ACCEPTANCE AND COMPLIANCE WITH ENVIRONMENTAL SANITATION LAWS BY HOUSEHOLD HEADS IN IBADAN NORTH LOCAL GOVERNMENT AREA, OYO STATE

BY

Folakemi Olabisi AJAGUNNA
LL.B, LL.M (University of Ibadan)
MATRICULATION NUMBER: 87683

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DEDICATION

This project work is dedicated to the Author and Giver of life. The One who sustained me since the inception of this programme. To Him alone be all the glory.

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The journey of life begins with one step at a time. Mine began when a senior colleague just said to me 'Why not enroll for a Masters Degree in Public Health? What I thought was not humanely possible eventually turned out to be a success story. For this, I am grateful to God.

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CERTIFICATION

I certify that this research work titled; "Acceptance and compliance with environmental sanitation laws by household heads in Ibadan North Local Government, Oyo State" was carried out by Ajagunna Olabisi Folakemi (Matriculation number: 87683) in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Nigeria, under my supervision.

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Supervisor

Professor O. Oladepo,
Department of Health Promotion and Education
Faculty of Public Health
College of Medicine
University of Ibadan
Ibadan-Nigeria

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LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
EHO	Environmental Health Officer
FEPA	Federal Environmental Protection Agency
GRA	Government Reservation Area
HIV	Human Immunodeficiency Virus
LGA	Local Government Area
JMP	Joint Monitoring Report
IYS	International Year of Sanitation
NBS	National Bureau of Statistics
NESREA	National Environmental Standards and Regulations Agency
SEPA	State Environmental Protection Agency
SPSP	Statistical Package for Social Sciences
TPB	Theory of Planned Behaviour
UNESCO	United Nations Educational, Social and Cultural Organization
UNDP	United Nations Development Programme
UNICEF	United Nations Children Emergency Fund
WHO	World Health Organization

List of Regulations

The Nigerian 1999 Constitution

National Environmental Policy 2005

National Environmental Standards and Regulations Agency Act 2007

Oyo State Environment and Waste (Control) Regulations 2013

Oyo State Solid Waste Management Authority Law 2008

ABSTRACT

This study examined the knowledge, perception and compliance of household heads in Ibadan North Local Government with environmental sanitation laws. Specifically, the study investigated the relationship between socio economic status of household heads and their level of knowledge, perception and practice of environmental sanitation respectively. The study employed Azjen's theory of planned behaviour in which a person's attitude toward behaviour consists of a belief that particular behaviour leads to a certain outcome and an evaluation of the outcome of that behaviour.

In a bid to achieve these objectives, a cross sectional study was carried out using structured questionnaire. The household heads were randomly sampled from peripheral, transitory and inner core settlements of communities in Ibadan North Local Government Area (IBNLGA) using proportionate sampling method after ethical approval was obtained and informed consent granted. Data was analyzed for frequencies, mean, standard deviation and chi-square statistical analysis using SPSS version 20.

Overall, 401 household heads (HHHs) participated in the study and consisting of males (65.3%) and females (34.7%) with mean age of 38.4±14.5years. Majority of the household heads had secondary education (42.4%; n= 170), self-employed (63.3%; n=254). The mean income from all sources per month by the household heads was 36517.2±40058.2 Naira with 34.9% (n=140) earning minimum wage (18,000 Naira) or less and 65.1% (n=261) income above minimum wage. Three quarters of HHHs had good knowledge (75.1%; n= 301), two thirds with fair perception (68.2%) and slightly above half complied poorly (54.7%) with environmental sanitation laws. Although several factors were observed to influence compliance with sanitation laws, poor enlightenment about various sanitation laws and policies, inadequate refuse dumpsites, lack of enforcement by environmental regulatory officers, as well as attitude of the people living in households were major factors. Analysis showed that except for income status that significantly influenced (X^2 = 9.983; df =2; p-value = 0.007; $p<0.05$) perception towards environmental sanitation laws, gender, educational status and occupation did not significantly influence knowledge and perception of the household heads towards sanitation laws. However,

knowledge of environmental sanitation laws significantly influenced (X^2 = 34.568; p-value = 0.000; $p<0.05$) compliance with sanitation laws.

The study indicates that knowledge and perception of sanitation laws among the participants in the study area is high, however, compliance with the sanitation laws is poor. It is recommended that health promotion strategies such as advocacy be employed to encourage adequate compliance with sanitation laws, empowerment of sanitary inspectors to conduct house to house inspection, provision and proper maintenance of solid waste collection sites, effective monitoring on days set aside for sanitation and sensitization of residents on the benefits of compliance with environmental sanitation laws.

Key words: ***Environmental sanitation laws; Household heads; Compliance, Acceptance, Attitude.***

Word count: 434

CHAPTER ONE

INTRODUCTION

1.1 Background of Study

The environment is very crucial to the existence of every creature as it serves as a place of abode and contributes to a large extent to the quality of life (Oreyomi, 2005). The importance of the environment is further underscored by the United Nations 7thMillenium Development Goal which emphasizes the need to reduce by half the proportion of people without access to basic sanitation and the need to integrate the principles of sustainable development into the country's policies and programmes. However, it is a settled law of nature that all biological organisms essentially generate wastes (Omoleke, 2004), by implication, altering the health and quality of lifeof every creature in the environment. The need to get rid of the environment waste generated by man, a term known as environmental sanitation, therefore becomes necessary. Environmental Sanitation has been described as a process of controlling the environment so that it no longer constitutes hazard to man.

It is a known fact that good practices of environmental sanitation positively improve the health status of the public in most countries of the world (Anyasoro, 2010). Globally about 2.4 billion people live under highly unsanitary conditions and have poor hygiene behaviours that increase their exposure to risks of incidence and spread of infectious diseases (WHO 2013). Many United Nations specialized agencies such as the WHO, UNICEF, UNESCO, UNDP, World Bank, have reported that the single most significant cause of morbidity and mortality in Sub-Saharan Africa and other third world countries is poor standards of environmental sanitation (Anunonwu, 2009). According to Nwankwo (2004), most of the tropical African countries do not have adequate facilities to achieve an ideal environmental sanitation.In order to protect human health and the environment from the potential hazards of inappropriate waste disposal and environmental pollution, a systematically supervised and controlled handling of these wastes is a must (Omoleke 2004), hence the evolution of sanitation laws.

The existence of environmental sanitation law in Nigeria dates back to the colonial and post colonial era when efforts were put in place to keep the environment through social efforts in self-determination, self-motivation and self-reliance with the community concept of full participation. These efforts were spearheaded by the then Sanitary Inspectors who moved from house to house enforcing environmental health services These sanitary Inspectors now known as Environmental Health Officers (EHO) were the major motivators who moved from house-to-house to inspect premises, educate household members on sanitation and hygiene matters, caused nuisances to be abated and also enforced necessary environmental health related laws and regulations. The recognition and powers granted the sanitary inspectors in those days were the sole motivating factor that propelled them to work tirelessly to monitor and preserve the integrity of the environment and enforce public health laws for safety. The recall for house to house inspection by these officers today is based on the recognition of the tangible contribution made in colonial and post colonial era in the upkeep of the environment by this cadre of officers (Mohammed, 2011).

Despite the re-introduction of these officers, in most cities of Nigeria, waste management issues have been a major concern. It has become common place to find heaps of refuse in strategic locations of the city of Ibadan. In most cases, waste in such sites is a source of air and water pollution and could be a potential source of health hazards (Omoleke, 2004). Out of the estimated 160 million population of Nigeria, sanitation coverage in urban areas is about 70% and about 31% in the rural areas with coverage range as low as 10% to over 80% in some states. Only about 30% have access to improved sanitation and about 20% of the population use open defecation (WHO/UNICEF JMP Report 2008).

According to the Federal Ministry of Environment, poor environmental sanitation condition has contributed significantly to high prevalence of communicable diseases in Nigeria. The National Policy on Environment (2005) reported that in most urban areas of Nigeria like Aba, Umuahia, Owerri, Lagos, Onitsha, Kano and Kaduna, there is gross environmental pollution/contamination due to poor sewage and refuse disposal, lack of safe and adequate potable water, poor food hygiene practices, poor housing among others.While regulations are the most common approach to environmental problems,

most developing countries have long established laws and regulatory structures to address environmental problems but only a few have been successful in alleviating those problems (Adelegan 2004). In this regards, the National Policy on Environment (2005) incorporated the following as components of environmental sanitation necessary **for** alleviating sanitation problems in Nigeria; Solid waste management, Medical waste management, Food sanitation, Sanitary inspection of premises, Market and abattoir sanitation, School sanitation, Pest and vector control, Management of urban drainage, Control of reared and stray animals, Management of urban drainage, Weed and vegetation control, Hygiene education and promotion and Adequate potable water supply.

1.2 Statement of the Problem

Poor sanitation has been reported to be implicated in a lot of sicknesses. About 3% (1.7 million) of the resulting deaths are attributable to environmental risk factors and child deaths account for about 90% of the total (Ikeke 2014). According to World Bank (2001), environmental risk factors were estimated to account for about one-fifth of the total burden of disease in low income countries; highest in Sub-Saharan Africa with an average of 26.5% (Adeyemi, Raheem and Olorunfemi, 2008). It is estimated that nearly half the urban population in Africa, Asia, and Latin America have one or more of the main communicable diseases associated with inadequate water and sanitation provision including diarrhea diseases and worm infections (Firdaus, 2010). The WHO (2002) similarly, reported in Mutunga (2007) that among the ten identified leading mortality risks in high mortality developing countries, unsafe water, sanitation and hygiene ranked second while smoke from solid fuels ranked fourth.

Specifically, inadequate access to safe water and sanitation services, coupled with poor hygiene practices, have been reported as the cause of at least one quarter of all child deaths and 20% of the total childhood disease burden globally (UNICEF, 2005). In spite of the improvement in technology and development, an estimated 2.6 billion people all over the world still lack access to improved sanitation, 884 million people are without access to improved sources of drinking water and 1.1 billion people practice open defecation (WHO and UNICEF, 2010). The World Bank Report on the Environment

indicated that the leading mortality risks in high-mortality developing countries include unsafe water, sanitation and hygiene, and indoor smoke from solid fuels.By implication, the mortality rate due to poor sanitation is alarming and of public health significance (National Water Sanitation Policy, 2004). There is no doubt a correlation between sanitation and health related issues such as reduction in infant and maternal mortality, high incidence of HIV/AIDS, poverty and hunger (Ezeh, Agho and Michael 2014). Although in Nigeria, like most sub-Saharan African nations, significant number of infant mortality cases due to poor sanitation are rarely reported, probably due to poor education, cultural or religious misorientation of many of her population, poor technology or other social reasons (Gbadamosi, 2007 ; Adeyemi, et al 2008).

Akinboade (2012) reported that during the observation of the Annual Environmental Sanitation Day, UNICEF asserted that many people die yearly as a result of poor sanitation in Nigeria. Nigeria is said to lose over N455 billion due to poor sanitation related diseases, coupled with high infant and child mortality that have remained high at 100 and 201 per 1000 live births respectively (NDHS, 2013) By implication, children under five are said to be most vulnerable to the effects of poor sanitation and hygiene. Furthermore, 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 (NDHS, 2013). According to Akinboade (2012), “the direct consequence of poor environmental sanitation is high morbidity and mortality rates due to sanitation - related diseases such as cholera, diarrhea, dysentery and typhoid.

Environmental sanitation-related disease exacerbates poverty by diminishing productivity and household income. In addition, the national cost of loss in productivity, reduced educational potential and huge creative health constitute a major drain on the local and national economy (National Policy on Environment, 2005). Omoleke (2004) **suggested** that one of the main problems facing Ibadan City is the intractable nuisance of open and indiscriminate dumping of refuse, human and animal faeces, piles of decaying garbage and substantially domestic waste that has become dominate in strategic locations in the heart of the city. In addition, Ojedokun and Balogun(2010) reported that one of the

challenges facing the Oyo State Government is how to reduce the menace of urban litters in Ibadan metropolis Such wastes in such dump sites obviously are source of air and water pollution, land contamination, health hazards and environmental degradation. The risks that may be anticipated include bad odour, aesthetic nuisance, fire outbreak, water pollution, proliferation of insects, flies, cockroaches, rats and other small and dangerous insects which can endanger public health through breeding of ailments such as dysentery, cholera, diarrhoea, yellow fever, plague and filariasis. By implication, Ibadan City is at risk of environmental related diseases and infections.

Progress in sanitation and improved hygiene can greatly advance health, but many people still have no adequate means of disposing of their waste. This is a growing nuisance for heavily populated areas including Ibadan. The risk of infectious disease is on the increase particularly to at risk population such as the very young, the elderly and people suffering from diseases that lower their resistance. Poorly disposed waste also means daily contact with an unpleasant environment. The buildup of faecal contamination in rivers and other waters is not just a human risk: other species are affected, this alone is a potential threat to the ecological balance of the environment. The discharge of untreated wastewater and excreta into the environment affects human health by severalroutes including pollution of drinking water; contamination of the food chain, for example via fruits, vegetables or fish and shellfish. This could also provide breeding sites for flies and insects that spread diseases. Improperly disposed human excreta have been implicated in the transmission of many infectious diseases such as cholera and typhoid fever (WHO 2012).

The traditional practice among the people of Ibadan shows that they employ vast quantities of leaves of various plants for fermentation, preparation, wrapping, storage, sales and dishing of foods (Ogundele, 2007). Also, during harvesting periods, farmers bring their farm products such as vegetables, yam, cassava, corn, millet and fruits to urban areas for sale (Fafioye and John-Dewole, 2013). These practices often contribute to large proportion of disposed biodegradable refuse in the markets, houses, towns and cities which have reached per capital generation of 2kg/day (Odeyemi, 2001 and Oreyomi, 2005).

Several attempts have been made to free Ibadan from its poor environmental challenges, but are either not sustainable, or are abandoned. One of such attempts has been the sensitization and awareness campaigns to be more responsible in environmental behaviour, carried out through radio and television programmes and advertisements. Other attempts include promulgation of Oyo State Environmental Law by the State House of Assembly in 2008, the establishment of the Ministry of Environment and Water Resources in 2001, the kerbsides street sweeping innovation in 1999, and the Edict establishing the Ibadan Waste Management Authority (Oyo State Government, 1997). Worrisome, despite these varying attempts to make Ibadan city wear a good look, Ibadan is dirty going by daily media reports, several researchers and personal observations.

In addition, a report showed that there were no proper orientation and training as to how to keep the environment clean and how best to dispose waste in order to prevent diseases and other health hazards that could result from poor environmental management (Olorunda, 2006). Thus, the community inhabitants' sensitization and education on adverse effects of poor environmental management on health is not adequate. If appropriate efforts are not made to halt such practices, the Oyo State Government will continue to spend the greater part of her resources in an attempt to ensure good environmental practices without success.

1.3 Justification of the Study

Proper sanitation is a key developmental intervention as having access to it increases health, well-being and economic productivity. Despite the interesting findings on the benefits of proper sanitation practice and available intervention strategies, to date, data in Nigeria reflecting the sensitivity of house hold heads; who are known to enforce morals and regulations in the family setting, is limited. By suggestion therefore, for Nigeria to experience meaningful development and improvement in sanitation practices, there is need to increasingly channel efforts to innovative strategies aimed towards the smallest units of ecological model such as the family. For these reasons, investigating the acceptance and compliance of house hold heads with sanitation laws for correct intervention strategy can have significant influence in averting the rate of morbidity and mortality and other diseases and infections attributed to poor sanitation.

This study will thus throw more light on the causative factors responsible for either high levels or low levels of compliance. It would also identify possible areas of collaboration between the government and communities in combating the menace of poor sanitation. And lastly, this study will assist regulatory agencies responsible for sanitation in Oyo State in designing programmes for promoting sanitation and creating more awareness about health and social implications of environmental sanitation. It would propose participatory decision making models as a way to mitigate chaotic waste management in Nigeria, which has remained intractable in spite of many environmental and sanitation projects initiated by successive administrations in Oyo State.

Therefore, given the high morbidity and mortality rates of infants and high prevalence of diseases and infection in Nigeria due to poor sanitation, this study is justified. It will also provide baseline information for other researchers to work upon in the event of carrying out intervention studies on promoting good environmental sanitation practices.

1.4 Research Questions

To guide this study, the following research questions were raised:

1. What is the level of knowledge of household heads about Environmental Sanitation Laws?
1. How do household heads perceive Oyo State Environment sanitation laws?
2. What is the level of compliance of household heads with Environmental sanitation Laws?
3. What factors influence level of compliance of household heads with Environmental Sanitation Laws?

1.5 Research Aim and Objectives

The aim of the study was to investigate the level of knowledge and compliance of household heads on environmental sanitation laws in Ibadan North Local Government Area of Oyo State, Nigeria.

However, the specific objectives of this study include:-

1. To assess the level of knowledge of household heads on Oyo State household related environmental sanitation laws.

2. To determine the perception of household heads on environmental sanitation laws.
3. To evaluate the level of compliance of household heads with environmental sanitation laws.
4. To identify the factors influencing compliance of household heads with environmental sanitation laws.

1.6 Research Hypothesis

The following research hypotheses were formulated for the study:

Ho 1. There is no significant association between household heads socio-economic status and the knowledge of environmental sanitation law.

Ho 2. There is no significant association between household heads socio-economic status and the perception of environmental sanitation laws.

Ho 3 There is no significant relationship between house hold heads knowledge of environmental sanitation laws and compliance with sanitation laws.

CHAPTER TWO

LITERATURE REVIEW

For a proper understanding of household heads knowledge of environmental and its effect on compliance with environmental sanitation laws, the following sub- heads will be reviewed.

1. Concept of Environmental Sanitation.
2. Importance of studying Environmental Sanitation from Household heads perspective.
3. History of Environmental Policy and Sanitation Control in Nigeria.
4. National and State Laws on Environmental Sanitation
5. Knowledge of community members on household related Environmental Sanitation Laws.
6. Community perception of environmental sanitation laws.
7. Community compliance with environmental sanitation laws.
8. Factors influencing community compliance with environmental sanitation laws.

2.1 Concept of Environmental Sanitation

WHO estimates that about 1.8 million people die annually from diarrhea diseases where 90% are children under five and occur mostly in developing countries (WHO, 2004). Poor sanitation gives many infections the ideal opportunity to spread, plenty of waste and excreta for the flies to breed on, and unsafe water to drink, wash with or swim in.

At one of its summit in 2004, the World Health Organization and the United Nations International Children Education Fund in a joint report stated that: “about 2.4 billion people will likely face the risk of needless disease and death by the year 2015 because of bad sanitation”. The report also noted that bad sanitation – decaying or non-existent sewage system and toilets- fuels the spread of diseases like cholera and basic illness like diarrhea, which kills a child every 21 seconds. The hardest hit by bad sanitation is the rural poor and residents of slum areas in fast-growing cities, mostly in Africa and Asia (WHO and UNICEF, 2004).By implication, sanitation serves as the pivot on which the

achievement and accomplishment of Millennium Development Goals rests. In other words, attention to sanitation is attention to other MDGs which are; eradication of poverty and hunger, achievement of universal primary education, promotion of gender equity and women empowerment, reduction of child mortality, improvement of maternal health, combating HIV/AIDS, malaria and other diseases, ensuring environmental sustainability, and development of a global partnership for development (WHO 2012). The Federal Government in recognition of the important role played by environmental sanitation in the maintenance of sound public health agrees that a specific policy is required to address it.

Thus, the National Environmental Sanitation Policy was promulgated in 2005 as an integral part of the National Development Strategy to stimulate, promote and strengthen all government regulations concerned with housing and development, food security, water supply, flood and erosion control, sanitation related endemic diseases and illnesses, school health services, environmental education and drought control. In recognition of the impact of sanitation on health, poverty reduction, economic and social development, the year 2008 was declared as the International Year of Sanitation (IYS). The thrusts of the messages all attest to the fact that sanitation is vital for human health, contributes to dignity and social development, helps environment and generates economic benefits (Ojewale 2009). Thus, a pleasant environment that promotes healthful living is a fundamental right of every one.

It is important to understand that sanitation can act at different levels, protecting the household, the community and society. According to Adebayo (2004), the cost of inaction to proper sanitation has far reaching effects. Many people do not realize the health and economic benefits to the individual, the community and to society from improving sanitation. The high cost of improving sanitation is often cited as a barrier to implementing sanitation projects. Improving sanitation is often low on the list of priorities. There are so many other pressing needs for the attention of governments: food supply, education, medical treatment and dealing with war and conflict. Most people are aware that poor sanitation has a health impact, but there is a lack of awareness of the extent of ill health that it causes.

2.2 Importance of studying Environmental sanitation from Household heads perspective

A household is defined by the National Bureau of Statistics (2012) as a group of personsliving together and maintaining unique eating arrangement. It could also be a person living and eating alone.

The household head is often seen as the symbol of authority who takes major decision concerning activities in the home. A household head has also been described as an individual in one family who provides actual support and maintenance to one or more individuals who are related to him or her through adoption, blood or marriage. The term has also been described to mean one whose authority to exercise family and support the dependent members (Free Dictionary, 2009). The Household head is the key economic provider, the major decision maker and the person assigned by others as their head. The headship of the household therefore, is usually identified with the person who has the greatest authority in the household (Eboiyehi, 2013). In traditional African societies, males are assumed to be heads of households irrespective of the status of their spouses (Chant and Brydon 1989). However, Ilo (1989) asserts that whilst females are recognized as potential household heads, in reality, men are most often assigned to the headship position. For the purposes of this study, a household head can either be a male or a female in so far as he or she is the key economic provider and the major decision maker.

2.3 History of Environmental Policy and Sanitation Control in Nigeria

Culturally, sanitation is a norm practiced in many communities in Nigeria. For instance, girls and women sweep the surroundings and empty the refuse bins. Festivals also exist that promote cleanliness in various communities (Environmental Sanitation Policy, 2005) and are still in practice to date. From the inception of Colonial British rule in Nigeria, environmental protection efforts had been mainly through colonial bye-laws. While medical research associated relationship between crowded and filthy environment with ill-health, this resulted in strong public health movement targeted towards improving urban living conditions. The aim of public health enforcement in these colonies was the protection of the health of the colonial officials from health threats posed by native communities. The effective way of carrying this out way back then was the isolation of

the European settlements from the alleged unhealthy environment of African settlements (Stock, 2010).

According to Mohammed (2011), a number of legislative controls were put in place to address the problem of environmental sanitation and these included; Cantonment Proclamation 1904 on the layout and sanitation of GRA, Public Health Act 1909 on environmental sanitation, Township ordinance No 29 of 1917 on sanitation and environmental management, Lagos Colony Ordinance of 1928, Mineral Act of 1945, Town and Country Planning Ordinance of 1946, Local Government Ordinance 1950/54-58, Public Health Laws of 1957. At this time, enforcement of Public Health Laws was mainly through routine house to house inspection. This was effective in the maintenance of Environmental Sanitation. In the aftermath of the post-independence era, routine house to house inspection was still effective in the maintenance of sanitation. However, political interference with the statutory role of these offices led to the demise of house to house inspection and subsequently, the poor sanitary conditions in the country (National Policy on Environment 2005). The sanitation problem was more pronounced in this era because there was increased population in the cities as a result of the rural to urban migration and a corresponding strain on the existing facilities and infrastructure.

In the 1980s, the 'Environmental Sanitation Day' initially established by the Environmental Sanitation Edict in 1972-73 was revived by the Federal Military Government of Nigeria. The aim of the Environmental Sanitation Day model was to increase awareness and enhance enthusiasm among the citizenry particularly the youth. The Edict dedicated one day in a month as a civic responsibility towards the cleaning of the surroundings. The last Saturday of every month was thus adopted as the Sanitation Day. Residents are made to come out to clean roads, streets, neighbourhood surroundings, drainage channels, markets and public buildings (Achor 2013).

In the current dispensation, all tiers of Government have become involved in matters relating to sanitation and have developed regulatory instruments to further address the issue of sanitation in Nigeria (Aluko and Oyebode, 2007). These regulations include

i. Harmful (Toxic) Waste Criminal Provision Decree 42 of 1988

ii. Federal Environmental Protection Agency Decree No 58 of 1988 and No 59 of 1992 as amended.

iii. National Policy on Environment 2005

iv. National Environmental Protection (Effluent Limitations) regulations of 1991

v. Blue print on Municipal Solid Waste management in Nigeria 2001

vi. Blueprint on Environmental Enforcement 2001

vii. Blueprint on Handbook on Waste Management 2001

In addition to these States and Local Government Agencies at one time or the other promulgated State laws and bye-laws respectively. In Oyo State, three Governmental agencies are responsible for managing the environment and these are: the Local Government Councils, The Ibadan Solid Waste Management Authority and the Ministry of Environment and Water Resources (Omoleke 2004).

Of all these laws and regulations, the ones that pertain to households and community members are; National Policy on Environment 2005, Oyo State Solid Waste Management Authority Law 2008 and Environmental Sanitation and Wastes Control Regulations 2013.

2.4 National and State Laws on Environmental Sanitation

There have been legal, regulatory and institutional frameworks undertaken to protect the environment from abuse at global and local (Nigeria) levels. These environmental policies and institutions are aligned with the aims of the United Nations Environmental Programme (UNEP), a body charged with global environmental monitoring and regulation. The agency charged with similar mandates in Nigeria is the National Environmental Standards and Regulation Enforcement Agency (NESREA). This agency or body with its sister organizations and the Ministry of Environment formulated a National Policy on the Environment. There is also Environmental Act, enacted by the National Assembly stipulating modalities on how to treat the physical environment and respond to environmental challenges. The goals of the National Policy on the environment include securing for Nigerians a quality environment for their health and well being; to raise public awareness and promote understanding of the essential linkages

between the environment and development, and to encourage individual and community participation in environmental protection and improvement efforts (Ladan, 2012).

2.4.1 The Nigerian Constitution 1999

The Constitution of the Federal Republic of Nigeria, 1999 recognizes the importance of improving and protecting the environment and makes relevant provisions on environmental protection. The Constitution establishes, by implication, that international treaties (including environmental treaties, protocols, conventions etc) ratified by the National Assembly should be implemented as law in Nigeria. The Constitution makes it an objective of the Nigerian state to improve and protect the air, land, water, forest and wildlife of Nigeria. The Constitution also guarantees fundamental human rights to life and human dignity which could be linked to the need for a healthy and safe environment (Ijaiya 2013).

2.4.2 The National Environmental Standard and Regulation Enforcement Agency, Act 2007

The National Environmental Standards and Regulation Enforcement Agency (NESREA) Act, 2007 which replaced the Federal Environmental Protection Agency (FEPA) Act of 1988 is administered by the Federal Ministry of Environment to protect and promote sustainable development of the environment and its natural re-sources. The law provides authority to ensure compliance with local and international laws on environmental sanitation and pollution prevention and control through monitory and regulatory measures. The law also empowers the Agency to make and review regulations on air and water quality effluent limitations, control of harmful substances and other forms of environmental pollution and sanitation. However, the law prohibits, without lawful authority, the discharge of hazardous substances into the environment.

The law also makes regulations namely, the National Effluent Limitation Regulations, National Environmental Protection (Pollution Abatement in Industries and Facilities Producing Waste), Regulation on the environmental protection in the country, as well as Federal Solid and Hazardous Waste Management Regulations, 1991; National

Environmental (Sanitation and Waste Control) Regulation, 2009; Management of Solid and Hazardous Wastes Regulations and The National Policy on the Environment, 2005.

2.4.3 Oyo State Solid Waste Management Authority Law 2004

Prior to the enactment of Edict No 8 of 1997 establishing, the Ibadan Waste Management Authority, the management of environment of Ibadan City was the responsibility of the defunct Ibadan City Council, Mapo Hill, Ibadan and later when Ibadan Municipal Government was created, the responsibility automatically transferred to Ibadan Municipal Council. Consequently, Ibadan city and its environs were constitutionally broken into (11) eleven Local Government Councils which now shoulder the collection and disposal of solid wastes in Ibadan. With the commencement of the Edict, the functions of the Local Government Councils in the Ibadan urban area under the then 1979 Nigerian Constitution, and the instrument establishing them to collect, transfer and dispose solid waste were delegated to the new Authority(Omoleke 2004).

The Ibadan Waste Management Authority Edict 1997 was repealed by the Oyo State Solid Waste Management Authority Law 2004. The Law makes the Authority responsible for enforcement of all laws and regulations concerning Solid Waste management and other Sanitation Laws and regulations as may be in force in the State.(S6(1)a. The Law also makes the authority responsible for collection and registration of private refuse contractors in the city.

Section 6 (1)(e) empowers the Authority to make effective use of Environmental Health Officers, Environmental Health Technologists, and Environmental Health Assistants from the Local Government Service and Public Service of the State to enforce laws and regulations concerning Solid Waste Management and any other Sanitation Laws and regulations as may be in force in the State. The law empowers the Authority in carrying out its enforcement activities to enter upon any land or premise (after having given its occupier notice) for carrying out its objectives. Section 32(1) specifically gives an authorized officer the right of entry for the purposes of ensuring compliance with the provisions of the Law. Such authorized officer is also empowered to arrest persons

reasonably suspected of having contravened the law. Offences under the law can be tried by all Magistrate Courts, Mobile sanitation courts and High Courts except where a special provision has been made S31.

The Law prescribes a number of fines and sanctions for offenders. A landlord who fails or refuses to provide and maintain a dustbin or make provision for waste disposal in his premises shall be liable on conviction to a fine of Two Thousand Five hundred naira only or to two months imprisonment. The Law also makes it an offence for anyone to store in any receptacle in any place in a manner likely to hold water and breed mosquitoes and persons found liable on conviction shall pay a fine of five thousand naira only or imprisonment for two months. (S1, Schedule A18, Oyo State Solid Waste Management Authority Law 2004). For the offence of allowing waste water to drain from premises into the road in a manner likely to be injurious to health or public property, offenders shall be liable on conviction to a fine of two thousand five hundred naira or to a prison term of four months. House owners who fail to provide toilet facilities can pay a fine of five thousand naira or a prison term of twelve months. (S15, Schedule A18, Oyo State Solid Waste Management Authority Law 2004). Defecation or urination in any public place is an offence punishable with a fine of five hundred naira or a prison term of two months. (S 18) House owners who have premises overgrown with weeds likely to harbor vermins or reptiles or whose surrounding are dirty or weedy can be liable on conviction to a prison term of two months and in addition, the premise could be summarily closed for three to seven days (S 19, Oyo State Solid Waste Management Authority Law 2004).

In order to ensure compliance, the law makes it mandatory for every owner or occupier of a tenement to provide dustbin with cover for the tenement to be used for depositing refuse. The law also makes it mandatory for them to remove daily, all refuse from dustbin to a public refuse depot such as those provided by the State Environmental Protection Agency. In addition, the law makes it mandatory for commercial vehicles operating within the state to carry a litter bin for the use of the passengers, and that their passengers should not throw any litter, fruit tins, scrap of paper or other items on to the road from any vehicle. The law prohibits indiscriminate dumping of wastes along the highways, roads, channels, gorges, vacant lands except at designated refuse disposal sites as

approved by the State Environmental Protection Agency (Section i – x, Oyo State Waste Management Authority Law 2004).

2.4.4 Environmental (Sanitation and Wastes Control) Regulations 2013

The Environmental (Sanitation and Wastes Control) Regulations was enacted in 2013 to enforce the adoption of sustainable environmental sanitation and waste management practices to minimize pollution. It therefore made regulations on Environmental Sanitation and general cleanliness of the environment. The regulations makes it an offence for persons to discard, throw or drop any litter or any similar refuse anywhere except in designated litter bins (S. 4(1).

It also mandates every occupant in care, control or management of business premises to keep sidewalks, drainages, vacant plots, private lands around business premises clean at all times (S. 6(a).

The regulations in Part II clearly spell out the duties and obligations of every owner of premises and this include:

(a) Provision of potable water supply to ensure environmental sanitation and personal hygiene.
(b) Provision of adequate number of toilets for the occupants of premises.
(c) Provision of drains for waste water, storm water.
(d) Control of vectors in the premises.
(e) Ensuring that untreated sewage is not piped or discharged into public drains and roads.
(f) Regular cutting of grasses, lawns, shrubs in and around premises.
(g) Provision of waste receptacles.

The Regulations prohibits the discharge of effluent from residential, commercial and waste management facility without a permit from the Oyo State Environmental Protection Agency (S 35(1).

For the purpose of enforcement of the regulations and all other environmental laws in the State, the regulations provides for the establishment of the Oyo State Environmental Sanitation Task Force. The Regulations further empowers Environmental Health

Officers, Scientific Officers, Police Officers and other authorized officers of the Agency to arrest and prosecute any person who violates Environmental Sanitation Laws in the State (S 67).

The Regulations prohibits a number of activities in Section 74(a) – (q) as offences and these include:

1. Failure to segregate waste for proper management.
2. Failure to provide standard containers for storage of sorted waste before collection.
3. Failure to keep litters 15 metres away from within premises or vacant plots.
4. Failure to locate water source from pollution source.

There are various penalties stipulated for violation of the provisions listed above, and these range between payment of fines of up to N250, 000.00 or imprisonment for between 2 months to 5 years as the case may be (S97- 103).

The Regulations in Schedule III specifies guidelines for prescribed number of toilets for households as reflected below

S/N	No of persons	No of Conveniences
1.	1-10	1 toilet
2.	11- 20	2 toilets
3.	21 – 40	3 toilets
4.	41- 75	4 toilets
5.	76 -100	5 toilets
6.	Over 100	1 toilet to every 30 persons

Source: Oyo State Environmental (Sanitation and Wastes Control) Regulations 2013

2.5 Knowledge of community members on household related Environmental Sanitation Laws

Among the pressing environmental and public health issues in Nigeria today is the problem of solid waste generation and disposal. Owoeye and Adedeji (2013) had previously reported the inter relationship between poverty, environmental sanitation and public health. The problem of solid waste is a historical one because man's existence is

inextricably linked to the generation of waste. This is further complicated as waste collection is majorly irregular and where applicable, it is restricted to the major cities. The problem is becoming intractable as many cities in developing countries cannot keep pace with urbanization, pollution, and the increasingly concomitant generation of garbage due to changing life styles and consumption patterns. The mountainous heaps of solid wastes that deface Nigerian cities and the continuous discharge of industrial contaminants into streams and rivers without treatment motivated the Federal Government of Nigeria to promulgate Decree 58 for the establishment of Federal Environmental Protection Agency (FEPA) on 30 December 1988 (Federal Military Government 1988). Kriesel (1990) and Chukwueze (1998) noted that there is an important reciprocal relationship between environmental education and environmental sanitation. Lucas and Gilles (1998) stressed that environmental education is an important instrument used in environmental health. In this regards, a national policy on the environment was formed and the goals of the policy to secure for all Nigerians a quality of environment adequate for their health and well being, raise public awareness and promote understanding of the essential linkages between the environment and development, and encourage individual and community participation in environmental protection and improvement efforts. In spite of the formulation of FEPA and a national environmental policy, the environment however has not been adequately protected (Adegoke 1989; Singh 1998). Much of traditional solid waste management practices such as waste burning, indiscriminate open dumping of waste, ecological ideals and government regulations often arouse conflict. A better understanding of solid waste management and its attendant problems will enhance the effective use of the environment. Thus, it was suggested that enlightened debates and public awareness can promote a forum for dialogue and conflict resolution which can lead to balanced policies which will enhance people's commitment (Chukwuemeka, Ugwu and Igwegbe, 2012).

As regards the solid waste sector, the laws desired specific actions which included collection and disposal of solid waste in an environmentally safe manner, setting up and enforcement of laws, regulations and standards, encouragement of public participation, environment monitoring and imposition of penalties on defaulters to encourage

compliance (Momodu and Dimuna 2011). Thus, a better understanding of solid waste management and its attendant problems will enhance the effective use of the environment as they stressed the importance of educating the populace in order for them to have positive attitude, commitment and motivation to adopt sound techniques in managing their waste products.For example, in a study carried out by Fakere, Fadairo and Oriye (2011), it was shown that an alarming rate of 41% of the residents in Akure metropolis were ignorant of the dangers posed by improper disposal of wastes. Agwu (2012) in another study in Port-Harcourt City observed that males had significantly higher awareness on environmental sanitation while female counterparts had positive solid waste management practices. This is plausible when one considers the fact that in most households in developing countries females do most of the cleaning and sweeping activities. Specifically, Omoleke (2004) working in Ibadan identified that poor environmental culture curtails productivity and worsens urban condition of health. According to Omoleke (2005), this ugly situation in Ibadan persisted for the past decades and will continue so due to high rate of illiteracy, ignorance, uncivil culture of indiscriminate waste littering, throwing of wastes on bare ground, people's inability to maintain a sanitarily clean environment as well as reluctance of people to cooperate with the authority by disposing solid waste in illegal dumps, rather than using the means provided by the Government. Owoeye and Adedeji (2012) observed that the foremost thing that needed urgent attention is the area of public enlightenment, environmental and health education. In accordance with this, it has previously been asserted that without grassroots environmental education and enlightenment, enforcement of environmental sanitation and waste disposal laws are bound to have a very little prospect of success (Ajala 2011).

2.6 Community Perception and Enforcement of Environmental Sanitation Laws

To regulate environmental sanitation and pollution through law, the Government established regulatory agencies which impose sanctions to deter polluters to certain extent. These include the current sanitation projects like 'Monthly Sanitation Exercise', Operation Keep Your Surroundings Clean' and other various State governments 'Zero tolerance to Poor Waste Management' which according to Achor and Nwafor (2014) are

facing a number of challenges and lack of effective community participation. Amokaye (2012) however, reported that these efforts may be inadequate, resulting in failure and sub-optimal environmental results unless adequately complemented with other measures. Achor and Nwafor (2014) in this regard opined that one peculiar setback of the failure and sub-optimal environmental results is attributed to the non-active community stakeholder participation in those environmental sanitation projects and the structure of the existing waste management regime adopted at all tiers of government.

The achievement and huge success of environmental sanitation during the colonial era was said to be due to the combined efforts of community members and that of the government (Mohammed 2011). However, the existing waste/sanitation management regime adopts the top-down approach or programme created by bureaucrats and experts with little or no input/ involvement from those who are either generators of wastes or live in the neighbourhood/community where these wastes are generated and disposed (Achor and Nwafor, 2014). Also appalling in the implementation of the existing waste management schemes and programmes is the confrontational approach/attitude of the waste management authorities and this makes the strategic stakeholders to withhold their active support and willingness to participate in sanitation programmes. Anyasoro (2010) identified several factors that negate environmental sanitation and hence poor compliance with environmental sanitation laws by the populace. Anyasoro (2010) stated that lack of political will (commitment, activity continuity, practice which translates to poor policy enactment and enabling environment) legal backing, enforcement mechanism, good governance, political stability, incentives, inappropriate institutional arrangement that includes a good definition of roles among ministries and agencies at the three tiers of Government and adequate staffing.

Difficulty could be encountered in enforcing environmental sanitation because a complex situation occurs where waste management is handled by several agencies such as Solid Waste Disposal Board, the Sanitary Inspection Division of the Ministry of Health, the Oyo State Environmental Task-Force and not less than ten certified waste disposal contractors as well as numerous uncertified contractors. Another very important factor

that constitutes environmental problems is the use of inappropriate technological measures which has previously been suggested by Cointreau (1982). Although, some efforts have been made in the passage of few legislations to control environmental pollution in all areas of life, but unfortunately many if not all the passed legislations are either not enforced or are poorly enforced. For instance, in Onitsha, one of the metropolitan cities, apart from the irregular collection of solid waste and refuse particularly from the poor neighbourhoods, the trucks meant for evacuating these wastes are inadequate and epileptic in nature. Moreover, most of the environmental sanitation institutions such as Federal Environmental Protection Agency (FEPA), the State Environmental Protection Agency (SEPA), Ministry of Health, Local Government Health Delivery Institutions, and Primary Health Centres are not adequately equipped with sufficient materials required to cope with the increasing challenges of maintaining an environment free of health hazards and problems occasioned by poor sanitation (Owoeye and Adedeji, 2013).

2.7 Community compliance with environmental sanitation laws

Inappropriate waste management and poor sanitation practices have been described as major concerns in many developing countries in Sub-Saharan Africa. This was expounded in a study carried out by Olukanni ,Azuh ,George and Emenike (2014). The study specifically involved the assessment of procedures available in waste collection, treatment and disposal practices as well as compliance with institutional rules and regulations. The study revealed that solid waste and refuse were dumped indiscriminately on major streets close to residential areas and on drainage channels meant for free flow of storm water. Similarly, Achor , Ehikwe and Nwafor (2014), sought to establish that through stakeholder education and engagement a high level of compliance to environment/sanitation laws, regulations and standards could be achieved. They therefore identified and rated factors responsible for non compliance with sanitation laws in the study area. The identified factors are:-

1. Non availability of designated waste dump site
2. Improper/long distance location of waste receptacles

3. Lack of monitoring of stakeholders attitude to waste disposal by solid waste management authorities
4. Inadequate/non enforcement of Environmental laws by Waste management authorities
5. Residents' lack of personal commitment to environmental safety /health
6. Confrontational and intimidating attitude of waste management officials

Among the identified factors, two reasons ranked highest why residents dump wastes indiscriminately. These factors were improper/long distance location of receptacles and inadequate/non enforcement of environmental laws by waste management authorities. Confrontational and intimidating attitude of waste and environmental management officials ranked next. This view is corroborated by the assertion of Ene (2014) in a study on environmental hygiene in the Nigerian Urban cities. The study observed that the problems that have aided poor hygiene in Nigerian Urban cities included improper waste management and disposal, poor sanitation amongst other factors.

In another study, Igbinomwanhia andIdeho (2014) found that in Benin metropolis, , there were laws regarding solid waste management, but most of them were not followed as there was virtually no adequate enforcement.

2.8 Factors influencing compliance with Environmental Sanitation Laws

In spite of the laws (local and national) on waste control and management, there seems to be a losing battle against the harmful consequences of unguided waste and the attainment of a clean healthy environment in the state. The reasons for failure are varied, complex and wide. Many regulatory frameworks fail because government lacks necessary information and data to regulate environmental pollution and sanitation. Amokaye (2012) believed that Government may not have information necessary to intervene appropriately to internalize externalities, or they may lack the incentive structures needed to regulate efficiently and their decisions may also be skewed by structural failures that arise because policy-makers systematically exclude from their regulatory cost-benefit calculus some of those who are either causing or suffering harms or those who might have been affected by government action. The failure of the numerous efforts to address the problem of

environmental health hazard in developing nations has been attributed to various factors like; unhealthy socio-cultural practices, poor environmental sanitation education and awareness, low literacy level, bad governance, disregard to the rule of law and other forms of indiscipline (Omotosho, 2005). The challenges of sanitation in Nigeria have been attributed to poor compliance, inadequate funding, lack of formal or designated dumpsites as well as inefficient and uncoordinated manpower, bad waste management strategies, low public awareness and shortage of trucks for waste disposal. Egunjobi (1986) on the other hand, identified that the problem of effective solid waste management has to do with poor social services delivery efforts which cause unnecessary delays in solid waste clearance. Egunjobi continued that Nigerians seem to be permanently accustomed to dirt as solid waste is either left to be broken down machinery, non-maintenance of dumpsters, poorly maintained urban streets and roads and irregularities in the designation of sanitary landfill sites and this is evidenced in the seen every day by way of indiscriminate discharge of garbage into drains and at times on the highways.

The Kwara State Environment Protection Agency created by the law was seen to be ineffective in controlling the volume of waste generated in the state (Ijaiya, 2013). The Agency faced many problems, such as, lack of fund; lack of trained/professional waste managers; lack of effective monitoring and control; peculiarity of the Nigerians attitude in beliefs that the government does everything; lack of modern technology/lethargy in implementing efficient waste management methods and corruption. The National Environmental Policy (2005) best sums up the factors affecting compliance with environmental sanitation in Nigeria thus, many constraints and problems, ranging from socio-cultural, economic and management problems hinder effective environmental sanitation practices in Nigeria and these constraints include;

1. Lack of clear policy assigning responsibilities for Environmental Sanitation within the levels of Government;
2. Poor perception of Environmental Sanitation as an essential service and a major determinant of health and good standard of living;
3. Inappropriate institutional framework;
4. Duplication of responsibility by many Stakeholders in the sector;

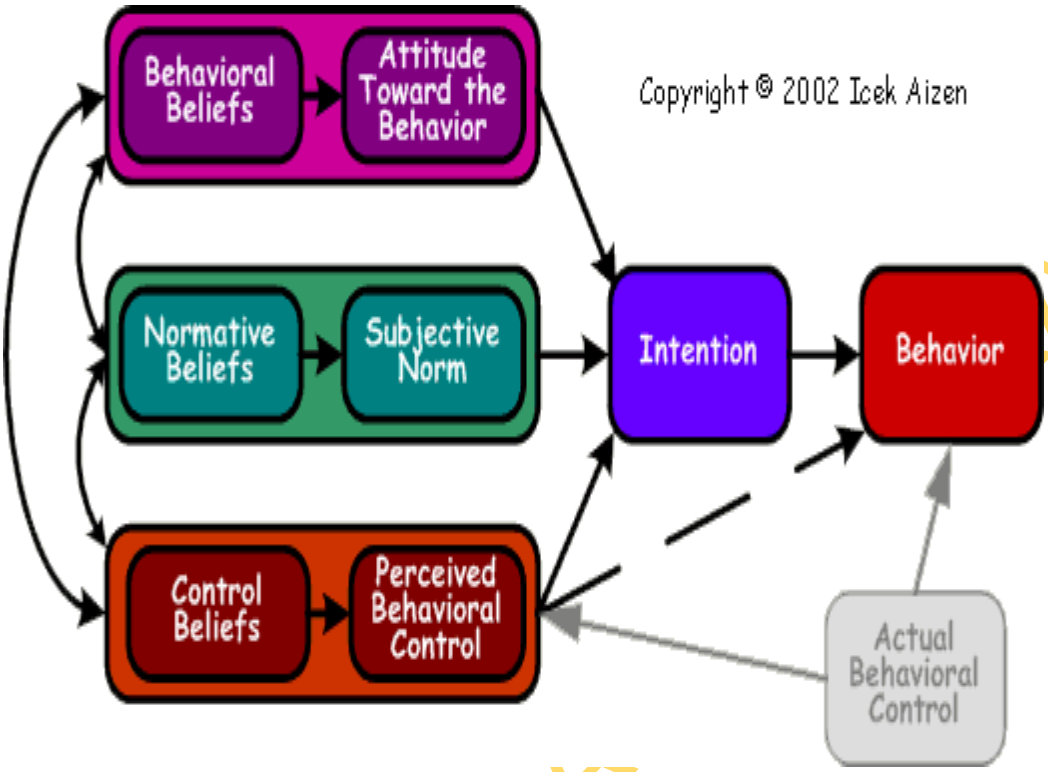
5. Weak and poorly enforced Public Health Laws, State Laws and Bye-laws;
6. Lack of adequate professional manpower especially at the State and LGA levels;
7. Inadequate research activities;
8. Inadequate Environmental Sanitation education and awareness;
9. Inadequate allocation of resources for Environmental Sanitation services;
10. Inadequate sensitization and mobilization of communities in planning, designing and decision-making on Environmental Sanitation matters;
11. Inadequate sensitization and mobilization of the private sector in the delivery of Environmental Sanitation services;
12. Inadequate participation of stakeholders in project planning and implementation;
13. Low literacy level.

Abogan (2014) in the same vein identified some factors responsible for non-compliance with Environmental Sanitation in Nigeria. He stated that although Local Government Councils have been saddled with the responsibility of ensuring access to Sanitation facilities, lack of autonomy, budget limitations and poor capacity have hampered their ability to carry out their duties effectively, this in turn has negated their ability to enforce compliance with sanitation laws by the populace. He likewise stated that although communities are aware of their needs of sanitation, however, finances and poverty are a major concern.Ibekwe, Dongo and Sridar (2010) also found that in majority of Ibadan motor parks, the inhabitants of the motor parks, though aware of sanitation problems could not do much to address the situation due to lack of funds, tools and support from government.

2.9 Theoretical Framework

For the purpose of this study, the Theory of Planned Behaviour (TPB) as developed by Ajzen and Fishbein will give a clear understanding of human communication and human behaviour. This theory details the factors and inputs that result in any particular behaviour. This theory provides a framework to study attitudes towards behaviours. According to the theory, the most important determinant of a person's behaviour is behaviour intent. This individual intention to perform behaviour is a combination of attitude towards performing the behaviour and subjective norm (Ajzen, 1980).

Also included in one's attitude towards behaviour is their concept of the subjective norm. The subjective norm refers to a person's perception of what others around them believe that the individual should do. In other words, subjective norm is a type of peer pressure. The subjective norm of a person is determined by whether important referents approve or disapprove of the performance of a behaviour (Tlou 2009). Whether or not a person participates or intends to participate in any behaviour is influenced strongly by the people around them. These people may include community members, friends or even co-workers. People may also have an inclination to either participate or refuse to participate in a behaviour based on their desire to comply with others (AjzenandFishbein, 1980). In addition, an individual's behavioural beliefs, normative beliefs and control beliefs respectively determine his/her attitude towards a given behaviour, subjective norm, and perceived behavioural control, which collectively influence the behavioural intention and actual behaviour of the individual when participatory decisions in an action are voluntary and under an individual's control.



Source: Ajzen, I. (1991). The Theory of Planned Behaviour.*Organizational Behavior and Human Decision Processes*, 50, p. 179-211.

2.10 Application of the Theory of Planned Behaviour to the study

The Theory of Planned Behaviour in its application to this study assumes that human beings are rational and can make use of information available to them. It also assumes that people consider the implications of their actions before they decide to engage or not to engage in certain behaviours. Thus, a household head would consider the implication of engaging or otherwise in good environmental practices before doing so. Self -concept, environmental self-efficacy, and environmental attitude jointly contribute to responsible environmental behaviour (Azjen, 1996).

It is assumed that that the background (sex, age and social economic status of household heads in Ibadan North Local Government would influence their attitude, subjective norm and perceived behavioural control thus determining the behavioural intention/actual behaviour i.e. level of knowledge and compliance with Environmental Sanitation laws.

The theory also assumes that Household heads are quite rational and make systematic use of information available to them. Such information may include information on the benefits of compliance with environmental sanitation laws and the disadvantages of non-compliance with sanitation laws. Household heads consider the implications of carrying out what is expected of them in the Oyo State Environmental Sanitation Laws before they decide to comply with the laws or not.

The most important determinant of household heads' behaviour is their intention; this intention is a combination of attitude towards performing the behaviour and subjective norm. Attitude of household heads towards environmental sanitation laws could either be positive attitude or negative attitude. If household heads perceive that the outcome of complying with sanitation laws is positive, then they will have a positive attitude to compliance with sanitation laws. Such positive outcome includes good health, reduction in mortality and morbidity, improved air quality. On the other hand, if household heads perceive that the outcome from compliance with Oyo State Sanitation laws is negative, then they will have a negative attitude to sanitation laws. In this study, negative outcome as perceived by household heads may include beliefs that good sanitation will not translate to good health, reduction in mortality and morbidity or prevention of infections and diseases.

If relevant others see acceptance and compliance with sanitation laws as positive, and household heads are motivated to meet the expectations of these relevant others, then a positive subjective norm is expected. In application , if family members , friends and neighbours of household heads have a positive orientation to Oyo State Sanitation Laws, it is expected that a household head would want to meet the expectations of these relevant others. And likewise if these relevant others have a negative orientation, the household heads will not be motivated to comply with Oyo State Sanitation laws.

A third determinant in the theory of planned behaviour is perceived behavioural control. Perceived behavioural control is determined by Control beliefs and Perceived power. Perceived behavioral control indicates that a person's motivation is influenced by how difficult the behaviour is perceived to be as well as the perception of how successfully the individual can or cannot perform the activity. If a person holds strong control beliefs about the existence of factors that will facilitate behaviour, then the individual will have high perceived control over behaviour (Azjen and Fishbein 1980). Thus, where household heads perceive that compliance with Oyo State Environmental Sanitation Laws is relatively easy, and can be carried out successfully, then the household heads will have high perceived control on environmental sanitation behaviour. This perceived control will be manifested in actual good and positive practices of environmental sanitation. In the same vein, where household heads perceive that compliance with the Oyo State Sanitation laws is difficult, there will be no motivation to comply and this would eventually translate to negative sanitary beliefs and hence poor compliance.

CHAPTER THREE

MATERIALS AND METHODS

3.1 Study Design

This research project puts into importance obtaining the most updated, valid and informative data in order to determine the knowledge possessed by household heads on environmental sanitation laws in Oyo State and how acceptable these laws are to them. Thus, it employed a cross sectional study design. Data collection methods, specifically quantitative methods

3.2 Study area

Ibadan North LGA was created on 27th September, 1991, and exists between longitude 30531 and 30561East of Greenwich Meridian and latitude 70231and 70291 North of Equator with a total land area of about 145.58km 2. Ibadan North LGA is bounded in the north by Akinyele LGA, in the south by Ibadan South-West LG, Ibadan South-East LGA and Oluyole, Ona-Ara LGA and in the west by Ibadan North-West LG A, Ido LGA, Lagelu LGA and Egbeda LGA. The population of the LGA based on the latest 2006 national census is 306,795, with an annual growth rate of about 3.2% (Adekola, Allen and Akintunde, 2014). It comprises 12 wards. The local government consists of multi-ethnic nationalities predominantly the Yorubas, Igbos, Edos, Urhobos, Itsekiris, Ijaws, Hausas, Fulani and foreigners who are from Europe, Asia and other parts of the world. The Local Government also houses several educational institution such as the University of Ibadan, The Polytechnic Ibadan and several private and public secondary and primary schools (Ibor, Anjorin, Ita, Otu and Bassey, 2011).

Ibadan North Local Government secretariat is situated at Agodi Gate opposite the Oyo State Government House. Ibadan North Local Government is home to some prominent markets such as the Bodija Market, Sango market, Agodi market, Gbaremu market, Oje market, and Beere Market. The Local Government houses some notable recreational centres such as the Amusement Park, The Agodi Gardens, Funfactory, Ibadan Recreation Club and the Zoological Gardens of the University of Ibadan.

The establishment of the Nigerian premier University and the University College Hospital as well as that of the Polytechnic Ibadan, all contributed to the astronomic growth of Ibadan North Local Government. The existence of these tertiary institutions within the Local Government brought about rapid urbanization and expansion in the Local Government (Fabiyi 2004). This development brought about uncontrolled population leading to slum conditions, poor planning and violation of town planning regulations. Moreover, several houses in the core of the city have no toilet facilities hence human faeces and other wastes are dumped inside streams (Omoleke 2004). This view was supported by Adesiyan (2000) that a clustered configuration hinders the collection of refuse and makes a high proportion of solid waste to be dumped into drain and stream channels which more or less results in clogging and flooding.

Ibadan North Local Government has a number of markets, factories, hotels, hospitals and other commercial centres. The beehive of activities from these commercial centres has often increased the volume of waste products which are in the Local Government. In addition, according to (McLaren 1970), solid waste in Ibadan comprises leaves, paper, food waste, tins, glass, and rags. This is probably due to the high number of markets in the city. Ibadan North Local Government is not left out. Interestingly, these leaf waste particulates are now being replaced by cellophane waste materials. The adoption of packaging system in recent times through the use of nylon bags and drinking of packaged water) has also contributed immensely to the huge amount of solid waste found across the Local Government. This view is corroborated by Abumere's (1983) findings which showed that Ibadan is occupied with diverse commercial,social and domestic activities all of which produce waste.Traders and artisans generate a great deal of solid and liquid waste in a setting such as the study area. And traders have been said to mostly lack the etiquette of disposing waste properly(Atinsola, Oke and Aina, 2013). In addition, activities such as garri and fufuprocessing, and cloth weaving was observed in some parts of the Local Government Area such as in Agbowo, Bodija and Oje wards respectively. These activities by their nature generate a lot of waste. Oje and Bodija wards have big fruits and vegetable markets which generate tons of waste on a daily basis. A large majority of Northerners living in the Local Government Area reside in Sabo Central

ward. A common practice observed in the course of this present study is that there a lot street beggars amongst the Northerners who daily beg for alms along Jemibewon and the popular Sabo area in Ibadan North Local Government. These beggars also generate waste in high proportions and this is inimical to the environment.

The city is thus plagued with unmanageable rate of refuse generation and a rather weak system of disposal. In addition, the core or traditional areas that make up a large proportion of Ibadan North Local Government is characterized by inaccessibility. This makes it difficult for residents to access waste receptacles. As a result, most residents have to walk long distance before they can dump waste. Many have to resort to indiscriminate dumping of refuse in available open spaces, drains and streams causing environmental hazard within the neighbourhood (Atinsola et al 2013).

The consequences of solid waste management problems are that urban streets, streams, and drainage systems are usually blocked giving rise to flood disasters (Kayode and Omole, 2011; Momodu, Dimuna and Dimuna 2011). Such was the case in Ibadan in 2011, when floods devastated many parts of Ibadan leading to loss of several lives and property and displacement of several people. Statistics confirmed that between 2011 and 2012, 2,105 buildings were flooded in Ibadan with property damaged estimated in billions of Naira. As a result, the Oyo State Government spent several millions of Naira on relief to the victims (Akinola and Adewale 2012).

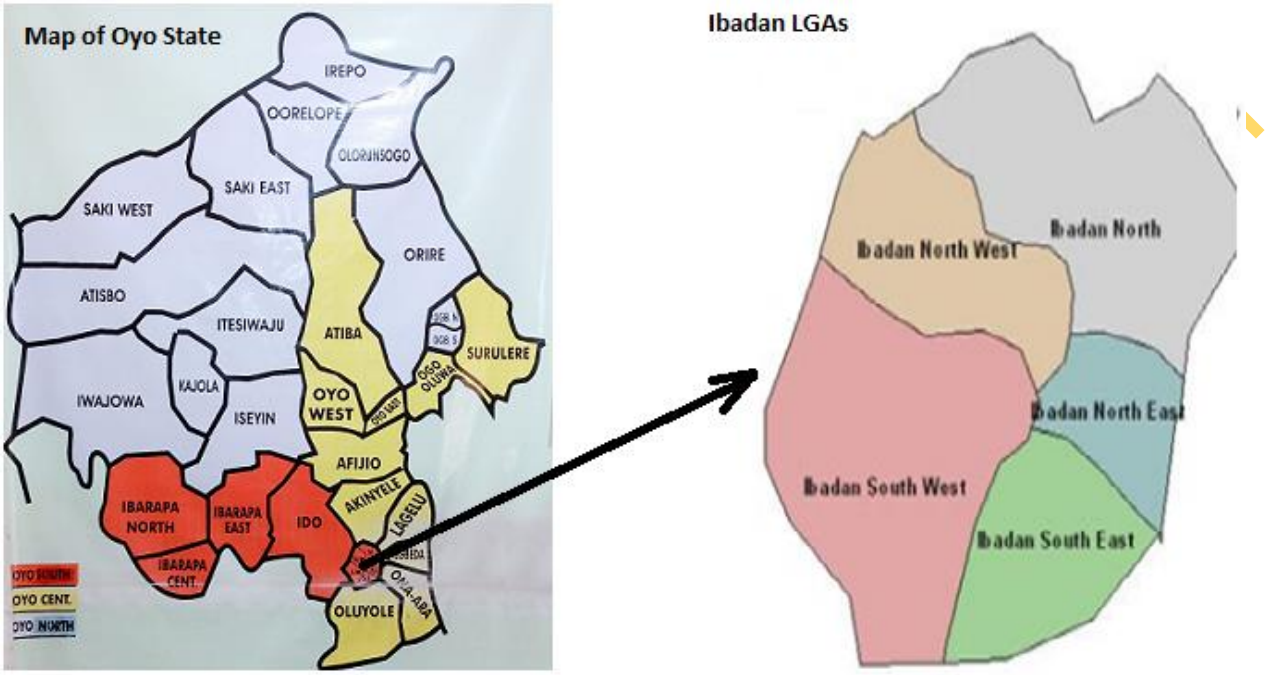


Figure 1: Map showing Ibadan North Local Government Area (Adapted from Oloyede-Kosoko and Akingbogun, 2013).

Table 3.1 **Wards and Communities in Ibadan North Local Government Area**

S/N	WARD	NAME	COMMUNITIES
1	ONE	Oke Are	Isale Alfa, Oke Are, Odoye, Sapati
2.	TWO	Inalende	Inalende, Oniyanrin, Ire Akari, Ode Oolo
3.	THREE	Yemetu	YemetuAladorrin, OkeAremo, Oje, AdeoyoAgbadugbu, OritaMefa, OjoBadan
4.	FOUR	Agodi	Itutaba, Igosun, , OdoAlagbafo, NTA Agodi, Alli Iwo,
5.	FIVE	Basorun	Ashi, Akingbola, Bodija, Basorun, Ikolaba, OluwoNla, OluwoKekere, Idi- Ape, Kongi,
6.	SIX	Sabo	Sabo Central, Sabo Garage, Alaafia area, Oke-Hausa
7.	SEVEN	Oke- Itunnu	OkeItunnu, Coca –Cola, Ajegunle
8.	EIGHT	Sango	Oju-Irin, Agbaje, Ijokodo, Sango, Gbaremu, Idi-Ito
9.	NINE	Ago- Tapa	Ago Tapa, Veterinary Mokola, Cultural Centre, Alaafia
10.	TEN	Old Bodija	Old Bodija, UCH, Obasa, Secretariat,NewBodija, Subuola
11.	ELEVEN	Samonda	UI, Samonda, Sango Garage, Polytechnic North Campus, Old Airport
12.	TWELVE	Agbowo	Agbowo, Bodija Market express, Barika, Kara, BodijaIsopako, Ilupeju, Orogun

Source: Ibadan North Local Government, 2015.

3.3 Study Population

The study population consisted of household heads resident in Ibadan North Local Government Area of Oyo State.

3.31 Inclusion and Exclusion Criteria

This study included men and women who are household heads and excluded women who are not household heads. It also excluded men and women who were not willing to give informed consent.

3.32 Sample Size Determination

The sample size (n) was determined by using Araoye (2004) sample size formula:

$$n = \frac{Z^2 p(1-p)}{d^2}$$

Where n=minimum sample size required

Z= confidence limit of survey at 95% (1.96)

P= Percentage of Households with unauthorized refuse heaps in Oyo State which is 53.6% (0.54) according NBS Social Statistics in Nigeria (2012).

d=absolute deviation from true value (degree of accuracy) = 5% (0.05)

$$n = \frac{1.96^2 \times 0.536 \times (0.464)}{0.05^2} = 382$$

A non response rate of 5% of the sample size was added to make up for possible cases of loss and rejection of improperly filled questionnaires. Thus, the sample size estimate was 402.

3.4 Sampling Technique

The study engaged a multi stage sampling procedure;

Stage One

The first step involved the random selection by balloting of 6 wards from the 12 wards in IBNLG.

The randomly selected wards are

Ward One - Oke Are

Ward Three – Yemetu

Ward Five – Bashorun

Ward Six – Sabo

Ward Ten- Old Bodija

Ward Twelve - Agbowo

The total numbers of communities making up these six wards are Thirty-Two

Stage Two

The communities in these six wards were stratified into Peri-Urban, Transitional and Inner Core settlements as reflected below in table 3.2.

Stage Three

This involved a random selection of communities from each of the categories of communities. To ensure a fair representation, six communities were selected from the Peripheral communities, Six from the Transitory communities and Five from the Inner core communities. This gave a total of Seventeen communities selected from the outlined thirty- two communities.

The selected communities based on the random selection are

1. Ashi
2. Ikolaba
3. Old Bodija
4. Orogun

5. Ilupeju
6. Kongi
7. Agbowo
8. BodijaIsopako
9. Bashorun(Oluwo- Kekere)
10. Orita-Mefa
11. Barika
12. Sabo Central
13. Oje
14. Oke- Are
15. YemetuAladorin
16. OkeAremo
17. Adeoyo

Stage Four

A simple random sampling technique was used to select 25 household heads in each of the seventeen selected communities listed above. .

Table 3.2 Classification of communities in selected wards in Ibadan North Local Government

Peripheral	Transitional	Inner core
Ashi, Akingbola, Ikolaba, New Bodija, Kongi, Idi-Ape, UCH, Secretariat, Subuola, Orogun, Ilupeju, Old Bodija	Oritamefa, Bashorun, Oluwo-Nla, Sabo Central, Sabo Garage, Alaafia, Agbowo, Bodija Market Express, Barika, Kara, BodijaIsopako	YemetuAladorin, Oke-Aremo, Oje, Ode Oolo, Adeoyo, Isale –Alfa, Oke-Are, Sapati, OjoBadan.

3.5 Instrument for Data Collection

A set of questionnaire was developed. It consisted of the following sections;
Section A consisted of socio demographic information of the respondents

Section B consisted of questions to assess the level of knowledge of household heads on Environmental Sanitation Laws.

Section C comprised questions that documented the perception of household heads on environmental sanitation laws.

Section D comprised questions that evaluated level of compliance with environmental sanitation laws by household heads. This was rated by allowing the household heads list or outline their practices that favour compliance or otherwise

Section E contained questions that documented factors that influence level of compliance of household heads with Environmental Sanitation Laws. This was documented by allowing the household heads outline the factors that affect practice of environmental sanitation.

Data was obtained using questionnaire which were pretested and subjected to appropriate corrections. This was translated by a Yoruba interpreter for respondents not fluent in English. For the purpose of data collection, three research assistants who had previous experiences on data collection were recruited and trained. They helped in administering of questionnaires in the research area. The contents of the training included purpose of the study, interpersonal communication and data collection procedures. Data was collected within six weeks.

3.7 Validity, Pre-test and Reliability

Validity: Validity of the instrument was ensured through the development of a draft instrument by consulting relevant literatures, subjecting the draft to independent, peer and expert reviews, particularly expert in public health. Comments from supervisor were further used to fine-tune the instrument. The instrument was pre-tested among household

heads in Ibadan North West Local Government Area using 10% of the sample size calculated. Thus, forty questionnaires were administered in the Local Government.

Reliability: Reliability refers to the consistency of a measure. A measure is said to have high reliability if it produces consistent results under consistent conditions. Copies of pre-test questionnaires were coded, entered into a computer and analysed. Reliability was determined using the Cronbach's Alpha coefficient. A coefficient of 0.78 was obtained.

3.8 Data Collection procedure

The questionnaire used for the study was interviewer-administered. The data was collected by the researcher with assistance from 3 research assistants who had previous experience on data collection, and were trained to collect data for the study. The data collection procedure was done in the following stages.

In the first stage, the researcher obtained data from Ibadan North Local Government (IBNLG) listing all the wards and communities in the Local Government Area (LGA). From the information obtained, the researcher randomly selected six wards from the twelve wards in IBNLG. The researcher stratified the communities into Peripheral, Inner core and Transitory communities. Seventeen communities were proportionately selected from the stratified communities. The researcher firstly surveyed these communities to observe the layout of the houses in the communities. Armed with information on the location of houses in the communities, the field work commenced. In the first week of data collection, the research assistants collected data from Agbowo, BodijaIsoPako, Orogun and Barika communities. A minimum of two houses were randomly selected from each street visited to obtain the data. Thus, the research assistants were **able** to interview at least 25 household heads in each community. Upon approaching the household heads, the research assistants introduced themselves and the purpose of the research. After being satisfied that they understood what the research entailed, they were asked if they were willing to participate in the study, after which they were asked to append their signatures on the questionnaire. At the close of data collection each day, the researcher checked all copies of the questionnaire administered for the day for

completeness. In the second week, data was collected in Kongi, Old Bodija and Ikolaba communities, in the third week, data was collected in Oje, Oke Are, and YemetuAladorin communities. In the fourth week, data was collected in Oke- Aremo, Adeoyo,andOritamefa communities. In the fifth week, data was collected in Bashorun, and Sabo communities.

3.9 Ethical Consideration

Ethical approval was obtained from the Oyo State Ministry of Health Ethics Review Committee. The respondents' consent was obtained after provision of adequate, clear and complete information about what the study entails. Respondents were required to append their signature on the questionnaire although their names were not required. They were informed that participation was voluntary and that data collected was to be used mainly for research purposes. They were also informed that they could withdraw from the study without any sanction. The study was conducted in compliance with the Declaration on the Right of the subject/participant (WMA, 2000). Anonymity and confidentiality of responses was ensured. In addition, the questionnaire was translated to local language for easy communication for participants who may require local language communication or not fluentin English Language.

3.8 Data Management and Analysis

The principal investigator checked all copies of administered questionnaire one after the other for purpose of completeness and accuracy. Serial number was assigned to each questionnaire for easy identification and for correct data entry and analysis. A coding guide was developed to code and enter each question into the computer for analysis.

Analysis was done with the use of Statistical package for Social Sciences (SPSS) version 20. The data entered into the computer was subjected to descriptive (mean, median, mode) and inferential (Chi-Square, logistics regression) statistical analyses.

CHAPTER FOUR

RESULTS

4.1 Socio-demographic characteristics of respondents

A total of 401 household heads participated in this study. Overall, the mean age of the household heads was 38.41±14.48 years. The minimum age was 18.0 years and the maximum was 81.0 years with a range of 63 years. There were more males (65.3%) than females (34.7%) with mean age of the sex being 38.99±14.15 years for the male and 37.52±15.11 years for the female. Statistically, the difference between the mean age of male and female was not significantly different (p>0.05). (See Table 4.1)

The house hold heads were majorly Yoruba (77.1%; n=309) in ethnicity and Christians (53.9%; n= 216) in religious belief. The household heads weremostly married and living with wives (73.3%; n=294). The mean house hold size of the household heads was 4.34±2.5 with the minimum house hold size being 1 and the maximum being 21 with a range of 20. A good number of the household heads had secondary education (42.4%; n= 170) as their highest educational attainment and this was followed by those with tertiary education (38.7%; n=155). The household heads were majorly self employed (63.3%; n=254) and this was followed by those working in private organisations (15.2%; n=61), the unemployed (11.2%; n=45) and civil servants (7.7%; n=31) with retiree representing the least (2.5%; n= 10). (See Table 4.1)

Table 4.2 represents the household heads type of apartment and tenure exist they live in. On the type of apartment the household heads live in, majority live in flat (39.4%; n=158) and this was followed with those living in a single room and parlour (21.4%; n= 86), a room self contain (15.2%; n=61), a single room (11.7%; n= 47), bungalow (8.2%; n= 33) and duplex (4.0%; n= 16). The type of tenure of these household heads were mainly rented apartment (62.6%; n= 251), owned apartment (33.2%; n=133). On the length of time house hold heads had stayed in their present community, the mean length of living in the community was 14.98±15.30 years with the minimum length of time was y years while the maximum was 74 years with a range of 73 years. The mean income from all sources in a month by the household heads was 36517.21±40058.24 Naira. Specifically,

34.9% (n=140) had minimum wage income (18,000 Naira) and less while 65.1% (n=261) earned income above minimum wage.

Table 4.1. Demographic characteristics of the studied population

Variables		Respondents (n=401)		
		Frequency	Percentage	Mean ± Std D
Age (years)	-	-	-	38.41±14.48
Sex	**Male** **Female**	262 139	65.3% 34.7%	-
Age (years)	**Male** **Female**	- -	- -	38.99±14.15 37.52±15.11
Ethnicity	**Yoruba** **Hausa** **Igbo** **Others**	309 26 60 6	77.1 6.5 15.0 1.5	-
Religion	**Islam** **Christianity** **Others**	183 216 2	45.6 53.9 0.5	-
Marital status	**Single** **Married** **Divorced** **Separated** **Widow** **Cohabiting**	91 294 5 4 4 3	22.7 73.3 1.2 1.0 1.0 0.7	-
Household size	**Minimum** **Maximum**	1 21	-	4.34±2.5
Education	**No Formal** **Primary** **Secondary** **Tertiary**	20 56 170 155	5.0 14.0 42.4 38.7	-
Occupation	**Unemployed** **Self Employed** **Civil Servant** **Private** **Organization** **Retiree**	45 254 31 61 10	11.2 63.3 7.7 15.2 2.5	-
Income from all sources (Naira)		-	-	36517.21±40058.24
Less than minimum wage (≤18,000) **Above minimum wage (> 18,000)**		140 261	34.9 65.1	13010.00±17011.79 49126.44±43091.09

Table 4.2 The household heads type of apartment and tenure existing where they live in

Variables		Respondents (n=401)		
		Frequency	Percentage (%)	Mean ± Std D
Type of apartment	A room self contain Single room& parlour A Flat A Duplex A Bungalow A Single Room	61 86 158 16 33 47	15.2 21.4 39.4 4.0 8.2 11.7	-
Tenure existing on apartment	Owned Apartment Employer provided Free authorized Free not authorized Rented apartment	133 5 6 6 251	33.2 1.2 1.5 1.5 62.6	-
Length of time in the community (years)	Minimum Maximum	1 74	-	14.98±15.30

4.2 Level of knowledge of household heads on Oyo State household related environmental sanitation laws

Table 4.3a shows the distribution of household heads on all the sanitation laws evaluated. A high proportion of the household heads knew that the environmental sanitation laws are meant to provide the following benefits; improve health status (97.0%), reduce morbidity and mortality (90.5%), prevent common diseases (97.0%) and improve air quality (92.3%). A similar high percentage of the household heads knew the duties and obligation of owners or occupants of premises in the environmental sanitation laws. In this regards, 93.5% and 93.3% knew the provision of portable water supply and adequate number of toilets respectively. On other issues such as maintenance of premises (95.8%), dislodge and disposal of septic tank (86.5%), provision of drains for waste water (83.5%) and ensuring untreated sewage is not piped to public or road (85.8%) a high knowledge level was also observed.

The household heads had knowledge of the environmental sanitation laws. The most known laws were:-

1.No person shall discard any litter or refuse anywhere except in designated litter bins (97.3%), 2.All grasses, lawns, shrubs in and around living premises must be cut and maintained (97.3%), 3.Every individual is responsible for cleaning the pavement around his /her house and the immediate surrounding including the gutter (95.8%) and 4. No person should build kiosks or shops on road median, drainages or setbacks (94.3%).

On the other hand, the least known laws were:-

1.Allowing waste water to drain from premises into the road in any manner injurious to health or public property (23.2%),

2.Allowing any bird or animal to stray on any road or public place (29.9%),

3. Storing in any receptacle anything likely to hold water and breed mosquitoes (33.7%), Defecation or urination in any public place (37.7%) and 4. Wandering or moving about during the period of sanitation exercise (38.7%).

On the places where environmental sanitation laws should be observed, households (93.5%) and work places (93.3%) were more reported while religious places (88.3%) was the least reported. Interestingly, only 91.8% and 92.0% were of the opinion that market and public places and schools are included in places where environmental sanitation laws should be observed.

On the agencies designated to enforce environmental sanitation laws, 89.3% and 83.5% reported the Oyo State Solid Waste Management Authority and Oyo state Ministry of Environment & Habitat respectively while 80.5% and 76.3% reported Oyo State Environmental Sanitation Task force and Environmental Health Department of Local Government Council respectively. On the penalties prescribed for violating offences in environmental sanitation laws, imposition of fines was the most known (85.8%). This was followed by seal up of premises (45.4%) and then lastly prosecution in a court of law (34.2%).

Table 4. 3a. Distribution of household heads on knowledge of sanitation laws

S/N	Question	Variable	Yes	No	I don't know
1	Mention the benefits of environmental sanitation?	**a. Improving health status**	389 (97.0%)	8 (2.0%)	4 (1.0%)
		b. Reduction in morbidity and mortality	363 (90.5%)	16 (4.0%)	22 (5.5%)
		c. Preventing common diseases and infections such as malaria, diarrhea, skin diseases	389 (97.0%)	9 (2.2%)	3 (0.7%)
		d. Improving air quality and water quality	370 (92.3%)	15 (3.7%)	16 (4.0%)
2	What are the duties and obligations of owners or occupants of premises in the environmental sanitation laws?	**a. Provision of portable water supply to ensure environmental sanitation and personal hygiene**	375 (93.5%)	14 (3.5%)	12 (3.0%)
		b. Provision of adequate number of toilets for occupants of premises	374 (93.3%)	16 (4.0%)	11 (2.7%)
		c. Maintenance of premises	384 (95.8%)	12 (3.0%)	5 (1.2%)
		d. Regular dislodgement and safe disposal of contents of Septic tank	346 (86.3%)	39 (9.7%)	16 (4.0%)
		e. Provision of drains for wastewater and storm Water	335 (83.5%)	44 (11.0%)	22 (5.5%)
		f. Ensure that untreated sewage is not piped or discharged into public drains or roads	344 (85.8%)	35 (8.7%)	22 (5.5%)
3	Mention all the environmental sanitation laws you know?	**a. No person shall discard any litter or refuse anywhere except in designated litter bins**	390 (97.3%)	6 (1.5%)	5 (1.2%)
		b. No person should build kiosks or shops on road median, drainages or setbacks	378 (94.3%)	10 (2.5%)	13 (3.2%)
		c. All grasses, lawns, shrubs in and around living premises must be cut and maintained	390 (97.3%)	3 (0.7%)	8 (2.0%)
		d. Control of vectors in living premises	370 (92.3%)	2 (0.5%)	29 (7.2%)
		e. Every household should incorporate environmental care concerns in their day to day activities	330 (82.3%)	46 (11.5%)	25 (6.2%)
		f. Every individual is responsible for cleaning the pavement around his /her house and the immediate surrounding including the gutter?	382 (95.8%)	5 (1.2%)	12 (3.0%)
		g. All water sources must be kept away from pollution sources	375 (93.5%)	4 (1.0%)	22 (5.5%)
		h. Every residential premise must have a toilet facility	356 (88.8%)	16 (4.0%)	29 (7.2%)
		i. Storing in any receptacle anything likely to hold water and breed mosquitoes	135 (33.7%)	186 (46.4%)	80 (20.0%)
		j. Allowing waste water to drain from premises into the road in any manner injurious to health or public property	93 (23.2%)	254 (63.3%)	54 (13.5%)
		k. Allowing any bird or animal to stray on any road or public place	120 (29.9%)	217 (54.1%)	64 (16.0%)

		l. Defecation or urination in any public place	151 (37.7%)	211 (52.6%)	39 (9.7%)
		m. Wandering or moving about during the period of sanitation exercise	155 (38.7%)	212 (52.9%)	34 (8.5%)
4	In which places should environmental sanitation laws be observed?	**In households**	375 (93.5%)	1 (0.2%)	25 (6.2%)
		In work places	374 (93.3%)	0 (0.0)	27 (6.7%)
		Religious places	354 (88.3%)	0 (0.0)	47 (11.7%)
		Schools	369 (92.0%)	0 (0.0)	32 (8.0%)
		Markets and public places	368 (91.8%)	0 (0.0)	33 (8.2%)
5	What are the designated agencies responsible for the enforcement of environmental sanitation laws?	**a. Oyo State Solid Waste Management Authority**	358 (89.3%)	10 (2.5%)	33 (8.2%)
		b. Oyo state Ministry of Environment & Habitat	335 (83.5%)	30 (7.5%)	36 (9.0%)
		c. Environmental Health Department of Local Government Council	306 (76.3%)	35 (8.7%)	60 (15.0%)
		d. Oyo State Environmental Sanitation Task force	323 (80.5%)	23 (5.7%)	55 (13.7%)
6	List all penalties prescribed for violating offences in environmental sanitation laws?	**Imposition of fines**	344 (85.8%)	23 (5.7%)	34 (8.5%)
		Prosecution in a court of law	137 (34.2%)	59 (14.7%)	205 (51.1%)
		Seal up of premises	182 (45.4%)	67 (16.7%)	152 (37.9%)

Table 4.3 shows the mean knowledge score of the household head in this study on environmental sanitation laws. On the knowledge of household heads on environmental sanitation laws, a mean knowledge score of 27.86±4.34 was obtained. The maximum score on knowledge of household heads on environmental sanitation law was 35 points while the minimum score was 12 points with a range of 23 points. This is 79.6% of the total score of 35 points and indicates that the household heads are 79.6% knowledgeable about environmental sanitation laws.

Analysis revealed that only 2.0% (n=8) of the household heads had poor knowledge of environmental sanitation law. Seventy-five point one percent (75.1%; n= 301) of the household heads had good knowledge of environmental sanitation laws while 22.9% (n=92) had fair knowledge (see figure 4.1).

Table 4.3. Mean knowledge score of the household head on environmental sanitation laws

Variable	Mean	Percentage score	Minimum	Maximum	Range
Knowledge on environmental sanitation laws	27.86±4.34	79.6%	12 points	35 points	23 points

Value is mean ± Standard Deviation

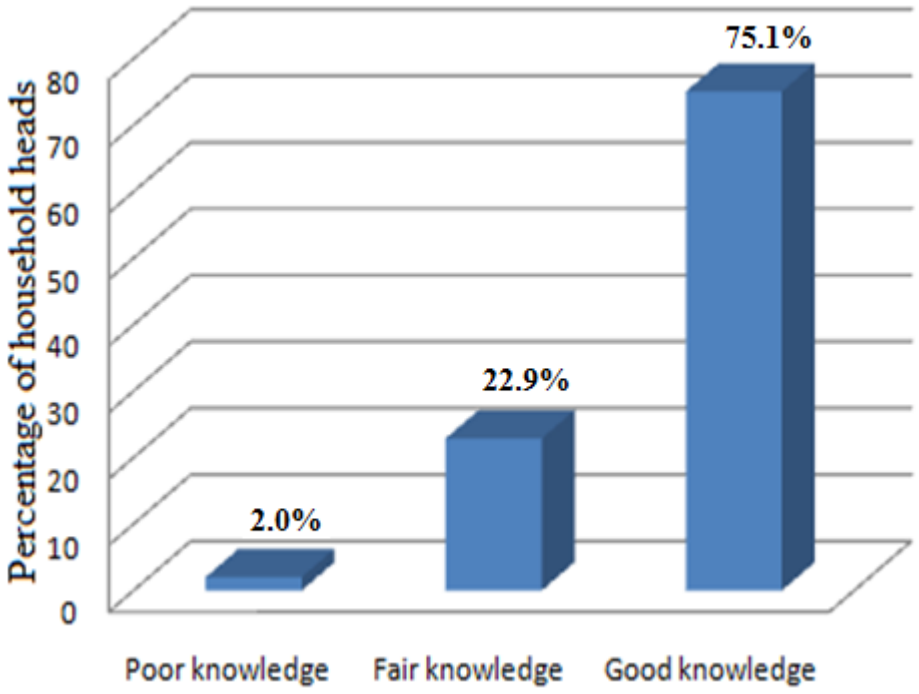


Figure 4.1. Knowledge categorization of household heads on environmental sanitation laws

Key:

Total points = 35 points knowledge scale.

Scores lower than 15 indicate poor knowledge (poor knowledge n < 15)

Scores between 15 and 25 indicate fair knowledge (fair knowledge 15 ≥ or < 25)

Scores above 25 indicate good knowledge (good knowledge n ≥ 25)

4.3 Perception of household heads on environmental sanitation laws

Table 4.4a shows the perception distribution of household heads on the environmental sanitation laws. 96.0% of the household heads think environmental sanitation laws influence their health and that of their family and 97.3% consider the laws to be important. However, only 71.1% think that Oyo State agencies for sanitation strictly enforce the sanitation laws and 79.3% agree there should be punishment if the authorities find filth in and around people's houses. While 30.7% said the punishment should be community service, 53.4% said fines will be acceptable and 8.0% suggested Prosecution/Imprisonment.

On the enforcement of environmental sanitation laws, only 59.1% consider restriction of movement during sanitation days to be essential for the enforcement of sanitation laws. However, 59.1% think there is enough enlightenment on environmental sanitation laws in Oyo State and 83.0% think environmental health officers are necessary in the enforcement of environmental sanitation laws. Interestingly, 63.8% of the household heads feel community leaders and prominent members of the community are sufficient alone for the enforcement of environmental sanitation laws.

Majority of the household heads (83.0%) think the Oyo State Sanitation Laws if properly implemented can keep the LG clean always and 73.8% of them will recommend stiffer punishment and penalties for defaulters in the Oyo State Environmental Sanitation Law. Although, 76.8% of the household heads think the Oyo State Environmental Sanitation Laws can be better enforced if there are more Environmental Health Officers, 83.3% feel compliance will enhance health and living conditions. However, 71.1% think Oyo State Environmental Sanitation laws should be amended.

Table 4.4a.Perception distribution of household heads on the environmental sanitation laws

S/N	Question	Variable	Yes	No	I don't know
1	Do you think environmental sanitation laws will influence your health and that of your family		385 (96.0%)	9 (2.2%)	7 (1.7%)
2	Do you consider sanitation laws as important?		390 (97.3%)	8 (2.0%)	3 (0.7%)
3	Do you think that Oyo State agencies for sanitation strictly enforce the sanitation laws?		285 (71.1%)	99 (24.7%)	17 (4.2%)
4	Should there be punishment if the authorities find filth in and around people's houses?		318 (79.3%)	32 (8.0%)	51 (12.7%)
5	If yes, what should be the punishment?	a. Community service	123 (30.7%)	16 (4.0%)	262 (65.3%)
		b. Fine	214 (53.4%)	54 (13.5%)	133 (33.2%)
		c. Prosecution/Imprisonment	32 (8.0%)	84 (20.9%)	285 (71.1%)
6	Do you consider restriction of movement during sanitation days essential for the enforcement of sanitation laws?		237 (59.1%)	138 (34.4%)	26 (6.5%)
7	Do you think there is enough enlightenment on environmental sanitation laws in Oyo State?		237 (59.1%)	136 (33.9%)	28 7.0%)
8	Do you think environmental health officers are necessary in the enforcement of environmental sanitation laws?		333 (83.0%)	44 (11.0%)	24 (6.0%)
9	Are community leaders and prominent members of your community sufficient alone for the enforcement of environmental sanitation laws?		256 (63.8%)	129 (32.2%)	16 (4.0%)
10	Do you think the Oyo State Sanitation Laws if properly implemented can keep the LG clean always		333 (83.0%)	47 (11.7%)	21 (5.2%)
11	Would you recommend stiffer punishment and penalties for defaulters in the Oyo State Environmental Sanitation Law		296 (73.8%)	56 (14.0%)	49 (12.2%)
12	Do you think Oyo State Environmental Sanitation Laws can be better enforced if there are more Environmental Health Officers?		308 (76.8%)	46 (11.5%)	47 (11.7%)
13	Do you feel compliance with environmental sanitation enhance health and living conditions?		334 (83.3%)	26 (6.5%)	41 (10.2%)
14	Do you think Oyo State Environmental Sanitation laws should be amended?		285 (71.1%)	54 (13.5%)	62 (15.5%)

Table 4.4 shows the perception of household heads on environmental sanitation laws. On analysis with the 16 points perception scale, a mean score of 10.91±3.22 was obtained and this is 68.2%. The minimum and maximum scores obtained with respect to the household heads on perception of environmental sanitation laws were 2 points and 16 points respectively.

Overall, only 17.7% (n=71) of the household heads had poor perception towards the environmental sanitation laws. On the other hand, 31.7% (n=127) and 50.6% (n= 203) of the household heads had fair and good perception respectively (see figure 4.2).

Table 4.4. Mean perception score of household heads on environmental sanitation laws

Variable	Mean	Percentage score	Minimum	Maximum	Range
Perception on environmentalsanitationlaws	10.91±3.22	68.2%	2 points	16 points	14 points

Value is mean ± Standard Deviation

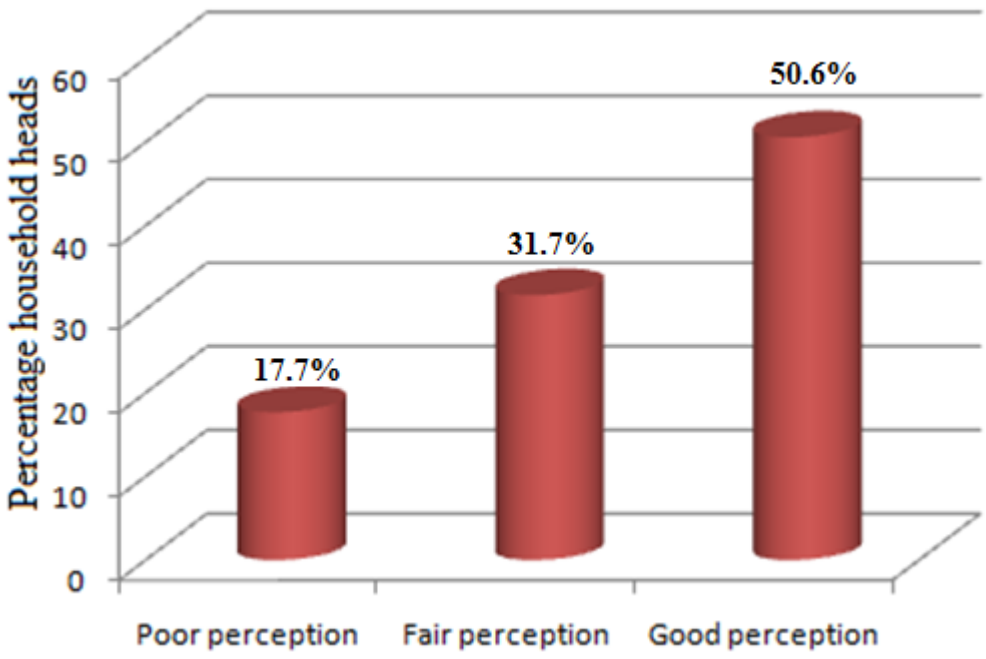


Figure 4.2. Perception categorization of household heads on environmental sanitation laws

Key:

16 Points perception scale is available.

Scores lower than 7 indicate poor perception (poor perception n < 7)

Scores between 7 and 12 indicate fair perception (fair perception 7 ≥ or < 12)

Scores above 12 indicate good perception (good perception n ≥ 12)

4.4 Compliance of household heads with environmental sanitation laws

Table 4.5a is a frequency distribution table of compliance distributions of household heads with environmental sanitation laws. It was observed that 54.6% of the household heads said their personal assessment of environmental sanitation condition in their neighborhood was good, 41.1% said it was fair and 4.2% said poor. Hired hands were the most reported means of disposing household waste while 21.9% reported the children disposed the household waste, 20.2% and 14% reported mother and father respectively. On the method of waste disposal practiced by the household heads, 33.9% and 33.2 reported burning and throwing in designated dumpsites respectively. On the other hand, 3.2% each said they throw in a pit and the other in flowing rain-water or streams.

When asked about toilet facility, 93.5%of the household heads said they have toilet facility while 6.5% reported they have no toilet facilities. Among the household heads without toilet facility, they reported making use of public toilet (2.7%), bush (2.2%), gutter (1.2%) and stream/river (0.2%). On the other hand, household heads with toilet facilities; majority said they have one toilet (43.4%). This was followed by those with two toilets (26.9%), three toilets (13.5%), four toilets (6.0%) and five and more toilets (3.7%). On the type of toilet owned by household head, flush toilet was the most reported and this was 79.3%. However, 13.7% reported pit latrine while 0.5% reported bucket toilet.

Members of household were the most reported (91.0%) as responsible for cleaning the pavement in front of the house and the gutter while street sweepers were reported by 9.0%. On the member of household who enforces environmental sanitation, father was the most reported and this was reported by 55.4% of the household heads. This was followed by mother (27.7%) and then landlord/landlady (4.2%). Interestingly, 78.6% of the household heads reported that the enforcement was very effective while only 2.5% said it was not effective and 19.0% said it was fairly effective.

On visits by an environmental regulatory officer, 12.2% of the household heads said they had been visited by environmental regulatory officer and majority (4.2%) said the visit

occurred only once ina month and 3.0% reported 3 months ago earlier to this study respectively. On the nature of the visit, 6.2% of the household heads said it was on educational talk while 3.5 said it was a periodic visit and 2.5% said it was community mobilization activities. None of the household heads were visited because he/she committed an offence. However, 2.0% and 1.2% of household heads reported they were asked to pay a fine many times and sometimes respectively. Furthermore, 2.5% and 2.0% reported they were given verbal warning many times and sometimes respectively while 0.7% and 1.0% reported they were given written order to comply with the regulations many times and sometimes respectively. Similarly, 1.0% and 0.2% of the household heads reported they had been given notice to appear before an environmental health tribunal many times and sometimes respectively and 0.5% each reported seal-up of premises many times and sometimes.

Table 4a. Compliance distributions of household heads with environmental sanitation laws

No	Question	Variable	Frequency	Percentage
1	**Personal assessment of the environmental sanitation condition in the neighbourhood**	Good	219	54.6
		Fair	165	41.1
		Bad/poor	17	4.2
2	**Who disposes your household waste?**	Father	56	14.0
		Mother	81	20.2
		Children	88	21.9
		Relative	26	6.5
		Hired hands	150	37.4
3	**Method of waste disposal practiced in household always?**	Burning	136	33.9
		Throwing in a pit	13	3.2
		Engaging Private refuse contractors	106	26.4
		Throwing in designated dumpsites	133	33.2
		Throwing in flowing rain water and streams	13	3.2
4	**Presence of toilet facility in the Household**	Yes	375	93.5
		No	26	6.5
5	**If no, where do you go to toilet?**	Public toilet	11	2.7
		In the bush	9	2.2
		In the gutter	5	1.2
		In the stream/river	1	.2
		Not applicable	375	93.5
6	**Number of toilets in households**	One	174	43.4
		Two	108	26.9
		Three	54	13.5
		Four	24	6.0
		Five and above	15	3.7
		Not applicable	26	6.5

7	**Type of toilet n your house?**	Flush toilet	318	79.3
		Pit latrine	55	13.7
		Bucket toilet	2	.5
		Not applicable	26	6.5
8	**Person responsible for cleaning the pavement in front of the house and the gutter?**	Street sweepers	36	9.0
		Member of household	365	91.0
9	**Presence of refuse bin with a lid in the compound?**	Yes	280	69.8
		No	121	30.2
10	**Enforcement of environmental sanitation in the household**	Father	222	55.4
		Mother	111	27.7
		Landlord/landlady	17	4.2
		Children	12	3.0
		Neighbor	1	.2
		Nobody	38	9.5
11	**Effectiveness of the enforcement carried out by member of the household?**	Very effective	315	78.6
		Fairly effective	76	19.0
		Not effective	10	2.5
12	**Have you ever been visited by an environmental regulatory officer in respect of your house?**	Yes	49	12.2
		No	352	87.8
13	**If Yes, when last were you visited by such environmental regulatory officer? (in months)**	1	17	4.2
		2	5	1.2
		3	12	3.0
		4	5	1.2
		5	6	1.5
		6	4	1.0
		Not applicable	352	87.8
14	**Nature of visit by regulatory officer**	Periodic inspection	14	3.5
		Educational talk	25	6.2

		Community mobilization activities	10	2.5
		Not applicable	352	87.8
15	**Did they say you committed an offence?**	Yes	0	0.0
		No	48	12.0
		Not applicable	353	88.0
	a. Asked you to pay a fine	Yes many times	8	2.0
		Yes sometimes	5	1.2
		Never	34	8.5
		Not applicable	354	88.3
	b. Gave me a verbal warning	Yes many times	10	2.5
		Yes sometimes	8	2.0
		Never	30	7.5
		Not applicable	353	88.0
	c. Gave me a written order to comply with the regulations	Yes many times	3	.7
		Yes sometimes	4	1.0
		Never	41	10.2
		Not applicable	353	88.0
	d. Gave me a notice to appear before an environmental health tribunal	Yes many times	4	1.0
		Yes sometimes	1	.2
		Never	43	10.7
		Not applicable	353	88.0
	e. Sealed up my premises	Yes many times	2	.5
		Yes sometimes	2	.5
		Never	44	11.0
		Not applicable	353	88.0

On the level of compliance with environmental sanitation laws, the household heads presented an overall mean level of 19.14±4.92. This is 54.7% in term of the 35 points scale used to analyze the level of compliance. Specifically, the minimum and maximum point scores by the household head on compliance with environmental sanitation laws were 8 and 33 points respectively (see table 4.5). Figure 4.5 shows the compliance categorization of the household heads on environmental sanitation laws. 17.7% (n=71) of the household heads had poor compliance to the laws while 67.3% (n=270) and 15.0% (n=60) had fair and good compliance respectively.

Table 4.5. Mean perception score of the household heads on compliance with environmental sanitation laws

Variable	Mean	Percentage score	Minimum	Maximum	Range
Compliance with environmental sanitation laws	19.14±4.92	54.7%	8 points	33 points	25 points

Value is mean ± Standard Deviation

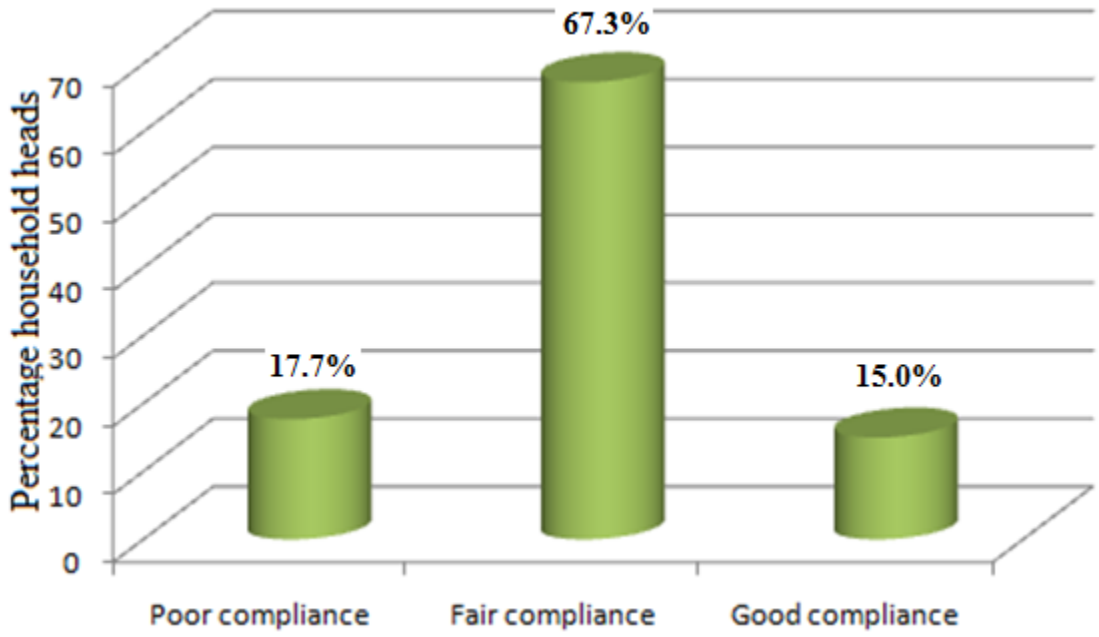


Figure 4.3. Perception categorization of household heads on environmental sanitation laws

Key:

Total points = 35 points compliance scale.

Scores lower than 15 indicate poor compliance (poor compliance n < 15)

Scores between 15 and 25 indicate fair compliance (fair compliance 15 ≥ or < 25)

Scores above 25 indicate good compliance (good compliance n ≥ 25)

Table 4.6 shows the sanitation method practiced by the household head in compliance with environmental sanitation in the community. When household heads were asked on their personal assessment of the environmental sanitation condition in your neighborhood, 54.6% said it was good while only 4.2% said it was bad or poor. On who disposes household waste, hired hands (37.4%; n= 150) was mostly used to dispose household waste. However, a considerable percentage of household heads reported waste disposal by children (21.9%; n=88), mother (20.2%; n= 81), father (14.0%; n=56) and relatives (6.5%; n= 26). The most practiced waste disposal methods by household heads was burning (33.9%), throwing in designated dumpsite (33.2%), engaging private refuse contractor (26.4%). Also, 3.2% each reported practicing throwing in a pit and throwing in flowing rain water or streams.

Table 4.7 shows the sanitation facilities available in the home of the household heads. Only 93.5% of the household heads reported to have a toilet facility while 6.5% reported employing public toilet, bush, gutter and stream or river. Among the households who reported having toilet, 79.3% claimed they have flush toilet, 13.7% have pit latrine and 0.5% make use of bucket toilet. Only 69.8% of the household heads said they hadrefuse bin with a lid in theircompound.

Table 4.8 shows the member of the household who enforces sanitation in the household and how effective the enforcement is as well as household visit by regulatory officer. Also, 91.0% of the household heads reported members of the household to be responsible in cleaning the pavement in front of their house and the gutter. While majority of the household heads reported father (55.4%) to enforce environment sanitation in the house, mother (27.7%) followed among those who enforces such law. 78.6% reported the enforcement to be very effective while only 2.5% said it is not effective. Interestingly, 12.2% of the household heads said they had been visited before by environmental regulatory officers and claimed the visit was about a month ago (n=17). Nevertheless, the visits by the environmental regulatory officer were mainly of educational talk (n=25), periodic inspection (n=14) and community mobilization activities (n=10).

Table 4.6. Sanitation method practiced by the household head in compliance with environmental sanitation laws in the community

Characteristics	Variables	Frequency	Percentage
Personal assessment of the environmental sanitation condition	Good	219	54.6
	Fair	165	41.1
	Bad/poor	17	4.2
Who disposes your household waste	Father	56	14.0
	Mother	81	20.2
	Children	88	21.9
	Relative	26	6.5
	Hired hands	150	37.4
Method of waste disposal practiced	Burning	136	33.9
	Throwing in a pit	13	3.2
	Engaging Private refuse contractors	106	26.4
	Throwing in designated dumpsites	133	33.2
	Throwing in flowing rain water and streams	13	3.2

Table 4.7. Sanitation facilities available in the home of the household heads

Characteristics	Variables	Frequency	Percentage
Presence of toilet facility in the house	Yes	375	93.5
	No	26	6.5
Where used for those without toilet facility in house	Public toilet	11	2.7
	In the bush	9	2.2
	In the gutter	5	1.2
	In the stream/river	1	.2
Number of toilet facility in household with toilet facility	One	174	43.4
	Two	108	26.9
	Three	54	13.5
	Four	24	6.0
	Five and above	15	3.7
Type of toilet facility	Flush toilet	318	79.3
	Pit latrine	55	13.7
	Bucket toilet	2	.5
Presence of refuse bin with a lid in compound	Yes	280	69.8
	No	121	30.2

Table 4.8 Sanitation enforcement, effect and regulatory officer's visit tohousehold

Characteristics	Variables	Frequency	Percentage
Who is responsible for cleaning the pavement in front of your house and the gutter	Street sweepers Member of household	36 365	9.0 91.0
Member of the household who enforcesenvironmental sanitation	Father Mother Landlord/landlady Children Neighbor Nobody	222 111 17 12 1 38	55.4 27.7 4.2 3.0 .2 9.5
How effective is the enforcement carried out by that member of your household	Very effective Fairly effective Not effective	315 76 10	78.6 19.0 2.5
Have you been visited by an environmental regulatory officer	Yes No	49 352	12.2 87.8
When last were you visited by such environmental regulatory officer	1 2 3 4 5 6	17 5 12 5 6 4	4.2 1.2 3.0 1.2 1.5 1.0
Nature of the visit	Periodic inspection Educational talk Community mobilization activities	14 25 10	3.5 6.2 2.5

4.5 Factors influencing compliance of household heads with environmental sanitation laws

Table 4.9 shows the household heads opinions on the factors influencing compliance of household heads with environmental sanitation laws. Majority of the house hold heads agree that inadequacy of funds, Inadequate refuse dumpsites, Lack of enforcement and regular and periodic visit by environmental regulatory officers, Attitude of the people living in households, recent policies of Oyo State Government, Language barrier, Lack of time, poor environmental awareness all influences their level of compliance with environmental sanitation (see table 4.9 for details)

Table 4.9. Factors influencing compliance of household heads with environmental sanitation laws

Factors	Response (n=401)		
	Yes	No	I don't know
Inadequacy of funds affects compliance with environmental sanitation laws	271	125	5
Poor enlightenment about various sanitation laws and policies deters compliance with sanitation laws	316	73	12
Inadequate refuse dumpsites discourages compliance with sanitation laws	315	64	22
Lack of enforcement by environmental regulatory officers encourages non compliance with sanitation laws.	315	70	16
A regular and periodic visit by environmental health is a barrier to compliance with sanitation laws.	251	103	47
Attitude of the people living in households is a determinant of compliance with sanitation laws.	334	57	10
Recent policies of Oyo State Government has not encouraged compliance with sanitation laws.	286	58	57
The poor and illiterate are more interested in issues relating to their daily survival than environmental sanitation issues.	235	108	58
Language barrier is a constraint to compliance with sanitation laws.	158	206	37
Lack of time by household members hinders compliance with sanitation laws.	227	128	46
Environmental awareness is a condition for pro-environmental behaviour and sustainable environmental management.	289	56	56
Good performance of refuse contractors encourages the practice of sanitation	343	38	20

4.6 Hypothesis testing

Ho 1.There is no significant association between household heads socio-economic status and the knowledge of environmental sanitation law.

Table 4.10 represents the Chi square test analysis on the relationship between some socio-economic variables of household heads and knowledge of environmental sanitation laws. Analysis reveals that there is no significant association ($p>0.05$) between household heads socio-economic status; such as education ($X^2 = 9.049$; p-value = 0.171; $p>0.05$), occupation ($X^2 = 4.280$; p-value = 0.831; $p>0.05$), sex ($X^2 = 1.950$; p-value = 0.377; $p>0.05$), and income ($X^2 = 1.541$; p-value = 0.463; $p>0.05$), and the knowledge of environmental sanitation law and thus, the null hypothesis was accepted.

Table 4.10. Chi square statistics on the relationship between some socio-economic variables (sex, education, occupation and income) of household heads and knowledge of environmental sanitation laws

Socio-demographic characteristics	Variables	Level of knowledge			Total	Chi square statistical analysis
		Poor	Fair	Good		
Sex of Respondents	**Male**	7	58	197	262	X^2 = 1.950
	Female	1	34	104	139	df =2
	Total	8	92	301	401	p-value = 0.377
						p>0.05
Level of Education	**No Formal**	1	4	15	20	X^2 = 9.049
	Primary	1	15	40	56	df =6
	Secondary	4	48	118	170	p-value = 0.171
	Tertiary	2	25	128	155	p>0.05
	Total	8	92	301	401	
Occupation	**Unemployed**	2	11	32	45	X^2 = 4.280
	Self Employed	5	62	187	254	df =8
	Civil Servant	0	7	24	31	p-value = 0.831
	Private Organization	1	10	50	61	p>0.05
	Retiree	0	2	8	10	
	Total	8	92	301	401	
Income (Naira)	**<18,000**	3	37	100	140	X^2 = 1.541
	> 18,000	5	55	201	261	df =2
	Total	8	92	301	401	p-value = 0.463
						p>0.05

Ho 2. There is no significant association between household heads socio-economic status and the perception of environmental sanitation laws.

Table 4.11 shows the Chi square analysis to test the relationship between some socio-economic variables of household heads and their perception of environmental sanitation laws. Except for the household head's income level where a statistical significant association (X^2 = 9.983; p-value = 0.007; $p<0.05$) was observed, the household heads sex (X^2 = 0.976; p-value = 0.614; $p>0.05$), education (X^2 = 4.812; p-value = 0.568; $p>0.05$) and occupation (X^2 = 12.451; p-value = 0.132; $p>0.05$) showed no significant association ($p>0.05$) with household head perception of environmental sanitation laws.

Table 4.11. Chi square statistics on the relationship between some socio-economic variables (sex, education, occupation and income) of household heads and perception of environmental sanitation laws

Socio-demographic characteristics	Variables	Level of Perception			Total	Chi square statistical analysis
		Poor	Fair	Good		
Sex of Respondents	**Male**	44	87	131	262	X^2 = 0.976
	Female	27	40	72	139	df =2
	Total	71	127	203	401	p-value = 0.614
						p>0.05
Level of Education	**No Formal**	4	6	10	20	X^2 = 4.812
	Primary	7	16	33	56	df =6
	Secondary	37	53	80	170	p-value = 0.568
	Tertiary	23	52	80	155	p>0.05
	Total	71	127	203	401	
Occupation	**Unemployed**	11	16	18	45	X^2 = 12.451
	Self Employed	47	81	126	254	df =8
	Civil Servant	5	14	12	31	p-value = 0.132
	Private Organization	7	13	41	61	p>0.05
	Retiree	1	3	6	10	
	Total	71	127	203	401	
Income (Naira)	**<18,000**	36	37	67	140	X^2 = 9.983
	> 18,000	35	90	136	261	df =2
	Total	71	127	203	401	p-value = 0.007
						p<0.05

Ho 3 There is no significant relationship between house hold heads knowledge of environmental sanitation laws and compliance with sanitation laws.

Table 4.12 shows the Chi square analysis to test the relationship between house hold heads knowledge of environmental sanitation laws and compliance with sanitation laws. Analysis showed that there is a significant association (X^2 = 34.568; p-value = 0.000; $p<0.05$) between house hold heads knowledge of environmental sanitation laws and compliance with sanitation laws. Thus, we fail to accept the null hypothesis that "there is no significant relationship between house hold heads knowledge of environmental sanitation laws and compliance with sanitation laws".

Table 4.12. Chi square statistics on the relationship between household heads knowledge of environmental sanitation laws and compliance with sanitation laws

		Compliance			Total	**Chi square statistical analysis**
		Poor	**Fair**	**Good**		
Knowledge on environmental sanitation laws	Poor	2	4	2	8	X^2 = 34.568
	Fair	7	55	30	92	df =4
	Good	62	211	28	301	p-value = 0.000
	Total	71	270	60	401	p<0.05

Pictures of some selected areas around Ibadan North LGA with litters of dumps during the study

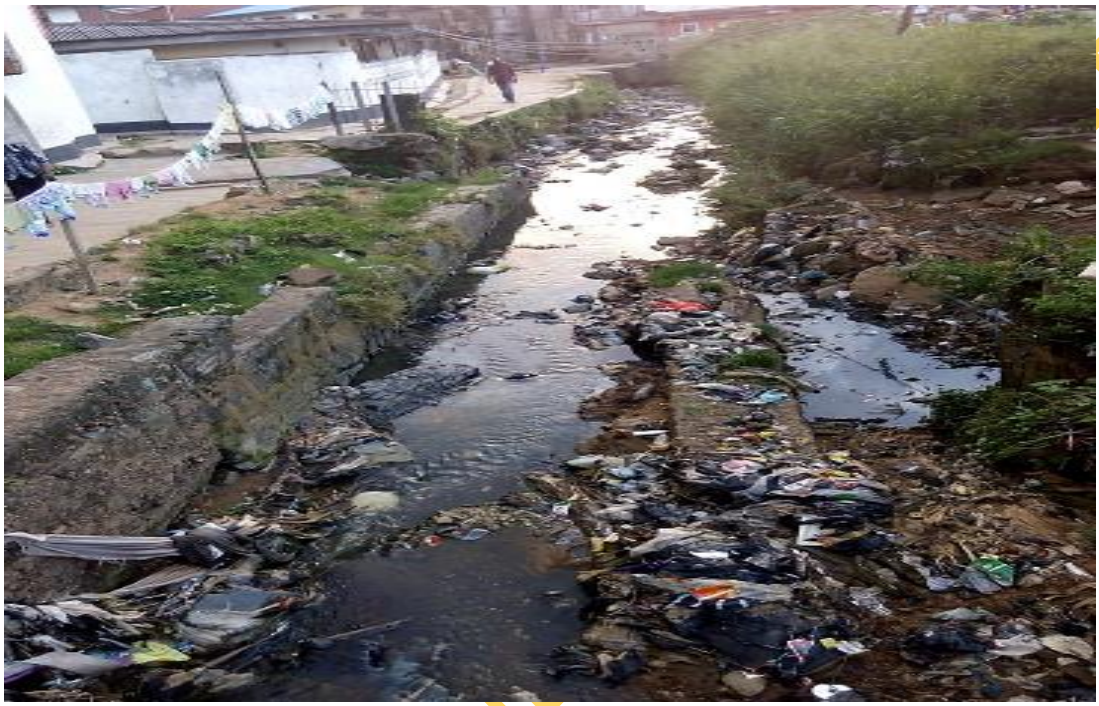


Figure 4.4.A damaged drainage passageway around Yemetu area of Ibadan North LGA with residential buildings around

Figure 4.5.A stream with grasses and dirt around a public primary school in Yemetu area of Ibadan North LGA

Figure 4.6.Dump site at express way between Ojoo –Iwo road. Note the dump despite the notice "do not dump refuse here again".

Figure 4.7.Unauthorized dumpling of waste between express way along Ojoo –Iwo road

Figure 4.8.An illegal dumping site in popular major road between Secretariat - University of Ibadan road

Figure 4.9.A dump site at Bodija market. The issue here is that food products are sold here and residential homes are around this site with food restaurants around too.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Discussion

It has previously been reported that ignorance, negligence, lack of law to punish sanitary offenders and low level of technology in waste management are the major causes of waste management problems (Abrokwah 1998). In this regards, this study was undertaken to assess the acceptance and compliance of household heads in Ibadan North Local Government Area on environmental sanitation laws. It became therefore necessary to assess their level of knowledge, perception and compliance with environmental sanitation laws.

5.1.1 Socio-demographic profile of household heads in Ibadan North Local Government Area

This study showed that the mean age of household heads was 38.41±14.48 and were majorly males. This indicates that household heads in Ibadan North Local government Area are more likely to be male than female. This study also showed that majority of the household heads are married and currently living together. This agrees with the report in NDHS (2013) that 71 percent of women and 50 percent of men are currently married or living together with a partner. The universality of marriage in Nigeria probably reflects the social and economic security marriage is perceived to provide (National Population Commission, 1998).

Also a finding of this study on the ethnicity of household heads in Ibadan North Local Government Area showed that the Yoruba ethnic group was the most represented. This is not surprising considering that Ibadan; where the study was conducted is in South-western part of Nigeria which is predominantly Yoruba in ethnicity. Interestingly, the representation of other ethnic group shows that Ibadan North local Government Area inhabits multi-ethnic nationalities. This multi-ethnic nature of Ibadan North may have been due to the facilities and amenities such as tertiary institutions, recreation facilities, hospitals and major markets in the area.

The mean family size of household heads in Ibadan North was 4.3±2.5. This is lower than the 5.5 fertility rate reported for Nigeria and the 4.6 for South-West (NDHS, 2013). The mean family size in this study is also lower compared to the 4.5 reported for Oyo State in NDHS (2013). This low mean family size in this study may be due to the educational status of the household heads in the study.

This study also showed that majority of the household heads had formal education with only 5.0% not having formal education. Comparatively, the 5.0% reported to have no formal education in this study is lower than the 17.1% reported for south-west and the 24.9% reported for Oyo State (NDHS 2013). This may have influenced their comparative lower family size. This is based on the fact that the educational level of household heads is among the most important characteristics of a household because it is associated with many factors that have a significant impact on health-seeking behaviours, reproductive behaviours, and children's health status. Moreover, the fact that the study area is favoured with several educational institutions may also have impacted their quest for education.
No wonder majority of the household heads were involved in one form of occupation or the other with only 11.2% unemployed. This agrees with the report in NDHS (2013) that practically all women (95 percent or more) in Kwara, Ekiti, Ogun, Osun, and Oyo work throughout the year and that the states with the highest proportions of men who work throughout the year areKwara, Lagos, and Oyo.

5.1.2 To assess the level of knowledge of household heads on Oyo State household related environmental sanitation laws

The findings in this study revealed that household heads in Ibadan North Local Government Area have knowledge of sanitation laws (79.6% see figure 4.1) only 75.1% have good level of knowledge on the environmental sanitation laws. The observed level of knowledge by household heads is thus high when compared to the 39.7% reported for Kumasi Metropolis; the capital city in southern central Ghana's Ashanti Region, by Shaibu and Awunyo-Vitor (2014). In a similar study carried out in Benin city, it was revealed that about 58% and 63 % of households and business operators are not aware of policies on waste management respectively (Igbinomwanhiaand Ideho, 2014). The high

level of knowledge in this study may be attributed to the high educational status of the household heads; where only 5.0% did not have formal education compared to the Benin City study where 16.96% had no formal education. Thus the comparative higher knowledge in the present study is justified.

Although studies on the knowledge of household heads on environmental sanitation laws are limited, the high level of knowledge in this study may be the influence of the household heads socio-demographic characteristics such as education (see table 1) and income. Moreover, the study area has several educational institutions such as the University of Ibadan, The Polytechnic Ibadan, Nigerian Institute for Social and Economic Research (NISER), Federal School of Statistics, School of Nursing and Midwifery amongst others, diverse ethnicity including foreigners, media houses such as NTA Ibadan, Broadcasting Corporation of Oyo State (BCOS), Galaxy Television at Oke Are, Diamond Fm in University of Ibadan, which may influence information sharing. By implication, the high level of environmental sanitation laws by the house hold heads in this study. Worrisome, however, is the fact that Ibadan is still very dirty despite such high level of knowledge.

Furthermore, the high level of knowledge in this study is in accordance with the assertion by Okediran (2004) who reported that the law on the management of wastes in Nigeria has gradually emerged from solely focusing on basic environmental sanitation regulation and is in the process of transforming into a more comprehensive legislation that addresses other environmental management issues such as community participation in waste management and health education methods. Students and researchers who engage in studies pertaining to environmental sanitation management may also have positively increased knowledge however little.

5.1.3 Evaluation of income status of household heads and perception towards environmental sanitation laws

Finding in this study revealed that household heads have overall high perception (68.2%) towards environmental sanitation laws (figure 4.2), however, only 50.6% of the house hold heads have good perception. This is 24.5% different from the knowledge of

environmental sanitation laws by the household heads. This points to the fact that people's poor perception towards environmental sanitation laws may not be related to better knowledge of the laws.

This present study showed that the income of household heads had a statistically significant association with their perception of environmental sanitation laws. Owoeye and Adedeji indeed found that the general level of education of respondents in Akure metropolis was very low. Over 50.0% of the respondents had no formal education while only 20.4% went beyond primary level. This affected the respondents' level of income and consequently the high rate of poverty level and deprivation observed in the study area which had a negative effect on perception with environmental sanitation.Similarly, in a study carried out by Atinsola, Oke and Aina (2013), it was found that the level of income and low level of education of people in the area impinged on the method and quality of sanitation practices as well as the quality of sanitation facilities in homes. Interestingly, the study also showed that majority of the respondents were traders, this was found to impact on the high volume of waste generated in the study area, and hence a poor perception to sanitation can thus be inferred. In addition, Kayode and Omole (2011) in a study on socio economic factors affecting solid waste generation and disposal in Ibadan metropolis found that composition of waste generated in Ibadan was a reflection of variation of socio- economic factors of the people such as income, age, education and occupation, as these factors also had greater influence on the choice of method disposal in Ibadan.

5.1.4 To evaluate the level of compliance of household heads with environmental sanitation laws

While detailed information is needed for decision making (Kennedy, Beckley, McFarlane, and Nadeau, 2009), organizations often rely on the use of information to motivate behavior (McKenzie-Mohr, 2011). Researchers have realized there are "disassociations between knowledge and behavior" (Ajzen, Joyce, Sheikh, and Cote, 2011) and knowledge may not be enough of a motivating factor for an individual to perform a behavior (Ajzen et al., 2011; Hungerford and Volk, 1990; Kennedy et al.,

2009; McKenzie-Mohr, 2011; Schultz, 2001; Tabanico and Schultz, 2007). This was the finding of this study on level of compliance of household heads with environmental sanitation laws. Although this study showed that household heads had high knowledge of environmental sanitation laws, their compliance was however not a representation of their knowledge.

Specifically, this study showed that the overall compliance level was 54.7%, only 15.0% showed good compliance to environmental sanitation laws (figure 4.3). This therefore indicates that 85.0% of household heads in the study do not comply with environmental sanitation laws. No wonder the recent online survey by the Sahara Reporters, describing Ibadan as one of the filth centers of the world (Oyeniyi, 2011). Specifically, this study showed that compliance to environmental sanitation laws was majorly fair (67.3%) with 17.7% showing poor compliance. This low level of compliance is shown physically by the many piles of waste seen in the study area and by implication the area is at risk of the hazards from poor environmental sanitation.

The low perception and very poor compliance to environmental sanitation laws by household heads in this study despite high level of knowledge on the environmental sanitation laws indicates therefore that information on environmental sanitation laws may not be the problem of environmental issue in the study area. The high level of knowledge is expected to bring about high compliance level, but the opposite is the case in this study. This is no doubt related to the piles of rubbish littered on the roads and street corners of Ibadan. The question therefore, what are the factors that influence compliance to environmental sanitation laws by household heads?

Other factors may be seen to be responsible for the poor perception to environmental sanitation inspite of the high knowledge. Mshellia(2015) identified accessibility and poor financing. In his words, accessibility to waste collection depots in our cities has become a problem. Where such an urban center lacks access routes as most do, they prevent collection vans to reach this designated site, and this often makes residents have a discouraged perception to sanitation and hence garbage keeps accumulating.

5.1.5 To identify the factors influencing compliance of household heads with environmental sanitation laws

Until the ratification of the 1999 constitution, the Nigerian constitution lacked a specific provision on the environment. Sections 20 of the 1999 constitution made the following provision: *"the state shall protect and improve the environment and safeguard the water, air, land, forest and wild life of Nigeria"* (FRN, 1999). The broad nature of the wording of this provision makes its enforcement difficult and this is a serious defects as the provision only attempts a middle-ground between two extremes formulated by a system that is not desirous of initiating any serious environmental change, the thrust of which may disturb its economic direction and strategies (Fagbohun, 2002). However, based on the provision in the constitution several environmental policies have been formulated at the state and local government levels. For example, the policies at the state level provide the dumpsite option as the end point for solid waste in Edo state (Edo state, 2010) and no proper provision for the disposal of sewage and excreta.

Urban environments in Nigeria are faced with myriad of issues regarding poor drainage systems (Offiong et al., 2009) and water tight structures which are the major causes of flooding (Belete, 2011). Sule (2001) described Lagos, Calabar and Ibadan as cities where houses are constructed directly on drain channels and that this practice has resulted to blockage of storm drains and consequently leading to overflow and flooding of streets.Estimates have shown that 30 – 50% of solid wastes generated in Nigerian cities are uncollected and disposed of indiscriminately (Falade, 2001; Olukanni and Akinyinka, 2012; Olukanni, 2013b).The lack of adequate waste collection and disposal system cause poor sanitation as it leads to the blockages of drains. Increased population, human activities and inflow materials into the area results in the generation of larger volumes of waste, coupled with irrepressible location of physical infrastructures such as offices, facilities, markets and residential structures which are located and built along natural erosion routes and drainage channels.

5.2 Implication of findings for health promotion and education

This study has shown that household heads are knowledgeable about environmental sanitation laws but have fair perception and poor compliance respectively, hence, the popular findings of heaps of refuse in strategic locations within Ibadan North Local Government Area. This is no doubt due to the observed poor enlightenment about various sanitation laws and policies, poor enforcement of the laws by regulatory officers coupled with the inadequate refuse dumpsites and poor attitude of the people. There is no doubt that the finding of this study will have influence on planning, implementation and evaluation of health promotion and education intervention programmes targeted at tackling the environmental sanitation problems in Ibadan North Local Government in particular and Oyo State in general.

With the current state of limited resources for health care in Nigeria, there is dire need to employ health promotion and education strategies to tackle the different sanitation challenges identified in this study. The need to adopt health self-directed intervention through community participation that promotes healthy behaviours with assistance from policy makers cannot be overemphasized.

One of the key implications of this study is the need for health education and public enlightenment through the use of mass media and behavioural change communication materials such as radio jingles, television programmes, bill boards and others. These have been widely used to disseminate information successfully to raise people's awareness. Thus, harnessing these methods to educate the household heads on the health implications of poor environmental sanitation may be the missing gap. There is need to have serious environmental awareness campaign to help people realize the link between environmental sanitation and human health and security. In fact, Alabi (2010) has previously posited the need for environmental sanitation re-orientation in Nigeria. Alabi (2010) opted for the dual approach to environmental sanitation; we must now consider the place of environmental awareness as a working process towards that end. The government has indeed done much through advertisement and the like to bring this to our people. But this is not enough. Not only does this need to be reiterated, the messages have to be reinforced through popular cultural mediums like music (afro hip-hop for

instance), films (Nollywood) and by the corporate social responsibility drives of companies who are essentially better at implementing interactive projects for it. For example, a quarterly or biannual award of best environmentally clean street, district, business premises, local government council (for states this can be annually) can be initiated through some public/private partnership or purely private initiative.

In another line of thought, the need for community participation and community directed intervention targeted toward community sanitation activities of the communities can go a long way into improving sanitation practices in Ibadan North Local Government Area. This is based on the findings in this study, where a good number of the household heads believe that community leaders can be effective in the enforcement of environmental sanitation laws. Indeed, the success of environmental sanitation in the colonial and post-colonial era were said to be the efforts put in place through social efforts in self-determination, self-motivation and self-reliance with the community concept of full participation. This therefore may be related to the goals of the National Policy on the Environment to raise public awareness and promote understanding of the essential linkages between the environments and to encourage individual and community participation in environmental protection and improvement efforts (Ladan, 2012; Sanusi, 2010).

The findings of this study also indicate there is need to advocate for training and re-training of environmental sanitation regulatory officers on the 21st century information on environmental sanitation laws and ways to enforce them. They need to be taught the bottom-up approach which is in contrast to the top-down approach which they are accustomed to. Similarly, the need for incentive for the environmental sanitation regulatory officers and presentation of awards for outstanding officers can encourage the officers to do their work with hardwork and sincerity.

5.3 Conclusion

This study has shown that up to 20.4% ofthe household heads in Ibadan North Local Government Area do not know of the environmental sanitation laws that govern the sanitation situation in the country at large and in Ibadan in particular. This number is huge considering the environmental threatening behaviours these household heads can impact. Moreover, despite the high knowledge (79.6%) of the environmental sanitation laws, only 68.2% of the household heads have good perception of the laws. The question is what is the state of the 31.8% whose perceptions are poor? By implication, even with those who seem to beaware of the environmental sanitation laws, there is a challenge in abiding by it fully. This was also shown in the present study as only 54.7% of the household heads complied with the laws. Thus, there is a 24.9% gap between knowledge of the environmental sanitation laws and compliance with the laws. It can therefore be asserted that there is a problem with environmental sanitation in the state. This is the implication of the huge waste that is seen within the area of study and environs.

5.3 Recommendation

This research has brought to light the poor attitudinal problems of environmental sanitation that has become a culture in Ibadan and thus justifying the report that Ibadan is one of the dirtiest places in the world. Although numerous issues surround the poor compliance with environmental sanitation in Ibadan, the populace believes that it is the responsibility of the Government to manage sanitation problems in the state, by implication the poor compliance with sanitation laws as shown in figures 4.4, 4.5, 4.6, 4.7, 4.8 and 4.9. Based on the findings of this study, the following recommendations are therefore proffered.

1. Advocacy to the Government on the need to educate the populace on compliance with environmental sanitation laws and need for more environmental sanitation officers.
2. Empowerment of environmental sanitation offices on the need for enforcement of environmental sanitation laws and provision of environmental sanitation equipment and enabling environment.
3. There is need for public enlightenment and health education. Residents in Ibadan North Local Government Area need to be educated on the dangers of non compliance with environmental sanitation laws.
4. Community participation through community directed intervention should be encouraged to guarantee compliance at the household level as well as in the community.
5. Adequate funding should be provided by government to make basic amenities such as waste collector bins and waste evacuation trucks, available that will enable household maintain good and healthy environment.
6. The government can collaborate with university communities for design of waste recycling plans and models. The need for further research in this regards cannot be overemphasized.

REFERENCES

Abogan S. O. (2014) An Appraisal of Existing Sanitation Technology in Nigeria: A Critical Review, *Global Journal of Human Social Science, Geography, Geo-Sciences, Environmental Disaster Managemen*t Vol. 14(1)

Abrokwah K. (1998) Refuse management problems in Central Kumasi: Status report on population, human resource and development planning and policy in Ghana 1960-1991 National Population Council Ashanti Press Kumasi

Abumere S. (1983), City Surface Solid Waste in Nigeria Cities *Environmental International*, Vol.9, pp 391- 396

Achor P. and Nwafor A. (2014) Participatory Decision Making : A Model for the effective involvement of Stakeholders in Waste management Projects In Nigeria *African Journal of Social Sciences*, Vol. 4(1).

Achor P., Ehikwe A. and Nwafor A. (2014) Curbing/Mitigating Indiscriminate Waste Dumping Through Effective Stakeholder Relations) *International Journal of Science and Research*Volume 4(3)

Adelegan J. (2004) The History of Environmental Policy and pollution of water sources in Nigeria (1960-2004): The Way forward).Available at http://web.fu-berlin.de/ffu/akumwelt/bc2004/download/adelegan_f.pdf Accessed 20 September 2015

Adebayo, A. (2000) Environmental Sanitation and Waste Management Policies at the Local Level in Nigeria, *Geo Studies Forum*, Vol. 1(1) pp. 29 -31.

Adekola, P.O., Allen, A.A. and Akintunde E.A. (2014) Environmental Factors Affecting Infant Mortality inIbadan North Local Government Area of Nigeria *African Journal of Social Sciences.* Vol. 4(4) pp. 53-67.

Adeyemi S. L., Raheem U. A. and Olorunfemi F. B. (2008) Under Five Mortality and the Environment of Health in the Third World: A Nigerian Example *Journal of Human Ecology* Vol. 24(2) pp. 117 -124

Agwu M.O. (2012), Issues and Challenges of Solid Waste Management Practices in Port-Hacourt City, Nigeria- A Behavioural Perspective *American Journal of Social and Management Sciences* Vol. 3(2) pp 83- 92.

Ajala A. S. (2011) Space, Identity and Health Risks, A Study of Domestic Waste in Ibadan, Nigeria, *Health Culture and Society*.

Ajzen I. (1980) Understanding the attitudes and predicting social behaviour Englewood Cliff, New Jersey, Prentice- Hall Inc.

Ajzen I, (1998) Attitudes, Personality and Behaviour Chicago Illinois, Dorsey Press.

Ajzen, I. (1987), Attitudes, traits, and actions: dispositional prediction of behaviour in personality and social psychology. In L. Berkowitz (ed.), Advances in Experimental Psychology, New York: Academic Press. pp. 1-63.

Akinboade.L. (2012). Sanitation: Nigeria loses N455bn annually UNICEF . Retrieved on 12 July 2015, http://www.vanguardngr.com12012/06/sanitationnigeria-ioses n455bn-annually -unicef

Akinola S.R., and Adewale B. (2012) Climate Change, Urban Degreening and Flooding in Nigerian Cities : Reducing Vulnerability through Polycentric planning and Urban Greenery strategy, being paper presented at The International Research Conference on Sustainable development at the Faculty of Technology complex, University of Ibadan, Ibadan, Nov. 7 – 9, 2012

Alabi, J.O. (2010). Nigeria and Environmental Sanitation . Retrieved on 12 July 2015, http://nigeriamasterweb.com/biog/index.php/20 10/10/05/ti tie 10

Anunonwu C. O. Agwu A.N. Nwankwo B. J. Nnadozie C. U. Oguejiofor N. S. Nwoga K.S. Odom C. O. (2009) Evaluation of Environmental Sanitation in Owerri Municipal Council of Imo State *Research Journal of Medical Sciences* Vol. 3(4) pp 137- 140.

Anyasoro, J. J. (2010), Environmental Health Workers' Perception of the Implementation of Environmental Sanitation Components in Anambra State , Nigeria Unpublished Masters Dissertation NnamdiAzikiwe University, Awka.

Aluko&Oyebode (2007) Environmental Law 2007 available atwww.iclg.co.uk Retrieved on 16 October 2015.

Amokaye G.(2012) Environmental Pollution and Challenges of Environmental Governance in Nigeria. *British Journal of Arts and Social Sciences* Vol.10(1).

Araoye M. O., (2004) Research Methodology with Statistics for Health and Social Sciences First edition, Nathadex Publishers, Ilorin, pp 115 – 129.

Attah M., (2010) Problems of Domestic Waste Management in Nigeria: Any Repressors Available at www.nigerianlawguru.com. Accessed 20 October 2015

Belete D.A.(2011) Road and Urban Storm Water drainage network integration in Addis Ababa: Addis Ketema Sub-City *Journal of Engineering and Technology Research* Vol.3(7) pp. 217 – 225.

Cadmus S., Adesokan H., Awosanya A.,(2008) Public Health Issues & Observations made during Meat Inspection at Bodija Municipal Abbatoir, Ibadan, Oyo State *Nigerian Veterinary Journal* Vol 29(2) pp 43-47.

Chant S and Brydon L (1989), Women in the Third World , Gender Issues in the Rural and Urban Areas Aldershot , United Kingdom.

Chukwuemeka E. O., Ugwu J. O. Onwuka E. O. and Igwebe D. (2012), Management and Development Implications of Solid Waste Management in Nigeria *Asian Journal of Business Management* Vol. 4(4).

Eboiyehi F A. (2013), Our Lives are in Your Hands; Survival Strategies of Elderly Women Heads Households in Rural Nigeria, *International Journal of Humanities and Social Science*, Vol 3(5).

Ene R. A. (2014) Environment Hygiene in the Nigerian Urban Cities (A Case Study of Enugu Urban) *International Journal of Environmental Science and Development* Vol. 5(4) pp 334-338.

Egunjobi, T.O (1986). Problems of Solid wastes Management in Nigeria urban centres. In: EA. Adeniyi, I. B. Bellow- Imam (Eds.): Proceedings of NationalConference on Development and Environment.Ibadan: NISER, pp. 74-92.

Ezeh O. K, Agho E. K. and Michael J. (2014) The Impact of Water and Sanitation on Childhood Mortality in Nigeria: Evidence from Demographic and Health Surveys, 2003 – 2013 *International Journal of Environmental Research and Public Health* Vol. 11(9)

Fabiyi O. (2004) Gated Neighbourhoods and Privatization of urban security in Ibadan Metropolis, Open Edition Books Ibadan

Fafioye O. O. andDewole O. O., (2013) A Critical Assessment of Waste Management Problems in Ibadan South-West Local Government Area, Ibadan, Nigeria *Greener Journal of Environment and Management Studies* Vol. 2(2) pp 060- 064.

Fagbohun O. (2002) Reappraising the Nigerian Constitution for Environmental Management *AAU Law Journal* Vol.1(1) p 44.

Falade J. B. (2001) Amenity and Open Spaces Contents of Nigerian Planning Legislation being paper presented at the Policy Seminar on Environmental Issues and Management in Nigerian Development held at University of Benin

Firdaus G. and Ahmad A., (2010) Management of Urban Solid Waste Pollution in Developing Countries *International Journal of Environmental Resources* Vol. 4 pp 795 – 806.

Hungeford H. R. and Volk T.L. (1990) Changing Learning Behaviour through Environmental Education *Journal of Environmental Education* Vol. 21 (3) pp. 8 – 21.

Ibekwe S.T. Dongo E. A. and Sridar K.C., (2010) Refuse Disposal Practices in three Motor Parks in Ibadan Municipality *Journal of Public Health and Epidemiology* Vol.2 (4) pp 82 – 86.

Ibor U.W. Anjorin O.A. Ita A. E. Otu M. A. and Bassey T. I. (2011), Utilization of Ante-natal care in Ibadan North Local Government Area, Oyo State, Nigeria *Trends in Medical Research* Vol.6 pp 273 – 280.

Ifegbesan A. P. Solid Waste management practices in two southwest states, Nigeria: Households' Perspective.

Igbinomwanhia. D.I. &Ideho B. O., (2014) A study of the Constraint of Formulation and Implementation of Waste Management Policies in Benin Metropolis, Nigeria *Journal of Applied Science and Environmental Management* pp 197- 202.

Ijaiya H., (2013) The Legal Framework for Solid Waste Disposal and Management in Kwara State, Nigeria *Journal of Environmental Protection* Vol. 4 pp. 1240 - 1244

Illo J. F.(1989), Who Heads the Household? Women in Households in the Philippines, The Filipino Women in Focus.

Kayode A. M. and Omole F. K., (2011) Some Socio –Economic factors affecting Solid waste generation and Disposal in Ibadan Metropolis, Nigeria *Journal of Environmental Issues and Agriculture in Developing Countries* Vol. 3(1)

Kennedy E. H. Beckley T. M., Mcfarlane B. L., and Nadeau S. (2009). Why we don't walk the talk: Understanding the environmental values/behaviour gap in Canada *Human Ecology Review* Vol. 16 pp. 151 -160.

Kriesel, W. (1990).Environmental Health in the 1990s.*World Health Organization*.January-February pp.5-7

.

Ladan M. T. (2012) Review of NESREA Act 2007 and Regulations 2009- 2011: A New Dawn in Environmental Compliance and Enforcement in Nigeria *LawEnvironment and Development Journal*, p116.

Lucas A. O. and Gilles H. M., (1998) A New Short Textbook of Preventive Medicine for the Tropics: Malaria Edward Arnold Publishers, Great Britain pp. 188 -192

Momodu N. S., Dimuna K. O. and Dimuna J. E., (2011) Mitigating the Impact of Solid Wastes in Urban Centres in Nigeria *Journal of Human Ecology*, Vol. 34(2) pp. 125 -133.

Mmom P.C. and Mmom C. F. Environmental Sanitation and Public Health Challenges in a Rapidly growing city of the third world: The Case of Domestic Waste and Diarrhoea Incidence in Greater Port-Harcourt Metropolis, Nigeria *Asian Journal of Medical Science* Vol 3(3)

Mshelia D.A. (2015) Solid Waste Management: An Urban Environmental Sanitation Problem in Nigeria *Sky Journal of Soil Sciences and Environmental Management* Vol. 4(3) pp 034 – 039

National Bureau of Statistics (2012) Social Statistics in Nigeria; Household and Housing Conditions.Part 1.

National Population Commission (2013) National Demographic and Health Survey, Preliminary Report. MEASURE DHS, ICF International, Calverton, Maryland, USA.

National Population Commission (2013) National Demographic and Health Survey, MEASURE DHS, ICF International, Calverton, Maryland, USA.

Odeyemi O. (2001) Processes of Solid Waste Recycling in Nigeria; *International Journal of Environmental Science and Management* Vol. 6 pp. 212 - 217

Offiong R. A. Atu J. E. Njar G. N. and Amuyou U. A. (2008) Problems and prospects of poor drainage systems and urban sustainability in Calabar, Nigeria *Global Journal of Social Sciences* Vol 7(2) pp. 121 – 127.

Ogundele P. A. (2007) African Environmental Problems; Behavioural Solutions, *Environmental Issues*, Vol. 5 pp 80 – 85.

Okediran A. Y. (2004) The legal framework for industrial and domestic waste management in Nigeria available at http://www.folakeokediran.tripod.com Accessed 30 August 2014

Olorunda W. A (2006).Solid Waste Management in South-Western Nigeria.*African Journal of Environmental Studies, Vol. 3(3):* pp. 64 – 69.

Olukanni D., AzuhD., George M. and Emenike P (2014) The Relevance of Policy and Practice on Sanitation Effort in Developing Nations: The Experience of a Semi-urban City in South-West Nigeria being proceedings of ICEERI Conference

Olukanni D, Adebayo R. A. and Tenebe I. T. (2014) Assessment of Urban Drainage and Sanitation Challenges in Nigeria *International Journal of Emerging Technology and Advanced Engineering* Vol. 4(12) pp 100 – 105

Onibokun, A.G (2003). Governance of Waste Management in Ibadan: Geographical Characteristics. International Development Research Science for Humanity (IDRC&CRDI) Canada.Idrc.ca/en/ev-1-201-1-Do_Topic html.

Oni S. A, & Yusuf S. A. (2007), Determinants of Expected Poverty Among Rural Households in Nigeria.

Ojedokun, A. O. (2009), Influence of Psychosocial Factors and Mediatory role of Environmental Attitude on Responsible Environmental Behaviour among Residents of High Density Areas in Ibadan Metropolis. Unpublished doctoral dissertation.University of Ibadan, Ibadan, Nigeria.

Ojedokun, A.O. and Balogun, S.K (2010).Environmental Attitude as a Mediator of the Relationship between Self-concept, Environmental Self-Efficacy and Responsible Environmental Behaviour among Residents of High Density Areas in Ibadan Metropolis, Nigeria.*Ethiopian Journal of Environmental Studies and Management*Vol.3(2) pp111-119.

Ojewale A. S. (2009). Environmental Sanitation: Making Every day count. Paper presented at the 42nd National Conference/Scientific Workshop of Environmental Health Officers Association of Nigeria, 19-22nd October, Damaturu.

Oke M. O., Atinsola M. A. and Aina M. (2013) Evaluation of Sanitation Practices in Ibadan South East Local Government Area *Academic Journal of Interdisciplinary Studies* Vol. 2(5) pp 79 -94

Olukanni D. O. and Akinyinka M. O., (2012) Environment, Health and Wealth: Towards an Analysis of Municipal Solid Waste Management in Ota, Ogun State, Nigeria.

Omoleke I. I. (2005), Environmental Pollution and its Health Hazards in Ibadan, Nigeria, *Africa Journal of Nursing & Midwifery* 7(2) pp 35-50.

Omotosho O. S., (2005) Nigerian Environmental Issues: A Statistical Approach *Journal of Environmental Research* Vol. 4(6) pp. 54 - 69

Oreyomi M. K. (2005) Ecological Sanitation of Water and Environmental Conservation Technology Option: The Case of Slums in Oyo State, Nigeria *Journal of African Environmental Issues* Vol. 3 pp 12- 15.

Osoba S. B. (2013), Telecommunication (GSM) and Urban Spatial Structure in Ibadan North Local Government Area, Nigeria *Current Research Journal of Social Sciences* 5(1): 11-16.

Owoeye I. O. Gani I. and Okojie O. H. (2013) Environmental audit of a refuse dump site in the Niger Delta Region of Nigeria *Journal of Public Health and Epidemiology* Vol. 5(2), pp. 59-65.

Offiong J. (2011) The Dilemma of Implementing Effective Environmental Policies In Nigeria JORIND (9).

Owoeye, J.O and Adedeji, Y.M. (2013) Poverty, Sanitation and Public Health Nexus - Implications on Core Residential Neighbourhood of Akure, Nigeria *International Journal of Developing Societies* Vol. 2(3) pp 99-104.

Oyo State Government (1997) , Edict No 8 of May 1997, Ministry of Information, Community Development, Sport and Culture, Ibadan

Rabe M.(2008), Can the African household be presented meaningfully in large scale survey? *African Sociological Review* 2(2) pp 167- 181.

Sanni M. (2015) An Examination of Environmental Sanitation and Its Health Hazards in the Polytechnic, Ibadan *Academic Journal of Interdisciplinary Studies*, Vol. 4(1).

Sanusi Y. A, (2010) Capacity Issues of Private Sector Participation in Urban Solid Waste Management in Nigeria *Humanity and Social Sciences Journal* Vol. 5(1).

Schultz P. W. (2001) The Structure of Environmental Concern; Concern for self, other people and the biosphere *Journal of Environmental Psychology* Vol.21 pp.327 - 339.

Shaibu I. and Awunyo-Vitor D. (2014) Households' Awareness and Perception of Sanitation Bye- Laws in Ghana; Evidence from Kumasi Metropolis *Research Journal of Environmental and Earth Sciences* Vol. 6 (8) pp 402 -407.

Sule R. O., (2001) Urban environmental pollution critically; A synopsis BAAJ International Calabar.

Tlou F. (2009) The Application of the Theories of Reasoned Action, A Dissertation Thesis submitted to the University of South Africa available at ur.unisa.ac.za retrieved on August 20, 2015

Stock R. (2010). Environmental Sanitation in Nigeria: Colonial and Contemporary. *Review of African Political Economy* pp19-31.

WaterAid (2007) Water and Sanitation in Nigeria: A Briefing on National Policy, Water and Sanitation in NEEDS and National Development Plan available at www.wateraid.org/water-sanitation Accessed 1 September, 2015

World Health Organization (2002) The World Health Report, Geneva

World Health Organization (2008) WHO/UNICEF Joint Monitoring Programme Report available at www.wssinfo.org/documentsRetrieved on 20 August 2015.

World Health Organization (2012) Progress on drinking water and sanitation, WHO/UNICEF Joint Monitoring Programme Update available at www.who.int/water_sanitation Retrieved on 20 August 2015.

World Health Organization (2013) Environmental Health available at www.who/int.prog Accessed 20 April 2015

World Health Organization (2012) Fact Sheet on Environmental Sanitation available at www.who/int.prog Accessed 20 April 2015

World Bank (2001) Sanitation and Water Supply; Improving Services for the Poor available at siteresources.worldbank.org/IDA retrieved on 29 August 2015.

Appendix ii

ACCEPTANCE AND COMPLIANCE WITH ENVIRONMENTAL SANITATION LAWS BY HOUSEHOLD HEADS IN IBADAN NORTH LOCAL GOVERNMENT, OYO STATE QUESTIONNAIRE

Dear Respondent, I am Ajagunna Folakemi , a Postgraduate Student in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. I am conducting a research on "Acceptance and Compliance with Environmental Sanitation Laws by Household Heads in Ibadan North Local Government, Oyo State.

I will very much appreciate your participation. The information gathered will enable us plan an intervention towards the environmental issues in the State. Whatever information you give will be kept strictly confidential and are only used for the purpose of research. No name is required and utmost confidentiality of your identity, response and opinion will be ensured. I therefore invite you to participate in the study by providing answers to the questions you are asked. Please note that the research is free of risk and participation is entirely voluntary.

Thank you.

Location……. S/N……..

SECTION A

SOCIO-DEMOGRAPHIC INFORMATION OF RESPONDENTS

Instruction: Please fill in the slots or mark { } in boxes where available.

1. Age at last birthday…….
2. Sex 1. Male { } 2. Female{ }
3. Ethnicity 1. Yoruba [ ] 2. Hausa [ ] 3. Igbo [ ] 4. others (specify) ……
4. Religion 1. Islam [ ] 2. Christianity [ ] 3. Others (specify)……..
5. Marital Status 1. Single [ ] 2. Married [ ] 3. Divorced [ ] 4. Separated [ ] 5. Widow[ ] 6. Cohabiting [ ]
6. What is your household size:……..
7. Level of Education 1. No formal education [ ] 2. Primary [ ] 3. Secondary [ ] 4. Tertiary [ ]
8. Occupation 1. Unemployed [ ] 2. Self- employed { } 3. Civil servant { } 4. Private organization [ ] 5. Retiree [ ]
9. Income from all sources ……
10. What type of apartment do you live in with your family? 1. A room self contain [ ] 2. A single room and parlour [ ] 3. A flat [ ] 4. A duplex [ ] 5. A bungalow [ ] 6. A single room [ ]
11. What type of tenure exists in the house you live in? 1. Owned apartment [ ] 2. House provided by employer [ ] 3. Free authorized apartment [ ] 4. Free not authorized [ ] 5. Rented apartment [ ]
12. How long have you been living in this community? ……..

SECTION B LEVEL OF KNOWLEDGE ON ENVIRONMENTAL SANITATION LAWS

S/N	ITEM	Response

13.	Mention the benefits of environmental sanitation?	1.Improving health status 1.Yes [ ] 2. No [ ] 3.I don't know [ ] 2. Reduction in morbidity and mortality 1. Yes [ ] 2. No [ ] 3.I don't know [ ] 3.Preventing common diseases and infections such as malaria, diarrhea, skin diseases 1. Yes [ ] 2. No [ ] 3.I don't know [ ] 4.Improving air quality and water quality 1. Yes [ ] 2. No [ ] 3.I don't know [ ] 5. Others……..
14.	What are duties and obligations of owners or occupants of premises in the Environmental Sanitation law	1.Provision of portable water supply to ensure 1. Yes[ ] 2. No [ ] 3.I don't know [ ] environmental sanitation and personal hygiene 2.Provision of adequate number of toilets for occupants of premises 1. Yes [ ] 2. No [ ] 3.I don't know [ ] 3.Maintenance of premises 1. Yes [ ] 2. No [ ] 3.I don't know [ ] 4.Regular dislodgement and safe disposal of contents of Septic tank 1. Yes [ ] 2. No [ ] 3.I don't know [ ] 5.Provision of drains for wastewater and storm Water 1. Yes [ ] 2. No [ ] 3.I don't know [ ] 6.Ensure that untreated sewage is not piped or discharged into public drains or roads 1.Yes [ ] 2. No [ ] 3.I don't know [ ] 7.Others……
15.	Mention all environmental sanitation laws known to you	1.No person shall discard any litter or refuse anywhere except in designated litter bins. 1 .Yes [ ] 2. No [ ] 3.I don't know [ ] 2.No person should build kiosks or shops on road median, drainages or setbacks 1 .Yes [ ] 2. No [ ] 3.I don't know [ ] 3.All grasses, lawns, shrubs in and around living premises must be cut and maintained 1 .Yes [ ] 2. No [ ] 3.I don't know [ ] 4.Control of vectors in living premises 1 .Yes [ ] 2. No [ ] 3.I don't know [ ] 5.Every household should incorporate environmental care concerns in their day to day activities 1 .Yes [ ] 2. No [ ] 3.I don't know [ ] 6. Every individual is responsible for cleaning the pavement around his /her house and the immediate surrounding including the gutter? 1. Yes [ ] 2. No [ ] 3.I don't know [ ] 7.All water sources must be kept away from pollution sources 1 .Yes [ ] 2. No [ ] 3.I don't know [ ] 8.Every residential premise must have a toilet facility 1 .Yes [ ] 2. No [ ] 3.I don't know [ ] 9.Storing in any receptacle anything likely to hold water and breed mosquitoes 1 .Yes [ ] 2. No [ ] 3.I don't know [ ] 10.Allowing waste water to drain from premises into the road in any manner injurious to health or public property 1 .Yes [ ] 2. No [ ] 3.I don't know [ ] 11.Allowing any bird or animal to stray on any road or public place 1 .Yes [ ] 2. No[ ] 3.I don't know [ ] 12.Defecation or urination in any public place 1.Yes [ ] 2. No [ ] 3.I don't know [ ] 13.Wandering or moving about during the period of sanitation exercise 1. Yes [ ] 2. No [ ] 3.I don't know [ ]
16.	In which places should environmental sanitation laws be observed?	1. In households ☐ 2. In work places ☐ 3. Religious places ☐ 4. Schools ☐ 5. Markets and public places ☐ 6. Others……

17	What are the designated agencies responsible for the enforcement of environmental sanitation laws	1. Oyo State Solid Waste Management Authority; 1. Yes [ ] 2. No [ ] 2.Oyo state Ministry of Environment & Habitat; 1. Yes [ ] 2. No [ ] 3Environmental Health Department of Local Government Council 1. Yes [ ] 2. No [ ] 4.Oyo State Environmental Sanitation Task force 1. Yes [ ] 2. No [ ] 5.Others…… ……
18.	List all penalties prescribed for violating offences in environmental sanitation law	1.Imposition of fines ☐ 2.Prosecution in a court of law ☐ 3.Seal up of premises ☐ 4. Others…… ……..

SECTION C: PERCEPTION OF HOUSEHOLD HEADS TOWARDS ENVIRONMENTAL SANITATION LAWS

The following questions pertain to the perception of household heads to Environmental Sanitation Laws. Kindly tick the one that best describes your position on the subject.

S/N	QUESTION	OPTIONS
19.	Do you think environmental sanitation laws will influence your health and that of your family	1.Yes ☐ 2. No ☐ 3. I don't know ☐
20.	Do you consider sanitation laws as important?	1.Yes ☐ 2.No ☐ 3. I don't know ☐
21.	Do you think that Oyo State agencies for sanitation strictly enforce the sanitation laws?	1.Yes ☐ 2. No ☐ 3. I don't know ☐
22.	Should there be punishment if the authorities find filth in and around people's houses?	1.Yes ☐ 2. No ☐ 3. I don't know ☐
23.	(if Yes, what should be the nature of the punishment?	1.Communnity service 1. Yes 2. No 3 I don't know 2.Fine 3. Prosecution/Imprisonment 4.Others…….
24.	Do you consider restriction of movement during sanitation days essential for the enforcement of sanitation laws?	1. Yes ☐ 2. No ☐ 3. I don't know ☐
25.	Do you think there is enough enlightenment on environmental sanitation laws in Oyo State?	1.Yes ☐ 2.No ☐ 3. I don't know ☐
26.	Do you think environmental health officers are necessary in the enforcement of environmental sanitation laws?	1. Yes ☐ 2. No ☐ 3. I don't know ☐
27.	Are community leaders and prominent members of your community sufficient alone for the enforcement of environmental sanitation laws?	1. Yes ☐ 2. No ☐ 3. I don't know ☐

28.	Do you think the Oyo State Sanitation Laws if properly implemented can keep the LG clean always	1. Yes ☐ 2.No ☐ 3. I don't know ☐
29.	Would you recommend stiffer punishment and penalties for defaulters in the Oyo State Environmental Sanitation Law	1.Yes ☐ 2. No ☐ 3. I don't know ☐
30.	Do you think Oyo State Environmental Sanitation Laws can be better enforced if there are more Environmental Health Officers ?	1. Yes ☐ 2. No ☐ 3. I don't know ☐
31.	Do you feel compliance with environmental sanitation enhance health and living conditions?	1. Yes ☐ 2. No ☐ 3. I don't know ☐
32.	Do you think Oyo State Environmental Sanitation laws should be amended?	1.Yes ☐ 2. N o ☐ 3. I don't know ☐

SECTION E: COMPLIANCE WITH ENVIRONMENTAL SANITATION LAWS

33. What is your personal assessment of the environmental sanitation condition in your neighborhood today? 1.Good ☐ 2. Fair ☐ 3.Bad ☐

34 Who disposes your household waste? 1. Father ☐ 2.Mother ☐ 3.Children ☐ 4.Relatives ☐ 5.Hired hands ☐

35. What method of waste disposal do you practice in your household always?

1.Burning ☐ 2. Throwing in a pit ☐ ngaging Private refuse contractors ☐ Throwing in designated dumpsites ☐. Throwing in flowing rain water and streams ☐

36. Do you have toilet facility in your house? 1. Yes ☐ 2. No ☐

37. If no, where do you go to toilet? 1. Public toilet ☐ In the bush 3. ☐ the gutter 4. In ☐ stream/river ☐

38. If yes, how many toilets do you have in the house 1. One ☐ 2.Two ☐ hree 4.I ☐ ☐. Above five ☐

9. What type of toilet do you have in your house? 1. Flush toile ☐ 2. Pit latrine ☐ 3. Bucket toilet ☐

40. Who is responsible for cleaning the pavement in front of your house and the gutter? 1. Street sweepers ☐ Members of my household ☐

41. Do you have a refuse bin with a lid in your compound 1. Yes ☐ 2. No ☐

42. Which member of your household enforces environmental sanitation?.....

43. How effective is the enforcement carried out by that member of your household? 1. Very effe ☐

2. Fairly effective ☐ 3. Not effective ☐

44. Have you ever been visited by an environmental regulatory officer in respect of your house? 1.Yes ☐ 2. No ☐ (If No, go to question 50)

45. If Yes, when last were you visited by such environmental regulatory officer?.....

46. What was the nature of the visit? (Tick as appropriate)

1. Periodic inspection ☐
2. Educational talk ☐
3. Community mobilization activities ☐
4. Apprehension of defaulters
5. Others……

47. Did they say you committed an offence ? 1. Yes ☐ 2. No ☐

48. If Yes, what was the nature of the offence?.....

49. Have the environmental regulatory officers inspecting your house ever done the following to you?

1. Asked you to pay a fine 1. Yes many times 2. Yes sometimes 3. Never
2. Gave me a verbal warning 1. Yes many times 2. Yes sometimes 3. Never
3. Gave me a written order to comply with the regulations 1. Yes many times 2. Yes sometimes 3. Never
4. Gave me a notice to appear before an environmental health tribunal 1. Yes many times 2. Yes sometimes 3. Never
5. Sealed up my premises 1. Yes many times 2. Yes sometimes 3. Never
6. Others (pls specify)……. ……. 1. Yes many times 2. Yes sometimes 3. Never

50..How often do you do the following activities in your home?

i. Clearing of drainage … 1. Yes always 2. Yes many times 3. Yes sometimes 4. Never

ii. Clearing of bushes around your surrounding 1. Yes always 2. Yes many times 3. Yes sometimes 4. Never

iii. Draining water log around your surrounding 1. Yes always 2. Yes many times 3. Yes sometimes

4. Never

iv. Picking garbage and waste around your surrounding 1. Yes always 2. Yes many times 3. Yes sometimes 4. Never

v. Burning refuse that are gathered around your surrounding 1. Yes always 2. Yes many times 3. Yes sometimes 4. Never

vi. Control of vectors in premises 1. Yes always 2. Yes many times 3. Yes sometimes 4. Never

vii Ensuring cleanliness of all rooms within premises 1. Yes always 2. Yes many times 3. Yes sometimes 4. Never

51. Have you been involved in the following activities in your home?

i. Burning refuse that are gathered around your surrounding 1. Yes always 2. Yes many times 3. Yes sometimes 4. Never

ii. Disposing waste in unauthorized sites 1. Yes always 2. Yes many times 3. Yes sometimes 4. Never

iii. Directing untreated sewage into public drains or roads 1. Yes always 2. Yes many times 3. Yes sometimes 4. Never

iv. Erecting structures on setbacks to roads and rivers 1. Yes always 2. Yes many times 3. Yes sometimes 4. Never

SECTION F: FACTORS THAT INFLUENCE HOUSEHOLD HEADS' COMPLIANCE WITH ENVIRONMENTAL SANITATION LAWS

Which of the following factors influence you as a household head to comply with environmental sanitation laws

S/N	FACTORS			
		1. YES	**2. NO**	**3. I DON'T KNOW**
52.	Inadequacy of funds affects compliance with environmental sanitation laws			
53.	Poor enlightenment about various sanitation laws and policies deters compliance with sanitation laws			
54.	Inadequate refuse dumpsites discourages compliance with sanitation laws			
55.	Lack of enforcement by environmental regulatory officers encourage non compliance with sanitation laws.			
56.	Regular and periodic visits by .environmental health is a barrier to compliance with sanitation laws.			
57.	Attitude of the people living in households is a determinant of compliance with sanitation laws.			
58.	Recent policies of Oyo State Government has not encouraged compliance with sanitation laws.			
59.	The poor and illiterate are more interested in issues relating to their daily survival than environmental sanitation issues.			
60.	Language barrier is a constraint to compliance with sanitation laws.			
61.	Lack of time by household members hinders compliance with sanitation laws.			
62.	Environmental awareness is a condition for pro-environmental behaviour and sustainable environmental management.			
63.	Good performance of refuse contractors encourages the practice of sanitation			

Appendix iii

Pre-test Cronbach Alpha coefficient

Case Processing Summary

		N	%
Cases	Valid	38	95.0
	Excluded[a]	2	5.0
	Total	40	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.778	96