of the total respondents representing (15.8%) strongly disagreed that there should be a punishment to any environment or students that refuse to observe environmental sanitation.

Table 4.2.14: There should be a policy and decree that will enhance environmental sanitation practices among students and staff in the University of Benin Ekewan campus

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	50	20.8	20.8	20.8
	A	90	37.5	37.5	58.3
	DK	16	6.7	6.7	65.0
	D	40	16.7	16.7	81.7
	SD	44	18.3	18.3	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

It was discovered from the table above that 90 of the respondents representing (37.5%) agreed that there should be a policy and decree that will enhance environmental sanitation practices among students and staff in the University of Benin Ekewan campus, 50 of the respondents representing (20.8%) strongly agreed that there should be a policy and decree that will enhance environmental sanitation practices among students and staff in the University of Benin Ekewan campus, 44 of the of the respondents representing (18.3%) strongly disagreed that there should be a policy and decree that will enhance environmental sanitation practices among students and staff in the University of Benin Ekewan campus, 40 of the respondents representing (16.7%) disagreed that there should be a policy and decree that will enhance environmental sanitation practices among students and staff in the University of Benin Ekewan campus and 16 of the respondents representing (6.7%)

don't know if there should be a policy and decree that will enhance environmental sanitation practices among students and staff in the University of Benin Ekewan campus.

Table 4.2.15: Student don't always wish to be involve in environmental sanitation

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	72	30.0	30.0	30.0
	A	87	36.3	36.3	66.3
	DK	12	5.0	5.0	71.3
	D	62	25.8	25.8	97.1
	SD	7	2.9	2.9	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

From the table above, it was observed that 87 of the respondents representing (36.3%) agreed to the fact that student don't always wish to be involve in environmental sanitation, 72 of the respondents representing (30.0%) strongly agreed to the fact that student don't always wish to be involve in environmental sanitation, 62 of the respondents representing (25.8%) disagreed to the fact that student don't always wish to be involve in environmental sanitation, 12 of the respondents representing (5.0%) don't know if student don't always wish to be involve in environmental sanitation and 7 of the respondents representing (2.9%) strongly disagreed that student don't always wish to be involve in environmental sanitation.

Table 4.2.16: Unclean environment has an implication on the healthy living

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	72	30.0	30.0	30.0

	A	93	38.8	38.8	68.8
	DK	33	13.8	13.8	82.5
	D	17	7.1	7.1	89.6
	SD	25	10.4	10.4	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

The table notified that 93 of the respondents representing (38.8%) agreed that unclean environment has an implication on the healthy living, 72 of the respondents representing (30.0%) strongly agreed that unclean environment has an implication on the healthy living, 33 of the respondents representing (13.8%) don't know if unclean environment has an implication on the healthy living, 25 of the respondents representing (10.4%) strongly disagreed to that unclean environment has an implication on the healthy living and 17 of the respondents representing (7.1%) disagreed that unclean environment has an implication on the healthy living.

Table 4.2.17: Improper environmental sanitation has an effect on the well-being of an individual

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	101	42.1	42.1	42.1
	A	81	33.8	33.8	75.8
	DK	8	3.3	3.3	79.2
	D	33	13.8	13.8	92.9
	SD	17	7.1	7.1	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

From the table above, it was revealed that 101 of the respondents representing (42.1%) strongly agreed that improper environmental sanitation has an effect on the well-being of an individual, 81 of the respondents representing (33.8%) agreed that improper environmental sanitation has an effect on the well-being of an individual, 33 of the respondents representing (13.8%) disagreed that improper environmental sanitation has an effect on the well-being of an individual, 17 of the respondents

representing (7.1%) strongly disagreed that improper environmental sanitation has an effect on the well-being of an individual and 8 of the respondents representing (3.3%) don't know if improper environmental sanitation has an effect to the well-being of an individual.

Table 4.2.18: There are no available sanitation tools or facility in the environment

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	50	20.8	20.8	20.8
	A	56	23.3	23.3	44.2
	DK	26	10.8	10.8	55.0
	D	38	15.8	15.8	70.8
	SD	70	29.2	29.2	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

It was observed that 70 of the respondents representing (29.2%) strongly disagreed that there are no available sanitation tools or facility in the environment, 56 of the respondents representing (23.3%) agreed that there are no available sanitation tools or facility in the environment, 50 of the respondents representing (20.8%) strongly agreed that there are no available sanitation tools or facility in the environment, 38 of the respondents representing (15.8%) disagreed that there are no available sanitation tools or facility in the environment and 26 of the respondents representing (10.8%) don't know if there are no available sanitation tools or facility in the environment.

Table 4.2.19: There should be an education concerning environmental sanitation

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	111	46.3	46.3	46.3
	A	72	30.0	30.0	76.3
	DK	18	7.5	7.5	83.8
	D	16	6.7	6.7	90.4
	SD	23	9.6	9.6	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

It was portrayed from the table above that 111 of the respondents representing

(46.3%) are in strong agreement that there should be an education concerning environmental sanitation, 72 of the respondents representing (30.0%) are in agreement that there should be an education concerning environmental sanitation, 23 of the respondents representing (9.6%) are in strong disagreement that there should be an education concerning environmental sanitation, 18 of the respondents representing (7.5%) don't actually know if there should be an education concerning environmental sanitation and 16 of the respondents representing (6.7%) are in disagreement that there should be an education concerning environmental sanitation.

Table 4.2.20: Student behaviour towards environmental sanitation is very poor

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	79	32.9	32.9	32.9
	A	102	42.5	42.5	75.4
	DK	14	5.8	5.8	81.3
	D	12	5.0	5.0	86.3
	SD	33	13.8	13.8	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

The table above revealed that 102 of the respondents representing (42.5%) are in agreement that student behaviour towards environmental sanitation is very poor, 79 of the respondents representing (32.9%) are in strong agreement that student behaviour towards environmental sanitation is very poor, 33 of the respondents representing (13.8%) are in strong disagreement that student behaviour towards environmental sanitation is very poor, 14 of the respondents representing (5.8%) don't know if student behaviour towards environmental sanitation is very poor and 12 of the respondents representing (5.0%) are in disagreement that student behaviour towards environmental sanitation is very poor.

Table 4.2.21: There are no willingness on the part of the student to be involve in environmental sanitation

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	84	35.0	35.0	35.0
	A	46	19.2	19.2	54.2
	DK	11	4.6	4.6	58.8
	D	60	25.0	25.0	83.8
	SD	39	16.3	16.3	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

The above table showed that 84 of the respondents representing (35.0%) strongly agreed that there are no willingness on the part of the student to be involve in environmental sanitation, 60 of the respondents representing (25.0%) disagreed that there are no willingness on the part of the student to be involve in environmental sanitation, 46 of the respondents representing (19.2%)

Table4.2.22: There should be a measure to force student to be part of the environmental sanitation

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	48	20.0	20.0	20.0
	A	54	22.5	22.5	42.5
	DK	17	7.1	7.1	49.6
	D	63	26.3	26.3	75.8
	SD	58	24.2	24.2	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

It was affirmed from the table above that 63 of the respondents representing (26.3%) disagreed that there should be a measure to force student to be part of the environmental sanitation, 58 of the respondents representing (24.2%) strongly disagreed that there should be a measure to force student to be part of the environmental sanitation, 54 of the respondents representing (22.5%) agreed that

there should be a measure to force student to be part of the environmental sanitation, 48 of the respondents representing (20.0%) strongly agreed that there should be a measure to force student to be part of the environmental sanitation and 17 of the respondents representing (7.1%) don't know if there should be a measure to force student to be part of the environmental sanitation.

Table 4.2.23: A beautiful environment solemnly depends on a good environmental sanitation practice

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	91	37.9	37.9	37.9
	A	99	41.3	41.3	79.2
	DK	7	2.9	2.9	82.1
	D	23	9.6	9.6	91.7
	SD	20	8.3	8.3	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

The table above showed that 99 of the respondents representing (41.3%) agreed that a beautiful environment solemnly depends on a good environmental sanitation practice, 91 of the respondents representing (37.9%) strongly agreed that a beautiful environment solemnly depends on a good environmental sanitation practice, 23 of the respondents representing (9.6%) disagreed that a beautiful environment solemnly depends on a good environmental sanitation practice, 20 of the r respondents representing (8.3%) strongly disagreed that a beautiful environment solemnly depends on a good environmental sanitation practice and 7 of the respondents representing (2.9%) don't know if a beautiful environment solemnly depends on a good environmental sanitation practice.

Table 4.2.24: Environmental sanitation practices is fundamental to healthy living and need to be given more attentions

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	96	40.0	40.0	40.0
	A	80	33.3	33.3	73.3
	DK	17	7.1	7.1	80.4
	D	20	8.3	8.3	88.8
	SD	27	11.3	11.3	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

From the table above, it was affirmed that 96 of the respondents representing (40.0%) strongly agreed that environmental sanitation practices is fundamental to healthy living and needs to be given attentions, 80 of the respondents representing (33.3%) agreed that environmental sanitation practices is fundamental to healthy living and need to be given more attentions, 27 of the respondents representing (11.3%) strongly disagreed that environmental sanitation practices is fundamental to healthy living and need to be given more attentions, 20 of the respondents representing (8.3%) disagreed that environmental sanitation practices is fundamental to healthy living and need to be given more attentions and 17 of the respondents representing (7.1%) don't know if environmental sanitation practices is fundamental to healthy living and need to be given more attentions.

Table 4.2.25: Environmental sanitation practices enable us to keep our environment clean, protect us from diseases, infections, water borne diseases, pollution, improve our health etc.

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	117	48.8	48.8	48.8
	A	93	38.8	38.8	87.5
	DK	10	4.2	4.2	91.7
	D	17	7.1	7.1	98.8

	SD	3	1.3	1.3	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

The table depicted that most 117 of the respondents representing (48.8%) strongly agreed that environmental sanitation practices enable us to keep our environment clean, protect us from diseases, infections, water borne diseases, pollution, improve our health, 93 of the total respondents representing (38.8%) agreed that environmental sanitation practices enable us to keep our environment clean, protect us from diseases, infections, water borne diseases, pollution, improve our health, 17 of the total respondents representing (7.1%) disagreed that environmental sanitation practices enable us to keep our environment clean, protect us from diseases, infections, water borne diseases, pollution, improve our health etc., 10 of the total respondents representing (4.2%) don't know if environmental sanitation practices enable us to keep our environment clean, protect us from diseases, infections, water borne diseases, pollution, improve our health etc. and 3 of the total respondents representing (1.3%) strongly disagreed that environmental sanitation practices enable us to keep our environment clean, protect us from diseases, infections, water borne diseases, pollution, improve our health etc.

Table 4.2.26: A dirty environment encourages and invites dangerous animals like snake, scorpion, reptiles etc.

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	106	44.2	44.2	44.2
	A	64	26.7	26.7	70.8
	DK	26	10.8	10.8	81.7
	D	24	10.0	10.0	91.7
	SD	20	8.3	8.3	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

Most 106 of the respondents representing (44.2%) are in strong agreement that a dirty environment encourages and invites dangerous animals like snake, scorpion, reptiles etc., 64 of the respondents representing (26.7%) are in agreement that a dirty environment encourages and invites dangerous animals like snake, scorpion, reptiles etc., 26 of the respondents representing (10.8%) don't know if a dirty environment encourages and invites dangerous animals like snake, scorpion, reptiles etc., 24 of the respondents representing (10.0%) are in disagreement that a dirty environment encourages and invites dangerous animals like snake, scorpion, reptiles etc. and 20 of the respondents representing (8.3%) are in strong agreement that a dirty environment encourages and invites dangerous animals like snake, scorpion, reptiles etc.

Table 4.2.27: Daily and proper environmental sanitation practices should not encouraged

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	75	31.3	31.3	31.3
	A	127	52.9	52.9	84.2
	DK	22	9.2	9.2	93.3
	D	9	3.8	3.8	97.1
	SD	7	2.9	2.9	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

It was confirmed from the table above that 127 of the respondents representing (52.9%) agreed that daily and proper environmental sanitation practices should not encouraged, 75 of the respondents representing (31.3%) strongly agreed that daily and proper environmental sanitation practices should not encouraged, 22 of the respondents representing (9.2%) don't know if daily and proper environmental sanitation practices should not encouraged, 9 of the respondents representing (3.8%)

disagreed that daily and proper environmental sanitation practices should not encouraged and 7 of the respondents representing (2.9%) strongly disagreed that daily and proper environmental sanitation practices should not encouraged.

Table 4.2.28: Lack of adequate awareness of the danger involve in unclean environment is a factor militating against environmental sanitation

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	67	27.9	27.9	27.9
	A	66	27.5	27.5	55.4
	DK	40	16.7	16.7	72.1
	D	27	11.3	11.3	83.3
	SD	40	16.7	16.7	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

The table above indicated that 67 of the overall respondents representing (27.9%) strongly agreed that lack of adequate awareness of the danger involve in unclean environment is a factor militating against environmental sanitation, 66 of the respondents representing (27.5%) agreed that lack of adequate awareness of the danger involve in unclean environment is a factor militating against environmental sanitation, 40 of the overall respondents representing (16.7%) don't know and strongly agreed respectfully that lack of adequate awareness of the danger involve in unclean environment is a factor militating against environmental sanitation while 27 of the overall respondents representing (11.3%) disagreed that lack of adequate awareness of the danger involve in unclean environment is a factor militating against environmental sanitation.

Table 4.2.29: There should be rules and regulation guiding environmental sanitation practice in the school environment

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	44	18.3	18.3	18.3
	A	128	53.3	53.3	71.7
	DK	23	9.6	9.6	81.3
	D	21	8.8	8.8	90.0
	SD	24	10.0	10.0	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

It was confirmed from the table above that 128 of the respondents representing (53%) agreed that there should be rules and regulation guiding environmental sanitation practice in the school environment, 44 of the respondents representing (18.3%) strongly agreed that there should be rules and regulation guiding environmental sanitation practice in the school environment, 23 of the respondents representing (9.6%) don't know if there should be rules and regulation guiding environmental sanitation practice in the school environment, 24 of the respondents representing (10.0%) strongly disagreed that there should be rules and regulation guiding environmental sanitation practice in the school environment and 21 of the respondents representing (8.8%) disagreed that there should be rules and regulation guiding environmental sanitation practice in the school environment.

Table 4.2.30: Environmental sanitation practice is the sole responsibility of the labourers and the cleaners and not the students

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	38	15.8	15.8	15.8
	A	22	9.2	9.2	25.0
	DK	12	5.0	5.0	30.0
	D	52	21.7	21.7	51.7
	SD	116	48.3	48.3	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

The affirmation from table 4.2.30 that 116 of the total respondents representing (48.3%) strongly disagreed that environmental sanitation practice is the sole responsibility of the labourers and the cleaners and not the students, 52 of the respondents representing (21.7%) disagreed that environmental sanitation practice is the sole responsibility of the labourers and the cleaners and not the students, 38 of the total respondents representing (15.8%) strongly agreed that environmental sanitation practice is the sole responsibility of the labourers and the cleaners and not the students, 22 of the total respondents representing (9.2%) agreed that environmental sanitation practice is the sole responsibility of the labourers and the cleaners and not the students and 12 of the respondents representing (5.0%) don't know if environmental sanitation practice is the sole responsibility of the labourers and the cleaners and not the students.

Table 4.2.31: There are lasting solution to poor environmental sanitation in university of Benin (Ekahuan campus)

Response level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	142	59.2	59.2	59.2
	A	46	19.2	19.2	78.3
	DK	20	8.3	8.3	86.7
	D	16	6.7	6.7	93.3
	SD	16	6.7	6.7	100.0
	Total	240	100.0	100.0	

Source: Field work (2018)

From the above table, it was noted that most 142 of the overall respondents representing (59.2%) are in strong agreement that there are lasting solution to poor environmental sanitation in university of Benin (Ekahuan campus), 46 of the overall respondents representing (19.2%) are in agreed that there are lasting solution to poor environmental sanitation in university of Benin (Ekahuan campus), 20 of the

overall respondents representing (8.3%) don't know if there are lasting solution to poor environmental sanitation in university of Benin (Ekahuan campus), 16 of the overall respondents representing (6.7%) respectively disagreed and strongly disagreed that there are lasting solution to poor environmental sanitation in university of Benin (Ekahuan campus).

4.3 Discussion of findings

The study is to investigate environmental sanitation practices and its implication for health policy and delivery in University of Benin Ekehuan campus.

It was observed from the demographic data that most of the respondents were females; most of the respondents were singles and few were cohabiting. It was further observed that majority of the respondents were students comprising postgraduate and undergraduate.

The study revealed that majority of the respondents totally agreed that they keep their environment clean to avoid snakes and other creeping things. The study also revealed that most of the respondents strongly agreed that environmental sanitation is every one's responsibility. The study further revealed that respondents are in agreement that they normally engage their self's in good environmental sanitation practices at least once every week.

From the study, it was affirmed that more than half of the respondents were in strong agreement that there is very poor environmental sanitation practice in Ekehuan campus, University of Benin. It was affirmed from the study that respondents agreed there should be a law to govern environmental sanitation practice in University of Benin Ekehuan campus. Furthermore, it was affirmed by the respondents from the study that there are factors that militate against environmental sanitation practices in University of Benin.

It was confirmed from the study that there are no laid down principles on environmental sanitation practice in University of Benin Ekehuan campus. It was also confirmed from the study that respondents agreed that there should be a punishment to any students that refuse to observe environmental sanitation. It was further confirmed from the study as the respondents agreed that there should be a policy and decree that will enhance environmental sanitation practice among students and staff in the University of Benin Ekehuan campus.

From the study, it was depicted that students don't always wish to be involve in environmental sanitation. It was also agreed from the respondents of the study that unclean environment has an implication on the healthy living. Furthermore, the respondents were in strong agreement that improper environmental sanitation has an effect to the well-being of an individual.

The study discovered that respondents strongly disagreed that there are no available sanitation tools or facility in the environment for carrying out sanitation effectively. This was in agreement with Asyago (2005) and Mugo (2006) that most of the sanitation facilities were not adequate. The respondents from the study strongly agreed that there should be an educational concerning environmental sanitation. Also, most of the respondents agreed that student's behaviour towards environmental sanitation is very poor.

It was displayed from the study that respondents strongly agreed that there are no willingness on the part of the student to be involve in the environmental sanitation. Also, findings indicate that some of the respondents disagreed that there should be measures to force student to be part of the environmental sanitation. Furthermore, respondents agreed that a beautiful environment solemnly depend on a good environmental sanitation practice.

The study showed that respondents strongly agreed that environmental sanitation practices is fundamental to healthy living and need to be given more attention. The study also showed that most of the respondents strongly agreed that environment sanitation practices enable us to keep our environment clean, protect us from diseases, infections, water borne diseases, pollutions, improve our health etc. This was in agreement with Acheampong, (2010), Napari and Cobbinah (2014), Mmom and Mmom (2011) and Adah (2013) that poor environmental sanitation causes diseases, reduce the life span of people and also increase mortality.

The study further showed that respondents were in strong agreement that a dirty environment encourages and invites dangerous animals like snakes, scorpions, reptiles etc.

It was observed from the study that respondents agreed that daily and proper environmental sanitation practices should be encouraged. Also, from the study, it was observed that respondents strongly disagreed that environmental sanitation practice is the sole responsibility of the labourers and cleaners and not the students.

It was finally observed that there are lasting solution to proper environmental sanitation in University of Benin Ekehuan campus. This was in agreement with Aduku (2014) and Faiza *et al* (2015) which viewed that the poor environmental sanitation in school affects both intellectual and physical wellbeing of the students and there is need for environmental education to enlighten the students about good sanitation.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The study is based on environmental sanitation practices and its implication for health policy and delivery in University of Benin Ekehuan campus The study is actually investigate environmental sanitation practices in University of Benin (Ekehuan campus) and its implications for health policy and delivery with its significance to student, staff and government.

Various relevant literatures to the study were reviewed for this project. A descriptive survey design was employed in selecting 240 postgraduate/ undergraduate student and academic/non-academic staff. Data were collected with a well-structured questionnaire. Collected data were analysed using SPSS version 20.

From the study, it was observed that most of the respondents were females and most were single. It was also observed that most of respondents were student comprising of postgraduate and undergraduate. Other observation from the study includes:

- That respondents strongly agreed that environmental sanitation practices is fundamental to healthy living and need to be given more attentions.
- That most of the respondents strongly agreed that environment sanitation practices enable us to keep our environment clean, protect us from diseases, infections, water borne diseases, pollutions, improve our health etc.
- The study further showed that respondents were in strong agreement that a dirty environment encourages and invites dangerous animals like snakes, scorpions, reptiles etc.
- The study also revealed that most of the respondents strongly agreed that environmental sanitation is every one's responsibility.

- From the study, it was affirmed that more than half of the respondents were in strong agreement that there is very poor environmental sanitation practice in Ekehuan campus, University of Benin.
- It was affirmed from the study that respondents agreed there should be a law to govern environmental sanitation practice in University of Benin Ekehuan campus.
- Furthermore, it was affirmed by the respondents from the study that there are factors that militate against environmental sanitation practices in University of Benin.

5.2 Conclusion

Based on the findings, the researcher makes conclusions that environmental sanitation is every one's responsibility. Student's behaviour towards environmental sanitation is very poor, also that there is very poor environmental sanitation practice in Ekehuan campus, University of Benin. This indicates that, University of Benin Ekehuan campus is very dirty, unkept with grasses therefore not too fit to live as a place. Environment sanitation practices enable us to keep our environment clean, protect us from diseases, infections, water borne diseases, pollutions, improve our health etc.

5.3 Recommendations

The following recommendations were made based on the findings from the study:

1. Management should make provision for sanitation tools or materials for those responsible for doing the job.
2. Environmental sanitation practice should be encouraged in Ekehuan campus, University of Benin.
3. A law to govern environmental sanitation practice in University of Benin

Ekehuan campus should be made.

4. A seminar should be conducted for both students and staff of University of Benin Ekehuan campus on the importance of environmental sanitation.
5. There should be regular checks on the environment to see the level of cleanliness.

Bibliography

Abejegah, C., Abah, S.O., Awunor, N.S., Duru, C.B., Eluromma, E., Aigbiremolen, A.O., et al. (2013) Market Sanitation: A Case Study of Oregbeni Market Benin City Edo State, Nigeria. International Journal of Basic, Applied and Innovative Research, 2, 25-31. Acheampong, P. T. (2010). Environmental Sanitation in the Kumasi Metropolitan Area. A Master of Science Thesis Submitted to the Department of Planning, Kwame Nkrumah University of Science and Technology, pp. 1-5. Assessed athttp://acedemia.com, 19/10/2017.

Adah, J.S. (2013). The Attitudes of People of Nasarawa State Towards Environmental Sanitation: A Case Study of Lafia Local Government Area. A Research Project Submitted in Partial Fulfillment of the Requirement forthe Award of Nigeria Certificates in Education (NCE) in Department of Primary Education Study, College of Education Akwanga, pp. 48- 53. Assessed at http://s3.amazonaws.com,19/10/2017.

Adeyemo, F., Oyadiran, G.O. and Afemikhe, J.A. (2013) Knowledge, Attitude and Practice on Waste Management of People Living in the University Area of Ogbomoso, Nigeria. International Journal of Environment, Ecology, Family and Urban Studies, 3, 51-56.

Adi, J.J. (2009). Influence of Knowledge of Environmental Sanitation on Health Practices on Senior Secondary School Students in Taraba State. A Thesis Submitted in Partial Fufilment of the Requirement for the Award of Degree of Masters of Education in the Department of Physical and Health Education, Faculty of Education, Ahmed Bello University Zaria, pp. 80-96. Assessed at http://acedemia.com, 19/10/2017

Adogu, P.O.U., Uwakwe, K.A., Egenti, N.B., Okwuoha, A.P. and Nkwocha, I.B. (2015) Assessment of Waste Management Practices among Residents of Owerri Municipal Imo State Nigeria. Journal of Environmental Protection, 6, 446-456. https://doi.org/10.4236/jep.2015.65043

Aduku, J.M. (2014). An Assessment of the Attitude of SHS Students towards Environmental Sanitation in Ghana: A Case of Some Selected SHSs within the Greater Accra Region. Pp. 18-21. Assessed http://s3.amazonaws.com, 19/10/2017.

Afon, A.O., and Faniran, G.B. (2013). Intra- Urban Citizen Participation in Monthly Environmental Sanitation in Nigeria: The Ibadan Experience.*Journal of Applied Sciences in Environmental Sanitation* 8(1): 1-10.

Agbola, T. (1993) Environmental Education in Nigerian Schools. In: Filho, W.L., Ed., Environmental Education in the Commonwealth, the Commonwealth of Learning, Vancouver.

Anijah, O, F., Eneji C-V O., Ubom, B. A. E., Dunnamah, A.Y., and William, J.J. (2013). Introducing Environmental Sanitation Education in the Primary School Curriculums. *International Research Journal* 4(3): 227-230.

Anijaobi-Idem, F. N., Ukata, B. N., and Bisong, N. N. (2015).Environmental Awareness and School Sanitation in Calabar Metropolis of Cross River State.*Journal of Education and Practice* 6(4): 68-71.

Arora, L. and Agarwal, S. (2011) Knowledge, Attitude and Practices Regarding Waste Management in Selected Hostel Students of University of Rajasthan, Jaipur. International Journal of Chemical, Environmental and Pharmaceutical Research, 2, 40-43.

Aswathy, S.K. (2015) Knowledge and Practice Regarding Environmental Sanitation and Hygiene among General Population: A Cross Sectional Survey. Global Journal for Research Analysis, 4, 158-159. https://www.worldwidejournals.com/global-journal for research-analysis-GJRA/file .php?val=November_2015_1447852588__52.pdf

Atasoy, E. (2005). Education for Environment: A Study for Primary Students Environmental Attitude and Environmental Knowledge. (Unpublished) Doctoral Dissertation. Bursa: Uludağ University, Turkey, pp. 105-122.

Banga, M. (2011) Household Knowledge, Attitudes and Practices in Solid Waste Segregation and Recycling: The Case of Urban Kampala. Zambia Social Science Journal, 2, 27 39.

Bello, H. (2007) Environmental Sanitation Practices in the Core of Ikorodu, Lagos State. Dissertation to the Department of Urban and Regional Planning, Faculty of Environmental design and Management, Obafemi Awolowo University Ile Ife. https://www.scribd.com/doc/61919266/environmental-sanitation-practices-in-the-core -of-ikorodu-lagos-state-nigeria

Bello, H. (2007). Environmental Sanitation Practices in the Core of Ikorodu, Lagos state. (Unpublished) Bachelor of Science Dissertation submitted to the Department of Urban and Regional Planning Obafemi Awolowo University Ile-Ife, Nigeria, pp. 1 15.

Business dictionary (2010).

Cairncross, S. and Valdmanis, V. (2006) Water Supply, Sanitation, and Hygiene Promotion. In: Jamison, D.T., Breman, J.G., Measham, A.R., et al., Eds., Disease Control Priorities in Developing Countries, 2nd Edition, Oxford University Press and World Bank, New York, 771-792.

Chengula, A., Lucas, B.K. and Mzula, A. (2015) Assessing the Awareness, Knowledge, Attitude and Practice of the Community towards Solid Waste Disposal and Identifying the Threats and Extent of Bacteria in the Solid Waste Disposal Sites in Morogoro Municipality in Tanzania. Journal of Biology, Agriculture and Healthcare, 5, 54-65

Cochran, W.G. (1963) Sampling Technique. 2nd Edition, John Wiley and Sons Inc., New York.

Daramola, O. and Olowoporoku, O. (2016) Environmental Sanitation Practices in Osogbo, Nigeria: An Assessment of Residents' Sprucing-Up of Their Living Environment. Economic and Environmental Studies, 16, 699-716.

Daramola, O. P. (2015). Environmental Sanitation Practices in Residential Areas of Ibadan Metropolis. A Thesis Submitted in Partial Fulfillment of the Requirement for the Award of Doctor of Philosophy Degree in the Department of Urban and Regional Planning, Faculty of Environmental Design and Management, Obafemi Awolowo University, Ile-Ife, Nigeria, pp 20-35. Assessed at

http://researchgate.com, 20/10/2017.
Daramola, O.P. (2012) Clapping with One Hand: The Case of Urban Environmental Sanitation Practices in Nigeria. Journal of Applied Technology in Environmental Sanitation, 2, 223 228.
DFID (1998). Department for International Development (DFID) Guidance Manual on Water Supply and Sanitation Programmes. London, UK.
Eawag, 2000. Summary Report of Bellagio Expert Consultation on Environmental Sanitation in the 21st Century. 1-4 February 2000. Water Supply and Sanitation Collaborative Council and Swiss Federal Institute of Aquatic Science and Technology, Dübendorf, Switzerland.
Efe, S.I. (2013) Waste Disposal Problems and Management in Ughelli, Nigeria. Journal of Environmental Protection, 4, 4-11. https://doi.org/10.4236/jep.2013.44A002
Faiza, M. B., Wanjala, C., Shaviya, N., Barasa, M., Sowayi, A. G, Vincent, A.O., Johnston, W., and Josphat, O.A. (2015). State of Sanitation and Hygiene of Public Primary Schools in Kakamega Municipality, Western Kenya. *International Research Journal of Public and Environmental Health* 2 (12): 215-224.
Genser, B., Strina, A., Teles, C.A., Prado, M.S. and Barreto, M.L. (2006) Risk Factors for Childhood Diarrhoea Incidence: Dynamic Analysis of a Longitudinal Study. Epidemiology, 17, 658-667. https://doi.org/10.1097/01.ede.0000239728.75215.86
George, F. (2007) Problems of Solid Waste Management in Nima, Accra. Undergraduate Research Journal for the Human Sciences, 6, 26. http://www.kon.org/urc/v6/george.html
Hotez, P.J., Molyneux, D.H., Fenwick, A., et al. (2007) Control of Neglected Tropical Diseases. The New England Journal of Medicine, 357, 1018-1027. https://doi.org/10.1056/NEJMra064142
Ibanga, E.E. (2015). An Assessment of Environmental Sanitation in an Urban Community in Southern Nigeria. *African Journal of Environmental Science and Technology* 9(7): 592 599.
Iheke (2010). *Impact of workers' remittances on efficiency and welfare of rural smallholder arable crop households in south eastern Nigeria*. A PhD dissertation, Michael Okpara University of Agriculture, Umudike, Nigeria.
IRC (2006). The Value of Environmental Sanitation – Case Studies. International Water and Sanitation Centre. Delft, the Netherlands.
Iwu, A.C., Duru, C.B., Uwakwe, K.A., Diwe, K.C., Merenu, I.A., Emerole, C.A., et al. (2016) Assessment of Waste Management Practices among Traders in Major Markets in Owerri, Imo State, Nigeria. International Journal of Health Sciences and Research, 6, 7-17.
Jatau, A.A. (2013) Knowledge, Attitudes and Practices Associated with Waste Management in Jos South Metropolis, Plateau State. Mediterranean Journal of Social Sciences, 4, 119 127. https://doi.org/10.5901/mjss.2013.v4n5p119
JMP (Joint Monitoring Programme), 2008. Progress on Drinking Water and Sanitation Special Focus on Sanitation.
Kumasi Metropolitan Assembly (2006). District Medium Term Development Plan. Kumasi. Ghana.

Kvarnström, E., McConville J., Bracken, P. and Fogde, M., 2011. The sanitation ladder – a need for a revamp*? Journal of Water, Sanitation an Hygiene for Development, 1(1), 3-12.*

Lather, K., and Kanganath, B.G. (2014).Assessment of Environmental Sanitation: Coordination among Service Providers at District Level in Kolar. *Journal of Clinical and Biomedical Sciences* 4 (4): 350-352.

Lenton, R., Wright, A. & Lewis, K. 2005. Health, Dignity and Development: What will it take? Earthscan, London, UK.

Lüthi, C., Morel, A., Kohler, P., Tilley, E., 2009a. People‟s Choice First - A 4-Country comparative validation of the HCES Planning Approach for Environmental Sanitation, Bern: NCCR dialogue, Nr. 22.

Mara, D., Lane, J., Scott, B. and Trouba, D. (2010) Sanitation and Health. PLoS Med, 7, Article ID: e1000363. https://doi.org/10.1371/journal.pmed.1000363

McConville, J.R. (2008). Assessing Sustainable Approaches to Sanitation Planning and Implementation in West Africa. Licentiate Thesis, Department of Land and Water Resources Engineering, Royal Institute of Technology (KTH), Stockholm, Sweden, pp. 17-20.

Mensah, M. (2011).*The State of Environmental Sanitation in the Accra Metropolitan Area*. Accra, Ghana. Pentecost Press.

Merchant, A.T., Jones, C., Kiure, A., Kupka, R., Fitzmaurice, G., et al. (2003) Water and Sanitation Associated with Improved Child Growth. European Journal of Clinical Nutrition, 57, 1562-1568. https://doi.org/10.1038/sj.ejcn.1601725

Mmom, P. C., and Mmom, C. F. (2011). Environmental sanitation and public health challenges in a rapidly growing city of the Third World: The case of domestic waste and diarrhea incidence in Greater Port Harcourt Metropolis, Nigeria. *Asian Journal of Medical Sciences,* 3(3):115-120.

Modebe, I.A., Onyeonoro, U.U., Ezeama, N.N., Ogbuagu, C.N. and Agam, N.E. (2009) Public Health Implications of Household Solid Waste Management in Awka, South East, Nigeria. The Internet Journal of Public Health, 1, 1-6. http://ispub.com/IJPH/1/1/12848

Morelli, J. (2011). Environmental Sustainability: A Definition for Environmental Professional. *Journal of Environmental Sustainability*, 1(1):5-8

Napari, P.N., and Cobbinah,P.B. (2014). Environmental Sanitation Dilemma in the Tamale Metropolis, Ghana. *International Journal of Humanities and Social Sciences,* 8(1): 230 233.

National Council on Environment Nigeria 15th July 2004.

National Environmental Sanitation Policy 2005Developed By Federal Ministry of Environment Abuja July 2005.

National Population Commission (NPC) Federal Republic of Nigeria 2006 Population and Housing Census; Priority Table III.
http://www.population.gov.ng/images/Vol%2003%20Table%20DSx%20LGAPop%20by%20SDistrict-PDF.pdf

Olawale, J.O., and Olatunji, I.A. (2014).Knowledge and Attitudes of People on Monthly Environmental Sanitation Programme in Osun State, Nigeria.*Journal of Science and Science Education, Ondo*, 4(1): pp. 137 – 143.

Olawepo, J.A. and Jekayinfa, A.A. (1999) Assessment of the Environmental Attitudes and Practices of Teachers Undergoing Sandwich Degree Programmes in Nigeria. Nigerian Journal of Research and Development in Higher Education, 3, 1-17. https://studylib.net/doc/16120750/assessment-of-the-environmental-attitudes-and programmes

Olofsson, A. and Ohman, S. (2006) General Beliefs and Environmental Concern. Trans Atlantic Comparisons. Environment and Behavior, 38, 768-790. https://doi.org/10.1177/0013916506287388

Olowoporoku, O. A. (2014). Assessment of Environmental Sanitation Practices in Osogbo. A Thesis Submitted in Partial Fulfillment of the Requirement for the Award of Bachelor of Science in the Department of Urban and Regional Planning, Faculty of Environmental Design and Management, Obafemi Awolowo University, Ile Ife, Nigeria, pp. 15- 45.Assessed at http://researchgate.com, 20/10/2017.

Olowoporoku, O.A. (2017). A Recipe for Disaster: An Assessment of Environmental Sanitation Situation in Nigeria. *MAYFEB Journal of Environmental Science,* 1(1):1-5. Pore, S.M., and Randive, S.D. (2011).A Study on Environmental Sanitation, and Personal Hygiene among the Slum Area in Solapur city, Maharashtra. *Advances in Applied Science Research,* 5(2):98-101.

Prüss-üstün, A., Bos, R., Gore, F. and Bartram, J. (2008) Safer Water, Better Health: Costs, Benefits and Sustainability of Interventions to Protect and Promote Health. World Health Organization, Geneva.

Samuel, E.S. (2006) Environmental Sanitation Knowledge among Primary School Pupils in Idemili North Local Government Area of Anambra State. Journal of Environmental Health, No. 3, 5-12.

Schmidt, W.P., Cairncross, S., Barreto, M.L., Clasen, T. and Genser, B. (2009) Recent Diarrhoeal Illness and Risk of Lower Respiratory Infections in Children under the Age of 5 Years. International Journal of Epidemiology, 38, 766-772. https://doi.org/10.1093/ije/dyp159

SuSanA (Sustainable Sanitation Alliance), 2008a. Planning for Sustainable Sanitation in Cities. Factsheet Sustainable Sanitation Alliance. Accessed: 10.01.11 at: *www.susana.org /lang en/working-groups/wg06*

Tecer, S. (2007).Educatıon for Environmental: A Study on the Level of Determination of the Primary Students' Environmental Behaviour, Knowledge, Consciousness and Active Participation in Balikesir City. (Unpublished) Master Thesis. Zonguldak, Turkey: Zonguldak Karaelmas University, pp. 5-25.

UNICEF (1999) A Manual on Hygiene Promotion UNICEF New York.

UNICEF, 1997. Towards Better Programming: A Sanitation Handbook. Water, Environment and Sanitation Technical Guidelines Series - No. 3. EHP, New York City, USA.

Uzun, N., and Sağlam, S. (2006). Development and validation of an environmental attitudes scale for high school students. *Hacettepe Universitesi Eğitim Fakültesi Dergisi*, *30,* pp. 240-250.

Vivienne, A.D.S. (2014). The Attitude of Students and Staff of Asamankese Senior

High School Towards Environmental Sanitation. A Thesis submitted in partial fulfillment of the requirement for the Award of Master of Philosophy in the Department of Social Studies, Faculty of Social Science Education, University of Education, Winneba, pp. 2 55.Assessed at http://IJEE.com, 15/10/2017.

WaterAid, 2009. Fatal Neglect – How Health Systems are Failing to Comprehensively Address Child Mortality. London, UK.

WHO (World Health Organisation), 2006. WHO Guidelines for the Safe use of Wastewater, Greywater and Excreta. Geneva, Switzerland.

World Health Organization (WHO) (2004) The Sanitation Challenge: Turning Commitment into Reality.
http://www.who.int/water_sanitation_health/hygiene/sanchallengecomp.pdf

World Health Organization (WHO) (2017) Diarrhoeal Disease Fact Sheet.
http://www.who.int/mediacentre/factsheets/fs330/en/

World Health Organization (WHO) (2017) Sanitation Fact Sheet.
http://www.who.int/mediacentre/factsheets/fs392/en/

World Health Organization (WHO) (2017) Sanitation.
http://www.who.int/topics/sanitation/en/

World Health Organization, (WHO) (2008).*Global Water Supply and Sanitation Assessment 2000 Report.* World Health Organization, Geneva.

Wright, A., 1997. Toward a strategic sanitation approach. The World Bank, Washington D.C., USA.

Yadavannavar, M.C., Berad, B.A., Aditya, S. and Jagirdar, P.B. (2010) Biomedical Waste Management: A Study of Knowledge, Attitude, and Practices in a Tertiary Health Care Institution in Bijapur. Indian Journal of Community Medicine, 35, 170-171. https://doi.org/10.4103/0970-0218.62591

Yoada, R.M., Chirawurah, D. and Adongo, P.B. (2014) Domestic Waste Disposal Practice and Perceptions of Private Sector Waste Management in Urban Accra. BMC Public Health, 14, 697. https://doi.org/10.1186/1471-2458-14-697