

Influence of Broadcast Media Enlightenment Campaigns on Solid Waste Management in South-South of Nigeria

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Abstract
One of the environmental challenges in developing countries is unhealthy disposal of solid waste. Indiscriminate dumping of waste is a common practice across Nigeria. This study examines the influence of the broadcast media enlightenment campaigns on solid waste management for positive attitudinal change in the South-South Geo-Political Zone of Nigeria. In order to determine the relationship between public awareness of the broadcast media and attitudinal change towards solid waste management enlightenment campaigns, survey research and content analysis methods were adopted. Three research instruments were used to obtain data. They were interviews, programmes schedule of broadcast media and questionnaire. The responses obtained from the interviews were used as part of the discussion of findings. Two sampling techniques were adopted for the study. They were the purposive and cluster (multi-stage) sampling techniques. These techniques enable the researcher to select the target respondents from a large group. The Taro Yamani formula for sample size was employed to obtain the sample size. Two thousand and four hundred (2,400) copies of the questionnaire were administered to the south-south states with the help of research assistants and the researcher. Four hundred copies were administered to each of these states. The states are; Akwa-Ibom, Bayelsa, Cross River, Delta, Edo and Rivers states. However, two thousand, three hundred and fifty seven (2,357) copies were retrieved. Results obtained showed irregular and poor enlightenment campaigns by the broadcast media on solid waste management in all these states. This resulted to poor attitude to waste management by inhabitants. The result also showed that positive attitude towards solid waste management depended on regularly broadcast media enlightenment campaigns. However, responsible environmental behaviour remains the best approach to solid waste management and other environmental problems.
Keywords: Attitudinal change, Broadcast media, Enlightenment campaigns, Solid waste management

1. Introduction

One of the greatest environmental challenges facing developing countries is the unhealthy disposal of solid waste which results from human activities of development and survival. It is a problem recognised by all nations at the 1992 Conference on Environment and Development, and regarded as a major barrier in the path towards sustainability of the environment (Ifegbesan, 2009:201). After the United Nations Conference on Environment and Development held in Rio de Janeiro in January 1992, countries began to formally adopt Environmental Impact Assessment (EIA) policies, undated legislation, strategies, and guidelines that required information dissemination and public consultation on projects for which development permits were required. Sound environmental management of waste was highlighted as a major environmental issue at the Rio Conference which re-affirmed the Declaration of the United Nations Conference on Human Environment that was adopted in Stockholm in June 1972. Principle 10 of the Rio Declaration states that:

> Environmental issues are best handled with the participation of all concerned citizens, on a relevant level. On a national basis, each individual should have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States should facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy should be provided (Squires, 2006:1).

The above declaration laid the basis for the participatory planning of solid waste management (SWM). Poor waste management practices, in particular, the widespread dumping of wastes in bodies of water and uncontrolled dump sites aggravate the problems of general low sanitation levels across the African continent (United Nations Economic and Social Council, 2009). Kalantari and Asadi (2009:309) lament that environmental problem and the accelerating changes in living conditions have become a fundamental part of the world in general and metropolises in particular. In Nigeria, the problem of solid waste management (SWM) has been a concern which has existed for a long time. The management of solid waste is one of the important obligatory functions of the Local Government Areas (LGAs) in the entire country (Longe, Longe and Ukpebor, 2009:210), and has emerged as one of the greatest challenge facing state and local government environmental protection agencies (Ogwueleka, 2009:173). Ajayan and Saharsh (2003:1) observed that lack of financial resources,

institutional weakness, improper selection of technology, transportation systems and disposal options, public's apathy towards environmental cleanliness and sanitation have made this service unsatisfactory.

Conceptually, solid wastes as Agbede and Ajagbe (2004:92) put it, "are all the wastes arising from human and animal activities that are normally solid and are discarded as useless or unwanted". It is commonly known as garbage, refuse, rubbish or trash. This does not mean that they cannot be recycled and converted into economic value. Afterall, 'waste is wealth'. Ajayan and Saharsh (2003:2) described solid waste as non-liquid waste material arising from domestic, trade, commercial, agricultural and industrial activities, and from public services. Waste is a combination of various heterogeneous discarded materials. Municipal solid wastes (MSW), as Ogwueleka (2009:174) puts, it "are refuse from households, non-hazardous solid waste from industrial, commercial and institutional establishments (like hospitals), market waste, yard waste and street sweepings". Waste problems affect land, air and water "not to mention its hazards to health and other natural resources of social and economic importance" (Agbede and Ajagbe, 2004:92).

A variety of environmental hazards is associated with the mishandling or mismanagement of refuse. Solid wastes that are not properly stored, collected, transported and disposed off will lead to short-term as well as long term health risks (Ajayan and Saharsh, 2003:4). In the long term, there may be dangers arising from waste dumps particularly on ground, and then, to the pollution of drinking water sources. Fly breeding occurs as a result of uncovered piles of rotting refuse and the flies may play a role in the transmission of faecal-oral diseases. The mosquito, *Anopheles* will survive in these conditions and may transmit malaria, yellow fever, and other diseases and infections especially during the rains. Rats will also live in and around refuse. The main source of food for rats and other small rodents is refuse, and in dump yards, they quickly proliferate and spread to neighbouring houses. They may carry and transmit a variety of diseases, including diarrhoea, dysentery, typhoid, cholera and others. Piles of refuse not properly managed present a fire risk. Flammable waste materials when dumped together at dump yards may cause fire when hot ashes are accidentally added to the dumped wastes. Usually the fire starts with the practice of open burning of refuse. Sometimes this becomes uncontrollable. When the open dumps are fired, toxic gases will be released into the atmosphere. The problems of burning refuse result in loss of potentially valuable recyclable material and the degrading of the land. Burning of materials like polythene, tires, plastics, electronic components and other substances produces dangerous gases to the atmosphere, thus causing pollution. Badly managed refuse can promote water pollution by rain washing debris out of piles of refuse and into surface water. Ground water pollution may also occur. The smell of refuse is a nuisance and aesthetically unpleasing to the environment.

In places where refuse disposal services are lacking, wastes are usually deposited in open street drains and urban waterways. Waste dumped at water channels not only block the running of water but may cause flooding. That is, uncollected refuse obstructs streets and drainage channels. Improper handling of refuse can also cause illness to workers who work in collection and transportation process. Infections of roundworm and whipworm are common among people who work with solid waste disposal activities without proper protective measures (Ajayan and Saharsh, 2003:5).

The existing solid waste management system in Nigeria is very rudimentary, inefficient and unsustainable. Accurate data on the quantities of municipal solid waste generated are not easy to come by (Afun, 2009:1). Also, informal solid waste collection operations exist in parallel with official agencies in some cities in Nigeria. Informal collectors provide the service for a fee. In most urban areas, stationary container system is adopted for waste collections and the waste containers remain at the points of waste generation. This method requires the delivery of waste by the residents to a storage container. Proper dump sites and containers are not adequately provided by the appropriate authorities. Even when provided, poor public attitudes of improper disposal and utilisation of these containers as well as lack of self-consciousness of a clean environment constitute one of the greatest problems of solid waste management in Nigeria. Solid wastes generation exceeds collection capacity. Zurbrugg (2003) cited in Ogwueleke (2009) believes that one to two thirds of the solid waste generation in developing countries is not collected. Also, local agencies do not have adequate capacity to handle the increasing solid waste mainly due to limited budgets. Solid waste collection efficiency in Nigeria ranged from 5 percent in some semi-urban areas to 50 percent in urban areas (Ogwueleka, 2009:175).

The poor state of waste management has been attributed to inadequately formulated and poorly implemented environmental policy, among other factors (Agunwamba, 1998:849). Basically, the discovery of a major toxic waste dumped by an Italian company at Koko town near Warri in Delta State in 1988 led to the establishment of Federal Environmental Protection Agency (FEPA) by Decree No.58 of 1988. However, in June 1999, the Federal Government of Nigeria created the Ministry of Environment and, as a result, FEPA's function was absorbed by the new ministry (Afun, 2009:5). Among FEPA's instructions in combating environmental degradation are the Waste Management Regulation of 1999 and Environmental Impact Assessment (EIA) Decree No. 86 of 1992. FEPA policies regulate the collection, treatment and disposal of solid and hazardous wastes for municipal and industrial sources. The EIA has the mandate for any major development project likely to have adverse impact on the environment. Even with the establishment of Ministry of Environment,

Environmental Protection Agency and Environmental Impact Assessment in many cities in Nigeria, solid waste is still poorly managed (Adewole, 2009:174).

Many cities in Nigeria are still having the problems of solid waste management. This is because it appears that most governments and regulators in Nigeria see issues of waste generation and disposal as intractable. At present, it would seem that most governments see expenditure on refuse management as wasted, without realizing that it is a core index of promise and performance paradigm (PPP) for any administration. As Adewole (2009:174) observes, "there must be a balance between levels of development and the stock of natural resources. That is, development must be at a level that can be sustained without prejudice to the natural environment or to future generations". It seems not easy for the regulators like the Federal, State Ministry of Environment and other related agencies as regards the management of solid waste as our environment continues to experience accelerated degradation. The many warnings about global warming and climate change are parts of the many environmental concerns.

Earlier, environmental problems were considered as technical and economic problems; while in the recent decades the social dimensions of environmental problems such as public attention and people's attitudes towards environment have become one of the areas of environmental sociology and environmental psychology (Kalantari and Asadi, 2009:310). Actually, the management of household refuse, according to Navez-Bounchaire (1993), cited in Banjo, Adebambo and Dairo (2009:63), is tied to perceptions and socio-cultural beliefs and practices. Navez-Bounchaire observed that, in cultural beliefs, most people think that sanity belongs to women, and this is why communication through the broadcast media is imperative. Communication through the broadcast media is capable of raising public awareness, perceptions and attitudes to solid waste management. Olgyaiová, Pongrácz, Mikkola, Škapa and Keiski (2005:86) argued that the lack of environmental awareness is a major problem in our society. By this, they believe that knowledge has to be supported by will, information and abilities to behave in an environmentally friendly way. They suggested that awareness should be created among residents to manage household refuse and educate them on the hazards that ill-disposed waste could pose to the environment and to inhabitants.

Complement to the above, communication becomes necessary to create public enlightenment or awareness and education on waste management. The South-South states in Nigeria, for instance, communication (broadcast media) is important for enlightenment on waste management. The South-South states are oil producing states in Nigeria and are connected by boundaries. These states are: Akwa-Ibom, Bayelsa, Cross River, Delta, Edo, and Rivers.

There are many broadcast stations (both government owned and private ones) in these states, for example, (but not limited to the following):

These stations are capable of transmitting signals within these states and beyond, as such, capable of "shaping social norms and values, influence people's decisions in manners that promote a more environmentally sustainable society" (Nwabueze, 2007:49). Communication plays a central role in shaping our understanding of the natural world and the role of humans therein. Okunna (2002:295) believes that communication facilitates positive change to the target audience in terms of improving their living conditions. This is possible when there is "effective mobilisation aimed at creating favourable attitudes and behaviours among the people for whom a development project is being executed" (Okunna, 2002:300). In the same vein, McQuail (2010:54) argues that the media could be a potent force for public enlightenment and popular education. Communication is also the terrain where diverse points of view are negotiated (Carvalho 2009, in The European Commission for Environment, 2009:1). The broadcast media, for example, are central arena for amplifying environmental issues and can influence the course of policy and attitudinal change. The European Commission for Environment in its 2009 Environmental Policy believes that both the cause of environmental problems and possibilities for addressing them depend on human perceptions, attitudes and behaviours, which are linked to values, preferences and beliefs about the world. Communication, therefore, as they see it, is a key to analysing the relation between all of these aspects.

However, the questions in this study are: to what extent do the broadcast media in the South-South of Nigeria carry out enlightenment campaigns on solid waste management? Is there a relationship between public behaviour change towards solid waste management and enlightenment campaigns by the broadcast media? The purpose of this study was to determine the extent between public behaviour change on solid waste management and enlightenment campaigns by the broadcast media.

2. Statement of the Problem

Solid waste disposal and management is a problem affecting our cities and environment. Every person is a potential generator of waste and thus, a contributor to this problem. The problem of waste management, as Kalantari and Asadi (2010:309) believe, is based on people's attention and attitudes towards the environment or on the level of concern to the environment which could be affected by environmental awareness, attitudes and behaviours, values, and actions. Agarwal (2005:2) identified social attitudes as one of the problems facing solid

waste management. However, few scholars like Nwabueze (2007:47) and Rukeh and Ogbemi (2007:240) have researched into communication as a tool for the management of waste. That is, poor environmental reporting on the part of the media is also a problem.

Basically, it was the infamous toxic waste dumped in Koko, Delta State, in 1988 that revealed the inadequacy of Nigeria's environmental protection, institutional framework and regulations. This made the Federal Government to establish Environmental Protection Agency (FEPA) and other regulatory bodies to protect the environment. Solid waste is one of the greatest environmental problems facing the South-South States in Nigeria. In the United Nations Millennium Development Goals (MDGs), the objective of goal 5 is to improve maternal health; goal 6 is to combat HIV/AIDS, malaria and other diseases, and goal 7 is to ensure environmental sustainability. These three goals concern themselves with healthy environment. The protection or management of the environment which is important for healthy living still remains a huge challenge to the government at all levels. Nwangwu (2000: 1) observes neglect of the socio-economic, political, psychological life of Nigerians in the formulation and implementation of policy and programmes as among the numerous problems facing waste management.

Issues identified as solid waste problems by the International City Management Association, in Sri Lanka (2010:65) in developing countries, and thus, in the South-South states of Nigeria were: shortage of garbage collection vehicles and delays in collection of garbage due to breakdown of these vehicles; lack of proper storage areas for recyclable solid waste prior to disposing in open dumping areas; lack of a long-term systematic approach to sustainable waste management and inadequate public cooperation or lack of public awareness; and lack of cooperation by other state institutions, which engage in haphazard or unauthorized dumping at the garbage dumping site. Solid wastes, if not properly managed cause diseases like diarrhoea, dysentery, typhoid, and cholera especially during the rains. Waste breeds mosquitoes and transmit malaria and yellow fever. The smell of refuse is a nuisance and aesthetically unpleasing to the environment. Thus, the health hazards of unmanaged waste are unprecedented.

From all these problems identified, regular enlighnment campaigns by the broadcast media, the lack of commitment on the part of the government and the lack of conscious effort and concern towards the environment by individuals are identified as problems. Solid waste management is a cultural practice in our society but this has not been the case in our many cities in Nigeria. Some Nigerians see it as not their immediate concerns when compare to economic needs or survival.

The issue of waste disposal and management are still problems to cities in the south-south region of Nigeria. With the growing population at an alarming rate coupled with technological advancement over time, waste disposal and management began to constitute serious problem even in cities. Indiscriminate dumping of household solid wastes on our streets, rivers and drainages has contributed in no small measure to drainage blockage, flooded road and the spread of offensive odours and diseases. Many households are struggling with how to manage their waste. Waste is accumulating day-in day-out, as there is no waste management. The methods of solid waste disposal in some parts of the region include dumping of refuse to gutters, drains, roadside, unauthorized dumping sites and stream channels during raining season and burning of wastes on unapproved dumping sites during the dry season.

The problem of waste management in this region, when combined with rapid urbanization and unplanned development is expected to be of such magnitude that significant reasons exist to initiate immediate action for improvement of this appalling situation. It was on this note that the different governments in the south-south states establish Ministry of Environment and other related agencies. Awareness and attitude of people in the community appear to be crucial as their points of understanding of household solid waste management ultimately play an important role in providing answer to environmental problem.

The interest of this study was on how public behaviour change can be influenced by broadcast media enlightenment campaigns on solid waste management.

3. Objectives of the Study

In a broader perspective, this study expands the scope of knowledge on solid waste management by looking at it from the angle of enlightenment campaigns by the broadcast media. The study specifically seeks, among other things to:

1. Determine inhabitants' attitudes to solid waste management through enlightenment campaigns by the broadcast media.
2. Examine the extent to which the broadcast media contribute towards enlightenment campaigns on solid waste management.
3. Find out how the inhabitants' in the South-South states perceive the roles of the broadcast media in solid waste management.
4. Determine if the broadcast media carry out public awareness campaigns on solid waste management in the South-South states of Nigeria.

5. Evaluate if positive attitudes towards solid waste management depend on the influence of broadcast media enlightenment campaigns.

While other studies focus on solid waste compositions, sources, generation and related themes, this study focuses on effective environmental management or responsible environmental behaviour through behaviour change communication (BCC).

4. Research Questions

The following questions were our guide for the study.

1. What are inhabitants' attitudes towards solid waste management through enlightenment campaigns by the broadcast media?
2. To what extent have the broadcast media contribute towards enlightenment campaigns on solid waste management?
3. How does the public perceive the roles of the broadcast media on solid waste management awareness campaigns?
4. Do the broadcast media in the South-South states carry out public awareness campaigns on solid waste management?
5. Do positive attitudes of inhabitants towards solid waste management depend on the influence of broadcast media enlightenment campaigns?

5. Hypotheses

The following null hypotheses below were tested.

1. H_O: Age of respondents does not affect the level of influence of broadcast media enlightenment campaigns on solid waste management.
2. Ho: Level of education is independent of the influence of broadcast media enlightenment campaigns on solid waste management.
3. H_O: Positive attitudes of inhabitants towards solid waste management do not depend on influence of broadcast media enlightenment campaigns.

6. Significance of the Study

By drawing recommendations from the findings, the study will be relevant to the public. Awareness carried out by the broadcast media would indeed enhance public knowledge and practice on waste management. Inhabitants in these states will benefit through media enlightenment campaigns. For example, regular environmental news can awake public knowledge and, perhaps, interest on waste management. Media sensitisation of the public on solid waste will further raise the efforts of the Environmental Protection Agencies and the various states solid waste management boards. Babayemi and Dauda (2009:83) believe that the knowledge of the current status of waste disposal options and the level of awareness of solid waste management will help stakeholders involved in waste management to take action to establish and reinforce appropriate waste collection and disposal options and environmental education and awareness on waste management.

The work will expand and contribute to knowledge. It will be significant to existing theories by expanding knowledge on solid waste management and environmental studies in general. While other researches looked at solid waste management from different perspectives, this study look at it from enlightenment campaigns on the broadcast media. The study will extend the frontier of knowledge on environmental studies such as global climate change, pollution management, gas flaring, and other environmental issues.

7. Scope of the Study

The scope of the study covers the influence of the broadcast media enlightenment campaigns on solid waste management. The geographical scope or area of study is the South-South Geo-Political Zone of Nigeria. The states in this zone are: Akwa-Ibom; Bayelsa; Cross River; Delta; Edo and Rivers.

These states are connected by rivers and land boundaries. They are oil producing states. The name Akwa Ibom, for example was derived from the Qua Iboe River which originates from Umuahia hills. Akwa Ibom was carved out of Cross River State on September 23, 1987 by combining Uyo, Ikot Ekpene, Eket and Abak divisions of old Calabar province. The state is located in the coastal South-Southern part of the country, with a land mass area of 7,081km2. It is bordered on the east by Cross River State, on the west by Rivers State and Abia State, and on the south by the Atlantic Ocean.

The present day Bayelsa State was one of the states created by the Federal military government of General Sani Abacha on 1 October 1996 as an acronym from the three major local government areas in the region namely Brass, Yenagoa and Sagbama in the then Rivers State. Bayelsa has her capital in Yenogoa and is placed in the lower southern part of the Niger Delta region. The state shares boundary with Delta and Rivers states.

Cross River state derives her name from the river Oyono which passes through the state. The state then known as the South Eastern state became part of the 12 states created at the eve of the civil war in 1967 by the General Yakubu Gowon regime. Its name was changed to Cross River State in the 1976 state creation exercise by the then General Murtala Mohammed regime. Cross river state is bounded by water with Akwa-Ibom.

Delta State is one of the states in the Niger Delta region of Nigeria. A unique character of the state is her oil rich riverine area which holds a rich deposit of crude oil and gas. Delta state was formed when the old Bendel state was divided in August 1991 with Edo state being the other half. Delta state shares boundary with Edo state on the west and Bayselsa state on the east.

The present day Edo State has a rich cultural and political heritage dating back to pre-colonial era. The state has undergone numerous metamorphoses since 1900 when it was part of the Southern protectorate of Nigeria; later becoming part of the Western region, Mid-western region, Mid-western state, Bendel state and finally Edo state in August 1991 when it was splinted into two with Delta state being the other half.

Port Harcourt which was named after Lewis Harcourt, the colonial secretary in 1912 is the cosmopolitan city that is the capital of Rivers State. The history of Rivers State is traceable to 1885 when it was part of the Oil Rivers Protectorate. It was named after the many rivers that border its territory and constituted one of the earliest states which came into being upon the dissolution of the old eastern regional structure in 1967. Until 1996, Bayelsa state was part of Rivers. It is bounded on the South by the Atlantic Ocean, to the North by Imo, Abia and Anambra States, to the East by Akwa Ibom State and to the West by Bayelsa and Delta states.

As regards solid waste regulators, there Ministry of Environment and State Waste Management Boards in these states, Department of Environment at the local government level and other related agencies. The Niger Delta Development Commission (NDDC) and other NGOs provide waste bins or containers and other materials to help the government in waste management. However, the situation of solid waste management in this region has been described by Afun (2009:4) and Abah and Ohimain (2011:108) as poor, inefficient waste management system and unsustainable practice towards solid waste. For example, Abah and Ohimain lament that solid waste management in Port Harcourt is poor and has reached an alarming proportion. In some cities in this region, proper dump sites and adequate waste containers are not provided by the appropriate authorities. Some inhabitants in the riverine dump their waste in creeks and water channels.

There are federal and state universities in all the south-south states. Even with the establishment of Ministry of Environment and State Waste Management Boards in these states, the broadcast media and higher institutions of learning, solid waste still remains a challenge to the governments in these states. This prompted the adoption of this region for this study.

Inhabitants in these states that are 18 years above and are in urban towns are also part of the scope. This is because they are old enough to understand the questions or contents in the questionnaire.

8. Review of Relevant Literature

8.1. *Awareness and Attitude towards Solid Waste Management*

Few studies exist on public awareness of solid waste in Nigeria. But there are ample evidence of individual or group awareness and attitude towards waste management (Ifegbesan 2009:210, Macawile and Sia Su, 2009:66). Ifegbesan sees public awareness and attitude towards waste management as critical in the effort to respond to waste management challenge. In a study of secondary school students' understanding and practices of waste management in Ogun State, Ifegbesan found that students possessed high environmental awareness and knowledge of waste problem but have low attitudes towards waste management. Thus, the concepts of awareness and attitude have been associated with environmental behaviour. McQuail (2010:515) defines attitudes as underlying dispositions or mental sets towards some objects that are generally measured in terms of verbal response to evaluative statement. This implies that attitudes are primarily valuations and attributes made by individuals that are determined by more fundamental and enduring personal circumstances. Attitude towards a concept can be defined as an individual or group of individuals, general feeling of favourableness and unfavourableness for that concept (Ajzen and Fishbein, 1980, in Ifegbesan, 2009:202). Many studies on attitudes have found a positive and often significant relationship between the two concepts (awareness and attitude). In a study of effectiveness of education strategy in raising levels of knowledge and attitudes towards nature conservation, Olson, Bowman and Roth (1984, in Ifegbesan, 2009:210) found a positive relationship between scores on the knowledge test and scores on the attitude test for all concepts measured. The programme was successful in raising both the levels of knowledge and improving attitudes towards environmental management. This implies that there is a positive knowledge and attitudes towards environmental behaviour.

In the same vein, many studies in the last two decades on socio-demographic variables and environmental awareness have helped in understanding people's views and their thoughts about the environment. They have attempted to predict environmental awareness and attitudes of people based on their socio-demographic characteristics. For instance, Raudsepp (2001:357) reported that age, education and gender have shown strong and consistent relations with environmentalism. He believes that these factors affect environmental

attitudes. Older people with their exposure and experience show more concern for the environment than younger ones with less exposure and experience. Also, Longe, Longe and Ukpebor (2009: 204) suggest that gender difference, age, and level of education could influence people's perception on solid waste management. Age is expected to play a significant role as maturity could affect one's level of awareness on environmental health and sanitation. Matured adults whose reasoning level as regard household waste and management are expected to be high and thus facilitate public involvement in solid waste management process. The influence of educational attainments could as well be an important factor that could influence people's perception on waste management. Tikka, Kuitnen and Tyns (2000) have attempted to ascertain the correlation of environmental knowledge with that of environmental quality awareness and concern. They found a positive correlation. Their research also explored the influence of education, income, age and gender on public awareness and attitude towards environmental quality issues. The average monthly income of respondents has also been considered as an important variable that could influence people's perception and attitude on solid waste management system (Longe, et al. 2009:204). Socio-demographic application to environmental studies has shown in these researches that the level of education, age and income affect environmental awareness and attitude towards the environment.

In all, it is obvious that there is a paradigm shift from technical/mechanical solutions of environmental problems or management to modifications of human behavioural patterns through developing responsible environmental bevaviour (REB). Consistent with this, Kalantari and Asadi (2010:309) had observed that environmental attitudes and ecological behaviour and their environmental consequences have been investigated in developing and developed countries during the last few decades, moving from technical and economical problems to social problems.

Environmental awareness has been seen as a combination of motivation, knowledge and skills (Partanen-Hertell et al. 1999, in Olgyaiová, Pongrácz, Mikkola, Škapa and Keiski, 2008:86). This knowledge has to be supported by will, information and abilities to behave in an environmentally friendly way. When the environmental awareness of an individual is combined with external stimulating physical and practical conditions, the result can be a desire and will to make environmental friendly choices. Environmental awareness starts to develop when people notice that unfavourable or threatening changes in the surroundings emerge, and the effect of which cannot be corrected easily. The realisation that environmental damages need a long time to recover stimulates the arising environmental awareness further. Olgyaiová et al. (2008) believed that motivation is necessary to increase the level of knowledge and skills in health matters. Even though people and organisations think that the state of the environment should be improved, they do not see themselves as active actors in this process. They consider that somebody else, for instance scientists, environmental non-governmental organisations or international organisations should focus on, or solve environmental problems. Motivation as Olgyaiová et al. (2008: 89) defined it is the driving force that causes an individual to act in order to achieve a specific goal. Motivation is usually perceived as a positive force, the desire to achieve a goal. The driving force of the society changes from the growing production and economy towards a steady sustainable welfare. Raising environmental awareness supports the development towards sustainability. Media enlightenment on waste management can motivate the public to achieve a common goal of environmental friendliness.

Environmental awareness is affected by external stimulus (motivation, knowledge and skill). The right motivation, for example, brings about the desire and will to make environmental friendly choices when given opportunities to act. Improved state of the environment is based on environmental friendly actions and choices taken.

Environmental attitudes are recognised as an indicator and component of environmental behaviour (Kalantari and Asadi, 2009:310). Many theoretical and empirical approaches on attitude towards environmental management have been researched (Tarrant *et al.,* 2003). Most of the studies related to this issue have been conducted since 1970 onwards when conceptualisation of environmental attitudes as a scientific research concept gained closer attention by researchers (Dunlap *et al.,* 2004). Dimensionality was one of the most critical factors of environmental attitude studies. Initial researches looked at environmental attitudes as a uni-dimensional concept. Later, many studies explored the multi-dimensionality of environmental attitudes. Albrecht et al. (2002) used factor analysis and found three dimensions: "balance of nature", "limits to growth", and "man over nature". Cluck et al. (2003) conceptualised environmental attitudes as a three dimensional concept, including "environmental worldview", "environmental concern", and "environmental commitment". Environmental worldview represents basic and general form of environmentalism of the respondents. This form of environmentalism indicates respondents' general perceptions about the environment, relationships between the environment, economic growth, industrialisation and effects of science and technology on the environment. Environmental concern represents values of respondents about the relationship between the environment and society and the relationship between individual and the environment and also perceptions of respondents about specific environmental problems. Environmental commitment represents values of respondents about

commitment issues for better environmental quality. The environmental commitment issues might have willingness to pay higher taxes or costs for better environmental protection and be willing to reduce living standards to achieve a higher environmental quality (Vogel, 2002. All authors here were cited from Kalantari and Asadi, 2009:310).

The above indicated that most approaches identify environmental attitude and behaviour as multi-dimensional phenomena. These studies, however, reveal some factors that are consistently related to environmental behaviour over time and across studies. Several studies have shown that a cognitive hierarchical framework consisting of basic values, general believes, specific attitudes, and behaviour provide a suitable basis for understanding environmentalism (Kalantari and Asadi, 2009:310). Although the effect of knowledge is not conclusive, there have been several studies suggesting that knowledge plays an important role in enhancing the environmental attitude and behaviour relationship by providing individuals with the ability to better formulate alternative views and present arguments to support their believes and behaviours (Kalantari and Asadi, as above).

In the same vein, Olgyaiová et al. (2008:89) argued that environmentally responsible behaviour may be characterised as a multidimensional and fairly complex phenomenon. It is both morally and intellectually demanding. This kind of behaviour can be encouraged by various motives, including self-interest as well as selfless ones. Self-interested motives usually refer to various side payments, selective financial incentives, sanctions, punishments, laws and regulations etc., while selfless motives include, ecologically responsible behaviour refer to the integration of the long term collective utility into the personal utility function of the individual. The point here is on environmental responsible behaviour which is considered to have a long term solution to environmental problems.

However, the element of awareness is not sufficient without knowledge, understanding, the change of attitude and physically participation. According to Hassan (2001, cited in Hassan, Juahir, and Jamaludin, 2009:53), no matter how much knowledge that has been gained by someone, still, it cannot be assumed as perfect as the individual does not applies the knowledge within his life to differentiate between the right and wrong. For instance, by looking at the context of environmental issues, there are lots of individuals that gain knowledge and awareness regarding the environment still they have irresponsible attitude towards their surroundings. They fail to interpret the environmental awareness as mutual commitment (Hassan,et al.2009: 53).

Some aspects of environmental awareness have been discussed from the view of religion and epistemology (Hassan, Juahir, and Jamaludin, 2009**:** 54). For instance, the environmental awareness among the Christians can be viewed and related with the belief of Christianity. It not only focuses on the aspect of intellect, but also the need for better and healthy living. It states that beliefs and morals cannot be separated as both aspects are based on the Bible, which include the quality of moral and human behaviour. For instance, the axiology of Christianity states that the moralistic individual is the balanced individual from the aspect of manner and act, such as the awareness towards environment as the person is able to manage his emotion and action from spoiling the nature. Cleanliness is next to godliness. Based on the aspect of epistemology, knowledge is a process of discovering a thing and new phenomena, and the process should relate with the physical object that exist within the actual life, which should be examined through the human senses. Epistemology is a philosophical science which deals with knowledge and truth. It tells us what we can know and the justification of knowledge. This philosophy presumes that knowledge can be acquired from the relationship between human and nature, as both elements are interconnected. Knowledge about the environment justifies why we should protect the environment.

Perceptions of the bond between people and places (environment) have also been studied by Smaldone (2007). He used the term 'place attainment' or sense of place (SOP) to explain one's emotional or affective ties to a place. This was generally thought to be the result of a long-term connection with a certain environment. As it were, one can have an emotional response (thoughts, feelings, memories and interpretations) towards his environment but the degree of liking it depends on his behaviour to the environment. Environmental psychologist, Proshansky (1987, in www.wikipedia.org 2010) explored how one's perception or attitude to the environment or 'place identity' as he called it, affects his behaviour to the same environment. The analogy is that; with one's biological, social, psychological and cultural experience with the environment, one's attitudes, values, feelings, beliefs and perceptions of the environment are formed. That is, by reason of perceptions, a person's environmental behaviour is formed. Macawile and Sia Su (2009:65) study examined local government officials' perceptions and attitudes towards their community's solid waste management and detect whether gender differences exist on the perceptions and attitudes of local government officials. To them, men and women or local government officials' perceptions and attitudes towards solid waste management are not significantly different from each other. Men and women have equal roles, responsibilities, perceptions and attitudes towards their community's solid waste management. Their study revealed that respondents recognised that attaining sustainable waste management is a joint responsibility of the government and its community members.

A study has shown the connection between waste management processes and climate change (Enete,

2010:2). Climate change is a serious international environmental concern and the subject of much research. Moreover, in international scientific circles, a consensus is growing that the buildup of Carbon dioxide ($C0_{2)}$ and other Green House Gases(GHGs) in the atmosphere will lead to major environmental changes such as (1) rising sea levels that may flood coastal and river delta communities; (2) shrinking mountain glaciers and reduce snow cover that may diminish fresh water resources; (3) the spread of infectious diseases and increased heat-related mortality;(4) possible loss in biological diversity and other impacts on ecosystems; and (5) agricultural shifts such as impacts on crop yields and productivity (McCarthy, 2001, in Enete,2010:2). Climate change could result in changes in temperatures, cloud cover, rainfall patterns, wind speeds, and storms. All these factors could impact future waste management facilities' development and operation. The time scales for climate change and waste management are similar. For instance, landfill sites can be operational for decades and still remain active for decades following their closure. Agarwal (2005:2) believes that solid waste is threat to the climate if it remains in one place for a relatively longer period without management. There is, therefore, a need to consider potential changes in waste management over significant timescales and respond appropriately.

In most developed and developing countries with increasing population, prosperity and urbanization, it remains a major challenge for municipalities to collect, recycle, treat and dispose of increasing quantities of solid waste, especially in a changing climate. Before a material or product becomes a solid waste, it goes through a long cycle that involves removing and processing raw materials, manufacturing the product, transporting the materials and products to markets, and using energy to transform the product. Each of these activities has the potential to generate greenhouse gas emissions through one or more of the following means: energy consumption, methane emissions, carbon storage. A cornerstone of sustainable development is the establishment of affordable, effective and truly sustainable waste management practices in developing countries. It must be further emphasised that multiple public health, safety and environmental co-benefits accrue from effective waste management practices which concurrently reduce GHG emissions and improve the quality of life, promote public health, prevent water and soil contamination, conserve natural resources and provide renewable energy benefits (Enete, 2010:3).

8.2. *Environmental Concern*

Environmental concern or consciousness is believed to be one of the first steps towards environmental management. It incorporates multiple dimensions in the sense that attitude reflects different aspects regarding humans and nature, such as awareness of ecological problems, support for environmental regulation, green movement, and exhibition of eco-conscious behaviour (Bao, 2009:3). Fundamentally, environmental concern has to do with one's attitude towards the environment or the relationship between humans and the ecosystem (Bao, as above). Bao views environmental concern as a proactive attitude towards the ecosystem and one's behaviour regarding environmental preservation and protection.

Research on environmental concern has been examined. For instance, previous results showed that those who tended to be environmental conscious were likely to be young and well educated (Dietz and Kalof, 2003:5). Later, evidence started to imply that demographic variables alone may not be sufficient in explaining environmental consciousness and eco-friendly behaviour but also the willingness to adopt a responsible environmental behaviour. Invariably, environmental consciousness is the first step towards solid waste management. There also exists research asserting that environmental consciousness is necessary and essential to pro-environmental behavioural changes (Haytko and Matuliich, 2009:5). A study has suggested that personal attachment to the environment can motivate pro-environmental behaviours, ranging from environmental activism, such as ecological relevant petition for pro-environmental laws and regulations, membership in anti-pollution organisations, to energy conservation and responsible use of resources (Bao, 2009:6; the late Ken Saro-Wiwa would ever be remembered as Nigeria's foremost environmentalist who was martyred for environmental course). Environmental concern is likely to have a bearing on an individual's propensity to behave in favour of the environment like solid waste management.

Environmental concern has been related to product purchase decision by consumers. In a study about environmentally-responsible consumerism, Ebreo et al. (1999, as cited in Post, 2007:24) found that general concern for the environment, in addition to social factors and more specific concerns about the effect of the product on human and animal life might be related to purchase decisions and other waste reduction behaviours. Ebreo et al. believe that environmental concern and attitudes towards the environment are still significant in relation to source reduction, specifically in relation to environmentally-responsible consumerism. Post (2007:21) investigated whether general environmental attitudes and concern are strong predictors of behaviour when the amount of effort required for the behaviour is high. The research showed that environmental concern predicted recycling behaviour only when the amount of effort required for action was high. Instead, behaviours have proven to be more significantly influenced by specific attitudes about recycling, like knowledge of waste reduction methods, access to programmes, time, effort, and convenience.

Understanding how environmental concern is related to ecologically conscious consumption would

help, for example, marketers develop strategies to expand their reach into the green consumer. Hence, the need to look into green advertising and responsible environmental consumer behaviour for waste management is important.

8.3. *Green Advertising and Environmental Responsible Consumer Behaviour*

Environmental issues have become an increasingly visible public concern during the last decades. Issues of global warming and climate change have come to the forefront, thus, raising interest even in corporate advertising and public relations. Organisations are now taking interest in green advertising and environmental public relations through their products and services. For example, a growing number of people now understand the impact that their behaviour, as well as corporation's accountability, has on the environment (Mostafa, 2007:445; Bao, 2009:1). Evidence suggests the emergence of a new generation of eco-centric consumers who are motivated by their environmental concern at the point of purchase (Bao, 2009:1). Bao believes that the commitment to preserve nature's resources and maintain ecological sustainability propels many consumers to make environmental sound purchases. For every purchase decision to be made by the consumer there is the potential for that consumer to contribute to a more or less sustainable pattern of consumption. Existing research indicates that consumers' environmental concern seems to be an important indicator of their eco-friendly behaviour, to the extent that they are willing to pay a high price for environmentally safe products (Moon, Florkowski, Bruckner and Schonhof, 2002: 89, Bao, 2009:2).

Green advertising and public relations are efforts of organisations and concern individuals to protect and preserve the environment. Nwosu (2004:49) defines Environmental Public Relations (EPR) as a holistic management process and a specialised area of public relations management that is responsible for identifying and anticipating the ecosystem needs, interest, policies, public activities, issues and programmes of any corporate entity. In a sense, EPR, can be used for social marketing, where products, services and ideas are used to promote environmental issues or consumers rights. Greening advertising or marketing, as Nwabueze (2007; 126) sees it, explores how advertising principles and practices are employ by organisation on the environment with the aim of ensuring an environmentally sustainable achievement of marketing objectives.

As a result, a growing corporate social responsibility practice together with increasing concern by consumers has made a number of organisations demonstrate their environmental sensitivity with different strategies. One of the marketing strategies used by organisation is in packaging and labeling features like 'environmental safe', 'recyclable', 'degradable', 'ozone friendly', 'non toxic', 'dispose properly', 'keep the environment clean' and so on. Many consumers' products do not have green messages or environmental messages as examplied above. Products should be labeled 'dispose properly' as part of organisation's environmental social responsibility. This is where advertising or marketing communications in products and services are imperative to consumers' environmental responsible behaviour. Aggressive green advertising campaigns are necessary for consumer's right responsible environmental behaviour as well as promoting and sustaining environmental management. With environmental messages on radio jingles, television commercials and advert placed on newspapers, advertising can be used to promote environmental consciousness and management. Advertising concepts like green marketing, as Onyenyili-Onuorah (2005:71) argues, can be employed to discourage lifestyles and attitudes that could be harmful and unhealthy to the environment. Such lifestyles and attitudes include indiscriminate dumping of refuse, improper disposal of refuse on waste bins in the street and recycle attitude could be corrected and right environmental attitude to wastes can be encouraged through green marketing. Unfortunately, as Onyenyili-Onuorah (2005:71) argues, green advertising has not been given serious attention in Nigeria from the manufacturers, individuals and stakeholders.

It is instructive to note, therefore, that environmental consciousness by consumer help in waste management by recycling wastes and dispose of them properly.

8.4. *Communication and Waste Management*

Studies have shown that communication has helped to promote environmental behaviour. Rim-Rukeh and Ogbemi (2007:493) believe that "communication can help individuals to understand the interaction between resources (natural) and the environment". Barr (2003:43) had observed greater knowledge of environmental principles, attitudes and theories of waste reduction through communication to enhance individual's ability to participate in solid waste management. It is on this premise that Nwodu (2004) defines environmental communication as a "conscious communicative effort to bring people to the knowledge of environmental problems around them; encourage them to desist from actions that are harmful to the environment and sensitise them to show greater commitment to activities aimed at safeguarding the environment" (Nwodu, in Nwabueze, 2007:47). Nwabueze (2007: 45) notes that communication is an integral part of environmental management because it is central to every human activity and as such, would be used in coordinating the resources for a 'synergistic' approach to management of the environment. Therefore, environment communication consists of all forms of communications to keep the public enlightened about and aware of environmental issues and trends.

It is based on this reason that the role of communication in solid waste management becomes imperative. These roles, as highlighted by Rim Rukeh and Ogbemi (2007:241) are to raise awareness in environmental issues and it can be used to promote responsible environmental behaviour, especially for solid waste management. In addition, it enables government and its agencies to know areas where solid waste management needs serious and urgent attention. In the same vein, Macawile and Sia Su (2009:64) believe that a conscious effort through communication is needed to "incorporate the interests of both the community leaders and the public in understanding their roles, relationships and contributions through their perceptions and attitudes as all are recognised as important stakeholders in attaining a sustainable environmentally oriented effort". Okunna (2002:295) believes that effective communication is centre on mobilisation, which implies motivating people to achieve set goals. Agbanu and Nwabueze (2007:161) advocated for the application of traditional media in environmental management. They believe that traditional media are virile tools for channeling environmental management communication of all sorts with a view to convince the masses, especially rural masses, to adopt a participatory approach to environmental management. In essence, communication is one of the vital ways by which people in any given environment could relate. The essence of environment which deals with living together of all organisms in the environment is only possible and realisable through the use of communication. As a matter of fact, "communication is a fundamental process of socialisation of people in any given environment" (Ayantayo, 2004:2, in Nwbueze, 2007:46).

Communication in this study goes beyond mere sharing of information, but as a way of influencing beliefs, views, perceptions and to induce behavioural or attitudinal change. The public holds the media in high esteem in terms of information and enlightenment. McQuail (2010:92) believes that whenever the media exert influence they also cause change. Communication therefore, can be a potent force to influence public perceptions on various issues of life. Warper (1996) in Alabi (2010:220) noted that attitudes and predispositions are at work before and during exposure to mass communication, and they in fact largely determine the communication, how we interpret the contents and the effect which mass communication has upon us. In other words, "messages received from the media affect our thoughts and beliefs formation as well as responses to attitude" (Alabi, 2010:220). Communication can therefore be used to influence people's dispositions for a friendly environment. Although, mass communication messages may not change existing deep rooted attitudes but may rather influence it. The ultimate goal is to activate public efforts towards behavioural change in environmental management.

Behavioural change for environmental management may sometimes require consistent and systematic applications or activities to achieve desired goals. This may be achieved through public enlightenment campaign. A campaign, as Nwabueze (2007:56) puts it, "is the planning and coordination of series of consistent activities aimed at achieving a central objective". In the same vein, McQuail (2010:550) defines a campaign as the planned attempt to influence public opinion, behaviour, attitudes and knowledge on behalf of some cause, person, institution or topic, using different media over a specific period of time. Public campaigns are usually directed towards socially approved goals. In this wise, environmental communication campaign entails the adoption of specific steps towards an environmental objective. The essence is to bring behavioural change, and inculcate an environmental friendly attitude or culture in people. Environmental campaigns could be pursued using different media like radio and television. Radio, for example, is believed to be the most effective, popular and credible medium for reaching a large and heterogeneous audience. It is relatively cheap, available and accessible. It can be powered by battery, requiring insignificant literacy level to comprehend. Radio remains the most potent and effective environmental communication tool for reaching a vast range of audience in developing nations like Nigeria (Nwabueze, 2007:66). In the same development, television is believed to make the most impact on the audience. This is because of its audio-visual advantage. It leaves a lasting impression in the minds of the audience. Television can reach diverse people simultaneously and provide opportunity for a message to be demonstrated in images or pictures. In a study of inhabitants' perception on domestic waste disposal in Ijebu Ode, Southwest Nigeria, Banjo, Adebambo and Dairo (2009:64) result showed that radio and television were the most available (93% and 96% respectively), the most easily accessed (70% and 73% respectively) and the most effective sources of environmental information (61% and 64% respectively). Their study showed the effectiveness of the mass media, particularly the radio and television in creating awareness about public health and environmental issues. Radio and television are often associated with their wide geographical coverage and the relatively cheap cost of acquiring and using them in contrast to the print media (Banjo et al. 2009:64). Both media (radio and television) are effective environmental communication tools which could be used to raise public awareness and consciousness towards environmental concerns with a high degree of effectiveness. Broadcast media enlightenment campaigns on solid waste management can come in any form of: radio jingles, television commercials (green advertising), main news bulletin, public service announcement, health programmes and so on.

It is instructive to know that the degree to which the broadcast media devote air time to environmental news also affect people's attitudes towards the environment. As it were, heavy dependency and exposure to the

media tend to shape people's beliefs and perceptions about various issues of life. Aptly put, the degree of dependency on the media is a key variable that help to explain why audience's beliefs, feelings or behaviours are altered. In this wise, environmental news is a potent force for responsible environmental behaviour. Individual exposure to a greater amount of environmental news is more likely to show concern with environmental management.

Taken from above, much of contemporary environmental studies are predicated on the belief that human and non-human welfare are threatened by a growing array of human-induced environmental problems namely pollution, over-population, consumption of non-renewable biodiversity loss, ozone depletion, greenhouse warming and others. It is universally agreed that human behaviour has been and will continue to be, of central importance in identifying, understanding and dealing with such problems. Therefore, it can be taken that environmental behaviour is affected by the level of public awareness created by the mass media on environmental issues.

8.5. *Waste Generation and Management*

Several factors influence solid waste generation in Nigeria. To Babayemi and Dauda (2009:85), they are; lack of advanced technology (for treatment), facility for separation at source, strength of solid waste management, policy and enforcement, environmental education and awareness and income status of individuals among others. Abel (2009:530) showed that education, income and social status are important factors influencing per capita solid waste generation in Ogbomoso, Oyo state. On his part, Oyedele (2009:2) says lack of political will affects solid waste management. It is reasonable to note that quantity and categories of solid wastes generation also vary with socio-economic groups in which the high and middle groups take the highest portion. As socio-economic activities increase, so does solid waste is generated.

Although reliable records of the quantity and nature of solid wastes and the management techniques to adequately dispose of these wastes have remained a challenge in many developing countries of the world, it is believed that several hundreds of tones of wastes are deposited openly in waste dumps and surrounding environments, often alongside with non-hazardous solid waste (Abah and Ohimain, 2011: 102). According to Adewumi et al. (2005) cited in Babayemi and Dauda (2009:85), the total solid waste generated in most urban cities in Nigeria was 66.1% domestic, 20.3% commercial and 11.4% industrial. For example, Babalola, Babalola and Okhale (2010:4) discovered that improper sewage disposal in Delta State was 63% while improper refuse disposal (home and market) was 66%. Findings from their study revealed that waste generation rate in the study area was 0.36 kg per person per day in most developing countries, and that out of the 14, 600 kg of recyclable waste generated per year, 8030 kg or 55% can be recycled and generate as per capita income. In Edo state, an evaluation of the status of the waste management practice was carried out using the following criteria: waste management (responsibility, segregation, storage and packaging); waste transport; waste recycling and reuse; waste treatment and final disposal. Results, as obtained by Abah and Ohimain (2011:108), show that the average amount of solid waste was 0.62 kg/per person/ per day. The state of solid waste management in Port Harcourt, Rivers State, Nigeria is poor and has reached an alarming proportion. Waste generation in Port Harcourt was projected to 210,934, 304, 477 and 352,853 tonnes per annum in 1982, 1990 and 2000. This was estimated to be 1.25 kg per person. Ibiebele (2007:363) reported a more estimate of 0.22 kg per person per day while the traditional house-to-house volume-weight analysis methods gave 0.19 kg per person per day. A study conducted by Ajao and Anurigwo (2002) in Port Harcourt, Rivers State and in Warri, Delta State, showed an estimate of 164029t/year are generated respectively (the above authors are in Babayemi and Dauda 2009: 84). As aspect of solid waste management, Atsegbua, Akpotaire and Dimowo (2003:105) believe that the collection, treatment and disposal of waste are important. They defined solid waste management as the collection, keeping, treatment and disposal of waste in such a way as to render them harmless to human life, animal life, the ecology and the environment in general. Hence, it is necessary to briefly look into waste collection, transportation and disposal.

8.5.1. *Waste Collection, Transportation and Disposal Practice*

The collection of solid waste is the function of state and local government environmental protection agencies. Informal solid waste collection operations exist in parallel with official agencies in all the cities in Nigeria. Informal collectors provide the service for a fee. In most urban areas, stationary containers system is adopted for waste collections. The waste containers remain at the points of waste generation. This method requires the delivery of waste by the residents to a storage container. It is highly necessary to put the solid waste into containers of different sizes, depending on the amount they generate. Some bins or containers are fixed on the ground and some are movable. This is more convenient and less expensive than house-to-house services.

Different types of vehicles are used for solid waste collection in Nigeria. They are compactor trucks, side waders, rear loaders, mini trucks, tipper, skip trucks and open back trucks. It was observed that 60% of trucks available are always out of service in Nigeria (Ogwueleka, 2009:175). Ogwueleke observes inadequate service coverage in most urban areas and in rural areas. Rural dwellers have no access to waste collection

service. In some areas, wastes are dumped at any vacant plot, public space, and in river or burnt, thereby polluting the air. Solid wastes generation exceeds collection capacity. Zurbrugg (2003) in Ogwueleke (2009:195) notes that one to two thirds of the solid waste generation in developing countries is not collected. There is no regular routine collection. Open dumps, for example, provide harbour for disease causing organisms, bacteria, insects and rodents. Also, local agencies do not have adequate capacity to handle the increasing solid waste mainly due to limited budgets. In most urban areas of Nigeria, the collection of fees on refuse is subcontracted to private companies which have higher efficiency than government agencies. The current interest involving private companies in solid waste collection is driven by failure of government agencies to provide adequate services. Private participation in waste management has not been successful in Nigeria because such companies are profit driven and they are not monitored or regulated properly by the government. In addition, due to the unprofitable nature of solid waste business in Nigeria, inefficiency and dishonesty on the part of some of the contractors and late payment of contractors by the agencies further worsen the situation. Solid waste collection efficiency in Nigeria ranged from 5 percent in some semi-urban areas to 50 percent in urban areas (Ogwueleka, 2009:175).

8.5.2. *Solid Waste Disposal*

Effective refuse disposal in private premises requires the committed involvement of every family member. The result of the analysis carried out by Agbede and Ajagbe (2004:95) showed that over 70% of parents and adults leave the disposal of refuse to their children or young ones. However, in Nigeria, as in developing countries, the common waste disposal methods are sanitary landfills, open dumping and river disposal.

Sanitary landfill: Sanitary landfill is described as a method of disposing refuse on land without creating nuisances or hazards to public health or safety. It is by utilizing the principles of engineering, to confine the refuse to the smallest practical volume and to cover it with a layer or earth at the conclusion of each day's operation or at frequent intervals as may be necessary (American Society of Civil Engineers, ASCE in Ukpong, 2006: 184). The advantages of sanitary landfill are: it is economical; it requires low initial investment; it is flexible; it receives all sorts of wastes; and the land may be reclaimed from it after use. The problems on the other hand, are: it can easily degenerate into an open dump system if standards are not adhered to; methane and other hazardous gases evolve from closed landfills; and it is not applicable in highly populated areas because of lack of land (Agunwamba, 2001:335). Sanitary landfill is the most scientific, aesthetic and safe form of disposal if it is properly designed and operated.

Open Dumping: Open dumping of solid waste is a common practice in Nigeria. The waste is placed within an area without compaction or covering with earth. Many cities are found with refuse in the major streets, public places and markets. Open dump pose several threats to public health and the environment in diifferent ways. These are loss of aesthetics, provision of breeding ground for disease vectors, and pollution of groundwater sources (Agunwamba, 2001: 333). In the same manner, Ogwueleka (2009: 178) notes that highly toxic smoke from continuous smouldering fires and foul odours from decomposing refuse cause health hazard to scavengers at the dump site; and pollution of groundwater. Open dumping of waste cannot be considered as a long-term environmental method of disposal.

River/Ocean disposal: Wastes are emptied into any of these water bodies like a river or a stream. It is a common practice in riverine areas of the South-South of Nigeria. The floating debris, scum and grease from the waste are noticeable and they create navigational nuisance, as well as threat to aquatic lives.

Incineration: Incineration is a disposal method that involves combustion of waste material. Incineration and other high temperature waste treatment systems are sometimes described as "thermal treatment" (www.wikipedia.org/waste management, 2011). Incineration is a practical method of disposing and converting waste materials into heat, gas, steam and ash. This method has not been adopted by many states in Nigeria. Incineration is part of waste reclying.

Recycling and Reuse: Recycling is the conversion of a useless material into a valuable one. Basically, it involves collection of recyclable materials; sorting the material out into generic type; processing into densified form for sale to reclaimer; and modifying the densified material into marketable product. Reuse involves modification or processing of waste into a new product or direct reuse after washing (Agunwamba, 2001:356). Refuse is no longer considered to be unwanted material but a source of raw material which may be reprocessed into new products. Recycling has now become a very important aspect of effective waste management since it includes both recycling and reuse.

However, a comprehensive solid waste management system as presented by Diaz et al (2005) in Afun (2009:3) includes some or all of the following:

- Setting policies (regulations) on waste management by responsible government agencies;
- Developing and enforcing such policies or regulations so as to achieve objectives on waste management;
- Planning and evaluating municipal activities by system designers, users and other stakeholders;
- Using waste characterization studies to adjust systems to the types of waste generated;

- Physically handling waste and recoverable materials, including separation, collection , composing, incineration and landfilling;
- Marketing recovered materials to brokers or to end-users for industrial, commercial, or small-scale manufacturing purposes;
- Establishing training programmes for waste management workers;
- Carrying out public information and education programmes;
- Identifying financial mechanisms and cost recovery system;
- Establishing prices for services and creating incentives;
- Managing public sector administrative and operations units; and
- Incorporating private sector business, including informal sector collectors, processors and entrepreneurs.

Ukpong (2006:181) believes that sustainable waste management is anchored on the 4Rs of waste management namely: reduction, recovery, reuse and recycling. This forms the basis of contemporary waste management strategies of whatever design, orientation and scope. It embraces attitude towards waste management.

Nevertheless, while the above table stresses on technical waste management, figure 3 illustrates behavioural change in waste management.

The model shows that environmental change is affected by cultural change (occasioned by beliefs and perception) and policy/institutional change. Policy and institutional change come as a result of government strict regulations. Behavioural change (seen in individual and organisation) is occasioned by cultural and policy change.

Approaches on waste management have been on technical processes like setting policies (regulations) on waste management by responsible government agencies and planning and evaluating municipal activities by system designers, users and other stakeholders and the likes. However, studies (Rim-Rukeh and Ogbemi 2008; Babayemi and Dauda 2009; Ifegbesan 2009; Kalantari and Asadi, 2010) have showed that the best approach towards solid waste management is responsible environmental behaviour or the right attitude and self-consciousness of the value or worth of the environment. Smaldone (2007:1) also subscribed to the above. He believes that environmental consciousness or awareness has come to be related to global growth and development of understanding and consciousness towards the biophysical environment and its problems. Broadcast communication cannot force people to change their attitudes but it can influence people to change their perceptions and beliefs. Change in perceptions and beliefs are likely steps towards change in behaviour.

8.6. Empirical Findings

Empirical findings abound on solid waste management. For example, Duan and Fortner (2005:30) found that students possessed high environmental awareness and knowledge of local environmental issues than global environmental issues. In a similar study in Abeokuta, Ogun State, Babayemi and Dauda's (2009:85) result showed that the level of awareness of waste collection services and waste management regulations were relatively high but indiscriminate solid waste disposal methods was higher. The findings also indicated that the propensity for waste management practice differ by age. For example, awareness of waste collection service was high among the groups with age greater than 30, followed by those between 20 and 30, while it was least among those less than 20 years of age. The same pattern could be observed for awareness of waste management regulations. The percentage of those who used waste collection service was highest among those more than 30 years of age while the percentage of those without awareness on waste regulations was higher for those between 20 and 30 years. Basically, awareness on solid waste management (SWM) by age has been considered by Longe, Longe and Ukpebor (2009:204). As one grows older, the reasoning level with regards to household waste management is expected to be high and thus, facilitate public involvement in solid waste management process.

Gender is a variable factor that has received consistent attention among researchers. Raudsepp (2001:365) for instance, found that women were significantly more likely than men to be concerned with environmental problems. The common reason advanced for this is that women are naturally associated with sweeping and cleaning activities than their male counterparts. Babayemi and Dauda (2009:86) showed that the level of awareness of SWM (solid waste management) in Abeokuta was relatively high (35.8%) while attitudes or practices to SWM, such as open dumping, open burning, and dumping in drainage were higher (64.2%). The authors believe that the factors responsible for the level of awareness and practice were educational status, age, gender and social status. The above findings bear similarity with Longe et al. (2009:204) whose results showed that the average income, gender difference and age factors were expected to play a significant role in the awareness of environmental health and sanitation in Ojo, Lagos state. Their findings indicated that 62.5% of the respondents' practices on SWM are affected by these factors stated above. Ifegbesan (2009:211) in secondary school study of environmental awareness in Ogun State observed significant relationships between students' sex,

age and class and their level of awareness, knowledge and practices of waste management. The study revealed the need for behavioural and attitudinal change which is essential in effective participation in waste reduction, reuse and recycling. It is clear that the level of public awareness equally determines attitude towards the environment.

Researchers have shown that an individuals' perception of the environment could affect their attitudes towards it (Rim-Rukeh and Ogbemi, 2008; Babayemi and Dauda, 2009; Ifegbesan, 2009; Ogwueleka, 2009; Macawile and Sia Su, 2009). For example, attitudes and perceptions appear to affect both inhabitants and authorities regarding solid waste management in Nima, Ghana (Freduah, 2004:10). Freduah argued that perceptions and attitudes are learned response sets and can therefore be modified or changed through education. The study showed that as high as about 74% of the respondents did not educate their households on the need to clean the surroundings. He believes that the perpetual creation of the awareness on the need for household heads and well informed members to educate their household on basic issues on sanitation may help curb the problem of solid waste. Folarin (2005:88) says perceptions "depend on a complex of variables such as psychological disposition, past experience, cultural expectations and social relationships". Individuals tend to perceive and then decode communication messages in the light of their previous experience and current dispositions of needs, moods and memories. Folarin sees perception as the process by which we interpret sensory data. It involves learning, making inferences, updating perspective, and interacting with the observed. People's perception can be influenced by wants, needs, attitudes, and other psychological factors. Perception leads to attitude. The influence of perception describes how a person views himself and the world around him and how this tends to govern behaviour. In this wise, individuals' perception of the environment will influence the cultural values, responses, and success of the solid waste management system (Longe et al., 2009: 202). The effect of attitude on perception can be demonstrated in the way people manage their environment. There are evidences to suggest that three categories of factors contribute to responsible environmental behaviour, which are likely guided by perception and attitude (Alao, 1990, in Alabi, 2010, 220; Kurtycz, 2005, in Rim-Rukeh and Ogbemi, 2008:493). These are: cognitive factors which include the levels of understanding of the environmental issues and how to take action; psycho-social factors that include attitude towards environmental issues, sense of responsibility to do something to reduce environmental degradation and demographic factors such as gender and the level of educational attainment. Alao says attitude comprises three components namely cognitive component, which is concerned with predispositions relating situations to attitudinal objects; affective component which deals with feelings and emotions that accompany encounter; and behavioural component centres on individual's predisposition or readiness for action. Perception process tells us why some individuals prefer to live in a particular place or not. In other words, attitude towards the environment is predicated upon an individual's intention or predisposition towards the environment.

Research into consumer's attitudes towards green advertising has been examined. Bao (2009:11) examines the factors for consumer's attitudes towards green advertising. These factors include: consumer responses in terms of loyalty, willing to pay higher price for eco-friendly products, and perceptions of product safely and consumer's preference of product with eco-labeled packages. Relatively, a study on green advertising and consumer behaviour by Haytko and Matuliich (2009:5) revealed that at a mean point set at 2.50, a mean point result at 2.98 was obtained of respondents who tend to be more loyal to products from companies that practice green advertising. A mean point at 2.76 was also obtained from the result of those (respondents) who say they plan to switch to products and services that are green advertised. Also, a mean point of 3.01 was obtained of those who prefer products with eco-labeled packages. The findings however, imply that there are growing concerns towards green advertising which is valuable to consumer and the society at large. On the importance of green advertising, Haytko and Matuliich (2009:4) further revealed that: green advertising leads people to be more socially responsible; it shows the consumer that the firm is addressing consumers' environmental concern; it strengthens company image; green advertising is good at addressing environmental problems and it is a good source of information about products and services.

A study has been carried on solid waste management cost by Bel and Fageda (2009). The study was to determine, among other things, whether the form of service delivery (public and private) had an effect on local government costs. The results emerging from the study showed that: private delivery does not imply cost savings but rather tends to increase the costs incurred by municipalities in running a solid waste services; there is no evidence to suggest that private delivery leads to cost savings for municipalities; and that promoting recycling activities do not seem to lead to an important increase in the cost of solid waste collection. They suggested that local government should promote recycling activities.

Also, the extent to which solid waste management policy had been implemented in Edo state has been investigated (Kalu et al., 2009:5). About a range of 21-30, respondents affirmed that 40.5% level of solid waste policy implementation was carried while 51-60 representing 2.7%, 61-70 representing 8.1% and 70 and above representing 2.7% of the respondents affirmed that levels of solid waste policy were not implemented. The findings showed that solid waste policy has not faired very well in Benin Metropolis despite the fact that there is

considerable level of public awareness on solid waste enlightenment campaigns. This contrasts with the view expressed by Agunwanba (1998) that the problem of waste management in Nigeria is due to absence of public policy. The main policy challenge is poor implementation which is a common feature in most states in the federation.

Fakere, Fadiro and Oriye (2012:885) have investigated health hazards and their causative factors as regards solid waste problems. In their study of domestic waste management and urban residential environment in Akure, Nigeria, found that the most prevalent disease caused by solid waste problems was malaria. This accounted for 29.6% of all the diseases. Others in their order of magnitudes include typhoid fever, accounting 29.3%, diarrhea, accounting for 20.1%, measles accounting for 11.5%, cholera accounting for 9.2% and dysentery at 6.4%. Their identified causative factors include inadequate sanitary services (57.4%), poor water supply (14.4%), unkempt environment (14.8%), overcrowding (12.2%) poor drainage system (0.9%).

A study on public participation in solid waste management has been studied by Kirunda (2009). The level of public participation on solid waste was found to be low. The low public participation on solid waste management was as a result of poor collection of waste by the local council. This resulted to indiscriminate dumping of waste. Waste reduction through waste reuse was poor. This was as a result of poor knowledge on environmental management. Inavariably, there was knowledge to waste management.

9. Theoretical Framework

This work was anchored on the Theory of Planned Behaviour and Value Change Theory. Other theories were also used to analyse the concept of solid waste mamangement.

9.1. Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) specifies the nature of relationships between beliefs and attitudes. This theory as propounded by Ajzen and Fishbein (1980, in Ifegbesan, 2009:202) is based on the assumption that individual behavioural intentions are directly related to their attitudes. For example, a person who believes that performing a given behaviour will lead to most positive outcomes will hold a favourable attitude towards performing the behaviour. The theory also states that what an individual does is determined by personal motivation which is determined by attitude, beliefs, social support and perceived behavioural control.

Application of the theory of planned behaviour can be found in the field of environmental psychology. Generally speaking, actions that are environmentally friendly carry a positive normative belief. That is to say, sustainable behaviours are widely promoted as positive behaviours. However, although there may be a behavioural intention to practice such behaviours, perceived behavioural control can be hindered by constraints such as a belief that one's behaviour will not have any impact. For example, if one intends to behave in an environmentally responsible way but there is a lack of accessible recycling infrastructure, perceived behavioural control is low, and constraints are high, so the behaviour may not occur. Applying the theory of planned behaviour in these situations helps explain contradictions between sustainable attitudes and unsustainable behaviour. The theory of planned behaviour is thus a very powerful and predictive model for explaining human behaviour. People's evaluations of, or attitudes towards behaviour are determined by their accessible beliefs about the behaviour, where a belief is defined as the subjective probability that the behaviour will produce a certain outcome. Specifically, the evaluation of each outcome contributes to the attitude in direct proportion to the person's subjective possibility that the behavior produces the outcome in question (Wikipedia, 2011).

Studies have used the theory of planned behaviour as a framework as not only good for understanding, explaining and predicting behaviours, but also to provide a useful guide for designing intervention strategies to change or maintain behaviour ((Agata and Agata, 2003 and Ifegbesan 2009). The theory of planned behaviour has been widely used in environmental behaviour research to predict a person's intent to participate in a specified behaviour (Gamba and Oskamp, 1994, and other authors are in Ifegbesan, 2009:202). It explains that people's perceptions of the environment are related to their actions. Attitude towards the environment can be influenced by environmental news.

In all, the application of this theory to the study is that attitude or change in behaviour is predicated on a person's intent to participate in a specified behaviour that is friendly with the environment. It points to responsible environmental behaviour, which means actions taken by an individual or a group of individuals to do what is right in order to protect the environment. The broadcast media are expected to enlighten the inhabitants on positive attitudes towards the environment. With consistent campaigns on SWM, one's beliefs and attitudes can be planned or changed in such a way that wastes can be reduced. The broadcast media campaigns can awaken individuals' interest to adopt a responsible behaviour towards SWM. For example, whenever the media inform us of the effects of not managing our wastes properly, they are equally educating us to take decisive steps on waste management. However, to bring out the right environmental behaviour, there is need for consistent campaigns on SWM.

9.2. Value Change Theory

This theory employs the technique of 'comparative feedback' to induce attitudinal and behavioural change (Folarin, 2005: 105). It states that rather than simply inform people about the harmful or beneficial effects of certain kinds of behaviour, methods based on value change theory challenge the people to test their own values against others, which are presumed to be socially more acceptable. The postulation is that since values underlie attitudes, which in turn underlie behaviour, it is assumed that a change in value will lead to corresponding changes in attitude and behaviour. Importantly, the individual has to have clear information on the ranking of his present value. This is where the functions of the broadcast media in terms of information and education are imperative. The broadcast media for example, are expected to inform or educate the general public of their behaviours that may be harmful to the environment. Harmful attitudes of individual to the environment are seen as value-action gap (www.wikipedia.org, 2011). It is a term used to describe the gap that occurs when the values or attitudes of an individual do not correlate to their actions. Generally, it is the difference between what people say and what they do, in this case, environmental management.

The application of this theory to the study is that attitudinal change and value for the worth of the environment will definitely lead to a better environmental behaviour. Inhabitants should adopt actions and values that are in conformity with environmental values, and avoid actions that are harmful to the environment. In other words, self-consciousness for the worth of the environment is the first step towards environmental management. Enlightenment campaigns on solid waste management of the broadcast media can help to change people's values or promote environmental values.

The concept of attitude and associated relationship with human behaviour has been a topic of interest among researchers for years. A study has used the Theory of Reasoned Action (TRA) in determining individual attitude towards an intention (Ajzen & Fishbein, 1980). The TRA views a person's intention to perform (or not perform) as the immediate determinant of the action. This behavioural intention, in turn, has two determinants. One is the attitude towards the behaviour—a person who believes that performing a given behaviour will lead to mostly positive outcomes will hold a favourable attitude toward performing the behaviour. The other is the subjective norm—a person believes that most referents with whom s/he is motivated to comply think s/he should perform the behaviour will perceive the social pressure to do so. The beliefs that underlie a person's attitude toward the behavior are termed behavioural beliefs, and those that underlie the subjective norm are termed normative beliefs (Ajzen & Fishbein, 1980). Ifegbesan (2009: 203) has used this theory to study students' attitude to waste management in secondary schools in Abeokuta, Ogun state.

Apart from the TRA/TPB theories, the expectancy-value theory has also been identified in literature as capable of serving as framework for attitude-behaviour study of this nature (Van Der Pligt & De Vries, 1998, in Ifegbesan, 2009: 203). The expectancy-value theory is similar with Stern's Value Belief Norm (VBN) theory. The theory explains that, individual choice about pro-environmental actions can be driven by personal norms - an internalized sense of obligation to act in a certain way. Norms are activated when an individual believes that violating them would have adverse effects on things they value and that by taking action, they would bear significant responsibility for those consequences. Personal values (e.g., altruistic values, egoistic values) are antecedents of environmental beliefs.

Waste Management Theory (WMT) has been introduced into environmental sciences. This theory (WMT) formulated by Pongrácz, Phillips and Keiski (2004), is a unified body of knowledge about waste and waste management. It is founded on the expectation that waste management is to prevent waste to cause harm to human health and the environment and promote resource use optimization. It is an effort to organise the diverse variables of the waste management system as it stands today. WMT is considered within the paradigm of Industrial Ecology, and built side-by-side with other relevant theories, most notably Design Theory. Design Theory is a relatively new discipline, still under development. The goal of WMT is to incorporate waste minimization and/or resource use optimization goals and values.

In the light of this study, all theories imply that attitudes towards the environment are contingent upon the value we attach to the environment. Both theories point to responsible environmental behaviour, which means actions taken by an individual or a group of individuals to do what is right in order to protect the environment. The broadcast media, for example, have the responsibility to inform and educate the public of the behaviours that may be harmful to the environment, and enlighten them on behavioural change or beneficial effects. Broadcast media campaigns on SWM for public behaviour change can come in the forms of radio jingles, television commercials, in the main news bulletin, radio commentary, special report and so on. For example, a specific period can be devoted as advocacy campaign on SWM. The point is that we should change our value towards the environment. We should have the right environmental values. The essence of environmental communication is for behavioural or attitudinal change. A positive change in value of the environment will lead to corresponding changes in attitude and behaviour. This can be done through media enlightenment campaigns on solid waste management.

Positive attitude to waste management is still lacking in many cities in the south-south. Ignorance

coupled with lack of self consciousness of the environment may be adduced to the habit of most people in the south-south region especially in the densely populated areas. Individual attitude to waste disposal leaves more to be desired. A situation whereby a landfill that has been closed to the public is still being used as a dumpsite calls for questioning. Also where waste is placed on the road side, gutter side, inside gutter and roadside does not augur well for effective waste management. Despite the facts that illegal communal waste dumps indiscriminately located in public places have been officially cancelled yet several illegal refuse collection points, were indiscriminately created by residents which pose health hazard and loss of environment aesthetics.

Positive attitude towards solid waste management is low due to certain factors including sociological factor, which is felt in the manifested lack of a sense of belonging in an individual, and the tendency by inhabitants to perceive their collective roles towards the environment is a problem. Waste management is seemed as another person or government business. This attribute to waste management has negatively impacted on the waste management efforts of the state government. Positive attitude remains the best method to solid waste management.

Arising from a review of related literature, it has been established that the concepts of awareness and attitude have been associated with environmental behaviour. Attitude towards a concept can be defined as an individual or group of individuals' general feeling of favourableness and unfavourableness towards a concept. Public awareness and attitude towards waste management are critical in the effort to respond to waste management challenge. Communication is important in influencing people's view on the environment.

There is also indication that the propensity for waste management practice is tied to perception of the environment. This is because perception is a component of attitude. That is, individual perception of the environment could affect one's attitudes towards it. Ones attitudes towards the environment can be guided by planned behaviour and value change postulations. Aggressive enlightenment campaigns on the broadcast media may influence one's value and attitude towards right environmental behaviour.

It has been demonstrated that communication can help to preserve, protect and promote or sustain man's environment. The broadcast media, for example, can create a lasting impression in the minds of the audience because of images, sounds and words about solid waste issues. They can reach diverse people simultaneously and provide opportunity for a message to be demonstrated for all levels of persons. While communication does not solve structural problems, it does, however, provide a necessary tool with which answers or solutions can be identified and agreed upon. On the whole, individual exposure to a greater amount of environmental news, as a result of enlightenment campaign by the media, is more likely to show concern with environmental behavioural change.

Many studies have looked at solid waste management from different angles. However, one area that these studies have not looked at in the literature reviewed above, is the application of the broadcast media in influencing a positive change in the behaviour of the public towards solid waste management. It is important to note that communication plays a central role in our lives. Every day, we are influenced by communication. Communication is the only means through which we can live together and integrate with the environment. The broadcast media for example, are very potent forces for social change because of the features of sound, voice and images. There is emotional attachment between the medium and the audience. This emotional attachment makes the broadcast media unique. The broadcast media are capable of influencing public behaviour change through the influence of their opinions, beliefs, ideas and attitudes. Over the years, the broadcast media have been used for social mobilization and participation in community projects. In the same way, regular enlightenment campaigns on solid waste management by the broadcast media are capable of inculcating the right environmental attitude.

Therefore, the distinction of this study from other studies on solid waste management is the application of enlightenment campaigns by the broadcast media to influence public behaviour change towards solid waste management. It is assumed that this study will add to the existing body of knowledge in solid waste management.

10. Research Methodology

10.1. Research Design

Adopting a research method that could be applicable to the solution of problems or to increase the relevance of knowledge is important to empirical research. The survey and content analysis research methods were adopted. Survey research describes variables like attitudes, opinion, values, beliefs, which lead to gathering of information about a group of people (Ogbuoshi, 2006:34). Also, survey method allows the gathering of data from a large target population through the instrumentality of questionnaire and personal interviews. The survey method enabled the researcher to measure respondents' opinions, feelings and attitudes to questions asked through a questionnaire. Content analysis is a study of printed materials in a systematic and quantitive way for the purpose of measuring variables. The contents analysed were programmes schedule of nine broadcast media (television and radio programmes) from five states. Programmes schedule of some stations could not be obtained

for official reasons. The programmes were categorized into: news programmes; educational programmes; environmental; religious programmes; entertainment programmes and social programmes. The interest was to identify programmes under environmental information or management. The results obtained from the questionnaire, interviews and programmes schedule were analysed as part of discussion of findings.

10.2. Population of the Study

Residents in the south-south states were the population of this study. These states are: Akwa-Ibom, Bayelsa, Cross River, Delta, Edo, and Rivers. The 2006 Population and Housing Census put Akwa-Ibom State at 3,902,051; Bayelsa State at 1,70,515; Cross River State at 2,892,988; Delta State population at 4,112,445; Edo State at 3,233,366; and Rivers State at 5,198,716 (See www.population.gov.ng and www.nigerianstat.gov.ng). Total population in these States is 21,044,081 million people. However, only inhabitants of 18 years and above form the population for this study.

10.3. Sample Size

As a result of the large population, a sample size was used. Sample size is the selection of some elements that make up a population. It therefore represents the population of study. To have a definite sample size, the Taro Yamane's (1967) sample size formula was applied.

$$\frac{N}{1+N(e)^2}$$

Where
n = sample size
N = Elements of population: 21,044,081million.
e = Error of sampling in this study was 0.05 proportion.
Therefore:

$$n = \frac{21,044,081}{1 + 21,044,081 \times (0.05)^2}$$

$$n = \frac{21,044,081}{52,611.2025}$$

$n = 399.99 \approx 400$

OR, using a state:
Akwa-Ibom population: 3,902,051

$$n = \frac{3,902,051}{1 + 3,902,051 \times (0.05)^2}$$

$$n = \frac{3,902,051}{9,756.1275}$$

$n = 399.95 \approx 400$

In this wise, 400 becomes the sample size for each state. Therefore, the sample size for the entire six states was two thousand and four hundred (2,400). This sample size represented 1.9% for each state but 11.4% for all the six states. The working was, 400 ×100 ÷ 21,044,081 (total population) = 1.9

10.4. Sampling Technique

The cluster and purposive sampling techniques were employed as sampling technique. In cluster sampling technique, groups were drawn as samples amongst all the groups. Cluster sampling consists of many members of the population and all the members within the selected groups make up the sample (Oguonu and Anugwom, 2006:61). However, from the cluster sampling technique, the multi-stage sampling was adopted. Using all the sample elements in all the selected clusters may be expensive or not necessary. Under these circumstances, multi-stage cluster sampling becomes useful. Instead of using all the elements contained in the selected clusters, the researcher randomly selects elements from each cluster. Constructing the cluster is the first stage. Deciding what elements within the cluster to use is the second stage. The technique is used frequently when a complete list of all members of the population does not exist and is inappropriate. For example, a household survey on solid waste begins by dividing metropolitan regions into states or cities, and selecting some of these cities is the first stage. The selected cities are then divided into blocks or streets, and blocks are chosen from within each selected cities (second stage). Next, houses are listed within each selected block, and some of these houses are selected (third stage). This method means that it is not necessary to create a list of every house in the region, only for selected blocks.

Using the multi-stage cluster sampling technique, the respondents were drawn from two different senatorial districts in the South-South states. For example, in Akwa-Ibom State, in Uyo Senatorial District, respondents were drawn from Uyo, the state capital, and from Ikot Ekpene town in Ikot Ekpene Senatorial District. In Bayelsa, respondents were drawn from Yenogoa, the state capital, in the Central Senatorial District, and from Nembe, in Bayelsa East Senatorial District. In Cross River State, respondents were drawn from Calabar, the state capital, in the South Senatorial District, and from Ikom town, in the Central Senatorial District of Cross River State. From Delta State, the respondents were drawn from Asaba, the state capital, in Delta North Senatorial District, and from Effurun, in Delta Central Senatorial District. From Edo State, the respondents were drawn from Benin City, the state capital, in Edo South Senatorial District, and from Ekpoma in Edo Central Senatorial District. In Rivers State, the respondents were drawn from Port Harcourt, the State capital, in Rivers East Senatorial District, and from Ahoada Town, Rivers South West Senatorial District.

The purposive or judgmental sampling involves the hand-picking of desired elements in order to ensure that such elements were included in the sample. The desired elements here were target respondents in various market places and shopping malls in the state capital and one urban town from each of the six states. In other words, due to the inability to have all the respondents from various households in these states, the respondents were also drawn from market places and other target places. Respondents from these various households were located using the names of streets in some of these states as contain in the appendix page.

However, to obtain the number of copies of the questionnaire that were administered to respondents in these cities; and based on the different population of these cities, a proportional administration of copies of the questionnaire was obtained, thus:

Akwa-Ibom State
Uyo population: 309,573
Ikot Ekpene population: 143,077
Total population of Uyo and Ikot Ekpene: 452,650
For Uyo: $\frac{309,573 \times 400}{452,650} = 274$
For Ikot Ekpene: $\frac{143,077 \times 400}{452,650} = 126$
(274 + 126 =400)

Bayelsa State
Yenogoa Population: 352,285
Nembe population: 130,966
Total population: 483,251
Yenogoa: $\frac{352,285 \times 400}{483,251} = 292$
Nembe: $\frac{130,966 \times 400}{483,251} = 108$
(292+108=400)

Cross River State
Calabar Municipality population: 183,681
Ikom population: 163,691
Total population: 347,372
For Calabar Municipality: $\frac{183,681 \times 400}{347,372} = 212$
Ikom: $\frac{163,691 \times 400}{347,372} = 188$
(212+188=400)
Delta State
Asaba population: 150,032
Uvwie/Effurun population: 188,728
Total population: 338,760
Asaba: $\frac{150,032 \times 400}{338,760} = 177$
Uvwie/Effurun: $\frac{188,728 \times 400}{338,760} = 223$
(177+223=400)

Edo State
Benin City population: 374,515
Ekpoma population: 127,718
Total population: 502,233
Benin City: $\frac{374,515 \times 400}{502,233} = 298$

Ekpoma: $\frac{127,718 \times 400}{502,233} = 102$
(298+102=400)
Rivers State
Port-Harcourt population: 538,558
Ahoada Town population: 166,324
Total population: 704,882
Port-Harcourt City: $\frac{538,558 \times 400}{704,882} = 306$
Ahoada Town: $\frac{166,324 \times 400}{704,882} = 94$
(306+94=400) (All population figures here were from the National Population Commission, www.population.gov.ng and from www.nigerianstat.gov.ng).

This method showed how the sample size (n-2,400) was administered among these towns in the various six states respectively. However, it should be noted that the copies of the questionnaire were administered to households using the data containing names and number of streets obtained from the local authorities in these states. Some of the streets in these towns in the different states are shown in the appendix page.

10.5. Measuring Instruments for Data Collection

Questionnaire and interviews were adopted and designed as a survey instruments for data collection. Twelve broadcasters and two lecturers were interviewed. The questions were made clear and simple so that the respondents can easily understand them. The questionnaire has two main parts. First, on the bio-data/personal information like gender, age, occupation and level of education, and the second part, focus on knowledge or response on solid waste. Also the questionnaire has five (5) major tables reflecting on the research questions and two other adjuncts on respondents' practices on solid waste. The first table has provision for research question 1. It focused on public awareness campaign on solid waste by the broadcast media. Table 2 determines to know the extent the broadcast media have helped to contribute to enlightenment campaigns on waste problems. Table 3 of the questionnaire deals with how the public perceive the roles of the broadcast media enlightenment campaigns on solid waste management. Table 4 focused on inhabitants' attitudes to waste management practices, and table 5 was on the influence of solid waste management enlightenment campaign by the broadcast media for right attitude. This table (5) seeks to determine whether right attitudes to solid waste management depended on broadcast media enlightenment campaigns. The questionnaire also provide room for open ended questions, whereby giving opportunity for respondents to provide answers on their own. The questionnaire was self-administered in Uvwie/Effurun (Delta state), and in other states; it was administered with the help of research assistants who were trained for the purpose. Two research assistants for each state. The copies of the questionnaire were also administered to respondents in market shops, organisations, motor parks, hospitals, hostels, shopping mall, and business centres in these cities of the states. Copies of the questionnaire were specifically for respondents from 18 years above. Also, some broadcast media programmes schedule on environmental management were obtained from nine broadcast media. The essence was to find out numbers of environmental programmes. They were presented in tables, analysed and discussed as findings.

10.5.1. *Validity and Reliability of the Instrument*

The reliability and validity of the instrument was determined through a pre-test questionnaire. The pre-test copies were given to lecturers in the departments of mass communication and statistics, University of Nigeria, Nsukka for face and content validility. The contents in the questionnaire were studied critically by these lecturers to determine whether they were valid to be used in the field. It should be stated that forty (40) copies of the pilot test questionnaire representing 10% were administered. There was no empirical reason(s) why these 40 copies of the pre-test questionnaire were adopted but just a representation of the sample size. The copies of the questionnaire were administered to postgraduate students of the University of Benin (UNIBEN) and Delta State University (DELSU). The essence was to ascertain observations, views and perhaps criticisms about the questionnaire before being administered to the target public. Asika (1991:65), Osuala (2005:168) and Ifegbesan (2009:204) believe that a pilot study makes the instrument appropriate. Also, the interview schedule or questions

were valid by the researcher's supervisor. It should be noted that other questions in the course of the various interviews (personal and telephone) were generated.

10.5.2 *Strengths and Weaknesses of the Instrument*

One advantages of the questionnaire is that it enables the researcher to gather information about respondent's opinions, feelings and views, and it also indicates how respondents agree or disagree with a statement given. It enables respondents to express their views to questions that were not provided with options. This enables respondents to freely express their views to questions asked on enlightenment campaigns on solid waste management by the broadcast media. However, the problems arise, when the facts themselves are difficult to establish, when the question posed contains ambiguity or bias or when the range of available questions or answers does not allow the respondent the opportunity to state what he or she wishes.

The qualitative research interview enables the researcher to gain insight into the interviewee feelings and thoughts about questions asked. Possibly, the greatest advantage of qualitative interviewing is the depth of detail from the interviewee. Cues, such as voice, intonation, body language of the interviewee can give the interviewer a lot of extra information that can be added to the verbal answer of the interviewee on a question.

In addition, the instrument also enable the researcher to learn about specific events, he can gain insight into people's interior experiences, specifically how people perceive and how they interpreted their perceptions. How events affected their thoughts and feelings. In this, researcher can understand the process of an event instead of what just happened and how they reacted to it.

The strength in the programmes schedules of the broadcast stations enabled the researcher to see as it were, outlines of all programmes in a particular station with regards to environmental programmes but environmental issues cannot be ascertained in television commercials and radio jingles. Also, one cannot determine the effect of the programme in the audience through the schudele or guide.

This implies that, these instruments regardless of their weaknesses can provide useful and meaningful data to the researcher sine it deals with respondents' feelings, opinions and views about questions asked.

10.6. Techniques of Data Analysis

Descriptive statistics of frequency count, percentages and chi-square to test the hypotheses were employed to analyse the data obtained. Since the survey research method was adopted, attitude scales were used to assigned values. Basically, by attitude scaling procedures, a person can be assigned a numerical score, say (5-1) to indicate his position on a dimension of interest (Osuala, 2005:257). Generally, scale measures the respondent's opinion about some issues, objects, activities; feeling or expressions about issues, object and phenomena; appreciation or understanding of issues, perception of issues and attitude (Asika, 1991:58). Nominal values were assigned to the items according to scales. In the questionnaire, Likert scale was adopted for tables 1, 3, 4, 5, 6 and 11 in section B of the questionnaire. There were twelve (12) tables in all. Percentages were used to analyse these tables except tables 1 and 11. Chi-square was used to analysed table 1 and 11 in the questionnaire. In the Likert scale, number 5 was assigned for Strongly agree (SA); number 4 for Agree (A); number 3 for Undecided (UD); number 2 for Disagree (D) and number 1 for Strongly disagree (SD). Likert scale on it part, measures the intensity or degree of agreement by the respondent to a statement that describes a situation, phenomenon, item or a treatment (Asika, 1991:62). In table 2 of the questionnaire, there were five (5) options provided based on the question asked while table 10 had four (4) options such as "sure", "very sure", "not very sure", and "not sure". There were five (5) questions in open-ended, thereby giving respondents the liberty to provide on their own answers to the questions asked.

Table 1 was to inhabitants' attitudes towards solid waste practice. Therein, respondents were asked to identify the things that they have done out of concern for the environment. Method(s) of waste disposal, type of waste containers and recycle waste materials were also ascertained. A 4-1 scale of 'sure', 'very sure', 'not sure' and 'not very sure' was assigned to each of the values. Percentage was used to work the data collected. Table 2 was on broadcast media campaigns and respondents' level of awareness on solid waste management. Table 3 in the questionnaire was on the source (s) of how respondents received the broadcast media enlightenment campaigns on solid waste management. Options provided were government and private broadcast media. Table 4 measures public perceptions of the roles of broadcast media enlightenment campaigns on solid waste management. The ranking values assigned to this table, for example, were "proactive", "helpful", "educative", "informative" and "influential".

There were other tables like 6, 7, 8 and 9 that focused on attitude to waste management. Table 5 concern itself with the influence of solid waste management enlightenment campaign by the broadcast media for right environmental behaviour change. Chi-square was used to analyse the data. Also, responses from the interviewees were used for discussion of findings.

In the programmes schedule of the broadcast stations obtained, various variables were analysed. They were variables attributed to the medium; coverage; mode of the programme; time and duration of the programme, language use in the programme and sponsorship. The interest was find out number of programmes

of each category when compare to environmental programmes. Tables 15 to 23 had programmes schedules of nine broadcast stations from the south-south region.

It should be noted that all tables presented were analysed in perentages. To calculate the percentage of environmental programmes for example, in all the tables presented, the working was thus:

$$\frac{NP \times 100}{TNP}$$

Where:
NP = Number of programme
TNP = Total numbers of all the programmes
Discussion of findings and recommendations were drawn from the data analysed.

11. Data Analysis and Discussion

11.1. Data Presentation

Two research instruments were used for data collection. They were questionnaire and interviews. The researcher interviewed twelve broadcasters, a practitioner in waste management and a lecturer on environmental studies. The responses obtained from the interviews were also used to interpret the findings. Details of the interviews are in the appendix page. Two thousand, four hundred (2,400) copies of the questionnaire were administered to the six south-south states, four hundred each to these states. However, from the copies administered, two thousand, three hundred and fifty seven (2,357) were retrieved. This represented 98.2%.

It is instructive to note that the questionnaire was designed to determine two main things. One, to find out inhabitants' attitudes towards solid waste management through the broadcast media enlightenment campaigns. Two, to ascertain if positive attitude towards solid waste management was depended on broadcast media enlightenment campaigns. The broadcast media programmes schedules were to determine the extent that the broadcast media had contributed to solid waste management.

Also, television programmes on environmental management with regards to sub-topics on solid waste drawn from the interviews were discussed.

11.2. Description of the Sample

The sample (n-2,357) of the study was described in all the five (5) tables and charts below using percentage.

The copies of the questionnaire returned (n-2,357) consisted of 1,150 (48.7%) male respondents and 1,207 (51.2%) female respondents as shown in the table and chart above.

The ages between 18-24 consisted of 616 (26.1%) respondents, 25-34 ages had 627 (26.6%) respondents, 35-44 ages had 561 (23.8%) respondents and 45 - above had 553 (23.5%) respondents.

In the above Table and Chart, single respondents recorded 1,032 responses, while married respondents recorded 1007 responses. This represented 43.7% and 7.5% respectively. Divorced and separated respondents were 179 (7.5%) and widows were 139 (5.8%) respondents.

The Table also represented in chart, showed that 364 (15.4%) of the respondents were primary school certificate holders, 992 (42.1%) obtained secondary certificate and 1001 (42.4%) respondents belong to higher education categories.

As obtained in Table 5 and represented in the chart, 471 (19.9%) of the respondents were students, 617 (26.1%) were traders, 772 (32.7%) were civil/public servants and 220 (9.3%) were businessmen and women. The 'others' obtained here were 42 lecturers representing (13.6%), 31 clergies representing (10.1%), 2 medical doctors representing (0.6%), 7 nurses representing (2.3%), 44 tailors representing (14.3%), welders 39 representing (13%), 37 plumbers representing (12.1%). 17 respondents representing (5.5%) were auto-mechanic engineers, 13 respondents representing (4.2%) were vulcanisers, 21 respondents representing (6.8%) were carpenters, 9 respondents representing (2.9%) were youth corpers and 45 respondents representing (14.6%) were farmers.

11.3. Data Analysis and Discussion of Findings

***Research Question 1*: What are inhabitants' attitudes towards solid waste management practices through enlightenment campaigns by the broadcast media?**

The result of this question is presented in tables 6 and 7 below using percentage analysis.

As shown in the table above, 25.5% and 29.2% of the respondents burn waste. 10.5% of the respondents were unable to decide while 17.3% and 17.5% of the respondents do not burn waste. In the second item, 21.0% and 22.4% of the respondents bury solid waste. 12.9% of the respondents were unable to decide while 27.5% and 16.2% do not. From item three, 20.0% as well as 32.2% of the respondents agreed that they haul waste in the community dump landfill site themselves. 17.0% of the respondents were unable to decide to the question asked while 21.6% as well as 9.2% of the respondents do not haul waste in the community dump landfill site. Also, as obtained in item four, 28.5% as well as 37.3% of the respondents agreed that they dump

waste in a secluded or unauthorised spot away from the community. 9.8% of the respondents could not decide while 13.9% as well as 10.4% of the respondent do not. Item 5 showed that 42.4% and 37.3% of respondents paid private waste collectors (PWC) to collect their waste to dump site for them. 7.1% of the respondents could not decide to the question asked while 7.2% and 5.9% respondents would not pay private waste collectors.

In addition, respondents were also asked to indicate the method of waste disposal they use most. From responses obtained, 61.2% of the respondents indicated private waste collectors.

Using percentage analysis, the table showed respondents practice on waste management. The 'sure', 'very sure', 'not sure' and not 'very sure' options were provided. From the data obtained, 37.2% of the respondents were sure that they have changed their ways in order to reduce the amount of waste they generate, 14.2% were very sure. 9.4% were not sure and 39.1% were not very sure. When asked if they have participated in monthly sanitation exercise lately, 16.6% of the respondents were sure that they have participated in monthly sanitation exercise, 50% were very sure while 25.1% were not sure that they have participated in monthly sanitation exercise and 8.3% were not very sure. On how many of the respondents have contributed to environmental organisations, 6.3% and 2.0% of the respondents respectively were in the affirmative while 22.9% and 68.7% of the respondents were not. Also, 36.8% respondents were sure that they have reused or recycled waste, 12.2% were very sure while 38.1% were not sure and 12.7% were not very sure. Item 5 showed that 7.3% and 2.5% of the respondents respectively have attended seminars/conferences or workshops on environmental education or management 47.6% and 42.5% of the respondents have not.

Results in response to research question one revealed that inhabitants' attitudes towards solid waste management practice were poor and not good enough for sustainable environmental development. Many of the respondents still see the issue of waste management as not their immediate concern like the issue of daily economic survival. In addition, 54.7% (25.5% and 29.2%) of the respondents' still burn waste, 43.4% (21.0% and 22.4%) of the respondents bury them. Added to the above, 50.8% of the respondents do not recycled waste (Table 6). Waste recycling is part of waste reduction or management. In Table 7, 33.4% of the respondents have not participated in monthly environmental exercise. Also, 48.5% of the respondents have not adopted the positive attitude to solid waste management. However, 79.7% (42.4% and 37.3%) of the respondents have paid private waste collectors (PWC) to collect and dispose of waste for them.

In all, the results imply that respondents have not adopted a sustainable attitude towards solid waste management. In other words, many of the respondents have not given serious attention and attitude towards the issue of solid waste management. For example, from waste containers used, waste disposal and recycling, attitude towards waste management on a whole was poor. Therefore, it was taken that inhabitants attitude towards solid waste management was poor. Many still see the issue of waste as not their immediate challenge and there was lack of concern towards the environment. Self consciousness towards the environment as the first step to environmental management was missing from the attitudes of many inhabitants.

In this table, respondents were asked to indicate the source (s) of how they received the broadcast media enlightenment campaigns on solid waste. There were 71.3% of the respondents that received it through government radio stations. Also, 56.4% of the respondents received it through private radio stations while 74% of the respondents received it through government television stations and 53.7% of the respondents received it through private television stations. This implies that majority of the respondents received the broadcast media enlightenment campaigns on solid waste management through the government stations.

Research Question 2: To what extent have the broadcast media helped to contribute to enlightenment campaigns on solid waste management?

Based on percentage analysis on each item, item 1 showed that 232 of the respondents representing 14% and 776 of the respondents representing 32.9% answered in the affirmative that there had been regular enlightenment campaigns on SWM by the broadcast media. However, 1032 of the respondents representing 43.8%, 212 of the respondents representing 9.0% answered not in the affirmative to the question asked while 105 of the respondents representing 4.5% had no opinion to the question asked. In item 2, 176 of the respondents representing 7.5% and 1088 of the respondents representing 46.2% were certain that the broadcast media have contributed towards solid waste management through enlightenment campaigns. 664 of the respondents representing 28.2% and 394 of the respondents representing 16.7% were not certain while 35 of the respondents representing 1.5% had no opinion to the question asked.

In item 3, 216 of the respondents representing 9.2% and 864 of the respondents representing 36.7% were satisfied at the extent of public awareness campaigns by the broadcast media on solid waste. 960 of the respondents representing 40.7% and 163 of the respondents representing 6.9% were dissatisfied while 154 of the respondents representing 6.5% of the respondents could not decide to the question asked. As shown in item 4, 154 of the respondents representing 6.4% and 616 of the respondents representing 26.1% rated the attitudes of inhabitants to solid waste disposal practice in their area as good while 1056 of the respondents representing 44.8% as well as 400 of the respondents representing 17.0% rated it as poor. However, 133 of the respondents

representing 5.6% were unable to decide.

In response to research question two from the data presented in item 2, the broadcast media through its enlightenment campaigns have contributed to solid waste management. However, the extent of the broadcast media enlightenment campaigns on solid waste management as shown in item 3, was considerably average as 45.9% (9.2% + 36.7%) of the respondents were satisfied while 47.6% (40.7% + 6.9%) of the respondents were not satisfied at the extent the broadcast media have carried out enlightenment campaigns on SWM. This shows that the broadcast media have contributed to solid waste management through its enlightenment campaigns but not so much. However, the above findings run contrary from the results obtained from programmes schedule of nine broadcast stations. From the data obtained from these stations, it was evident that the extent of broadcast media enlightenment campaigns on environmental information and management was very poor, inadequate and insufficient for attitudinal change. Only five stations have regular programmes on environmental management and this appears once a week. This was also inadequate. By percentage analysis, only 16.5% was obtained from all environmental programmes when compare to the different programmes in all the stations under study. This was considerably poor and insignificant for attitudinal change. There were few stations with regular enlightenment campaigns on environmental management while entertainment, religious and social progarmmes top virtually all the stations programmes schedules under study. Entertainment, religious and social programmes were dominant in all the programmes schedule obtained.

From the responses of broadcasters interviewed, the broadcast media have contributed towards solid waste management through enlightenment campaigns in news bulletins, radio jingles and health and environmental programmes on television and radio. But the programmes schedules obtain from these stations, it could not be ascertained if environmental information were contain in the news bulletins, radio jingles and television commercials of these stations since the programmes were printed materials. But the broadcasters believe that the broadcast media still need to do more to promote sustainable development by influencing a positive change in the behaviour of the public towards solid waste management.

It is taken from the programmes schedule results that there were inadequate and insufficient public enlightenment campaigns on solid waste management by the broadcast media in the south-south states of Nigeria.

Research Question 3: How does the public perceive the roles of the broadcast media on solid waste management awareness campaign?

The aim of this question was to determine respondents' perception of the roles of broadcast media in terms of enlightenment campaigns on solid waste management. The result to this question was presented using percentage.

Using percentage, the table and chart showed that 54.6% of the respondents as well as 39.1% were in the affirmative to the question asked that the broadcast media have been proactive in terms of enlightenment campaigns on solid waste management. 3.0% of the respondents were unable to decide while 2.4% as well as 9% of the respondents disagreed.

From the data shown above, 752 of the respondents representing 31.9% rated the the role of the broadcast media enlightenment campaigns on solid waste management as helpful, 1136 of the respondents representing 48.2% also agreed while 189 representing 8.0% of the respondents were unable to decide. However, 161 of the respondents representing 6.8% as well as 119 of the respondents representing 5.0% see the role as not helpful.

Item 3 was on 'educative'. From what was gathered, 1,032 of the respondents representing 43.8% considered the role of the broadcast media in terms of enlightenment campaigns on solid waste management as educative. 800 of the respondents representing 33.9% also agreed. 254 of the respondents representing 10.4% were unable to decide. In the same vein, 168 of the respondents representing 7.1% and 112 of the respondents representing 4.8% disagreed. That is, the role of the broadcast media in terms of enlightenment campaigns on solid waste management was not educative.

In item 4, 944 of the respondents representing 40.1% see the role as informative enough, 824 of the respondents representing 25.0% also agreed. In the same vein, 264 of the respondents representing 11.2% could not decide to the question asked while 122 (5.2%) as well as 203 (8/6%) of the respondents see it as not informative enough.

Finally, 648 representing 27.5% of the respondents and 528 representing 22.4% respectively said that they have been influenced by the broadcast media enlightenment campaigns on solid waste management while 400 representing 17.0% of the respondents were unable to decide. However, 487 representing 20.7% of the respondents and 294 representing 12.5% of the respondents respectively disagreed. It should be noted that respondents who indicated that they have been influenced were asked to state how. From the many responses obtained, it was gathered that enlightenment campaigns on solid waste management by the broadcast media had increased knowledge on hygiene, waste reduction habits, interest on recycling of wastes and awareness and knowledge on right attitude to waste management.

Results in response to research question three showed that the broadcast media in terms of enlightenment campaigns on solid waste management have been proactive (54.6% and 39.1% respectively), helpful (48.2% and 31.9%), educative (43.8% and 33.9%), informative enough (40.1% and 35.0%) and considerably influential 49.9% (27.5% and 22.%) in terms of inducing change. This means that the broadcast media have tried in terms of inducing a positive change in the behaviour of the public towards solid waste management but this was in the case of natural disaster or outbreak of a disease. In an interview with Efosa of Bronze FM, Radio Nigeria, Benin City centre (see appendix page), he said that the media cannot force people to change but can only influence and persuade the people to do the right thing. In the view of Efosa, people do have different perceptions as to the efforts of the broadcast media in terms of solid waste management enlightenment campaigns but the broadcast cannot force people to change but persuade them to adopt the positive attitude. Invariably**,** respondents perceived the roles of broadcast media in terms of enlightenment campaigns on solid waste management as informative enough for sustainable environmental development.

***Research Question 4*: Do the broadcast media in the south-south states carry out public awareness campaigns on solid waste management?**

Using percentage analysis on each item, item 1 showed that 658 (27.9%) and 987 (42%) of the respondents agreed that the broadcast media have carried out reports on environmental problems, 235 (9.9%) could not decide on the question asked but 282 (11.9%) and 195 (8.3%) disagreed. Similarly, in item 2, 290 (12.3%) of the respondents and 1,034 (44%) answered in the affirmative to the question asked while 376 (15.9%) were unable to decide but 470 (19.9%) and 187 (7.9%) disagreed. As shown in item 3, 235 (9.9%) and 658 (27.9%) of the respondents agreed that the broadcast media have been proactive on awareness campaigns on SWM while 517 (21.9%) could not decide but 705 (29.9%) and 242 (10.3%) disagreed. In item 4, 618 (26.2%) and 614 (26.1%) of the respondents agreed that enlightenment campaigns on SWM by the broadcast media have been very informative and educative. However, 463 (19.6%) were unable to decide while 383 (16.3%) and 279 (11.8%) disagreed. As obtained in item 5, 378 (16.0%) and 241 (10.2%) of the respondents agreed that the broadcast media have helped a lot in terms of public knowledge and right attitudes towards SWM, 401 (17.0%) could not decide while 622 (26.3%) and 715 (30.3%) disagreed.

Results in response to question one and hypothesis one showed that by percentage analysis, 56.3% of the respondents were in the affirmative to the question asked. It is therefore taken that the broadcast media in the south-south states have carried out public awareness campaigns on solid waste management. In addition to the above, all the broadcasters interviewed agreed that the broadcast media in their respective stations have carried out public awareness campaigns on solid waste management and in environmental issues in general (see appendix page for details). The broadcast stations have enlightened the inhabitants on the need to clean their environment regualarly and sustain a healthy environment. A reminder is always done on the National Sanitation Day (last Saturday of the month). The enlightenment campaigns comes in the forms of radio jingles, television commercial on how to dispose of waste and at the right place, billboards, government special announcement, news bullentins, special documentary programme on the environment or spot light and health talk show. Some of these environmental management awareness campaigns are sponsored by the State's Environmental Task Force and Ministry of Environment in all the states under study. However, some broadcast stations as obtain from their programmes schedule do not have direct programmes on environmental management. There are inadequate environmental programmes in the broadcast media in the south-south region. There was no environmental social responsibility on the part of the media and there was also problem of sponsorship of environmental programmes. This affects public enlightenment of environmental information. a situation where the public does not have adequate or sufficient information on environmental management from the media, positive attitude towards a better environment may be low. Information is important because it is power.

The table above also represented in chart, revealed that 434 of the respondents representing 18.4% use large dump-bins or containers to dispose waste. Also, 521 of the respondents representing 22.1% use small dump-bins, 377 of the respondents representing 16% use metal containers, 508 of the respondents representing 21.1% use plastic bags/baskets and 517 of the respondents representing 21.9% use polythene bags.

In table 13 (A), respondents were asked if they recycle waste materials. As shown in the data obtained, 1,158 of the respondents representing 49.1% indicated that they recycled waste materials while 1,199 of the respondents representing 50.8% do not recycled waste materials.

As a follow up to table 13 (A), respondents were asked to indicate the kind of waste materials they have recycled. 291 of the respondents representing 25.1% recycled plastics, 129 of the respondents representing 11.1% recycled cans, 289 of the respondents representing 25% recycled glass or bottles, 198 of the respondents representing 17.1% recycled papers while 251 of the respondents representing 21.6% recycled items like electronics, metals etc.

As shown in table 13 (C) above, respondents were asked if they would support a private waste collection. 832 (35.3%) of the respondents said that they would by indicating sure, 277 (11.7%) were very sure,

936 (39.7%) were not sure while 312 (13.2%) were not very sure. Also, by adding the 'not sure' options together, the result showed that 53% of the respondents would not use a private waste collector to clear and collect waste while 47% would support a private waste collection.

11.4 Hypotheses

1. H_O: Age of respondents does not affect the level of influence of broadcast media enlightenment campaigns on solid waste management.
2. Ho: Level of education is independent of the influence of broadcast media enlightenment campaigns on solid waste management.
3. H_O: Positive attitudes of inhabitants towards solid waste management do not depend on influence of broadcast media enlightenment campaigns.

Hypothesis 1

H_O: Age of respondents does not affect the level of influence of broadcast media enlightenment campaigns on solid waste management.

From the test results, where (Pearson $\chi^2 = 1.785^3$, df 12, asymp. sig = .000), and since (.000 $p < 0.05$), we therefore rejected Ho and accepted Hi, and concluded that age of respondents does affect the level of influence of broadcast media enlightenment campaigns on solid waste management.

Hypothesis 2

Ho: Level of education is independent of the influence of broadcast media enlightenment campaigns on solid waste management.

From the test results, where (Pearson $\chi^2 = 64.814$, df 8, asymp. sig = .000), and since .000 $p < 0.05$, we therefore rejected Ho and accepted Hi, that Level of education is dependent of the influence of broadcast media enlightenment campaigns on solid waste management.

Research Question 5: Do positive attitudes towards solid waste management depend on broadcast media enlightenment campaigns?

In this table, percentage was used for item-to-item analysis but chi-square was adopted to determine whether public behaviour change towards solid waste management depended on broadcast media enlightenment campaigns.

Based on percentage analysis on each item, in item 1, results showed that, 463 representing 19.6% and 763 representing 32.3% of the respondents answered in the affirmative to the question asked while 337 representing 14.3% were unable to decide. The data also showed that 481 representing 20.4% and 313 representing 13.3% of the respondents answered not in the affirmative to the question asked. In item 2, 415 representing 17.6% and 667 representing 28.3% of the respondents answered in the affirmative to the question asked while 391 representing 16.5% were unable to decide, however, 505 representing 21.4% and 379 representing 16.1% of the respondents disagreed.

As shown in item 3, 331 (14.0%) and 451 (19/1%) of the respondents agreed that enlightenment campaigns on solid waste management by the broadcast media have inspired attitudinal change. Although 181 (7.6%) were unable to decide, 811 (34.4%) and 583 (24.7%) of them disagreed. The data obtained in item 4 showed that 697 (29.5%) and 865 (36.6%) of the respondents agreed that the right attitude to waste management was a matter of personal efforts and cultural practice not as a result of media enlightenment. Also, 91 (4%) of the respondents could not decide while 385 (16.3%) and 319 (13.5%) disagreed. In item 5, the data showed that 589 (25%) and 631 (26.7%) of the respondents respectively agreed that broadcast media enlightenment campaigns on solid waste have brought about serious government attention to solid waste problem in their area, while 169 (7.2%) were unable to decide, 439 (18.6%) and 529 (22.4%) of the respondents disagreed to the question asked.

Hypothesis 3

H_O: H_O: Positive attitudes of inhabitants towards solid waste management do not depend on influence of broadcast media enlightenment campaigns.

Decision Rule: Reject Ho if χ^2 cal is > χ^2 tab value and accept H_1 if otherwise

Conclusion: Given the values where; χ^2 cal (4.814) is > χ^2 tabs/critical value (.3050), we therefore, reject Ho and accept H_1, and concluded that positive attitude towards SWM depended on broadcast media enlightenment campaigns.

Response to Research Question 5

Result in response to research question five and hypothsis three showed that positive attitude towards SWM was depended on broadcast media enlightenment campaigns. Given the values where; χ^2 cal (4.814) is > χ^2

tabs/critical value (.3050), we therefore, reject Ho and accept H_1, and concluded that positive attitude towards SWM depended on broadcast media enlightenment campaigns. There was however, need to have regular media campaigns on solid waste management. Also, broadcast stations should have more programmes on environmental management. This would help bring about positive attitude in inhabitants.

11.5 Presentation and Analysis of Broadcast Media Programmes Schedule

It is imperative to have a programme schedule of broadcast stations in the region under study in order to find out if there were programmes on environmental management.

11.5.1 Unit of Analysis

The units of analysis in this study were programmes schedules of nine (9) stations from five (5) states broadcast with specific attention to environmental programmes.

11.5.2 Content Categories

The category system is the heart of any content analysis. This is because it outlines the content into categories. Since the content for analysis was broadcast media programmes schedule, the categories coded were: attribution of medium; attribution of coverage; mode of programme; time; duration; language and sponsorship. The categories used in coding of the manifest content were similar to that used by Okoro and Odoemelam (2013). For example, Okoro and Odoemelam (2013) have worked on the manifest content of newspaper on environmental challenges like flooding in Nigeria. But specific modification was made in the attributes for the study. These attributes were examined below.

1. Attribution of medium: This category examines if the broadcast medium on environmental programmes was radio or television. Radio can be powered by battery when there is power cut. Television, because of its visual effect of waste problems in our health and society.
2. Attribution of coverage: This category determines the distance or places a broadcast medium can cover. It helps to know audience's coverage.
3. Attribution of mode of programme: This category examines if the environmental programme was Live or Tape/Recorded. Live programme allows for audience participation. Audience participation is a way of determining audience impact or effect.
4. Attribution of Time: Time may help to determine level and time of audience perception in a programme. This category examines the time the environmental programme come on air. For example, we take prime time from 6pm-10pm.
5. Attribution of Duration: This category examines the length of the environmental programme. For example, a 30 minutes programme.
6. Attribution of Language: This category determines the kind of language used. This could be English or local/native language. Local language for instance involved grassroots understanding, appreciative and participation of the programme.
7. Attribution of Sponsorship: This category examines if the environmental programme on air was sponsored. A sponsor programme helps the programme to be regular on air and also allows audience participation.

11. 6. Summary of Environmental Programmes Schedules Presented in Tables

As said in the research methodology section, 9 stations of broadcast media programmes schedules from five (5) states (Bayelsa, Cross Rivers, Delta, Edo and Rivers) were obtained in order to find out if there were environmental programmes in these stations and the number of environmental programmes. No programme schedule was obtained from Akwa-Ibom state because the material (programme schedule) was considered as official documentary and property of the Akwa-Ibom Broadcasting Corporation. Many broadcast stations would not give out their programmes schedule for official reasons. The following stations programmes guides were however, presented thus:

11.6.1 Discussion on Categories of Attributions

On content attributed to broadcast medium, there were four (4) radio stations (Radio Bayelsa; Garden City FM, Port-Harcourt; Melody FM, Warri and Paradise FM, Calabar) and five (5) television stations (DBS; EBS; NTA; ITV and NTA Sapele & Benin). On the radio stations, only Paradise FM and Garden City FM have programmes on environmental information while on television stations, only ITV, NTA Benin and DBS have programmes on environmental information. These stations mentioned above covered their respective states and beyond (as obtained from those interviewed). Radio for example, is cheap and can be powered by batteries when there is power cut. Radio can reach those at the grassroot better and faster than television. However, many radio stations in the south-south states have not use this mass medium to enlighten the public on solid waste management and environmental problems in general as shown in the programmes schedules in the tables. Television can be used to illustrate or demonstrate pictures or drama on method or technique of waste management. This makes the two

media important to waste management. In all, television stations have more programmes on environmental information than radio in all the tables provided.

On attribution of mode of programmes, five (5) programmes were live programmes while other were taped or recorded. The live programmes were Healthy Living (from EBS), Safety Tips (from DBS), Environmental Matters and The Environment (from NTA, Benin) and Green World (from Garden city FM). A live programme allows for audience participation whereas tape does not give room for the audience participation.

Time allocated to most of these programmes was 30 minutes. This might not be enough for a programme intended to bring about positive attitude in inhabitants. Also, most of the programmes were not in prime time. We take prime time in this study to mean a time when most audience are at home to watch television or listen to radio like 6.00pm to 10pm. For example, Environmental Matters and The Environment by the NTA are 2.00am and 3.30pm respectively. These times not have enough audience participation.

Almost all environmental programmes were in English except for Forest Na Live (from CRBC, Saturday, 8.00am/30mins) and some social programmes that briefly highlight environmental issues like Make County Better (DBS, warri, Saturday, 9am – 10.00am) were in Pidgin English. There was no programme on local/native language. Environmental news can be read in local languages in order to get across those at the grassroot.

On attribution of sponsorship, none of the environmental programmes in all the stations presented were sponsored. Sponsored programme (SP) makes a programme come on air regularly. Many of the sponsored programmes were religious ones and reality shows.

In all, the categories of attribution of programmes in these stations showed poor public enlightenment campaigns by the broadcast media not only on solid waste but environmental issues in general.

11.7 Discussion of Findings

From the data gathered, presented and analysed so far, the following findings emerged. Using percentage and chi-square analyses on research question one and hypothesis one, 56.3% of the respondents were in the affirmative that the broadcast media in the south-south states have carried out public awareness campaigns on solid waste management. In line with this, Ofomata and Phil-Eze (2001:1) had argued that environmental concern remains one of the major focuses of contemporary scholarships and the trend is bound to persist, largely due to climate change and global warming. This explains that communication is important for solid waste management. In the same vein, Banjo, Adebambo and Dairo (2009:64) results showed that radio and television were the most available, easily accessed and the most effective sources of environmental information. The above results lend credence to this study. Source through which respondents' recieved enlightenment campaigns on solid waste management was ascertained. Majority of the respondents (74%) received enlightenment campaigns on solid waste management through the government television stations and 71.3% of the respondents received it through the government radio stations. This result also confirms the findings reached in other studies. Macawile and Sia Su (2009:64) noted that a conscious effort through communication is required to incorporate interests in environmental management. Similarly, Kalantri and Asadi (2010:319) believe that a proper focused information campaign is necessary to raise the level of people's knowledge about the environment and form the consciousness that could motivate people to act in favour of environmental management. From the responses obtained from those interviewed the broadcast media have contributed towards solid waste management through enlightenment campaigns. But its contributions were insufficient and inadqutae. There were poor enlightenment campaigns by the broadcast media on solid waste management. However, there was need for more frequent campaigns. As Fidel (interviewed page) puts it, "the media like ours, time and time again, have tried to inform and educate the people to do the right thing by telling them to stop dumping wastes in gutters. It is not easy to change people's mind set".

The broadcast media have contributed towards solid waste management through its enlightenment campaigns though, poor. As obtain from the results, 47.6% of the respondents were not satisfied at the extent the broadcast media have contibuted towards solid waste management. Results obtained from programmes schedule of the broadcast media showed that environmental programmes in all the stations were very poor when compare to other categories of programmes like social and entertainment or religious programmes. This was as a result of irregular enlightenment campaigns on solid waste issues. The result to this was 52.8%. This implies that knowledge and attitude are two indicators for solid waste management. While respondents were aware of the broadcast media enlightenment campaigns on solid waste management, the result showed 61.8% of the respondents believe that attitudes of inhabitants in their neighbourhood to solid waste disposal were poor. Studies have revealed that although, awareness and knowledge on environmental issues may be high, attitude towards waste management may be poor (Raudsepp, 2001:357; Babayemi and Dauda, 2009:86; Ifegbesan, 2009:210). This also implies that awareness and knowledge are not the only prerequisites for responsible environmental attitude but also motivation, age factor, education and environmental commitment (Kalantari and

Asai, 2009:310). Other studies (Babayemi and Dauda, 2009:86; Ifegbesan, 2009:210) have found a high level of awareness on solid waste. The result above is, however, contrary to the findings of Ibrahim and Babayemi (2010:50). Using 927 undergraduates of the University of Ibadan, their results indicated a low level of environmental knowledge and attitude with 68.7% and 54.2% scoring below the mean, respectively. This percentage of respondents can be arbitrarily referred to as possessing unhealthy knowledge of environmentalism. Awareness campaigns on solid waste management by the broadcast media are very important for right environmental attitude. It should be recalled that during the Buhari/Idiagbon era, when the regime launched War Against Indiscipline (WAI), which also included indiscriminate dumping of waste, there were regular media campaigns on solid waste management. In an interview with Norbert Chiazor (2011, see appendix), he acknowledges the effort of Buhari/Idiagbon on solid waste management where the neatest state in the federation was rewarded by the federal government. He believes that attitude to SWM should be a cultural practice. From the responses obtained from the interviews, there was significant public awareness on solid waste management mainly through jingles on radio but these did not respond with the programmes schedule of these stattions.

Respondents' perception of the roles of broadcast media in terms of enlightenment campaigns on SWM was determined. These roles were perceived by 75.5% of the respondents as proactive, helpful, educative and informative but 49.9% said that these roles were not capable of inducing change. The ability of the broadcast media to influence or induce positive environmental attitude on inhabitants largely depends on the willingness to participate in waste management by individuals. Environmental news, as it were in Nigeria, are given serious attention by the governments only when there were natural disasters like floods or oil spills on lands, farmlands, water and the spread of diseases. This was why the federal government established Fedral Environmetal Protection Agency (FEPA) in 1992 (refer to appendix v for details). In the same vein, Atsegbua, Akpotaire and Dimowo (2003:44) had argued that the average Nigerian perceived environmental issues as something outside his immediate challenges. The authors believe that the average Nigerian is concerned with his immediate well-being or survival. Environmental issues outside the cleanliness and condition of his immediate environment border on the shoulders of the government. Atsegbua et al. (2003:44) further advocated for public enlightenment programmes towards the protection and management of the environment. In view of this, the UNESCO (1992) as cited in Banjo et al. (2009:63) believes that the public has right of access to environmental information held by local authorities and giving out information about environmental policy, which is essential for achieving sustainable development. With access to environmental information, people would have full knowledge of the implication of their activities on the environment and are able to participate more effectively in decision making processes that affect the environment.

Methods of waste disposal practice were also assessed. Attitude to waste disposal practice is an important indicator and component of environmental behaviour. Even if an individual possesses a high level of environmental awareness and knowledge, behaviour or attitude to waste management still remains the centre of waste disposal practice. The study revealed that respondents used various methods to manage waste such as burying and burning them. Although many of the respondents (79.7%) believe in engaging the services of private waste collector to dispose of waste, however, many (65.8%) dispose waste at places not approved by the local authorities. Invariably, inhabitants do not have specific or professional ways to store waste before disposing of them. This leads to indiscriminate disposal of waste. Studies have attested to the indiscriminate disposal or dumping of waste as a common practice in Nigeria (Agunwamba, 2001; Abel, 2009; Adewole, 2009; Afun, 2009; Kalu, Modogu and Ubochi, 2009). For example, Isu (2005) as cited in Kalu, Modogu and Ubochi (2009:1) noted that 87% of Nigerians use unsanitary methods of waste disposal which constitute nuisance, ugly sight and create a breeding ground for pests, rodents and diseases. Indiscriminate solid waste disposal is actually a menace and embarrassment to the nation where heaps of refuse litter most parts of the city (Isu, 2005).

Failure by the local authorities to provide adequate waste disposal facilities as well as collection of solid waste on time could be the reason why respondents would pay for private waste collection service. Atsegbua et al. (2003:47) and Okosun (2011:49) had observed lack of funds and manpower among other reasons, why the local authorities on waste management cannot provide adequate waste disposal facilities. The results obtained from this study showed that 47% would pay for waste collection service while 53% would not. This corresponds with the findings of Akpen and Aondoakaa (2009:71) that 51.1% of their respondents in Gboko, Benue State, believe that solid waste management is a social service and hence, the unwillingness to pay for disposal charges. However, in a study of Onitsha Metropolis, Agunwamba (2001:360) observed poor waste disposal operations from collection to transportation and disposal in Nigeria. Also, in a study of solid waste in Kaduna metropolis, Nwude, Igboro, Ibrahim and Okuofu (2008:36) found that 93.3% of the respondents were not satisfied with the existing waste collection service by state waste agency and, 73.3% of the respondents were willing to pay for private waste collection service. Nabegu (2008:114) in his study found that more than two-third of the residents in Kano metropolis do not use authorised dumpsite for their waste. For this, Nwude et al. (2008:37) argue that there was need to mount health education campaign at the local government areas on self-methods of refuse collection and disposal and other positive health habits such as waste reduction, reuse and

waste separation at the grassroots level. It is the duty of the state and local environmental authorities or agencies to educate the public on method(s) of waste management. One of the reasons for the establishment of state's environmental agencies was to educate inhabitants on appropriate waste method or recommendation methods of waste management (see appendix).

As part of waste management practice, it is expedient to know the types of containers respondents use to store waste before disposing of them. From the different sizes and types of waste containers listed such as large waste bins, small waste bins, metal or plastic cans and polythene bags, the result revealed that (18.4%) of the respondents use large waste dump-bins provided by the local authorities. One of the problems of using large dump bins provided by the local authorities was that they are not provided with covers to reduce or prevent smell, and the wastes are not collected or cleared on time. Waste management experts (Allengate, Enuneku, in interviews pages) believe that one of the most appropriate ways of storing waste before disposing of them is to put them into a big polythene bag attached to a plastic or metal container. But this has not been the case in many homes and places in Nigeria. Waste collection and disposal had been a problem and challenge to local government authorities in Nigeria. Nabegu (2008:114) investigated the operations of the state agency responsible for waste management in some towns in Nigeria, and reported that a significant portion of the population (80%), does not have access to waste collection services, only 20% of the waste generated is actually collected and majority of the users of the service, that is, 92% consider the service very poor.

Increasing the knowledge of waste reduction through recycling for the target population has been seen as a necessary method of increasing public participation in waste reduction (Ibrahim and Babayemi, 2010: 47). Recycling of wastes is a part of waste reduction practice. This study showed that 50.8% of the respondents recycled waste materials. Waste recycling is waste management. But waste recycling knowledge and practices have not been given serious attention. This implies that, as Post (2007:114) observes, "inadequate knowledge on waste recycling can be a barrier to waste reduction behaviour". Waste recycling still remains a huge challenge to the government of Nigeria. Many states in Nigeria have not established recycling industry.

Willingness to pay for waste collection service is increasing among inhabitants. Some studies have showed that respondents are willing to pay for waste collection service through a private sector partnership (Nwude et al., 2008:38; Nabegu, 2010:113; Ibrahim and Babayemi, 2010:50). The above results confirm our result, as a considerable number of the respondents (47 %) were willing to pay for waste collection service while 53% of the respondents were not willing to pay for waste collection service.

The study also provides a platform for respondents to identify the things they have done out of concern for the environment. Interest or willingness to change ways or attitudes in order to reduce the amount of waste generated took a large proportion or percentage among other options. This was at 51.4%. By implication, attitudinal and behavioural changes are imperative for waste reduction, reuse, recycling and general management. It is obvious that the positive attitude was needed to manage solid waste. Inhabitants' attitudes towards solid waste management were not good enough for sustainable environmental development. Many still dispose waste indiscriminately. Many of the respondents still see the management of solid waste as largely the responsibilities of the local authorities rather than the right attitude. In a report on climate change carried out by the British Broadcasting Service (BBC, 2010:8) on ten Africa countries, the result showed that 69.2% of the respondents see climate change and other environmental issues as something that is distant and not urgent and, that which belongs to the government. Poor attitude to environmental issues and management was observed in Africa by the BBC report. This corresponds with the responses obtained from the broadcasters interviewed and from the results in the study that there were poor public attitudes towards solid waste management in Nigeria; that law enforcement and regular enlightenment campaigns were required to change people's attitude towards waste management.

Age and levels of education are believed to be indicators for solid waste management (Babayemi and Dauda, 2009:85). Where (.000 $p < 0.05$) was obtained from results in respect of the levels of education and age, it was concluded that influence of the broadcast media enlightenment campaigns on solid waste management depended on the respondents' age and levels of education. There was therefore, a relationship between age and education to waste management. However, it depends on the individual perception and attitude. Babayemi and Dauda, (2009:85) believe that the factors responsible for the level of awareness and practice were educational status, age, gender and social status. Longe et al. (2009:204) results showed that age factor played a significant role in the awareness of environmental health and sanitation in Ojo, Lagos state. Invariably, there is a significant relationship between solid waste management and age and education of respondents.

One of the focal points of this study was to ascertain if positive attitude or behaviour towards solid waste management was depended on influence of broadcast media enlightenment campaigns. Given the values where χ^2 cal (4.814) is $> \chi^2$ tab values (.3050), Ho was rejected and H_1 was accepted and, it was concluded that positive attitude towards SWM depended on broadcast media enlightenment campaigns. Howver, this must be on a regular basis for influence of enlightenment campaigns by the broadcast media on SWM for positive public behaviour change to take place. By implication of this result, there is therefore a significant relationship between

enlightenment campaigns on solid waste management by the broadcast media and positive attitude towards solid waste management. Regular enlightenment campaigns on solid waste management by the broadcast media can bring about the desired result (positive attitude to SWM).

Findings from the programmes schedule of the nine (9) stations obtained showed that public enlightenment campaigns on environmental information and issues like solid waste were inadequate and insufficient for sustainable environmental behaviour and development. For example, four (4) stations (Melody FM, Warri; NTA, Amukpe Sapele; Radio Bayelsa and EBS, Benin) do not have direct programmes on environmental management. We have explained direct programme in this study to mean programmes that directly deal on environmental issues like social/magazine programme where a small segment for few minutes highlight issues on environmental management. Therefore, from the data obtained from these stations, it is evident that the extent of broadcast media enlightenment campaigns on environmental information and management is very poor, inadequate and insufficient for attitudinal change. Only five stations have regular programmes on environmental management and this appears once a week. This is also inadequate.

There are ample of evidence from the programmes schedule obtained that some stations do carry out campaigns on SWM in particular and environmental management in general. As obtain from the percentage analysis of Cross River State Broadcasting Corporation, 2.08% of the total programmes were given to environmental issues in a programme called Forest Na Life. This was insufficient when compare to other genres of programmes in the station and at a time when the world is concern about climate change, global warming and other environmental problems threatening humanity. In the vein, results from television stations showed that in Delta Broadcasting Service (Rainbow TV, Warri), of the 96 total programmes only 1.04% was given to environmental issues. This was also poor. In the FM unit of the same station, there was no direct programme on environmental management except when the duty continuity announcer (DCA) use his/her discretion to remind listeners to clean up their environment or bring expert to discuss environmental issues or open phone lines to discuss environmental issues with the audience. This happens occasionally

From the programme schedule of Independent Television (ITV, Benin), of the 48 genres of programmes in the station, 2.08% was given to health and environmental information. The programme is called Healthy Living, where health and environmental issues are discussed. This also poor when compare to other programmes in the schedule. Of the 59 total numbers of different programmes in Garden City FM, Port-Harcourt, Rivers state, by percentage analysis, 5.08% was given to environmental programmes. There were three programmes (Weather Report, Weather Update and Green World). Although, two were on weather information but no doubt, they help to inform the audience about the weather, rains, possibility of floods. These are also environmental issues.

Programmes schedule from the NTA Benin centre showed the station has two environmental programmes called Environmental Matters (Monday, 2.00am) and The Environment (Thursday, 3.30pm). Each programme runs for 30 minutes. These programmes represented 2.06% of all the total programmes in the station. This means that the NTA has regular enlightenment programmes on environmental issues. There is no doubt that solid waste management would not be included in the issues. Many of the interviewees said that solid waste issues come in their radio jingles, television commercials, news bulletins, special report like documentary or spotlight as it is called in some broadcast stations. This 'flash' information on solid waste comes occasionally.

Therefore, it is taken from the above results that there were inadequate and insufficient public enlightenment campaigns on solid waste management by the broadcast media in the south-south states of Nigeria.

By percentage analysis, only 16.5% was obtained when compare to the different programmes in all the stations under study. This is considerably poor and insignificant for attitudinal change. There were few stations with regular enlightenment campaigns on environmental management while entertainment, religious and social progarmmes top virtually all the stations programmes schedule under study. Entertainment, religious and social programmes were dominant in all the programmes schedule obtained. Entertainment genres like movies, music, reality shows, soap opera and many others are fast dominating the entertainment industry in Nigeria. This keeps the young minds excited, happy and glue to their television set. In this kind of situation, environmental programmes may be boring and uninteresting to the youths. Many of the media survive due to the increasing number of churches and other religions that top their schedules. This was common in government-owned stations than private stations. We all know that media cannot survive without these advertisements. Environmental issues in the media were not given serious attention because, as obtain from the entire programmes schedule, none were sponsored.

The import of all these, was poor attitude to solid waste management and environmental issues in general.

As regards ways broadcast media evaluate public influence or impact on solid waste management, responses from the interviewees revealed that various techniques were employed. For example, Norbert (a senior programme manager of Delta Broadcasting Service, Warri) said that their station use phone-in calls whenever

such environmental programme was on air. That is, lines are open to audiences to participate in the issues being discussed. This is a way of determining audience's impact. Reporters go out to evaluate the extent the public respond to environmental campaigns. There are reports of those who were tried and fined by sanitation mobile courts for violating the no-movement policy on National Sanitation Day. But in general, the attitude of Nigerians towards solid waste management is very poor. In the words of Norbert Chiazor, "I mean, you do not need the government or the media like DBS to remind you to clear up your environment. It is a thing of our culture. Culture they say is a way of life. So our environmental attitudes should be our way of life. So, generally, our attitude to the environment is poor, we should change it".

Responses from the interviews showed that attitudes of inhabitants to waste management were poor. Many of the interviewees (12) believe that inhabitants' attitude to solid waste was poor while two (2) of the respondents believe that inhabitants attitude has improved when compare to the past. For example, many of the interviewees complain of some inhabitants' attitude of dumping waste on road side, water channels, creeks, and other unauthorized places as well as unhealthy environmental practices. According to the interviewees, there are no enough waste bins provided by the government in many of the cities. Also, the appropriate authorities on waste management have failed to clear up waste on time. In addition, there are no enough enlightenment campaigns on radio and television to enlighten people on how to manage waste as well as the importance of waste management. This is because of lack of sponsorship. When environmental programmes are sponsored enlightenment will be intensified.

In all, a positive change in the behaviour of the public towards solid waste management depends on not only regular enlightenment campaigns by the broadcast media but serious personal effort. The media may influence people's beliefs, opinions and perceptions but attitude and behaviour towards waste management are determined by people's ability and willingness to accept change or new things. Individuals are the agent of change. Changes only come when the willingness is there.

11.7.1 Implication of the Findings

In summary, the findings imply that:

- The broadcast media with its features of pictures and sound are capable of influencing or inducing responsible environmental behaviour if there are regular enlightenment campaigns on SWM and other environmental issues. Invariably, the media cannot compel people to change but can set the agenda for change.
- That the solid waste problem can be best managed by modifications of human behavioural patterns by developing responsible environmental behaviour. Invariably, responsible environmental attitude is the best approach to solid waste management.
- Awareness and knowledge on environmental issues like solid waste management may not translate to responsible environmental attitude unless there is willingness to participate in environmental management.

11.7.2 The Relevance of the Study to Knowledge

There are many studies on solid waste management in Nigeria. Many of these studies have looked at solid waste management from different perspectives. For instance, Oyeniyi (2011) did a study on waste management in contemporary Nigeria. He used Abuja as a case. There is also a study by Salami and Patinuoh (2011) on characterisation of solid waste in Lagos state. Also, Ana, Oluruntoba, Shendell, Elemile, Benjamin and Sridher (2011) have researched into solid waste management problems in secondary schools in Ibadan. There are many studies on solid waste management. However, the researcher as at the time of the study could not find any study applying the broadcast media to solid waste management.

Basically, the uniqueness and distinction of this study from other studies in the field of solid waste management, is the application of the broadcast media to solid waste management for responsible environmental behaviour. But specifically, this study has added to the body of knowledge on solid waste management in the following ways:

i. It has been shown in the study that public participation in solid waste management can be facilitated by the broadcast media. It has been shown in the literature by various authors that communication is important for attitudinal change. Regular enlightenment campaigns by the broadcast media can bring about positive change. The broadcast media are agents of social mobilisation and change. Effects of improper disposal of waste to the environment and human health can be shown on television, and this can bring about positive change of attitude towards the environment.

ii. The broadcast media audiences are attached to the media. This is because of the features of sounds, images and voices. This attachment makes the broadcast media unique from others, and therefore, the interest of this study. Results from the various programmes schedule of the broadcast stations showed that that social and entertainment categories of programmes top the programmes schedule of many of many of the stations. Environmental information can be 'flashed' into some news bulletin or programme.

iii. Studies have not been carried out on the medium or means through which the public can be reached and mobilised towards adopting the attitude for solid waste management. This study however, has shown that the broadcast media are the most effective means to reach every one even those at the rural areas. Programmes in local languages and Pidgin English can be done to promote public attitude towards solid waste management. It was shown in this study that television stations have more environmental programmes than radio stations. Television can be used to demonstrate to viewers how solid waste can be managed. Radio as shown in the study can reach those at the grassroot. Radio is cheap, portable and can be powered by batteries whenever there was power cut.

iv. Also, researches have not been conducted on how radio jingles, television commercials, news bulletins and documentaries on television can be used to reach the public to promote positive environmental attitude. This has been shown in this study by interviews conducted with various broadcasters.

v. Researchers (Gamba and Oskamp, 1994; Scott and Willets, 1994; Agata and Agata, 2003, in Ifegbesan, 2009: 202) have adopted the theory of planned behaviour to the study of solid waste management; however, they have not applied the theory of value-change to solid waste management. The theory of value-change postulates that it is only when our values and attitudes towards the environment changed, it is only then we can have a sustainable environmental development. This is a distinction from other studies in the field of solid waste management.

vi. In addition, the two theories (planned behaviour and value-change) lend credence to the findings in this study. For instance, the theory of planned behaviour specifies that, if the appropriate authorities on environmental management adopt a planned enlightenment campaigns on solid waste management, right beliefs, attitudes and behaviours towards waste management would be created. The result from the study also revealed that regular and aggressive enlightenment campaigns on solid waste management were necessary and needed for responsible environmental behaviour. It was also obtained in this study there is a relationship between the extent of broadcast media enlightenment campaigns on solid waste management and positive attitude to environmental management. This implies that positive attitudes towards environmental management depended on value-change. This explained why planned behaviour and value-change theories were adopted as bases for solid waste management.

vii. Invariably, the study has added to other studies in environmental communication in general, and specifically, solid waste management. The need for public attitude towards the environment or solid waste management can be achieved with regular enlightenment campaigns by the broadcast media. From the various findings in this study, self consciousness towards the environment is the first step towards environmental management. This is the heart of this study.
In all, attitude is everything.

12. Conclusion

Solid waste management is one of the greatest environmental challenges facing us in this country, Nigeria. In order to inculcate positive attitude towards inhabitants, there was need to adopt enlightenment campaigns by the broadcast media. It was observed in the study there were inadequate and insufficient enlightenment campaigns by the broadcast media on environmental issues in general and solid waste in particular. Attitudes towards solid waste management were poor and insufficient for sustainable environmental development. This is because many Nigerians still see the management of solid waste as largely the responsibilities of the local authorities. There is, therefore, the need for intensive enlightenment campaigns on solid waste management by the broadcast media for public behaviour change. However, enlightenment campaigns should not only focus on solid waste but also on all environmental problems. As shown in the study, positive attitude to environmental management can be influenced by regular enlightenment campaigns by the broadcast media. Responsive environmental behaviour remains the best approach to waste management.

13. Recommendations

Emerging from the above findings and discussion, the study recommends:

1. Regular Public Enlightenment and Sensitisation of Environmental Issues

It is constructive for the mass media in Nigeria to regularly sensitise the public on the need to manage wastes properly and other environmental issues. For this, environmental communication becomes imperative. It is the application of communication principles and strategies in keeping man abreast and awake to environmental concerns. As obtain from the programmes schedule from the broadcast media enlightenment campaigns on environmental issues. Many of the stations do not have direct programme on environmental management and many do not give environmental issues a serious attention. Durations on environmental issues are short and appear weekly and even occasionally. Therefore, the broadcast media for example, can do this by carrying out

regular news programmes on the environment. There should be discussions, interviews with experts on environmental issue. There should be phone-in or caller programmes to determine public participation and impact. The public should have the right of access to environmental information held by authorities. Making information about the environmental policy available is essential for achieving sustainable development. With access to environmental information, the people have full knowledge of the implications of their activities on the environment and are able to participate more effectively in decision making processes that affect the environment

Regular campaigns by the media on the environment are essential for environmental management. This is because they help to shape social norms and values, influence people's decision in ways that promote a more environmentally sustainable society.

2. Private Collection and Disposal of Waste

The government at all levels should partner with private firms in the collection and disposal of solid wastes. This practice is effective in waste management. Dumping sites should be provided. Many of the inhabitants through the filling of questionnaire complain that wastes were not collected regularly and on time. Many streets do not have waste bins provided by the relevant agencies. There are no approved dump sites in some streets and towns. Inhabitants dump waste at any point convinient for them. Indiscriminating dumping was observed in the study. Waste bins should be placed in strategic locations that will not be harmful to health and aesthetic values. In addition, every household and street in every town should have waste disposal bins for private collectors. In others words, there is need for the use of litter bins in every home and office and disposal of their contents in approved sites for separation, recycling and treatment. It is advisable that only trained experts or persons should be entrusted with waste disposal.

3. Recycling of Wastes

Basically, the government with private firms could go into partnership in converting wastes into useful and marketable value. The study showed that only few inhabitants recycled their waste. Recycling of waste has not been taken as a way or method of waste management. There is need for the broadcast media to teach inhabitants the importance of recycling. Recycling has now become a very important aspect of effective waste management. Refuse is no longer considered to be unwanted material but a source of raw material which may be reprocessed into new products. Unfortunately, Lagos state is one of the few states in Nigeria with recycling industry. The government should invest in recycling business by partnering with private investors.

4. Strict Enforcement of Environmental Policies and Laws

Strict enforcement of environmental policies and laws is a major step towards environmental management. Efforts of the Federal Environmental Protection Agency and all States Environmental Waste Management Board or Agencies have not yielded the desired results. The use of regulations and legislations can play important roles in achieving high standard of cleanliness and the reduction of waste management burden in Nigeria. For example, loitering of refuse and abandoning old vehicles should be liable to a heavy fine. Many of the broadcasters interviewed agreed that environmental laws should be strictly enforced by the relevant authorities. Some Nigerians do not adhere to environmental laws unless thet are enforce to do so. Positive attitude towards the environment sometimes can be enforced.

Solid waste management policies and enforcement of sanitation laws in various states should be energised, and various environmental organisations should do more until the dream of a clean environment in Nigeria becomes a reality. Efforts of environmental experts in the country are highly solicited in researching into the possibilities of making sustainable solid waste management to stay in Nigeria. Government should reinforce waste collection and disposal systems. Sanitary inspection by health officials is encouraging. To prevent serious environmental and health harzards in Nigeria, priority should be given to waste management by all stakeholders.

In all, the government should provide adequate funding for agencies concerned with environmental management and ensure proper implementation of programs and policies. The media should intensify their efforts at public enlightenment by presenting environmental information in the local languages to remove the language barrier. Particular emphasis should be placed on the effect of domestic activities on solid waste and global ecological climate. Environmental education should be incorporated into the school curriculum at all levels in order to build a generation of environmentally conscious citizens. The most important of all these recommendations in solid waste management is positive attitude towards the environment. When people become conscious of the environment, a positive attitude may develop.

The various recommendations point to responsible behaviour, which means actions taken by an individual or group of individuals to do what is right in order to protect the environment. Attitude is everything.

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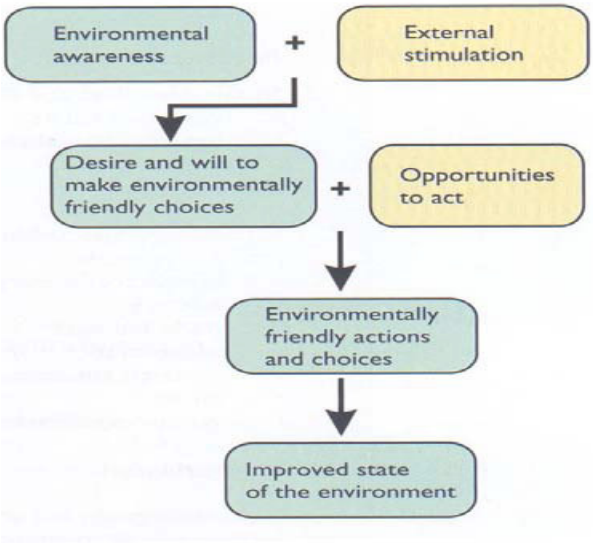
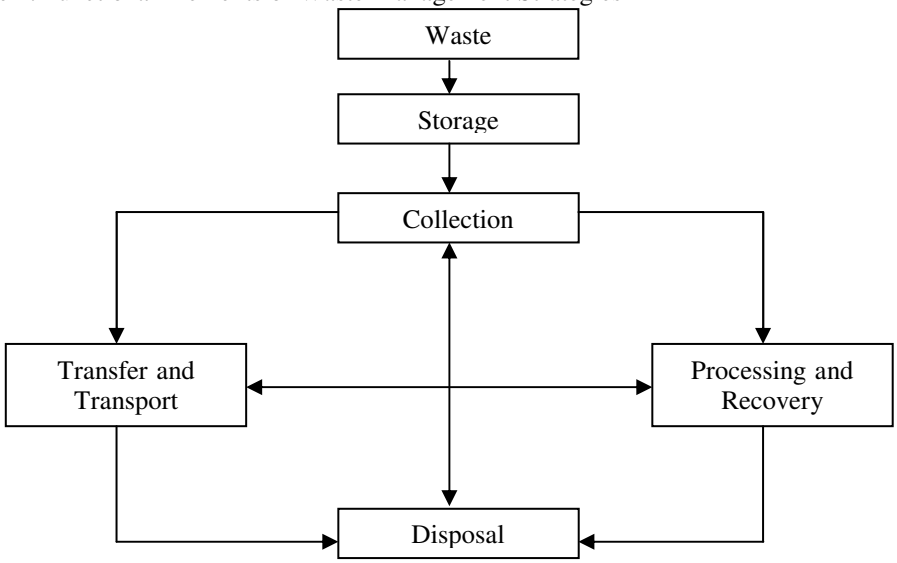
Figure 1. Environmental Awareness in Practice

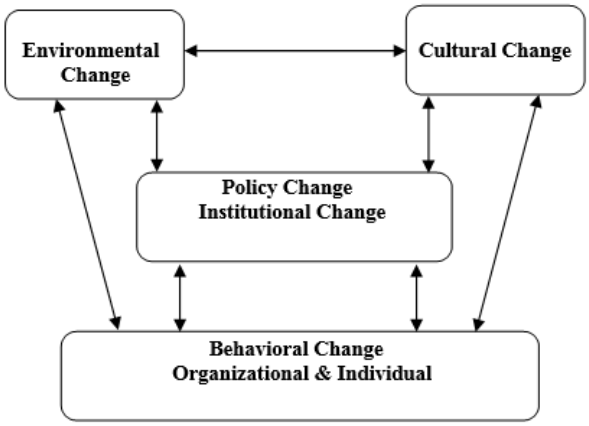


Source: (Partanen-Hertell *et al.*, 1999, in Olgyaiová et al. 2008:87).

Figure 2. Functional Elements of Waste Management Strategies

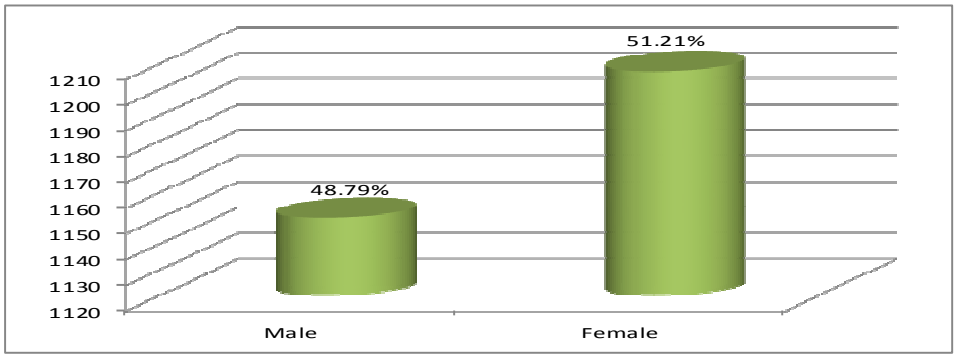


Source: Ukpong (2006)

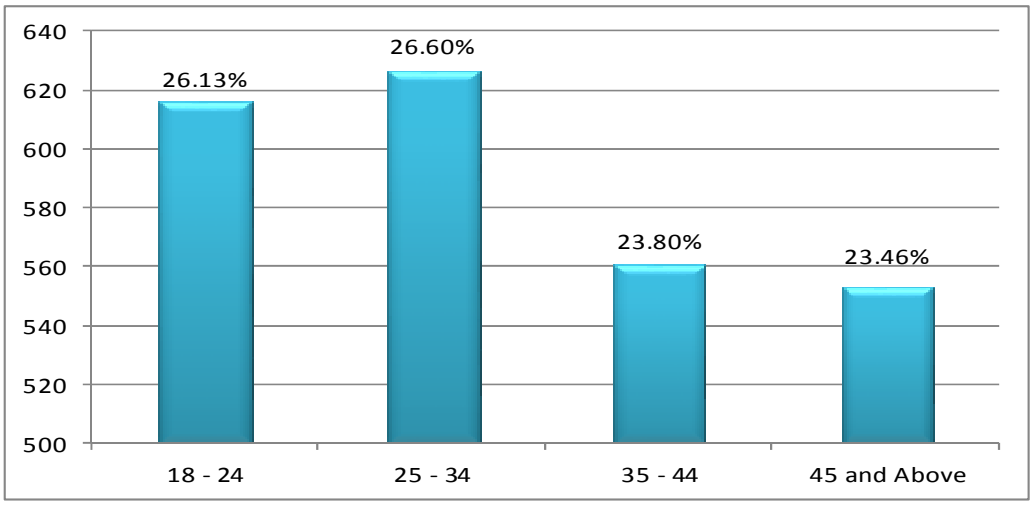


Simplified Schema of Influences on Waste Management Behaviour (Davies et al. 2001).

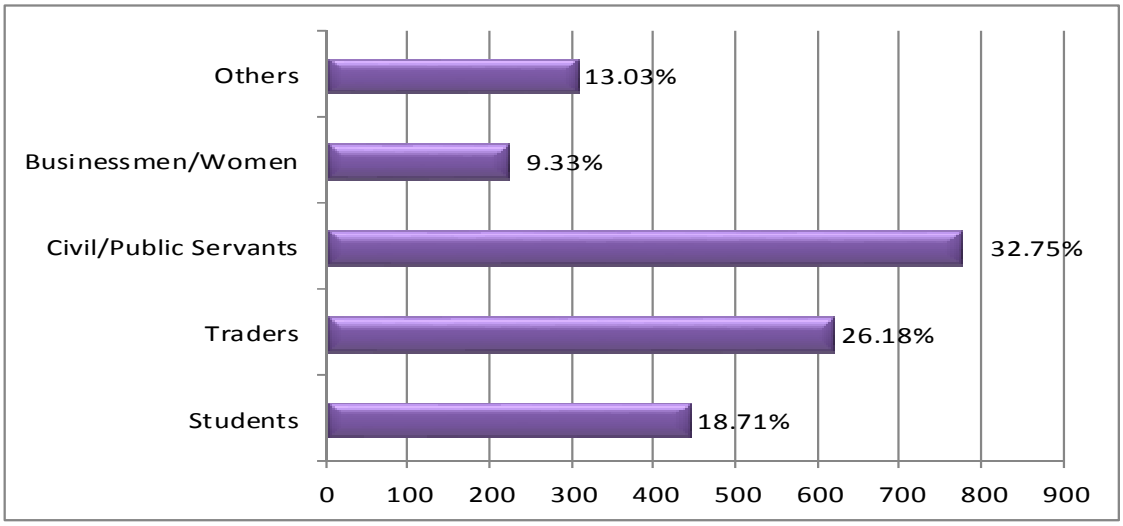
Sex of Respondents illustrated in Chart



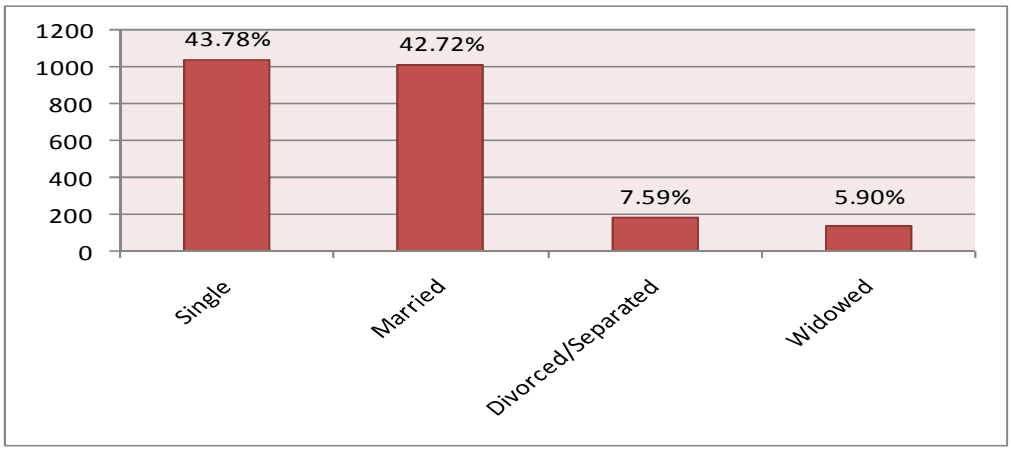
Age Classification/Range



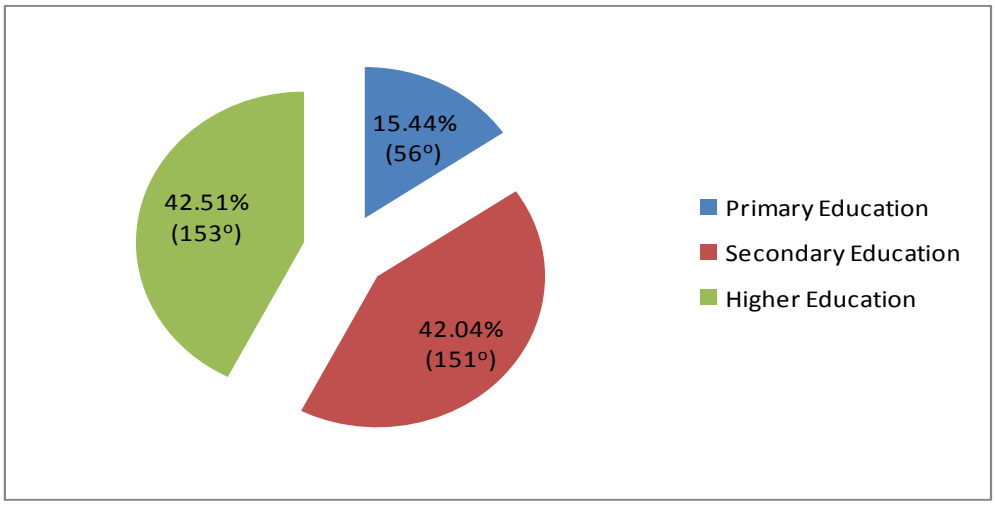
Respondents' Occupation/Group



Marital Status



Levels of Education



Respondents' Perception of the Roles of Broadcast Media Campaigns on Solid Waste Management (Proactive)

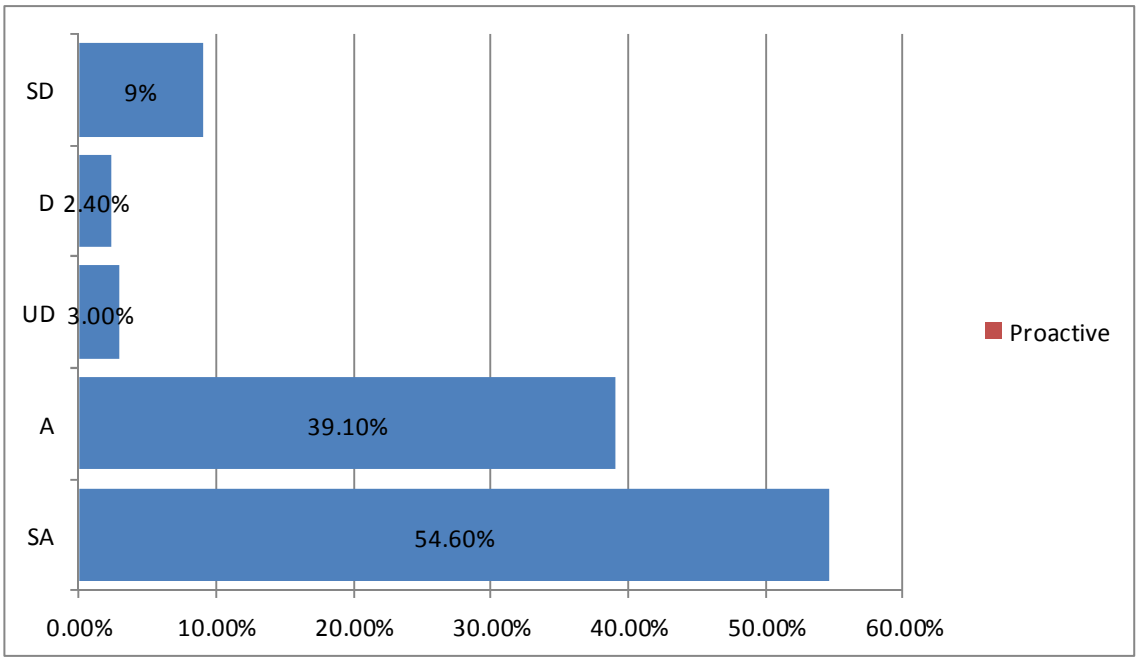


Chart 2: Helpful

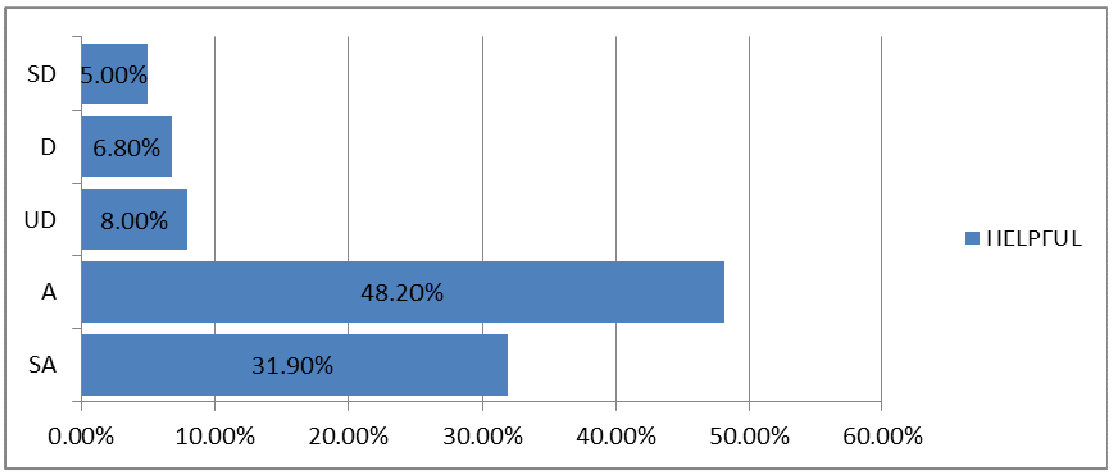


Chart 3: Educative

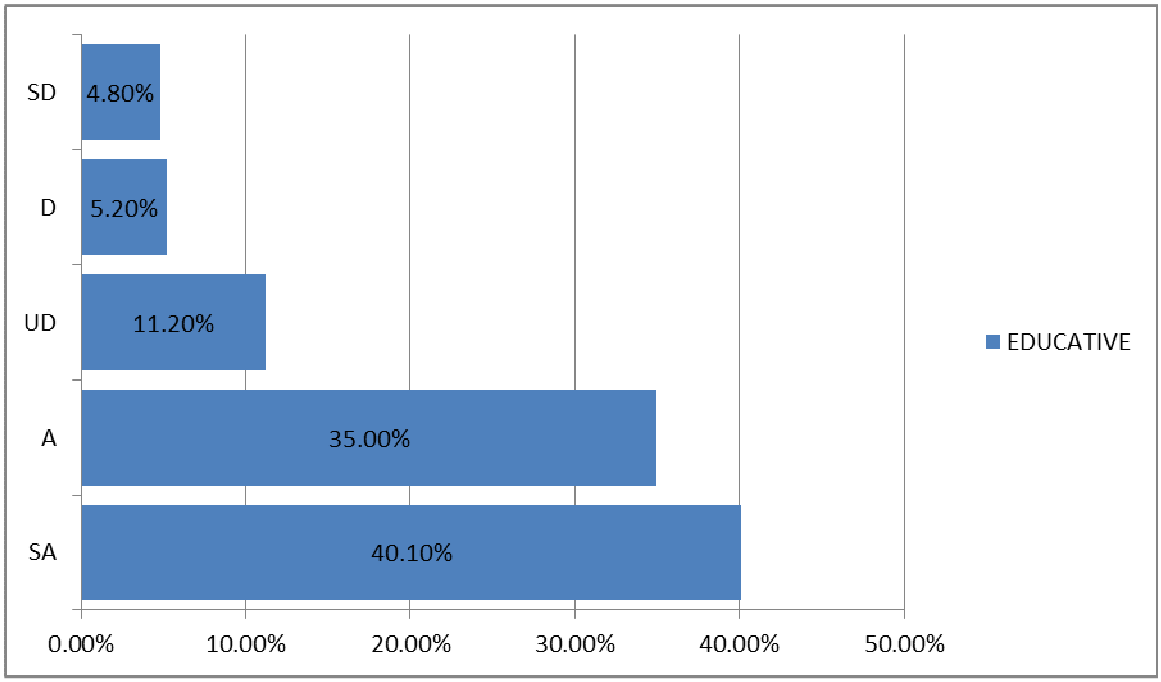


Chart 4: Informative enough

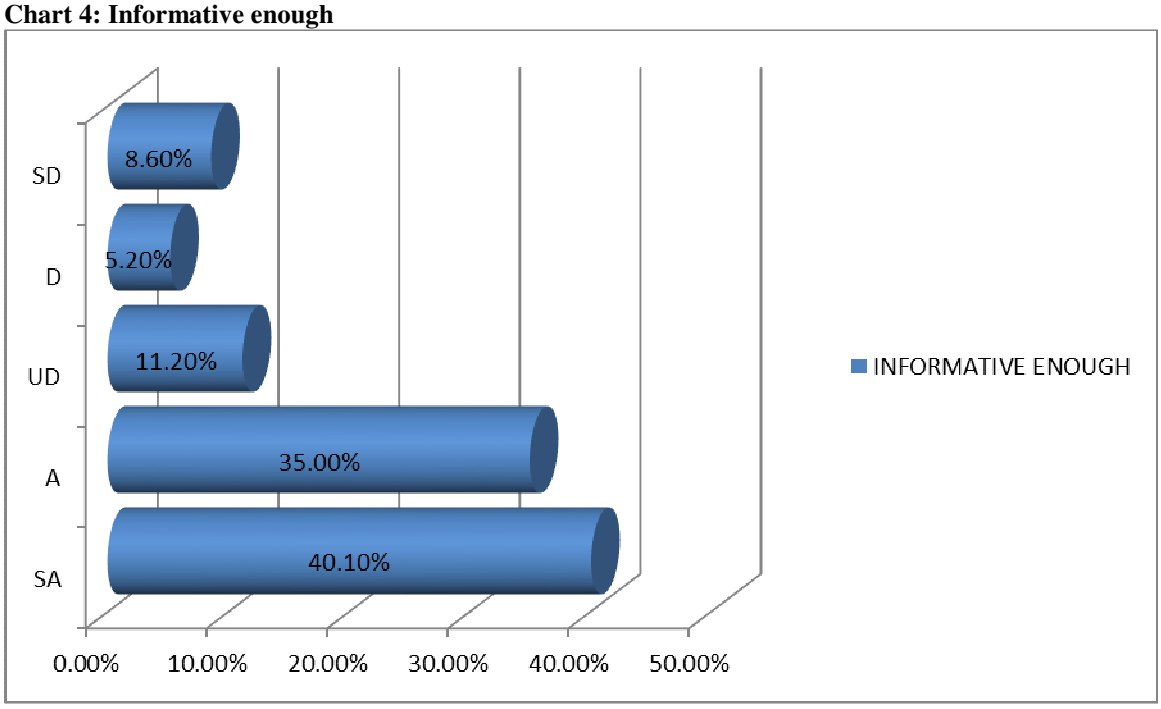
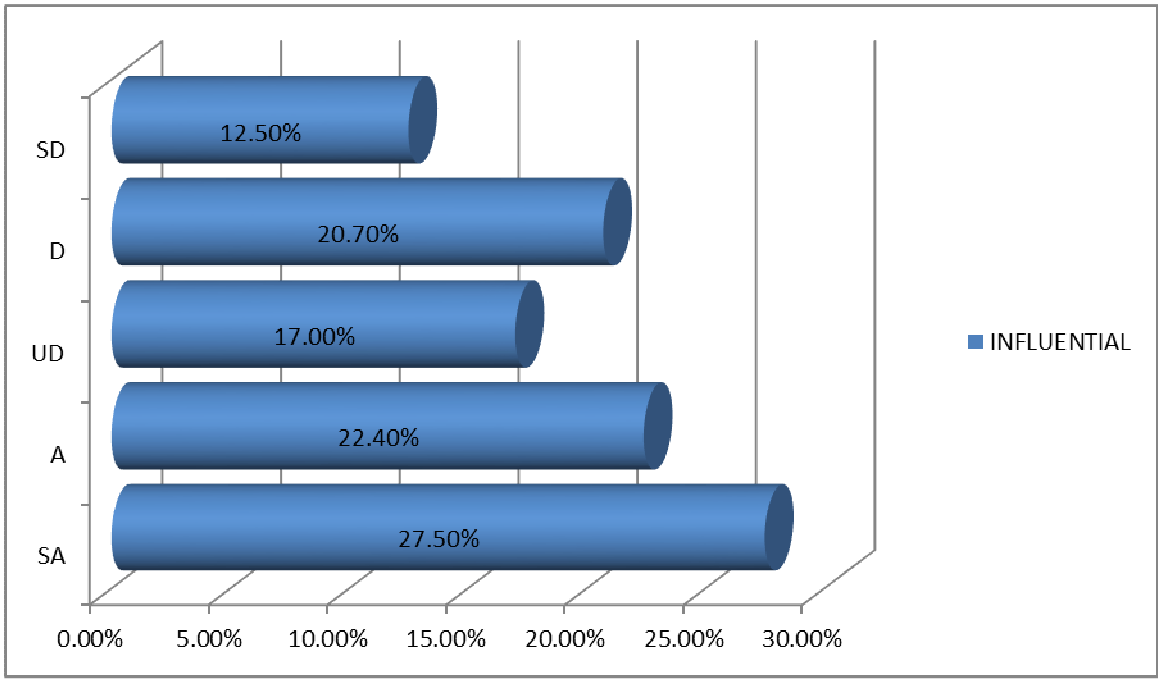
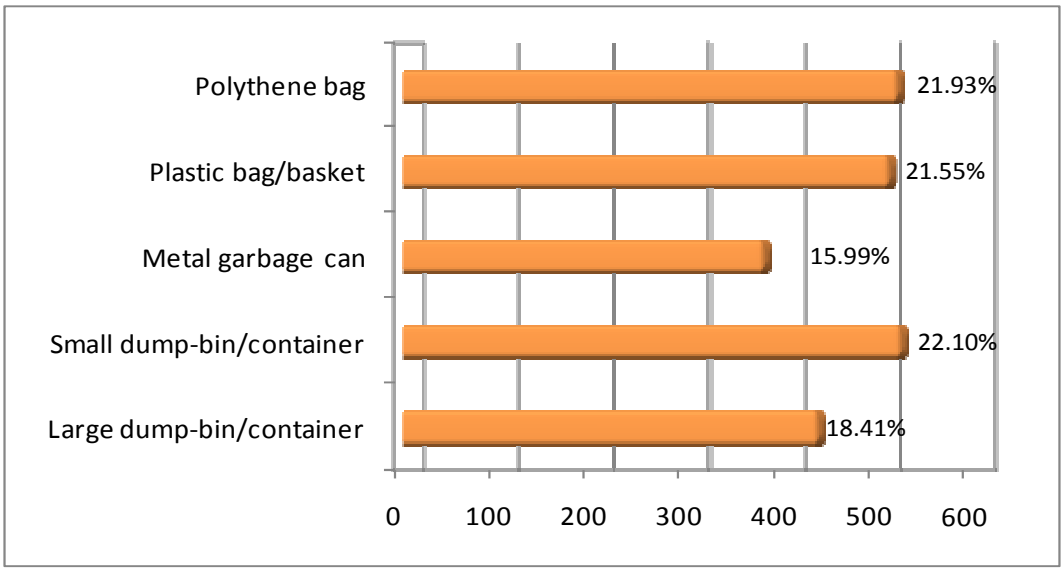


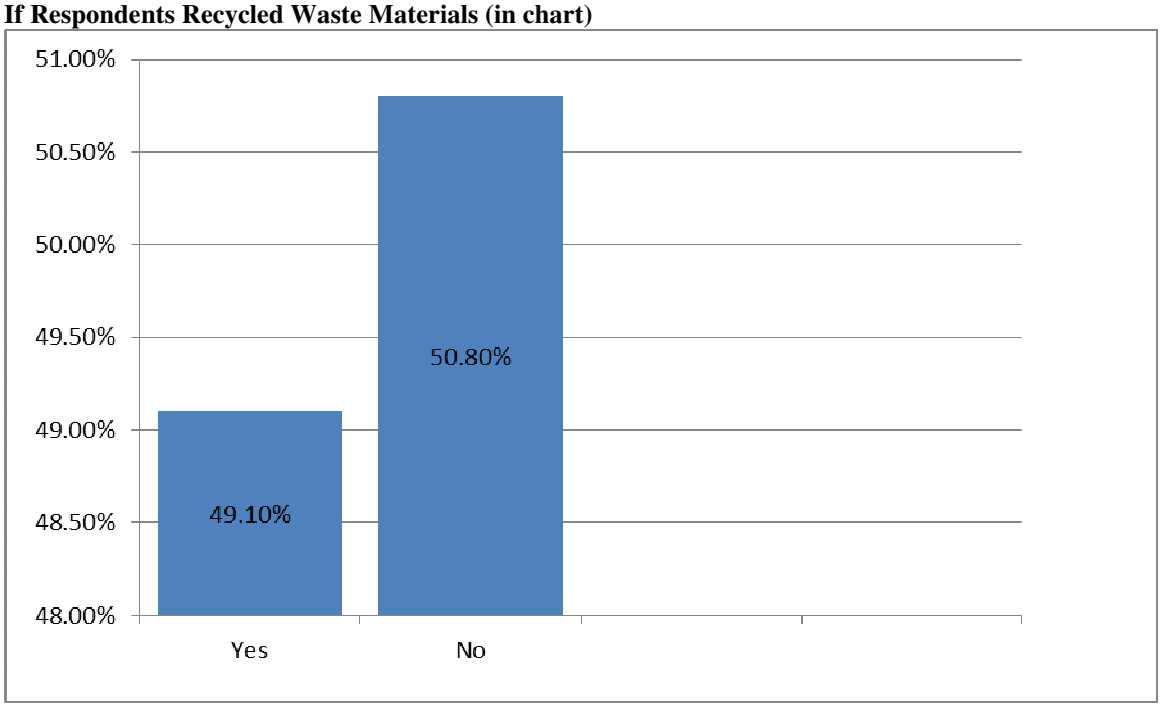
Chart 5: Influential



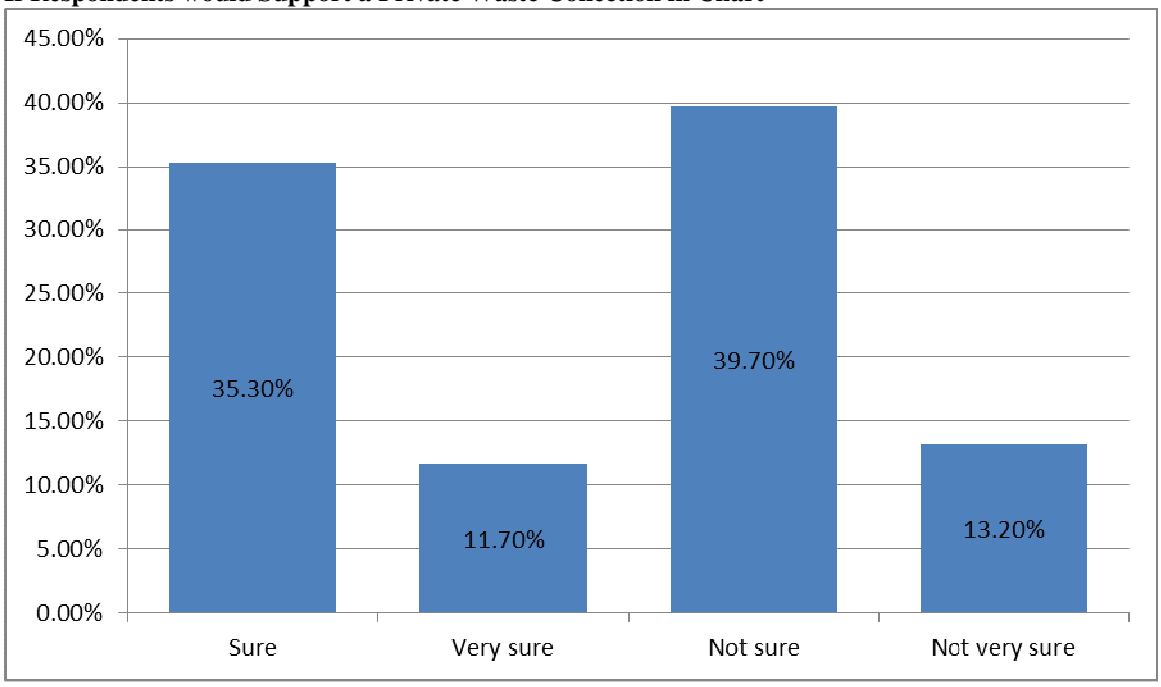
Available Waste Container in Chart



If Respondents Recycled Waste Materials (in chart)



If Respondents would Support a Private Waste Collection in Chart



APPENDIX (IV): PICTURES SHOWING SOLID WASTES

Radio and Television Stations in the South South States

Akwa-Ibom State

S/N	Name of Station	Location
1	105.4 Atlantic FM	Akwa-Ibom
2	101.1 Planet FM	Akwa-Ibom
3	Promise FM	Uyo
4	Akwa-Ibom Broadcasting Corporation (Radio and Television)	Uyo
5.	Nigerian Television Authority	Uyo
Total	**4 Radio stations and 2 Television stations**	**6 stations**

Bayselsa State

S/N	Name of Station	Location
1	95.5 Royal FM	Yenogoa
2	101.5 Creek FM	Yenogoa
3	Raypower FM	Yenogoa
4	Gloryland FM and TV	Yenogoa
5.	Rainbow FM (of FRCN)	Yenogoa
6	Rhythm FM	Yenogoa
7.	Nigerian Television Authority (NTA)	Yenogoa
Total	**6 Radio stations and 2 Television stations**	**8 stations**

Cross River State

S/N	Name of Station	Location
1	Paradise FM	Calabar
2	Cross River Broadcassting Corporation (Radio & TV)	Calabar
Total	**2 Radio stations and 1 TV station**	**3 stations**

Delta State

S/N	Name of Station	Location
1	88.1 JFM	Otor-Jeremi
2	89.9 Crown FM	Effurun
3	Delta Broadcasting Service (Radio and TV)	Asaba
4	Delta Broadcasting Service (Radio and TV)	Warri
5.	Nigerian Television Authority (NTA)	Warri and Asaba
Total	**4 Radio stations and 4 TV stations**	**8 stations**

Edo State

S/N	Name of Station	Location
1	Independent Radio and Television	Benin
2	93.7 Silverbird Rhythm FM	Benin
3	94.1 Hillside FM	Auchi Polytechnic, Auchi
4	Edo Broadcasting Service (Radio and Television)	Aduwawa
5.	97.3 Vibes FM	Benin
6	111.5 Esan FM	Edo state
7.	Bronze FM (of FRCN)	Benin
8	Raypower FM	Benin
9	Nigerian Television Authority	Benin
Total	**8 Radio stations and 3 Television stations**	**11 stations**

Rivers State

S/N	Name of Station	Location
1	Rhythm FM	Port-Harcourt
2	Love FM	Port-Harcourt
3	Radio Rivers	Port-Harcourt
4	Wazobia FM	Port-Harcourt
5.	Cool FM	Port-Harcourt
6	Raypower FM	Port-Harcourt
7.	Treasure FM	Port-Harcourt
8	Garden City FM	Port-Harcourt
9	Nigerian Television Authority	Port-Harcourt
10	Rivers State Television	Port-Harcourt
Total	**8 Radio stations and 2 Television**	**10 stations**

Table 1: Sex

Categories	Frequency	Percentage
Males	1,150	48.7%
Females	1,207	51.2%
Total	**2, 357**	**100%**

Table 2: Age Classification/Range

Categories	Frequency	Percentage
18 – 24	616	26.1%
25 – 34	627	26.6%
35 – 44	561	23.8%
45 and above	553	23.5%
Total	**2,357**	**100%**

Table 3: Marital Status

Categories	Frequency	Percentage
Single	1,032	43.7%
Married	1007	43%
Divorced/separated	179	7.5%
Widowed	139	5.8%
Total	**2,357**	**100%**

Table 4: Levels of Education

Categories	Frequency	Percentage
Primary education	364	15.4%
Secondary education	991	42.0%
Higher education	1002	42.5%
Total	**2, 357**	**100%**

Table 5: Respondents' Occupation/Group

Categories	Frequency	Percentage
Students	441	18.7%
Traders	617	26.1%
Civil/Public Servants	772	32.7%
Businessmen/Women	220	9.3%
Others	307	13.1%
Total	**2,397**	**100%**

Table 6: Methods of Waste Disposal

S/N	Items	SA	A	UD	D	SD	Total
1.	Burn it somewhere near your house.	600 (25.5%)	688 (29.2%)	248 (10.5%)	408 (17.3%)	413 (17.5%)	2,357 (100%)
2.	Bury it somewhere near your house.	496 (21.0%)	528 (22.4%)	304 (12.9%)	648 (27.5%)	381 (16.2%)	2,357 (100%)
3.	Haul it in the community dump landfill site yourself.	472 (20.0%)	760 (32.2%)	400 (17.0%)	508 (21.6%)	217 (9.2%)	2,357 (100%)
4.	Dump it in a secluded spot away from the community.	672 (28.5%)	880 (37.3%)	232 (9.8%)	328 (13.9%)	245 (10.4%)	2,357 (100%)
5.	Collected and taken to the landfill by paid waste collector.	1000 (42.4%)	880 (37.3%)	168 (7.1%)	169 (7.2%)	140 (5.9%)	2,357 (100%)

Table 7: Waste Management Practice: Responses to items on practice through broadcast media enlightenment campaigns

S/N	Items	Options			
		Sure	**Very sure**	**Not sure**	**Not very sure**
1.	I have changed my ways in order to reduce the amount of waste generated.	876 (37.2%)	339 (14.2%)	221 (9.4%)	921 (39.1%)
2	I have participated in a monthly sanitation exercise lately.	392 (16.6%)	1,177 (50%)	591 (25.1%)	197 (8.3%)
3	I have contributed to an organsation that works to protect the environment.	147 (6.3%)	49 (2.0%)	540 (22.9%)	1,621 (68.7%)
4	I have decided to reuse or recycle something rather than to throw it away.	869 (36.8%)	289 (12.2%)	899 (38.1%)	300 (12.7%)
5	I have attended training, seminars and workshops on environmental education/management.	172 (7.3%)	58 (2.5%)	1,123 (47.6%)	1,004 (42.5%)

Table 8: Source (s) of how respondents' received the broadcast media enlightenment campaigns on solid waste

S/N	Items	SA	A	UD	D	SD	Total
1	Through government radio stations.	752 (31.9%)	928 (39.4%)	248 (10.5%)	317 (13.4%)	112 (4.8%)	2357 (100%)
2	Through private radio stations.	400 (17.0%)	928 (39.4%)	296 (12.6%)	344 (14.6%)	389 (16.5%)	2357 (100%
3	Government television stations.	832 (35.3%)	912 (38.7%)	192 (8.1%)	260 (11.0%)	161 (6.8%)	2357 (100%
4	Private television stations.	336 (14.3%)	928 (39.4%)	392 (16.6%)	463 (19.6%)	238 (10.1%)	2357 (100%

Table 9: Broadcast media campaigns and respondents' level of awareness on solid waste

	Items	Options					Total
1.	Have there been regular enlightenment campaigns on solid waste management by the broadcast media?	Very regular 232 (9.8%)	Regular 776 (32.9%)	Not regular 1032 (43.8%)	Not very regular 212 (9.0%)	No opinion 105 (4.5%)	2,357 (100%)
2.	Would you say for certain that the broadcast media have contributed towards solid waste management through enlightenment campaigns?	Very certain 176 (7.5%)	Certain 1088 (46.2)	Uncertain 664 (28.2%)	Very uncertain 394 (16.7%)	No opinion 35 (1.5%)	2,357 (100%)
3.	Are you satisfied with the extent of public awareness campaigns by the broadcast media on solid waste?	Very satisfied 216 (9.2%)	Satisfied 864 (36.7%)	Dissatisfi-ed 960 (40.7%)	Very dissatisfie-d 163 (6.9%)	Undecided 154 (6.5%)	2,357 (100%)
4.	Rate the attitudes of inhabitants (people) to solid waste disposal practice in your area?	Very good 152 (6.4%)	Good 616 (26.1%)	Poor 1056 (44.8%)	Very poor 400 (17.0%)	Undecided 133 (5.6%)	2,357 (100%)

Table 10: Respondents' Perception of the Roles of Broadcast Media Campaigns on Solid Waste Management.

S/N	Items	SA	A	UD	D	SD	Total
1.	Proactive	1,288 (54.6%)	922 (39.1%)	70 (3.0%)	56 (2.4%)	21 (9%)	2,357 (100%)
2.	Helpful	752 (31.9%)	1,136 (48.2%)	189 (8.0%)	161 (6.8%)	119 (5.0%)	2,357 (100%)
3.	Educative	1,032 (43.8%)	800 (33.9%)	245 (10.4%)	168 (7.1%)	112 (4.8%)	2,357 (100%)
4.	Informative	944 (40.1%)	824 (35.0%)	264 (11.2%)	122 (5.2%)	203 (8.6%)	2,357 (100%)
5.	Influential	648 (27.5%)	528 (22.4%)	400 (17.0%)	487 (20.7%)	294 (12.5%)	2,357 (100%)

Table 11: Broadcast Media Awareness Campaign on Solid Waste

S/N	Items	SA	A	UD	D	SD	Total
1	The broadcast media (Radio & TV) in this state carry out reports on environmental problems.	658 (27.9%)	987 (42%)	235 (9.9%)	282 (11.9%)	195 (8.3%)	2,357 (100%)
2	The broadcast media in this state carry out reports on solid waste management (SWM).	290 (12.3%)	1,034 (44%)	376 (15.9%)	470 (19.9%)	187 (7.9%)	2,357 (100%)
3	The broadcast media have been proactive (taking the initiative) on awareness campaign on SWM.	235 (9.9%)	658 (27.9%)	517 (21.9%)	705 (29.9%)	242 (10.3%)	2,357 (100%)
4	Enlightenment campaigns on SWM by the broadcast media have been very informative and educative.	618 (26.2%)	614 (26.1%)	463 (19.6%)	383 (16.3)	279 (11.8%)	2,357 (100%)
5	The broadcast media have helped a lot in terms of public knowledge and right attitudes towards SWM.	378 (16.0%)	241 (10.2%)	401 (17.0%)	622 (26.4%)	715 (30.3%)	2,357 (100%)

Table 12: Available Waste Containers used by Respondents

S/N	Options	Frequency	Percentage
1.	Large dump-bin/container	434	18.4%
2.	Small dump-bin/container	521	22.1%
3.	Metal garbage can	377	16%
4.	Plastic bag/basket	508	21.1%
5.	Polythene bag	517	21.9%
Total		**2,357**	**100%**

Table 13: Recycle Waste Materials

Table 13 (A): If Respondents Recycled Waste Materials

S/N	Options		
	Yes	No	Total
1	1,158 (49.1%)	1,199 (50.8%)	2,357 (100%)

Table 13 (B): What Respondents' Recycled

S/N	Items	No. of Respondents
1.	Plastics/Rubbers	291 (25.1%)
2.	Cans	129 (11.1%)
3.	Glass/Bottles	289 (25%)
4.	Papers	198 (17.1%)
5.	Others (electronics, metals etc.)	251 (21.6%)
Total		**(100%)**

Table 13 (B): What Respondents' Recycled

S/N	Items	No. of Respondents
1.	Plastics/Rubbers	291 (25.1%)
2.	Cans	129 (11.1%)
3.	Glass/Bottles	289 (25%)
4.	Papers	198 (17.1%)
5.	Others (electronics, metals etc.)	251 (21.6%)
Total		**(100%)**

Table 13 (C): If Respondents would Support a Private Waste Collection

S/N	Options				Total
	Sure 832 (35.3%)	Very sure 277 (11.7%)	Not sure 936 (39.7%)	Not very sure 312 (13.2%)	**2,357 (100%)**

Crosstabs for Hypothesis One

Crosstab

Count

		Determination of broadcast media enlightenment campaigns of SWM on age variables					
		strongly agree	agree	undecided	disagree	strongly disagree	Total
Age	18-24yrs	243	278	20	40	35	616
	25-34yrs	6	513	57	46	5	627
	35-44yrs	33	57	61	274	136	561
	45yrs and above	86	190	17	137	123	553
Total		368	1038	155	497	299	2357

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.785E3[a]	12	.000
Likelihood Ratio	1.762E3	12	.000
Linear-by-Linear Association	504.099	1	.000
N of Valid Cases	2357		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.38.

Crosstabs for Hypothesis Two

Count

		Determination of broadcast media enlightenment campaigns of SWM on education					
		strongly agree	agree	undecided	disagree	strongly disagree	Total
Education	Primary	139	125	22	55	23	364
	secondary	277	438	64	171	41	991
	post secondary	136	620	78	131	37	1002
Total		552	1183	164	357	101	2357

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	64.814[a]	8	.000
Likelihood Ratio	59.775	8	.000
Linear-by-Linear Association	2.803	1	.094
N of Valid Cases	2357		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.83.

Table 14: Determination of the influence of broadcast media enlightenment campaigns on solid waste management

S/N	Items	SA	A	UD	D	SD	Total
1	The broadcast media are doing enough in terms of creating public awareness on solid waste management.	463 (19.6%)	763 (32.3%)	337 (14.3%)	481 (20.4%)	313 (13.3%)	2,357 (100%)
2	Right attitude towards SWM depends on broadcast media enlightenment campaign.	415 (17.6%)	667 (28.3%)	391 (16.5%)	505 (21.4%)	379 (16.1%)	2,357 (100%)
3	Enlightenment campaigns on solid waste management by the broadcast media have inspired attitudinal change on SWM.	331 (14.0%)	451 (19.1%)	181 (7.6%)	811 (34.4%)	583 (24.7%)	2,357 (100%)
4	Right attitude to waste management is a matter of personal efforts and cultural practices not as a result of media enlightenment.	697 (29.5%)	865 (36.6%)	91 (4%)	385 (16.3%)	319 (13.5%)	2,357 (100%)
5	Broadcast media enlightenment campaigns on solid waste have brought about serious government attention to solid waste problem in your area.	589 (25%)	631 (26.7%)	169 (7.2%)	439 (18.6%)	529 (22.4%)	2,357 (100%)

Crosstabs for hypothesis Three

Crosstab

Count		Determination of positive attitudes towards SWM through broadcast media enlightenment campaigns					
		strongly agree	agree	Undecided	disagree	strongly disagree	Total
Attitude	Positive attitude towards SWM	239	325	22	85	26	697
	Inspired attitudinal change	237	258	64	171	84	814
	Government attention	136	220	88	205	197	846
Total		612	803	174	461	307	2357

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.814[a]	8	.3050
Likelihood Ratio	59.775	8	.1140
Linear-by-Linear Association	2.803	1	.094
N of Valid Cases	2357		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.83.

Table 15: Summary of Environmental Programmes in all the Tables Presented

S/N	State/Location	Station	Name of Programme	Time/Duration	Mode	No. of Times	%
1	Bayelsa	Radio Bayelsa	Nil	Nil	Nil	Nil	0%
2	Cross River, Calabar	CRBC	Forest Na Life	8.00am/30mins.	Tape	Once per week	2.08%
3	Delta, Warri	Rainbow TV	Safety Tips	4.30pm/30mins.	Live	Once per week	1.04%
4	Delta, Warri	Melody FM	Nil	Nil	Nil	Nil	0%
5	Delta, Sapele	NTA	Nil	Nil	Nil	Nil	0%
6	Edo, Benin	EBS	Nil	Nil	Nil	Nil	0%
7	Edo, Benin	ITV	Healthy Living	10.30am/30mins.	Live	Once per week	2.08%
8	Edo, Benin	NTA	Environmenal Matters & The Environment	2.00am/30mins. & 3.30pm/30mins.	Live	Both are once per week	6.25%
9	Rivers, Port-Harcourt	Garden City FM	Weather Report, Weather Update & Green World	6.51am/9mins each. 9.03am/30mins.	Live	Daily (mon. to fri.) while Green World is weekly	5.08%
Total							16.53%

Summary of Categories of Attribution in Table

Attributed to Medium	Attributed to Coverage	Attributed to Mode of Prog.	Attributed to Time	Attributed to Duration	Attributed to Language	Attributed to timed per week	Attributed to Sponsorship
4 radio stations and 5 TV stations	City located & beyond	5 live progms & 1 tape	Morning & afternoon	30mins. maximum for all progms.	1 prog. in Pidgin English & 7 in English	Per week for all the progms.	None of the progms were sponsored

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