

**COMMUNITY RADIO AND ELECTRONIC WASTE MANAGEMENT  
IN NAIROBI COUNTY'S INFORMAL URBAN SETTLEMENTS**

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## **DECLARATION**

This Research Project is my original work and has not been presented to any other university for a degree. Any work done by other people has been duly acknowledged. It has been examined by a board of Examiners of the University of Nairobi

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## **APPROVAL**

This Research Project has been presented to the University of Nairobi with my approval as the supervisor.

MR.SAM NGIGI

DATE

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## **DEDICATION**

My family, for their support and encouragement

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## **ABSTRACT**

There are over 38 informal settlements in Nairobi. Currently they are home to over half of the city's population, now estimated to be about 1.8 million. (Ngau 1995 in UN-Habitat 2001a). These Informal settlements are faced by many challenges among other things, they lack proper waste management systems. Electronic waste is often dumped in the informal communities where it accumulates through time and represents a major health hazard to the inhabitants. Community radio has been successful in alleviating these populations from the challenges that face them through various initiatives especially programming. A lot is known about Electronic waste management and the successes of community radio however little are known about community radio contribution (or lack of) in of Electronic waste management. Few studies have narrowed down to the challenges these community radios face in addressing electronic waste management and how this challenges can be addressed. The study was on 99.9 ghetto fm in Pumwani informal urban settlement. This research was conducted through case study design. Case study according to Hancock & Algozzine (2006) helps the researcher to understand the situation under investigation from the participants and not researchers perspective. The study concludes e-waste is an environmental challenge in the study area. The most common form of e-waste was phone parts followed by radio, television and air conditioners. E-waste is a challenge in the community since it contains hazardous contents which are harmful to one's health and the environment. 99.9 ghetto fm led the community to address these challenges by mentioning the issue in other programs and The radio; however, does not have a specific programs on Electronic waste management.. Based on the findings, the study recommends that community radio be helped to deal with electronic waste management effectively by more support for awareness by corporates and the government.

## TABLE OF CONTENTS

DECLARATION .....	ii
DEDICATION .....	iii
ACKNOWLEDGEMENT .....	iv
ABSTRACT .....	v
LIST OF FIGURES .....	ix
LIST OF TABLES .....	x
ABBREVIATION AND ACRONYMS .....	xi
<b>CHAPTER ONE: BACKGROUND OF THE STUDY</b> .....	<b>1</b>
1.1 Outline.....	1
1.2 Background of the problem .....	1
1.3 Statement of the problem .....	3
1.4 Objectives .....	6
1.4.1 General Objective .....	6
1.4.2 Specific Objectives .....	7
1.5 Research Questions .....	7
1.5.1 General research question.....	7
1.5.2 Specific research questions.....	7
1.6 Significance of the Study .....	7
1.7 Scope .....	9
1.8 Limitation of the Study .....	9
1.9 Definition of Key Terms .....	10
1.10 Summary.....	10
<b>CHAPTER TWO: LITERATURE REVIEW</b> .....	<b>11</b>
2.0 Introduction.....	11
2.1 What is Electronic waste? .....	11
2.2 Accumulation of E-waste.....	12
2.3. Status of electronic waste management .....	12
2.3.1 Electronic waste situation globally.....	12
2.4 Community Radio programming Impact in informal urban settlements .....	14
2.5 Factors limiting community radio .....	17
2.6 How community radio limiting factors could be overcome to maximize their use .....	20
2.7 Theoretical framework .....	21
2.8 Gaps identified during literature review. ....	24
2.8.1 Communication Gap .....	24
2.8.2 Programming Gap .....	24
2.9 Conceptual Framework.....	25
<b>CHAPTER THREE: RESEARCH METHODOLOGY</b> .....	<b>27</b>
3.1 Research Design .....	27
3.2 Population .....	28

3.3. Sample Frame. ....	28
3.5 Sample Size and Sample Size Determination. ....	30
3.6 Research instruments. ....	30
3.6.1 Questionnaire .....	30
3.6.2 In-Depth Interview .....	31
3.6.3 Reliability of Instrument .....	31
3.6.4 Validity of data collection instruments .....	31
3.7 Data Collection Procedures. ....	32
3.8 Data Analysis and Presentation Techniques. ....	32
3.9 Ethical considerations .....	32
<b>CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION</b> .....	<b>33</b>
4.1 Introduction .....	33
4.2 Radio Listeners Demographics Characteristics .....	34
4.3 Radio Listeners Opinion on Community Radios’ Contribution in Electronic Waste Management in Informal Urban Settlements .....	37
4.3.1: Respondents Listening to 99.9 ghetto fm .....	37
4.3.2 Environmental Challenges Faced by Respondents Community. ....	38
4.3.3 Description of e-waste .....	39
4.3.4 Old/Discarded Electronics Respondents have at Home .....	39
4.3.5 The Threat of E-waste in Respondents Community .....	40
4.3.6 Information on Electronic Waste Management. ....	41
4.3.7 Respondents Main Source of Information on Electronic Waste Management in the Community .....	41
4.3.8 Contribution of 99.9 ghetto fm in Addressing Electronic Waste Management Challenges .....	42
4.3.9 Ghetto program that Deal with Electronic Waste Management .....	43
4.3.10 Importance of Community Radio to the Community .....	44
4.4. Application of Ghetto’s FM Messages by Respondents. ....	45
4.5 Factors Limiting Community Radio Contribution in Electronic-Waste Management .....	46
4.5.1 The Coverage of Electronic Waste on 99.9 ghetto fm .....	46
4.5.2 Organization that has sponsored a program on EWM on 99.9 ghetto fm .....	47
4.5.3 Consistency of Respondents Listening to 99.9 ghetto fm.....	47
4.5.4 Participation Respondents were Engaged in on 99.9 ghetto fm .....	48
4.6 How Factors Limiting Radio in Electronic Waste Management can be overcome. ....	49
4.6.1 Respondents Involvement in Program Making of CR Station .....	49
4.6.2 Respondents Willingness to Participate in Program Making of E-waste for 99.9 ghetto fm .....	50
4.6.3 Organizations that have Ever Worked with 99.9 ghetto fm .....	51
4.6.4 Benefits from Respondents Working with the Community Radio .....	52

<b>CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS.....</b>	<b>53</b>
5.0 Introduction .....	53
5.1Community Radios’ Contribution in Management of Electronic Waste in Informal Urban Settlements. ....	53
5.2 Factors Limiting Community Radio Contribution in Electronic-Waste Management.....	57
5.3 How Factors Limiting Radio in Electronic Waste Management can be overcome .....	60
5.4 Conclusion .....	61
5.5 Recommendation .....	62
<b>REFERENCES .....</b>	<b>64</b>
<b>APPENDICES .....</b>	<b>70</b>
Appendix I: An Interview Guide for CR Manager/Board member/Workers. ....	70
Appendix II: An Interview Guide for NGOS, Clergy, NEMA, RECYCLERS, County Government Officials. ....	73
Appendix III: Questionnaire for Listeners .....	75

## LIST OF FIGURES

<b>Figure 2.1:</b> Conceptual Framework .....	25
<b>Figure 4.2:</b> Respondents Listening to 99.9 ghetto fm .....	38
<b>Figure 4.3:</b> Information on Electronic Waste Management.....	41
<b>Figure 4.4:</b> Application of Ghetto’s FM Messages by Respondents .....	45
<b>Figure 4.5:</b> Consistency of Respondents Listening to 99.9 ghetto fm .....	47
<b>Figure 4.6:</b> Respondents Involvement in Program Making of CR Station .....	50
<b>Figure 4.7:</b> Organizations that have ever Worked with 99.9 ghetto fm.....	51

## LIST OF TABLES

<b>Table 4.1:</b> General Demographics Characteristics .....	34
<b>Table 4.2:</b> Radio listeners Demographic Characteristics .....	36
<b>Table 4.3:</b> Respondents Main Source of Information on Electronic Waste Management in the Community .....	42
<b>Table 4.4:</b> Contribution of 99.9 ghetto fm in Addressing Electronic Waste Management.....	42
<b>Table 4.5:</b> The Coverage of Electronic Waste on 99.9 ghetto fm.....	46
<b>Table 4.6:</b> Participation Respondents were Engaged in on 99.9 ghetto fm .....	48
<b>Table 4.7:</b> Respondents Willingness to Participate in Program Making of E-waste for 99.9 ghetto fm .....	50
<b>Table 4.8:</b> Benefits from Respondents Working with the Community Radio .....	52

## **ABBREVIATION AND ACRONYMS**

ACDM: Africa Community Development Media  
ADB: African Development Bank  
AMARC: World Association of Community Radio Broadcasters  
CAK: Communication Authority of Kenya  
CR: Community Radio  
CRAK: Community Radio Association of Kenya  
CRs: Community Radio Stations  
DRBTA: Development radio broadcasting training in Africa  
DVD: Digital Video Disk  
EEE: Electrical and Electronic Equipment  
EWM: Electronic Waste Management  
EoL: End of Life  
GCRN: Ghana community Radio network  
GoK: Government of Kenya  
IUS: Informal Urban Settlements  
KCOMNET: Kenya Community Network.  
NEMA: National Environmental Management Authority  
PD: Participatory Development  
PDC: Participatory Development Communication  
PRD: Participatory Rural Development  
SDPRU: Sustainable Development and Poverty Reduction Unit  
TV: Television  
UN: United Nations  
UNEP: United Nations Environmental Programme  
UNESCO: United Nations Scientific and Cultural Organization  
USAID: United States Agency for International Development

# **CHAPTER ONE**

## **BACKGROUND OF THE STUDY**

### **1.1 Outline**

This chapter provides an overview of the background to the study, the problem statement, the objectives of the study, the research questions, significance of the study, the scope or delimitations of the study and finally key research terms are defined.

### **1.2 Background of the problem**

This study was motivated by the fact that there are over 38 informal settlements in Nairobi. Currently the informal housing settlements of Nairobi are home to over half of the city population, now estimated to be over 1.8 million. Most informal settlements are found in Dagoretti, Langata, Kasarani, and Makadara divisions. (Ngau 1995 in UN-Habitat 2001a)

These Informal settlements in Nairobi are faced by many challenges among other things, they lack proper waste management systems leaving people to literally live on, and sometimes off, waste. Electronic waste is often dumped in the informal communities where it accumulates through time and represents a major health hazard to the inhabitants. Government interventions are often missing or are inadequate to solve the problem of waste in informal settlements.

Increase of electronic waste in the surrounding environment is in both the developed and the underdeveloped nations due to the increase in level of technology across continents. Electronic waste is considered to be a rapidly expanding issue by recyclers for instance; there are over 30 million mobile phone handsets in Kenya as a result of the rapid progression of technology in the mobile industry according to the Communication Authority of Kenya, (CA) 2015. A practical look at this would be that a cell phone's shelf life is only about 3 years for the average consumer; therefore, 10 million spoilt handsets that constitute electronic waste need to be safely disposed annually based on the statistics provided by CA. If not safely disposed, they may cause serious health issues. For instance, Cell phone coatings are typically made of lead, which is a toxic chemical that can result in adverse health effects when one is exposed to it in high levels (Alan et al, 2010). On the other hand, the circuit board on cell phones is made of copper, gold, lead, zinc, beryllium, tantalum, and coltan. These metals are valuable and scarce hence it is important to safely recycle old cell phones and source these increasingly scarce materials whenever possible.

Kenya generates 11,400 tonnes of E-Waste from refrigerators, 2,800 tonnes from TVs, 2500 tonnes from personal computers, 500 tonnes from printers and 150 tonnes from mobile phones (UNEP, 2010). Although there have been initiatives by reputable firms to manage electronic waste such as Nokia through their recycling scheme and computer for schools through the refurbishment programme, the practice of managing Electronic waste is mostly managed by the informal sector. These operators in the sector lack adequate skills. The process is highly toxic and impact adversely to both the environment and human health. The lack of clear disposal mechanisms has resulted in excessive stocks being held by the consumer. Safaricom initiated a take back scheme, which failed because of location of collection centers and lack of awareness and incentives to consumers (NEMA, 2011).

The consumers/ end users play a crucial role in the take-back schemes. The main challenge the producers face in the implementation of take-back programmes is how to make the end users return the used product for recycling as opposed to taking it to the repair shops or storing the phones at home. The main issue with sending the EW to repair shops relies on the final disposal of this obsolete equipment by the repair shops. EW is stored by the owner, as it is perceived to be of value ranging from sentimental, emotional or physical before being disposed of (Osibanjo and Nnorom, 2007). The level of consumer awareness on the on-going take-back scheme initiated by Nokia is very low. Consumer awareness is a crucial area for an effective take-back scheme. The willingness to participate in a take-back scheme by consumers determines the success of the scheme.

The failure of this take back scheme is an eye opener to the fact that to ameliorate the situation of electronic waste in informal urban settlements, participation of the people in environment activities meant to benefit them is imperative (Chitere and Mutiso, 2011). Participation in essence requires communication so that the needy people share ideas and knowledge in order to be able to look for ways and means of improving their poor conditions. Communication is important therefore for those planning and implementing programmes since it makes possible the consultation of the beneficiaries to incorporate their needs, beliefs, attitudes, behaviors and traditional knowledge in development activities (Moemeka, 1980). Understanding the people's attitudes, values, behaviors and their whole lives is necessary to change their perceptions and thereby effect change. Communication can make people to begin to be aware of their needs and the obstacles blocking them from reaching their goals. It is through

communication that people stimulate their consciousness; that people acquire and share new methods and skills that spark off social transformation (White, 2008).

In a situation where a considerable number of people are faced with a host of economic social , infrastructure dilapidation and where the traditional media (television and print) are either inaccessible or irrelevant; radio, especially CR, becomes a viable communication tool (Egargo, 2008; White, 2011; Alumuku, 2006). If well utilized, community radio (CR) can become the nexus between the government and the people, and can serve to network the people to engage in dialogue to pick out their problems and find solutions.

There is a debate on the definition of community radio in Kenya. However, based on definition according to function and operation there are 4 community radio (CR) stations in Nairobi namely; Mtaani radio in Riruta, 99.9 ghetto fm in Pumwani, Pamoja radio in Kibera and Koch FM in Korogocho- the first community radio station in Nairobi established in 2006 (KCOMNET 2015).

Some of this stations have been in operation for close to a decade in addition they all have broadcasting studios in informal urban settlements yet nearly all the areas covered by these stations as outlined above are beset by a myriad of socio-economic and environmental challenges (Kenya community media network -KCOMNET, 2015) .

This raises pertinent questions: Do these stations broadcasting in Informal Urban Settlements lead their broadcasting communities into addressing their socioeconomic and environmental challenge of electronic waste? Or Electronic waste awareness and management problem exists because of other factors? The study hence sought to assess the contribution of community Radio in Electronic waste management in Nairobi County's informal Urban Settlements.

### **1.3 Statement of the problem**

The state is obligated as stipulated in the constitution of Kenya 2010, to encourage public participation in the management, protection and conservation of the environment and establish systems of environmental impact assessment, environmental audit and monitoring of the environment. A more specific legislation- Kenya's waste management regulation of 2006 - define the responsibility of waste generator that no persons should dispose any waste in public highways, streets, roads, recreational areas or in any public place except in designated waste

receptacles. Despite the regulation, it is not uncommon to find waste dumped in places that the law prohibits. The phenomenon is worse in Informal urban settlements.

According to the Kenya Open Data Initiative 2014, Informal urban settlements are afflicted with a host of challenges: high infant mortality rates, malnutrition, rising poverty levels, poor agricultural production, high school drop-out and high rate of drug abuse, lack of proper waste management systems among other problems. Kibera and Pumwani slums are examples, where solid waste is openly dumped along roads, rivers, railway line and public places. Owing to poverty, food insecurity and the low-income levels, some households in the slum have adopted minimal waste recycling and reuse at an individual or community level as a means to earn a livelihood.

The residents in these areas live under deplorable conditions with lack of the most basic needs and social amenities and face multi-dimensional challenges which require multi-dimensional interventions such as clean water supply and improved sanitation, energy, solid waste management, housing, schools, and hospitals (United Nations, 2006; Centre on Housing Rights and Evictions, 2008).

Community radio has been successful in alleviating the populations in these informal urban settlements from the challenges that face them through various initiatives and programming. In Kenya, community radio is synonymous with success in promoting peace in informal urban settlements during political disputes. Abdi and Deane (2008) show that it was not the community stations but the commercial FM stations that were responsible for much of the hate speech and ethnic prejudice that emerged onto the airwaves in the aftermath of the disputed national elections. Pamoja radio has been famed for performing this role.

Pamoja FM in Nairobi's Kibera slums has youth shows that cover topics such as the need to avoid drugs, gangs, and teen pregnancy. (Baldauf, 2008) Another example is radio Mang'etele which has been very constructive in rural development promotion. Its radio programmes provide women with information on planting methods, best planting seasons and yield improvements approaches that can help others and improve farming and the living standards of communities in general. It also airs programmes on women's rights, nutrition and HIV/AIDS. As a result of the quality and appropriateness of the local content aired, women have been able to seek redress in areas where their rights were violated; cotton and horticulture farming has been increased with

improved yield and nutrition levels within the population; and certain beliefs, such as witchcraft, questioned and discussed openly ( Nguri & Kimani 2005)

Community radio, which is an appropriate tool in many ways, if well managed, can play a central role in mobilizing ideas of rural people for improvement of, say, farming and marketing of the produce (White 2011a). To boost production, the Kenyans' participation becomes a prerequisite. Participation is closely linked to ownership and sustainability because when people take part in any venture, in most cases they tend to regard it as theirs and strive to make sure that what is theirs continues to exist to continue to benefit them more (White, 2011b). An intensified sharing of ideas among people can culminate in greater participation of people in a common cause (Govender, et al. 2010). It is helpful in the development process by their power to affect and change attitudes, thus helping in the adoption of new methods and techniques for development.

According to World Association of Community Broadcasting (AMARC) and communication scholars, Community Radio is a medium that is supposed to serve the needs of the community where it operates, contributing to its development (UNESCO, 2001; Jallof, 2012; Alumuku, 2006; Chiliswa, 2011; and Egargo 2008). CR should always demand from the local leader's good governance, transparency and accountability (Jallof, 2012).

Ironically, informal settlements often bear the brunt of missing services. Waste is often dumped in the informal communities where it accumulates through time and represents a major health hazard to the inhabitants. The Sustainable Development and Poverty Reduction Unit (SDPRU) of the African Development Bank (ADB) commissioned a study on solid waste management options, examining waste management practices in cities in Africa such as Cairo, Nairobi, Accra, and Cape Town. The main aims of the study were to address environmental concerns such as capacity building for environmental management, effective management of the environment portfolio and to endorse appropriate waste management strategies among others. In Nairobi, solid waste recovery and recycling was found to be undertaken by poor households who picked waste as an income generating activity. The scavengers were found to jump on garbage trucks to sort and secure recoverable materials before the fresh garbage was offloaded.

The foregoing lends credence to the argument that community radio if well utilised has the potential to enhance participation in Electronic waste management in informal urban settlements. According to Servaes (2008), community radio has the potential of developing

communication capacity, creating a forum where people can identify and sort out their problems (with or without the assistance of outside resources) can bring about social change through improved agriculture, health, education, politics and economics. Community radio therefore can propel informal urban settlements populations into making conscientious decisions to participate in Electronic waste management initiatives.

A lot is known about the Electronic waste management variable and community radio variable independently; however, little is known of community radio's contribution (or lack of) in the field of Electronic waste management specifically in informing, educating, and creating awareness, advocating and partnering with other stakeholders dealing with electronic waste management in Informal Urban Settlements. In addition, many studies have discussed the challenges that many community radio stations face but few have examined the specific challenges these community radios face in addressing electronic waste management and how this challenges peculiar to Electronic waste management in informal urban settlements can be addressed to make community radio an effective tool in engaging populations affected by the problem participate in eliminating it.

Not many studies have been carried out to determine community radio's contribution, it's limiting factors and the solutions EWM. It is against this backdrop that the study sought to assess the contribution of community radio in management of electronic waste in informal urban settlements.

## **1.4 Objectives**

### **1.4.1 General Objective**

The aim of this study was to assess the role played by community radio in promoting electronic waste management in informal urban settlements.

### **1.4.2 Specific Objectives**

The objectives of the study were to:

1. Examine community Radios' contribution in electronic waste management in informal Urban settlements.
2. Determine factors limiting community radio contribution in electronic-waste management.
3. Establish how community radio limiting factors could be overcome to maximize community Radio Contribution in Electronic Waste Management

### **1.5 Research Questions**

#### **1.5.1 General research question**

Do community radio stations contribute in electronic waste management in informal urban settlements?

#### **1.5.2 Specific research questions**

1. Do community radio programs promote Electronic waste management in informal urban Settlements?
2. What challenges does community radio in informal urban settlements face in electronic waste management?
3. How can the challenges facing community radio in electronic waste management in informal urban settlements be overcome to maximize their use?

### **1.6 Significance of the Study**

The state has the responsibility according to the constitution to prevent any act that harms the environment, or compel someone to do something to improve an already degraded environment. The Constitution of Kenya (2010) further gives the environment a prominent place in its structure for instance, Article 42 of the fundamental rights and freedoms granted to Kenyan citizens states that, the state must ensure a clean and healthy environment that benefits both current and future generations. Article 69 outlines specific environmental duties of the GoK, including sustainable exploitation and conservation of the environment. Article 70 gives citizens the right to petition a court for redress if they feel their environmental rights have been infringed.

The cited articles in the constitution make this study beneficial to citizens because it will bring to their attention that electronic waste management is a major concern that requires them to participate by obeying government legislation and should the government fail in its constitutional mandate they should exercise their right to seek legal redress or petition it to do so with community radio leading the way.

The government will benefit from this research in that Kenyans will enjoy a healthy and hospitable environment by participation. This is because effective implementation of environmental regulations is essential to improving and safeguarding this environment. Without effective environmental regulation of public and private developments many natural ecosystem services, such as fresh water, clean air, or food production will be degraded requiring more investment and development to replace those services via imperfect human approximations.

By enforcing legislation on electronic waste management and using community radio in its E-waste awareness campaigns the government will make savings in areas of landscaping and treating diseases contracted as a result of electronic waste health hazard ( Laurence and Balmford 2013). Because creating awareness and eliminating surplus Electronic waste can be an expensive and unsuccessful exercise if the populations in Informal urban settlements are not involved in the process.

By showing the relationship between Electronic waste management and community radio, the research will be beneficial to Nairobi county government and other bodies and companies dealing with electronic waste management. The findings and review of literature on the impact of community radio in other countries acts as an eye opener to the fact that community radio is cost friendly and effective media platform for making people aware ,conscious and participate in Environmental conservation initiatives as compared to commercial radio.

Citizen participation in electronic waste management includes Recycling of electronic waste According to the UN-Habitat's report; Nairobi generates 876,000 tonnes of waste per year. The city has 54% of waste generated being collected. The environmental, social and economic benefits of safe electronic waste recycling include diminished demand for virgin raw materials (with their own environmental issues); larger quantities of pure water and fresh air and diminished use of landfills (Alan et al, 2010).With safety measures in place, recycling has the

untapped potential to create jobs and earn government and the citizens tax and a living respectively.

By highlighting the successes of community radio and the challenges the face .Community radio stations will benefit by getting partners to sponsor and create programs on Electronic waste management. These partners include the government both county and national, telecommunication corporate and NGO's .The sponsorship may be in terms of personnel training, equipment servicing and better technology.

### **1.7 Scope**

The study was on community radio stations in Nairobi County's informal urban settlements. This was because the targeted populations the station sampled broadcast to live in informal urban settlements and therefore constitute the research population to be the studied.

### **1.8 Limitation of the Study**

The distance from one IUS to another was the first major challenge to this study; transportation in Nairobi can sometimes be tricky especially with the traffic jam in the city. Another challenge the researcher encountered was; because some CRs for one reason or another, do not comply with Communications Authority of Kenya (CAK) regulations, each time a person wants information about them, even harmless information, the managers mistake the information seeker to be an undercover CAK official out to cart away their broadcasting equipment. Consequently, a rough time, particularly in the early stages of the study, erasing suspicion and creating rapport.

Sampling frame for listeners of radio was not possible to find thereby forcing the researcher to use non-probability sampling which may be biased.

### **1.9 Definition of Key Terms**

**Community:** People who reside in a certain geographical territory or cultural/political area.

**Community radio (CR):** A non-profit making radio station. It is supposed to be owned and managed by a particular community for the benefit of that community. **Development:** Improving the living standard of a people to the level in which they can at least acquire basic needs.

**Informal Urban Settlement (IUS):** a heavily populated urban informal settlement characterized by substandard housing and squalor

**Development Communication:** An interaction between or among people that enhances social change.

### **1.10 Summary**

Chapter one has detailed the background of the study, the problem statement, the general and the specific objectives, the research questions and the rationale of the study. Other areas covered in this chapter are the significance of the study, the scope or delimitations, the limitations and the definition of key terms.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction.**

This chapter examines what various scholars and authors have said about electronic waste, community radio's impact in informal urban settlements and lastly it presents a theoretical and conceptual framework on which the study is based.

#### **2.1 What is Electronic waste?**

In general, electronic waste describes old, end-of-life electronic and electrical equipment (EEE) or waste generated from any equipment running on electricity or a battery including computers, laptops, TVs, DVD players, mobile phones, MP3 players, etc. which have been disposed by their original users. Generally, EEES are largely classified under three major heads, as: 'white goods,' like household appliances, 'brown goods,' like TVs, camcorders, cameras, and 'grey goods,' including computers, printers, fax machines, scanners, etc. The grey goods are comparatively more complex to recycle due to their toxic (hazardous) composition (Wong 2013).

#### **E-waste management**

Before the Eighth Conference of Parties (COP 8) to the Basel convention on Trans-boundary waste management, which was held in Nairobi in September 2006, E-waste was not considered urgent due to the low consumption of electrical and electrical equipment (EEE) and the general trend by households to store EEE, reuse it or dump it along with other solid waste after their End of life (NEMA 2010). A study by Mureithi and Waema (2008) suggests that the total E-waste generated each year in Kenya is about 3,000 tonnes. This amount of E-waste is likely to increase as the importation and use of EEE increases in future. The study found that there is high accumulation of old ICT equipment in homes, offices and repair shops because the owners are not aware of safe disposal options and that information on how to discard E-waste is lacking right from the consumer to the final E-waste handlers. The E-waste management policies are also lacking and there is no legislation to deal properly with the challenge.

Electronic waste contains more than 1000 different substances, which make it either 'hazardous' or 'non-hazardous'. The presence of elements like lead, mercury, arsenic, cadmium and flame-retardants beyond threshold quantities in electronic waste classifies them as hazardous waste. Management involves control of production, collection, transportation and safe recycling of the waste.

## **2.2 Accumulation of E-waste**

The Kenyan government has rolled out an e-government programme to promote use of information and communication technology (ICT) in all sectors. The resultant waste from their usage has over the years accumulated, and now poses a threat to our environment. E-waste is a generic term encompassing various forms of electrical and electronic equipment that are old, end-of-life electronic appliances or have ceased to be of any value to their owners (UNEP). E-waste includes electronics which are destined for reuse, resale, salvage, recycling, or disposal.

Estimates from UNEP and UNU (2009), puts the amount of radio and E-waste produced annually in Kenya at 150 tonnes. This is bound to increase as the number of radio and electronic user's increases. Basiye (2008) undertook a study in Nairobi County. On extended producer responsibility (EPR) for the management of waste from electronics in Kenya. She found that there is no system or government involvement in E-waste management in Kenya. She recommended that comprehensive studies on E-waste status in Kenya should be undertaken including adoption and implementation of EPR. She also recommended stakeholder involvement and awareness and information dissemination.

## **2.3. Status of electronic waste management**

### **2.3.1 Electronic waste situation globally.**

The boom in the consumption of electronic products also comes with a price to be paid – the management of electronic waste. UN estimates between 20 to 50 million tonnes of electronic waste are generated worldwide annually, accounting for about 5% of all municipal solid waste. Not only is the figure representing the fastest growing municipal waste stream, it also has the potential of increasing further. The USA discards 30 million computers each year and 100 million phones are disposed of in Europe each year. The Environmental Protection Agency

estimates that only 15-20% of EW is recycled, the rest of these electronics go directly into landfills and incinerators (Wong 2012). In the case of mobile phones, for example, 98 million phones are said to be discarded in America annually (Wong 2007).

Ironically, electronic waste has become an emerging challenge as well as a business opportunity of tremendous significance. This is due to the volumes being generated and the content of both toxic and valuable materials in them. Millions of computers purchased around the world every year become obsolete and leave behind lead, cadmium, mercury and other hazardous wastes. The fraction of iron, copper, aluminum, gold and other metals in electronic waste is over 60% while plastics account for about 30%, with hazardous pollutants comprising about 2.7 % (Widmer et.al 2005) Similar studies conclude that only about 10% of the total waste generated are recycled while about 80% are exported into developing countries, most of which end

E-waste is growing three times faster than average annual municipal solid waste generation. It is estimated that the total amount of E-waste generated in the EU ranges from 5 to 7 million tonnes per annum or about 14 to 15 kg per capita and is expected to grow at a rate of 3% to 5% per year in developing countries; it ranges from 0.01% to 1 % of the total municipal waste generation. (Chen et.al 2010)

in Kenya ,the electronic waste problem was brought to the spotlight in September 2006, during the Eighth Conference of Parties (COP 8) to the Basel convention on Trans-boundary waste management that was held in Nairobi. Before that, it was not considered urgent due to the assumed relatively low consumption of Electrical and Electronic Equipment (EEE) and the general trend by households to store EEE reuse it or dump it along with the municipal solid waste. There is a variety of EEE found in the country ranging from computers, cellular phones, televisions sets, refrigerators, and entertainment electronics amongst others. Kimutu (2008) states that the E- waste in Kenya in relation to mobile phones is basically the battery and the accessories.

## **2.4 Community Radio programming Impact in informal urban settlements**

Radio is acknowledged as the most widespread electronic communications' device in the world, a unique, and most convenient and affordable means of reaching the world's populace, even in very remote areas. Naaikuur and Diedong (2014: 180) argue that community radio stations "have put it high on their agenda to champion the causes of women, children, the aged, and particularly the physically challenged". Community radio can provide opportunities for the more illiterate groups of people, to have access to crucial information necessary for transforming their lives

Nearly all Kenyans are radio listeners and it is from radio that they source news and information. For most local communities who are poor, community radio has revolutionized the manner in which they express their culture, receive entertainment, news information as well as engage in dialogue and development. (Kandagor, 2008)

Jallov, 2012, argues that Community radio will achieve its developmental objectives only if the programs are well researched, produced and presented in the local language and in the manner that is comprehensible, with the listeners taking center stage in the whole production and presentation Process . By doing this, it can be claimed that the radio promotes knowledge sharing hence helping people to make informed choices on critical issues. Jallov further adds that listeners become proud and grasp the message easily when local language is used. The program-content addresses the people's needs and touches all key areas such as elections, Women, conflict resolution, human rights and environment conservation .

Alumuku (2006) notes that it is the provision of entertainment, enlightenment, the need to facilitate change, progress and improved living conditions that make CR a special medium for social transformation.

Writing in the 1920s, Bertolt Brecht (1927, p. 2) argued for the social change role of radio, so long as it was changed from "being a tool for distribution to an instrument of communication in public life, in which the listener was allowed to speak." Brecht (1927, pp. 2–3) emphasized improving radio, to enable it to give a "truly public character to public occasions," which would "turn the normal audiences into teachers."

In Latin America, popular radios emerged as a way for the people to fight for citizenship rights, and as a channel to promote the participation and the access to communication means and techniques (Peruzzo, 2011). Burkley 2011 notes that during the 1940s community radios were

born from Catholic and syndicalist groups in Bolivia and Colombia respectively .As a result, African community radios have attained enormous civic importance as a tool of empowerment. The basis for community radios was that they were not commercial, nor state-owned or public and that they were made by the community for the community, with the exclusive purpose of self-development. Today, radio remains the most resilient medium for education purposes, (Perkins, 2011)

One of community radio's most significant developmental impacts has been—and continues to be—the articulation and realization of human rights in their various forms. For example, in Nepal in 2005, fundamental civil rights were suspended during the 15-month regime of King Gyanendra. Despite a ban on the broadcast of news, Nepali community radios found creative ways to advocate for civil and human rights by broadcasting educational programs about the rights enshrined in the constitution and in some cases by singing the news instead of speaking it,(Center for International Media Assistance CIMA Research Report: Community Radio in the Developing World) thus circumventing the ban. They also frequently broadcast notices about the ban on news and the consequent infringement of the right to information. (Girard 2007)

Community radio can often be a catalyst or a rallying point for the community for development, such as the provision of electricity, building of a community school, or neighborhood clean-up efforts. For example, in Budikote, India, broken pipes for the village water supply were promptly mended by the local authorities when Namma Dhvani Community Media Center radio recorded and aired the complaints of local women (UNESCO)

Many health, social, and agricultural gains can be attributed to campaigns on community radio stations. For example, in Colombia, one community radio station located in Belén de los Andaquies has helped to reinforce Belén identity and its commitment to the planting of food crops rather than coca, which many rural communities have become dependent upon. The radio station continued its programming in the face of guerilla attacks, and its children's radio school was awarded UNICEF's prize for children's programming in Latin America in 2001 (AMARC)

A fundamental characteristic of community radio is the involvement and participation of the communities that are served by specific stations (Bailey, Cammaerts, &Carpentier, 2007; Bosch, 2003; Teer-Tomaselli, 2001). Thus, there is need for a defined relationship, a communicative dialogue between the medium of the radio and the community The Ghana Community Radio Network (GCRN) In Community radio in Ghana.

In Malawi , a radio station called Nkhotako members listen to HIV/AIDS programmes such as *Pa Dooko* , discuss the programme content and educate one another on how to end the practice of “sex for fish” or “fish for sex” to prevent the spread of HIV/AIDS. The participants said: “Pa Dooko programme encourages women to refrain from risky behaviours and also advise their husbands about HIV and AID .The issue of “sex for fish” or “fish for sex” was highlighted as a major problem in the area as well as how *Pa Dooko* programme is helping with this. The women participants claimed that multiple concurrent partnerships have been reduced because of the programme, (Mhagama 2015)

This is a clear demonstration that Community radio can increase the opportunity for listeners to access and discuss crucial information necessary for the improvement of their livelihoods through the organization of listeners into community based group organized by community members themselves and uses radio programmes to facilitate development discourse within their own community. This provides a platform to discuss and unpack development conundrums (Manyozo 2012)

In the South African community radio sector, it is assumed that although the individual who works at or listens to a radio station receives direct benefits from the station, the community ultimately gains. When an individual, for example, is trained to perform certain functions at a community radio station or learns from listening to community radio programs, it is generally expected that this knowledge and skill will be diffused to other members of the community (Megwa, 2005).

Myers (2010), citing Metcalf et al, (2007), notes that a study conducted in Southern Madagascar found that 89% of those interviewed indicated that they received information about HIV/AIDS via radio. Alumuku (2006) documents successes in Mali where the main source of HIV/AIDS information was radio, and in Mauritania where Radio Barkeol played a major role in the decrease of rates of worm infestation. Myers (2010) says in another study in Tanzania attributed to Media Company that 85% of the respondents who listened to a radio soap opera (about reproductive health, child-parent relationship, hygiene, sanitation and tuberculosis) changed their behavior because of the influences of the messages in the radio programmes.

Three CR stations in eastern Chad, for 67 Sudanese refugees who fled fighting in Darfur Region, managed to air debates about topics such as gender-based violence, child marriage, and female circumcision hitherto considered a taboo. When a study was conducted by United Nations

High Commissioner for Refugees (UNHCR) it was discovered that the messages had been received positively by the listeners. An effective CR has also an on-going capacity building programme to train new personnel to replace those who leave the station for better-paying jobs elsewhere.

Ohenjo & Githethwa (2014) discuss the findings of an assessment of the quality of community radio content in Kenya, particularly related to communication for development programming. They explored factors affecting quality, focusing on capacity, with the objective of informing interventions. According to the report, community radios play a very important role in social, economic and political development.

The Kenya Building the capacity of community radio stations programme was initiated by the United States Agency for International Development (USAID) after the post election in Kenya. Pamoja Fm in Kibera was originally financed by individual donations. The organization has received grants in-kind from USAID and BBC World Service Trust to a tune of 19,000 USD worth of equipment, recognizing the positive role that the station played during the turmoil period (DAI USAID, 2008). The micro-finance group Jamii bora Trust is supporting a bi-weekly radio programme aired on Pamoja FM with sponsorship of 120,000 KSH

It can be argued that CR through debates, dialogues and interactive programmes, can raise the level of Consciousness of its listeners that they become enlightened and start to understand their role in the society; by using CR to communicate (exchanging ideas and opinions) about the difficult Situation they are in, and about what they ought to do to get out of it. Alumuku (2006) notes that people, through CR, collectively participate in solving their problems for instance EWM, thus Engaging in self-determination.

## **2.5 Factors limiting community radio**

Studies on development radio broadcasting training in Africa (DCFRN, 2003; Kamlongera, 2001) have revealed five key elements that characterize the sector. (Manyozo - Mobilizing Rural and Community Radio in Africa)These are inadequate human capacity for rural and community broadcasting; lack of understanding of the praxis of community development; poor connectivity of radio for development to new media and ICTs; formal training not based on learning needs; and dependence on donor funding.

community radio should have “strong linkages” to its communities, which are specific and marginalized (White G, 2007) Unlike public and commercial broadcasters, community radio has the mandate of intervening in the self-development initiatives of its community; has the mandate of involving communities in program making; and is mandated to remain politically neutral and nonprofit oriented (GCRN).

Not all rural and community radio services meet the mandatory access and participation requirements, as the experience in Africa demonstrates that most radio stations operating on community broadcasting licenses are urban-based commercial stations, oriented toward addressing market interests, rather than their audiences, who are not defined in terms of their community (Gumucio, Dagron, 2001).

Megwa 2005, while doing research on An Evaluation of the Development Impact of Technological Hybridization on Stakeholder Communities in South Africa found out that community radio stations are confronted with the same problems faced by their older and mainstream broadcast (public or state broadcasters) counterparts all over Africa. Although these community radio stations and their stakeholder communities have boundless creative capacity and are not owned and controlled by government (at least for the moment), regrettably they do not have the technical capacity and financial resources to fully exploit and actualize these critically important development potentials.

“It is important that policy and further research attention be given to the important and useful development role of community radio stations—their ability and willingness to use their ICT ownership, skills, and knowledge to extend technology access to historically disadvantaged and marginalized communities and groups.”

Many commercial radios have recently adopted a social element in their broadcasts, expanding to reach rural areas, and attracting development funding for carrying agricultural, health, and other public interest programming that has traditionally been the preserve of community radios. What is more, they do this in a fresh, energetic, and professional way, using modern studios with strong and reliable transmitters. Zodiak FM in Malawi, Volta Star in Ghana, and Radio Citizen in Kenya are all cases in point community radio will become increasingly hybridized, such that it will become ever more difficult to differentiate a commercial broadcaster from a community one. (Myer M 2011)

In summarizing “decisive challenges” faced by rural and community broadcasters established in Mozambique under the UNDP/UNESCO-supported Media Development Project, Jallof (2001) discusses questions of weak community ownership of development radio broadcasting; unrealistic and irrelevant capacity building in management, programming, and marketing; limited access to scientific research and information and communication technologies (ICTs); and financial constraints. Drawing on these decisive factors, (Manyozo 2007) outlines four major challenges facing African radio for development initiatives. These challenges are: donor dependence; inadequate training in rural radio for development; unavailability of effective evaluation instruments; and ineffective enabling policy.

Ohenjo & Githethwa (2014) in their study observe that many radios lack the financial, human, and technical resources needed to be able to produce quality content to effectively fulfill this role. The study was based on a desk review of recent assessment reports related to programming, as well as more in depth studies of three partner community radio stations: Baliti FM (Isiolo), Koch FM (Nairobi), and Ekialo Kiano (Homa Bay). The report explains that quality content is generally determined by a number of factors. These include the presence of articulated mission and vision statements, structures for audience involvement, training and skills development of the staff, gender mainstreaming, and financial sustainability.

All three stations were found to produce generally good content, but were hindered by lack of content production facilities and resources like computers, sound editing software, recorders, mixers and internet. It was also observed that there was a low level of understanding of the concept of communication for development. Many stations are staffed largely by young people with few professional qualifications, resulting in a lack of clear strategies and technical abilities around important functions like audience research. Other weaknesses include little gender mainstreaming, rare use of social media and lack of technical skills, which all hinder audience engagement.

## **2.6 How community radio limiting factors could be overcome to maximize their use**

A number of recommendations (including indicators for success) are offered by Ohenjo & Githethwa (2014) in order for the community radio stations to be able to better contribute towards development. They argue that: enabling a clear understanding of the concept, identity, principles, ethics, and regulatory and policy framework of community radio in Kenya; a clear understanding of the concept of communication for development among the staff of community radio stations to enhance content development; training on programming, content gathering, research skills, scripting, sound editing, production and presentation skills; enabling a better comprehension of gender mainstreaming amongst the community radio staff to ensure unbiased and gender sensitive content; strengthening the use of social media for content development and sharing; institutionalizing audience surveys and feedback mechanisms to ensure relevant content; and strengthening sustainability strategies (social, institutional and financial) can lead to success of this radio stations.

Myers (2011) says the Internet is a potential solution to the challenge of scaling up community radio so that voices of community radios can be raised at the national, regional, and international levels. When community radio audio is broadcast on the Web it can reach migrants and members of that community's diaspora's all over the world, connecting them with home, keeping cultural traditions and languages alive, and helping to raise support from migrants abroad for development projects back in the home community. An example of this is Radio Rurale Kayes in Mali, which now streams its programs on the Web (Radio RuraleKayes Website, <http://www.radioruraledekayes.net/>) and which has long existed partly for—and partly due to the support from—migrants from the Kayes region working in France.

Radio has to carry out research regularly to get feedback from the listeners so as to be able to gauge how it is doing in the attainment of its objectives. What is more, Sullivan (2007) avers that it must have a clear strategic plan, a vision and mission. Without a well-thought-out strategic plan and a well-structured way of producing and presenting programmes, the radio would find it difficult to achieve its objectives and thus unable to contribute to development.

With good research, Community radio is a catalyst that brings players of various sectors - - agriculture, health, environment, education, and others – together to embark on a problem-solving venture (White, 2011). It can facilitate debates, dialogues, interactions, discussions among different sectors of the community to diagnose their problems, look for solutions,

determine the cause of action, set up an organization from within which the radio and community members can operate, and marshal resources, starting with what is available locally, for implementation of development projects.

## **2.7 Theoretical framework**

The issue of electronic waste is a relatively new concept in Kenya (NEMA) .An investment, at a small scale, has been made in creating awareness and educating the citizens, especially those in IUS about managing of electronic waste. The research predicted that Residents in up market estates were more knowledgeable on EWM than those in IUS.

It is against this backdrop that the research relied on the knowledge gap hypothesis first proposed by Tichenor, Donohue and Olien at the University of Minnesota in the 70s. They believe that the increase of information in society is not evenly acquired by every member of society: people with higher socioeconomic status tend to have better ability to acquire information (Weng, S.C. 2000). This leads to a division of two groups: a group of better-educated people who know more about most things, and those with low education who know less. Lower socio-economic status people, defined partly by educational level, have little or no knowledge about public affairs issues, are disconnected from news events and important new discoveries, and usually aren't concerned about their lack of knowledge.

The knowledge gap can result in an increased gap between people of lower and higher socioeconomic status. The attempt to improve people's life with information via the mass media might not always work the way this is planned. Mass media might have the effect of increasing the difference gap between members of social classes.

Tichenor, Donohue and Olien (1970) present five reasons for justifying the knowledge gap.

1. People of higher socioeconomic status have better communication skills, education, reading, comprehending and remembering information.
2. People of higher socioeconomic status can store information more easily or remember the topic from background knowledge.
3. People of higher socioeconomic status might have a more relevant social context.
4. People of higher socioeconomic status are better in selective exposure, acceptance and retention.

5. The nature of the mass media itself is that it is geared toward persons of higher socioeconomic status.

Media presenting information should realize that people of higher socioeconomic status get their information in a different way than lower educated people. Furthermore, this hypothesis of the knowledge gap might help in understanding the increased gap between people of higher socioeconomic status and people of lower socioeconomic status. It can be used in various circumstances. The knowledge gap hypothesis holds that when new information enters a social system via a mass media campaign, it is likely to exacerbate underlying inequalities in previously held information. Specifically, while people from all strata may learn new information as a result of a mass media campaign, those with higher levels of education are likely to learn more than those with low levels of education, and the informational gap between the two groups will expand. The results of the analysis show that knowledge gaps do not always grow and that some events, such as debates, may actually reduce the level of information inequality in the population (Holbrook (2002)

Another theoretical frame work that this study finds relevant is the diffusion of innovation theory The process of adopting new innovations has been studied for over 30 years, and one of the most popular adoption models is described by Rogers in his book, Diffusion of Innovations (Sherry & Gibson, 2002). Much research from a broad variety of disciplines has used the model as a framework. Dooley (1999) and Stuart (2000) mentioned several of these disciplines as political science, public health, communications, history, economics, technology, and education, and defined Rogers' theory as a widely used theoretical framework in the area of technology diffusion and adoption. For Rogers (2003), adoption is a decision of "full use of an innovation as the best course of action available" and rejection is a decision "not to adopt an innovation" (p. 177). Rogers defines diffusion as "the process in which an innovation is communicated thorough certain channels over time among the members of a social system" (p. 5). As expressed in this definition, innovation, communication channels, time, and social system are the four key components of the diffusion of innovations.

I will look at two elements relevant to this research according to Rodgers the social system and communication channels.

For Rogers (2003), communication is “a process in which participants create and share information with one another in order to reach a mutual understanding” (p. 5). This communication occurs through channels between sources. Rogers states that “a source is an individual or an institution that originates a message .A channel is the means by which a message gets from the source to the receiver” (p. 204) Rogers states that diffusion is a specific kind of communication and includes these communication elements: an innovation, two individuals or other units of adoption, and a communication channel. Mass media and interpersonal communication are two communication channels. While mass media channels include a mass medium such as TV, radio, or newspaper, interpersonal channels consist of a two-way communication between two or more individuals.

On the other hand, “diffusion is a very social process that involves interpersonal communication relationships” (Rogers, 2003, p. 19). Thus, interpersonal channels are more powerful to create or change strong attitudes held by an individual. In interpersonal channels, the communication may have a characteristic of homophile, that is, “the degree to which The Turkish Online Journal of Educational Technology – TOJET April 2006 ISSN: 1303-6521 volume 5 Issue 2 Article 3 15 two or more individuals who interact are similar in certain attributes, such as beliefs, education, socioeconomic status, and the like,” but the diffusion of innovations requires at least some degree to which two or more individuals who interact are different in certain attributes (Rogers, 2003, p. 19).

Rogers (2003) defined the social system as “a set of interrelated units engaged in joint problem solving to accomplish a common goal” (p. 23). Since diffusion of innovations takes place in the social system, it is influenced by the social structure of the social system. For Rogers (2003), structure is “the patterned arrangements of the units in a system” (p. 24). He further claimed that the nature of the social system affects individuals’ innovativeness, which is the main criterion for categorizing adopters.

## **2.8 Gaps identified during literature review.**

During literature review, a number of research gaps were identified and labeled. The first level of Literature pointed out a gap that was christened ‘communication gap’; the second level, a gap named Participation.

### **2.8.1 Communication Gap**

A key gap to be filled by this study, and which was not given the attention it deserves in the literature reviewed, was that people have the forum where they can have a meeting of minds. Yet were not utilizing this forums fully. Because of various reasons, they cannot use radio, newspaper or television to articulate problems such as EWM unless there is an external force. They cannot therefore diagnose & solve their pressing problems.

They do not have a way to use to reach government. But even if they had a way, they do not know what to ask and they lack the courage to do so. Community radio stations are better placed to help them solve some of their problems, if they are organized properly. The attempt to improve people’s life with information via the mass media might not always work the way this is planned. Mass media might have the effect of increasing the difference gap between members of social classes.

### **2.8.2 Programming Gap**

It has been noted in most studies that community radio plays a big role through programmes, language of the community and entertainment. Strides have been made in areas of democracy, education, politics and governance and peace initiatives. The power of CR to articulate Environmental initiatives is mentioned in passing without detailed study on how it can be done and the possibility of success. Most CR’s have not adopted use of new media and if they have then they are not utilizing them fully and therefore fit into Rogers’s definition of laggards in adoption of technology. The programmes tackle other equally important issues and do not give E-waste the attention it deserves.

## 2.9 Conceptual Framework

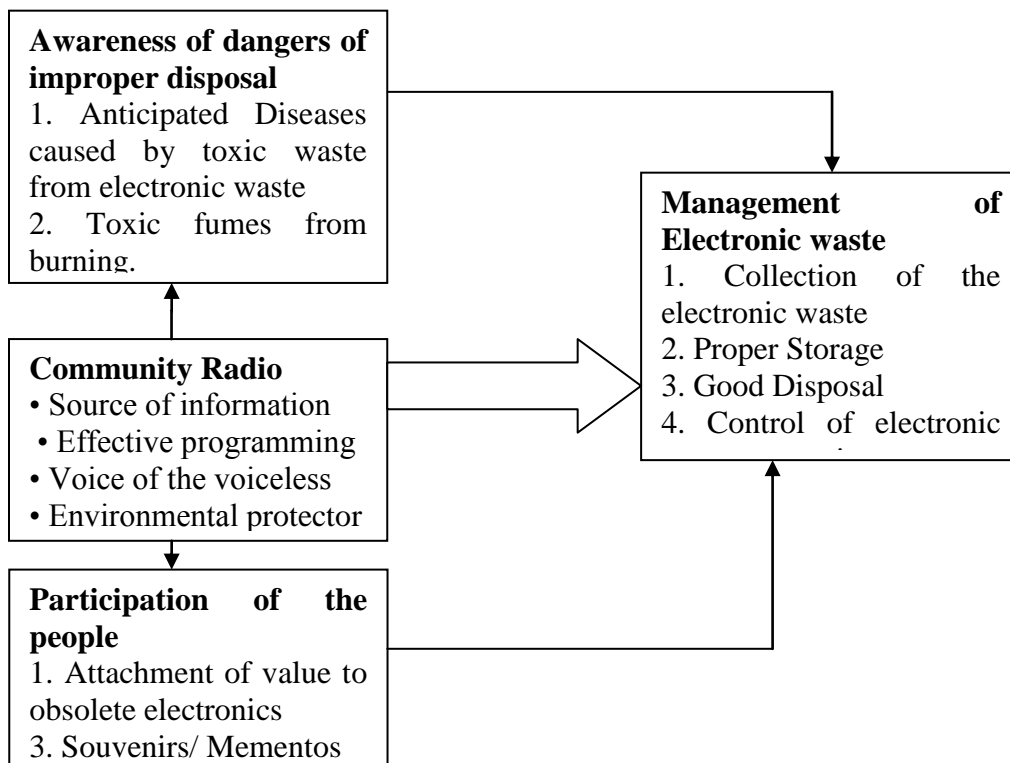
Conceptual framework is a logically developed, described and elaborated network of interrelationships among the variables deemed to be integral to the dynamics being investigated, explains the theory underlying these relations, and describes the nature and direction of the relationships (Matoko *et al.*, 2009). While according to Mugenda and Mugenda (1999) conceptual framework refers to a situation where a researcher conceptualizes the relationship between variables in the study and shows the relationship graphically or diagrammatically. Figure 2.1 gives the conceptual framework of this study.

*Figure 2.1: Conceptual Framework*

### INDEPENDENT

### VARIABLES

### DEPENDENT VARIABLE



The schematic diagram indicates the various factors that affect or enhance proper management of electronic waste. Creation of the awareness to the public on dangers of improper disposal will promote proper disposal of the electronic waste to the designated locations in Informal urban settlements. The government and other stakeholders can implement policies and institutional frameworks that can be used to regulate the management of the e -waste in Informal urban settlements. On the contrary, cultural aspect can be reduced through the mass education on the dangers of retaining the obsolete electronics as memoirs/ souvenirs. Most importantly community radio can be used as a platform to advocate, educate and encourage Electronic waste management through participation.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Research Design**

According to McMillan and Schumaker (2001), a research design is a plan for selecting subjects, research sites and data collection procedures to answer the research questions. A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure, (Seltiz, 1963).

This research was conducted through case study design that sought to describe a unit in details, in context and holistically. Case study according to Hancock & Algozzine (2006) helps the researcher to understand the situation under investigation from the participants and not researchers perspective. In addition, Kombo & Tromp (2010) insist that researchers who intend to analyze the issue under investigation in details should use case study design since the design gives deeper insight and better understanding of the problem of study.

Case study was relevant for this study because it allowed full investigation of the research questions about the community radio and electronic waste management nexus. 99.9 ghetto fm was the station of choice because of its geographical location as well as the many years of operation as a community radio. Slums Information Development Resource Centers (SIDAREC), an organization formed to mobilize slum communities – particularly youth – to take part in development started the radio in 2007. 99.9 ghetto fm primarily serves Pumwani slum. It is subdivided into five locations: Bahati, Eastleigh North, Eastleigh South, Kamukunji and Pumwani. 99.9 ghetto fm broadcasts 24/7 and hosts popular presenters and deejays. The station can be listened to via FM or online.

Case study design allowed research process of context under investigation to take place in its natural setting. This design allowed a complete and thorough description of the role played by the stations programs, the challenges the station faces and possible solutions to challenges limiting it in management of Electronic waste.

Answers to community participation, challenges the station faces possible solutions were arrived at by the study being conducted in relevant settings. This helped in determining the true picture of community involvement, the level of participation as well as critique of the station's programs. For instance, questionnaires were administered to listeners involving community

members including both gender and varying age groups and Key informants were interviewed. Case study design allowed the use of multiple sources of evidence rather than relying on single source alone to enhance data credibility. For instance, in-depth interviews and questionnaires provided rich information on what was being investigated.

### **3.2 Population**

Population refers to an entire group of individuals which are the concern for the study within the area of the study (Mugenda and Mugenda, 1999). They further explain that the target population should have some observable characteristics, to which the researcher intends to generalize the results of the study.

The population of this study was the people living in informal urban settlements in Nairobi County. The researcher drew all the respondents from the listeners, managers and workers of 99.9 ghetto fm, and Key informants from bodies dealing with electronic waste management e.g. NEMA, Nairobi county Environment Ministry, Religious leaders, political leaders NGO's and the Business community dealing with Electronic waste in Pumwani Informal urban settlement. According to KNBS, Pumwani division has 6000 residents and 702 households.

It was not possible to study all the inhabitants of Nairobi County informal settlements; however the study focused on Pumwani where the station is located and participants from the area represented the entire County. Focusing on the area enabled the researcher to acquire information from key informants who are within the area. In addition the research question of the study formed the basis of identifying the population the researcher got information from. The individual interview of twenty two representatives was the target, plus 70 listeners.

### **3.3. Sample Frame.**

The respondents were from Pumwani IUS. The respondents included 1 station manager, 2 members serving in 99.9 ghetto fm management board and 2 presenters. 2 members of the clergy, 2 managers of an electronic waste recycling facility and 2 knowledgeable workers were interviewed. For the NGO's dealing with waste management In Pumwani, 2 managers and 3 workers were interviewed. In addition, 2 officials from the Nairobi county Government

Environment ministry 2 official from NEMA and, 2 political leaders were interviewed. The total target number of respondents for this study was 22.

*Table 3.1: Key Informants Demographic Characteristics.*

<b>Designation</b>	<b>Total</b>
Board chairman 99.9 ghetto fm	1
Member management board 99.9 ghetto fm	1
Station manager 99.9 ghetto fm	1
E waste Liaison officer- Nema	1
Ghetto radio Presenters	2
Manager of a recycling plant	1
Owner of a recycling plant	1
Worker at a recycling plant	1
Public relations manager at a recycling plant	1
waste collector	2
Chairlady of Pumwani women group	1
Members Pumwani women group	1
MCA kamukunji ward	1
MP Pumwani ward	1
Environment officers at Nairobi county Environment ministry	1
Nema Media and awareness officer	1
<b>Total</b>	<b>18</b>

When it came to radio listeners, it was not possible to get a sampling frame. Purposive sampling was employed to get a sample that listens to 99.9 ghetto fm. Kotler et al. (2001) argues that if well chosen, samples of about 10-30% of a population can often give good reliability findings. Attempts were made to ensure that the sample cut across age, education, marital status and gender, the study had 70 questionnaires to be filled in. This represents 10% of the households in Makongeni.

### **3.5 Sample Size and Sample Size Determination.**

According to Mugenda and Mugenda (1999), sampling is the process of selecting a number of individuals for a study in such a way that the individuals selected represent the large group from which they were selected. This was done to secure a representative group, which would enable the researcher to gain information about a population.

A sample was taken using Non-probability sampling technique. The respondents were purposively sampled in order to get in depth data with respect to the objectives of the study. The researcher's hand-picked respondents who were informative from Pumwani.

### **3.6 Research instruments.**

Instruments are developed to collect the necessary information (Mugenda and Mugenda, 1999). The study used questionnaires and in-depth interviews. A questionnaire was designed to obtain details on the respondents, especially listeners. The interview was used to get information on legislation, programming, challenges and way forward from government, NGO's and samples community radio station managers.

#### **3.6.1 Questionnaire**

A questionnaire is a research instrument that gathers data over a large sample ( Kombo and Tromp, 2006). The questionnaires were used to get information from the listeners of 99.9 ghetto fm because the information needed was required to be done in a straight forward manner. The questionnaire had both open-ended and closed-ended questions. This instrument was chosen because large amounts of information can be collected from a large number of people in a short period of time and in a relatively cost effective way and that the results of the questionnaires can usually be quickly and easily quantified by either a researcher or through the use of a software package and analyzed more 'scientifically' and objectively than other forms of research.

### **3.6.2 In-Depth Interview**

An interview is an oral administration of a questionnaire/ an interview schedule or are face-to-face encounters (Mugenda and Mugenda 2003:83). The researcher interviewed station managers, Environmental conservation NGO's managers and NEMA officers so as to get in-depth information which was not possible to get using a questionnaire. An Interview guide was used to gather information and both open ended and closed questions were used so that the researcher could get a complete and detailed understanding of 99.9 ghetto fm's editorial policy, programme content, strategic plan and the challenges facing the stations.

From the manager for instance, the researcher solicited responses on the management structure, funding and editorial policy. Interview with NEMA officers was solicited responses on the draft gazette notice on Electronic waste, the education and awareness initiatives and lastly the different initiatives by stakeholders such as corporate and NGO's and the challenges facing these initiatives.

### **3.6.3 Reliability of Instrument**

To ensure instrument reliability, the questionnaire was piloted prior to the actual survey. 10 respondents were selected from among the listeners .Those selected for the pilot phases were not included in the final survey. They were selected by purposive sampling (Mugenda and Mugenda, 1999) as they were more available. The pre-test questionnaire was filled under the researchers' observation. The piloting ensured clarity and sustainability of the language used.

### **3.6.4 Validity of data collection instruments**

Instruments validity refers to the degree to which as test measures what it purports to measure (Borg and Gall, 1989). It also refers to the data that is true and accurate for the purpose it is collected. For this study, validity was achieved by discussing the instrument with experts in the subject and with my supervisor.

### **3.7 Data Collection Procedures.**

Data collection is the gathering of specific information aimed at providing or refuting some facts according to Kombo & Tromp (2010). They insist that the researcher must have clear understanding of what they hope to obtain and how they hope to obtain it. The study targeted in-depth interviews as the primary source for data collection. The answers from the interviewees were noted down by the interviewer. The researcher preferred face-to-face interviews for this study because this provided opportunity to probe further as well as observing body language of the respondent. Questionnaires were administered and responses recorded by the researcher.

### **3.8 Data Analysis and Presentation Techniques.**

Raw data was recorded and stored. For the in-depth interviews, they were transcribed and stored as well. Data analyses vary with the purpose of the research but it must be done in a way that the complexity of research design doesn't affect the extent to which conclusion can be reached easily. Therefore, data analysis for this study was thematic. According to Kombo& Tromp (2010) thematic analysis is done by identifying major themes and developing codes .The major themes were identified and categorized into related topics. Related information and relevant to research question and objectives were also identified. Coding system was developed based on collected data. Coded material was placed under identified themes and material relevant to certain themes placed together. Then a summary report to identify major themes and association between them was developed.

For the Quantitative data, the data was coded and entered in the SPSS (Statistical Package for social sciences) programme. The programme processed, analyzed and generated the tables and pie charts used in chapter four.

### **3.9 Ethical considerations**

While collecting the data, the respondents were assured of their privacy and confidentiality of the information given. Privacy was ensured by not recording the names of the respondents anywhere. It ensures this privilege is not abused and that respondents understand that their responses would be used purely for academic purposes and nothing else. Permission was sought from the relevant authorities. From the university, a letter granting permission for field work was granted.

## **CHAPTER FOUR**

### **DATA ANALYSIS AND INTERPRETATION**

#### **4.1 Introduction**

This chapter covers the analysis of the data analysis and interpretation of the results for the study on the role played by community radio in promoting electronic waste management in informal urban settlements. The results were obtained from analysis and interpretation of the collected data. The data was obtained from questionnaires administered to 99.9 ghetto fm listeners in Pumwani and interview schedule administered to key informants comprising of station managers, Environmental conservationists, NGO's managers and NEMA officers.

Data was collected from a sample of respondents using 70 questionnaires and 22 interview schedules out of which 70 questionnaires and 18 interview schedules were completed and returned, making a response rate of 100% and 81% respectively. For the Quantitative data, the data was coded and entered in the SPSS (Statistical Package for social sciences) programme. The programme processed, analyzed and generated the tables and pie charts. For qualitative data Coded material was placed under identified themes and material relevant to certain themes placed together. Then a summary report to identify major themes and association between them was developed. The information was used to corroborate quantitative data.

## 4.2 Radio Listeners Demographics Characteristics

This section presents the findings on the demographic background of the respondents.

*Table 4.1: General Demographics Characteristics*

<b>Demographics Characteristics</b>		
<b>Gender</b>	<b>Number of respondents</b>	<b>Percentage (%)</b>
Female	30	43
Male	40	57
<b>Total</b>	70	100
<b>Age in years</b>	<b>Number of Respondents</b>	<b>Percentage (%)</b>
17-20	23	<b>33</b>
21-25	19	27
26-30	15	22
31 and above	13	18
<b>Total</b>	70	100
<b>Respondents Highest Level of Formal Education</b>	<b>Number of Respondents</b>	<b>Percentage (%)</b>
Primary completed (class 8)	22	31.1
Secondary attended	15	21.4
Secondary completed (form 4)	11	16.0
Tertiary College attended	9	13.0
Tertiary College completed	5	7.1
University Undergraduate	4	5.7
None	4	5.7
<b>Total</b>	70	100

*Source: Researcher 2015*

As per the findings, 57% of the respondents were males and 43% were females. Males formed most of the respondents who were listeners implying that 99.9 ghetto fm has more male listeners as compared to the females.

From the findings, 33% of the respondents were between 17-20 years 27% were between 21-25 years, 22% were 26-30 years and 18% were 31 years and above. This implies that the age was evenly distributed therefore the responses can be relied upon to represent all age groups however 99.9 ghetto fm is mostly listened to by the youths between the age of 17-26 years.

In relation to the respondents highest level of education; the analysis reveals that, most (31.1%) of the respondents had completed primary education (class 8), 21.4% had attended secondary, 16% had completed secondary (form 4) education and 13% had completed tertiary college. 5.7% had attained a university undergraduate while 5.7% had completed tertiary college and no education each. This depicts that majority of the respondents had attained basic education (primary school) but did not pursue further education. The illiteracy levels are also very low 5.7%.

The demographic characteristics above are typical of Informal urban settlements since they are characterized by high population densities. Have low income levels, unemployment levels are high and most of the employees work in the informal sector and because of low education levels most residents lack the information on various issues therefore do not know their rights. According to majidata 2015, retrieved from <http://www.majidata.go.ke> retrieved on 26<sup>th</sup> October 2015 at 17.00

**Table 4.2: Radio listeners Demographic Characteristics**

Respondents Occupation	Percentage of respondents		Total	Number of respondents		Total
	Male	Female		Male	Female	
Student	5%	10%	15%	1	2	3
Employee (worker, salaried, house help )	30%	20%	50%	28	14	42
Self-employed (farmer, businessman)	10%	5%	15%	7	4	11
Employed in family household (housewife, work for parents without salary)	0%	5%	5%	0	4	4
Jobless	5%	10%	15%	4	7	11
Total	50%	50%	100%	40	30	70
Respondents Economic Status	Percentage of respondents		Total	Number of respondents		Total
	Male	Female		Male	Female	
In this household we do not have enough food every day	5%	5%	10%	4	4	8
In this household we have enough food every day and can buy clothes sometimes	45%	20%	65%	32	11	18
In this household have enough basic needs but sometimes struggle with school fees (for secondary school)	10%	15%	25%	7	14	46
Total	60%	40%	100%	42	28	70

Source: Researcher 2015

Regarding the respondents occupation, majority (50%) were employees. 15% were self-employed (farmer, businessperson), 15% were students and 5% Employed in family household (housewife, work for parents without salary) each. However, 15% of the respondents said they were jobless. This portrays that most of the respondents were engaged in an income generating activity whether self-employed or employed on a salary.

From the findings, majority (65%) of the respondents, economic status, have enough basic needs but struggle with buying clothes, this implies that they make as much as they eat meaning they do not have savings for luxuries. 25% of the respondents have enough food every day but Sometimes struggle with school fees (for secondary school).while 10% do not have enough food every day. This shows that the majority respondents' economic status was not stable because they have basic needs and no savings. Even though we have some who own businesses or houses in the IUS hence are economically stable.

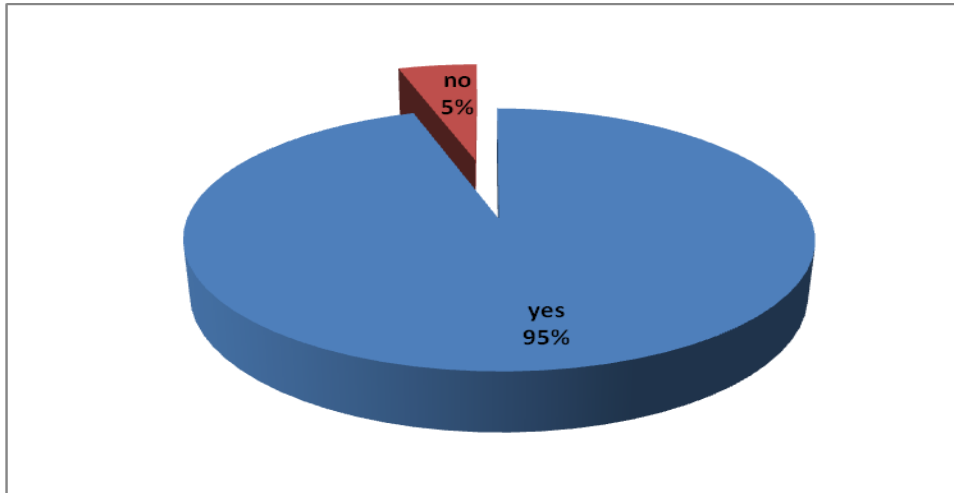
### **4.3 Radio Listeners Opinion on Community Radios' Contribution in Electronic Waste Management in Informal Urban Settlements**

The first objective of the research was to examine contribution of 99.9 ghetto fm in E-waste management in Pumwani IUS. Respondents were asked if they listen to 99.9 ghetto fm , the environmental challenges they face, how the radio contributes to managing e-waste, their source of information on E-waste, the CR's programming and their level of participation are presented below from the findings of the study.

#### **4.3.1: Respondents Listening to 99.9 ghetto fm**

The study inquired from the respondents whether they had listened to 99.9 ghetto fm in the last 30 days. The findings are as portrayed in Figure 4.2

**Figure 4.2: Respondents Listening to 99.9 ghetto fm**



*Source: Researcher 2015*

Majority (95%) of the respondents said that they had listened to 99.9 ghetto fm in the last 30 days while 5% said they had not. Therefore, it can be deduced that the research reached the intended population since the respondents widely listened to 99.9 ghetto fm therefore the listeners’ responses can be relied upon.

The study requested the KIIs to state the size of their audience, accordingly the station manager said “ we reach over 1.5 million people residing in Pumwani, Mukuru kwa Njenga, Donholm, Embakasi, Kayole, Makongeni, Bahati and Ngara area; in addition ,we reach more people on the online radio medium as well as the social media platform.”

#### **4.3.2 Environmental Challenges Faced by Respondents Community.**

The respondents were asked what environmental challenges their community faces. The respondents said that the environmental challenges their community faces include; poor drainage leading to water stagnation during the rainy season, bursting of sewer lines and overflow of raw sewage, dust in the air, noise from factories and carelessly disposed garbage for instance plastics and polythene bags. Other components of the inorganic waste stream that pose environmental problems include alkaline batteries and other toxic wastes. Spent batteries are commonly seen scattered about informal settlements as they represent a popular power source in the unserved areas. This depicts that among the many environmental challenges mentioned e-waste is among the challenge in the study area.

### **4.3.3 Description of e-waste**

The listeners were asked to describe what they understood by e-waste. As predicted by the research, 90% of listeners were unable to define it but when asked to name some of the discarded electronics at home, 100% of the respondents named discarded items comprising e-waste. This implies that majority of listeners had little exposure to information on the subject of E-waste.

Accordingly e-waste was described by a listener as “electrical or electronic equipment, which is waste including all components, sub-assemblies and consumables, which are part of the product at the time of discarding.”

NEMA described it as “E-waste broadly covers waste from all electronic and electrical appliances and comprises of items such as computers, mobile phones, digital music recorders/players, refrigerators, washing machines, televisions (TVs) and many other household consumer item.”

Similarly, the Organization for Economic Co-operation and Development (OECD) defines e-waste as “any appliance using an electric power supply that has reached its end-of-life” (UNEP, DTIE, 2007a).

### **4.3.4 Old/Discarded Electronics Respondents have at Home**

The study asked the respondents to indicate the old/discarded electronics they have at home. The most common form of e-waste the respondents have at home was phones and phone accessories followed by radio and then television, computers parts, printers, fax machines and scanners were also mentioned.

From the key informants Mrs. palow at wee center stated that , “the most common type of e-waste to be found in the respondents community are 'white goods,' like household appliances ,'brown goods,' like TVs, camcorders, cameras, and 'grey goods,' including computers, printers, fax machines, scanners. This finding confirms NEMA 2010 observation that the general trend by households to store EEE, reuse it or dump it along with other solid waste after their End of life.

#### **4.3.5 The Threat of E-waste in Respondents Community**

The study enquired from the respondents the ways in which they consider e-waste to be a threat to their community. From the findings, the respondents stated that e-waste is a source of income and employment to the community and therefore is not a challenge. For Some respondents, it causes insecurity because the demand for it makes it very valuable therefore theft cases and vandalism of electronic facilities was on the rise

Workers in the recycling facilities and collectors stated in some instances they handle the waste without protective clothing. This implies that the workers and the handlers of E-waste were in danger of exposure to harmful substances and metals. One of the collectors stated

“If for instance, I want metals from used car batteries I use an axe to chop off the plastics and get the metal inside that will fetch me money.”

The chairlady of Pumwani women group stated that “we are aware of the danger e-waste can cause to the environment and the individual handling the waste but the cost of protective gear is too high. Despite receiving training, some workers still do not protect themselves when handling e-waste Even so; our group has no control over the collectors who rely on waste collection for a living for they bring already dismantled e-waste to their plants for sale. They prioritize survival over their own health.”

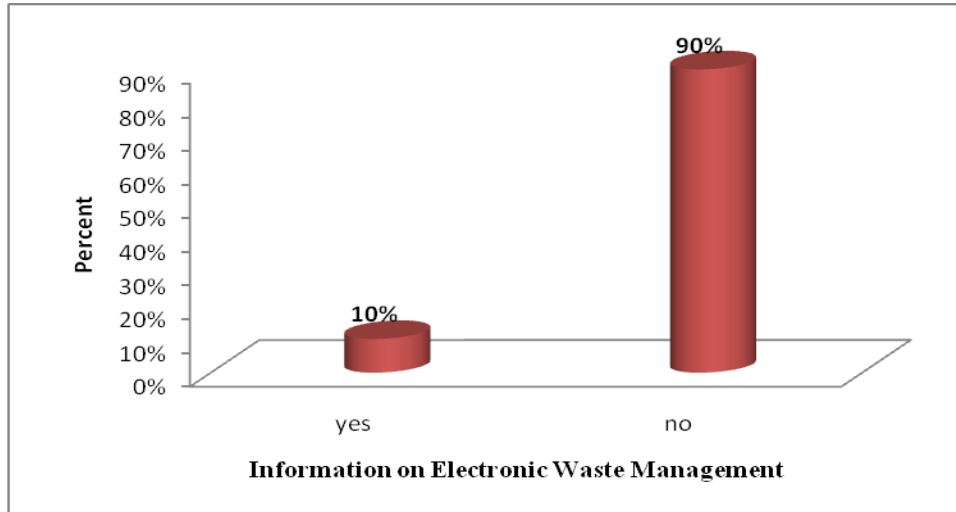
From the findings NEMA stated that e-waste contains various hazardous contents .These substances can have adverse effects on the body. For instance, Lead which is found in discarded car batteries exerts toxic effects on various systems in the body such as the central (organic affective syndrome) and peripheral nervous systems (motor neuropathy), the genitourinary system (capable of causing damage to all parts of nephron) and the reproductive systems (male and female).

Mercury causes damage to the genitourinary system (tubular dysfunction), the central and peripheral nervous systems as well as the fetus. When inorganic mercury spreads out in the water, it is transformed into methylated mercury, which bio-accumulates in living organisms and concentrates through the food chain, particularly by fish.

#### 4.3.6 Information on Electronic Waste Management.

The study sought to establish whether the respondents receive information like the one shared by NEMA to the researcher on electronic waste, i.e. safety measures, collection transportation and recycling of E-waste. The findings are as illustrated in the figure 4.3.

**Figure 4.3: Information on Electronic Waste Management**



*Source: Researcher 2015*

As the findings illustrated above, majority (90%) of the respondents said they have never received information on electronic waste management while 10% said they had. This portrays that electronic waste management is not a common discourse in the respondents' community.

NEMA stated that the information they pass to the public include categorization of e-waste, legislation, and the challenges as well as the opportunities of recycling e-waste.

The Nairobi city county environmental ministry said they do not have any e-waste awareness initiatives hitherto.

#### 4.3.7 Respondents Main Source of Information on Electronic Waste Management in the Community

The respondents who agreed that they had received information on electronic waste management were asked to indicate their main source of information on electronic waste management in the community. Accordingly, the findings are as presented in the table below.

**Table 4.3:** Respondents Main Source of Information on Electronic Waste Management in the Community

	<b>Frequency</b>	<b>Percent (%)</b>
Television	3	5.0
Friends	7	10.0
Community radio	<b>2</b>	<b>4.0</b>
<b>Total</b>	<b>10</b>	<b>15</b>

Source: Researcher 2015

From the findings presented in Table 4.3, 10% of the respondents indicated their main source of information on electronic waste management in the community was friends and 5% said it was television. Only 4% stated community radio was their main source of information. This implies that the local people and television are the main sources of information on e-waste management for the respondents.

From the Key informants, NEMA said that they use their websites, Television, brochures and academic institutions programmes such as the Kenya national music festival to pass information to the public on electronic waste.

#### **4.3.8 Contribution of 99.9 ghetto fm in Addressing Electronic Waste Management Challenges**

The study requested the respondents to show the ways in which 99.9 ghetto fm led the community to address these challenges. The findings are as illustrated in Figure 4.4.

**Table 4.4:** Contribution of 99.9 ghetto fm in Addressing Electronic Waste Management

	<b>Frequency</b>	<b>Percent (%)</b>
Organizing awareness campaigns	8	12
Airing a specific program	2	3
Mention within another programme	7	10
None	25	36
Don't know	14	20
Not sure	21	20
<b>Total</b>	<b>70</b>	<b>100.0</b>

Source: Researcher 2015

Based on the findings, it was clear that 99.9 ghetto fm led the community to address the challenge of E-waste by mentioning the topic within another entertainment program according to 10% of the respondents and organising awareness campaigns (12%) of the respondents. The station however has no specific programme on E-waste. Most initiatives on E-waste by the CR are however not known by a large percentage of the respondents (20%) and those who answered that there was none 36%. Therefore it can be deduced that campaigns and the mention amidst entertainment programs aired by the community radio play an important role in addressing electronic waste management challenges however this initiatives are not known by a majority of 99.9 ghetto fm listeners.

The study requested the respondents to show the ways in which 99.9 ghetto fm led the community to address these challenges. Consequently, the station presenters revealed that their radio had identified electronic waste as a major problem and in an effort to tackling electronic waste management had given individuals and group a platform to discuss the issue interactively as well as organizing street cleanups. “Street cleanup has been organized by various groups and as a radio we offer the groups a platform to address the community directly on radio. For example Pumwani women group visit the radio to ask for community members to collect e-waste and hand it to them.”

#### **4.3.9 Ghetto program that Deal with Electronic Waste Management**

The respondents were asked to indicate any Ghetto program they recall that specifically addresses electronic waste management. majority of the respondents said that they couldn't recall a specific programme on Ghetto radio that specifically addressed electronic waste management. The station manager further revealed that the radio does not have programs that specifically talk about Electronic waste management. This is because the factors the station considers before designing the programmes include sponsorship. He further added “Due to a small staff our presenters double as editors of the content. Sometimes they are overstretched and they need further training on computer software that assists them .All this need money and the financial constraints make programme production difficult especially in a new field”

The KIIs from 99.9 ghetto fm were asked what determines what they air in their show. The radio presenters stated that they determine what to air mainly from collecting views from the listeners. In addition, 99.9 ghetto fm station do not produce local drama on Electronic waste.

When asked how they identify the environmental problems to highlight on the station, the KIIs from 99.9 ghetto fm said their radio identifies problems in the community by observation. One presenter stated “The experience of living and working in IUS gives them an upper hand in addition they talk to the local people and lastly collection of information is done by reporters. The 99.9 ghetto fm board chairman stated that “99.9 ghetto fm brings community to consensus about action to tackle the problem by using opinion leaders to convey the message to the people we also work with institutions such as schools and churches.”

From the organizations that could sponsor these programmes, those that deal with electronic waste management and electronic companies, the study determined that KIIs organizations have initiatives targeting consumers, recyclers, government, organizations and schools. At NEMA, the media and awareness office markets E-waste management initiatives and creates awareness through brochures, organizing seminars, sponsorships of themes at schools drama and musical festivals. The cost of the initiatives ranges from Ksh 500,000 onwards annually.

In relation to the factors the organizations considers before choosing a media platform to reach their audience, respondents asserted that the considerations before choosing a media platform to reach the audience are; number of people that can be reached, coverage area of the station and how much they charge. On accessibility of 99.9 ghetto fm to KIIs organization, it was revealed that 99.9 ghetto fm has not been approached but they thought that are station is open.

#### **4.3.10 Importance of Community Radio to the Community**

The study asked the respondents to state their understanding of a community radio station. According to the findings, respondents understood community radio station to be a radio that is based among people with a common goal and helps the community.

The study investigated the KIIs opinion on whether community radio can be trusted to lead EWM initiatives. They explained that community radio can be trusted to lead EWM initiatives since it reaches the people faster and effectively.

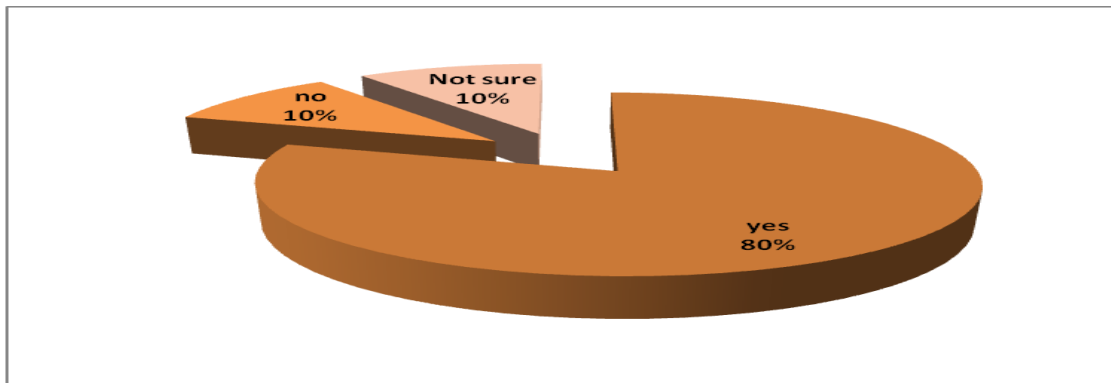
The study sought to determine the respondents' opinion on whether community radio is important to the community. Accordingly, all the respondents agreed that it was.

The study went on to request the respondents who agreed that community radio is important to the community to explain the ways in which it is important. A listener stated "99.9 ghetto fm is a very interactive and open radio station that airs what affects us here in Pumwani. For example the youth are warned against engaging in crime and good health habits and education on HIV/AIDs management are taught."

#### 4.4. Application of Ghetto's FM Messages by Respondents.

The study asked the respondents whether they apply the message in the programmes by 99.9 ghetto fm radio. The findings are presented below.

**Figure 4.4:** Application of Ghetto's FM Messages by Respondents



Source: Researcher 2015

The findings depict that, majority (80%) of the respondents stated that they had applied the message in the programmes by 99.9 ghetto fm radio in their lives, 10% said they had not while 10% were not sure. This implies that the respondents are keen on the messages conveyed by 99.9 ghetto fm radio. This implies that CR is regarded highly by the listeners and strengthens its importance in pushing development agenda or behavior change in a given population

Those who agreed to apply the message in the programmes said they do so by participating in initiatives commissioned by the CR if for instance they are informing the public on the existence of a service they actually seek out the places they have been referred to.

#### 4.5 Factors Limiting Community Radio Contribution in Electronic-Waste Management

The second objective of this study was to identify the factors that limit community radio in effectively addressing and dealing with electronic waste management. The respondents were asked of their opinion on the factors limiting community radio in electronic waste management. The study inquired from the respondents the coverage of the subject on CR, sponsorship/financial sustainability, radio listenership and the participation of listeners.

##### 4.5.1 The Coverage of Electronic Waste on 99.9 ghetto fm

The study sought to determine the level at which respondents agreed or disagreed with the statements relating to the coverage of electronic waste on 99.9 ghetto fm. The results of the findings are as tabulated below.

*Table 4.5: The Coverage of Electronic Waste on 99.9 ghetto fm*

	<b>Mean</b>	<b>Std Dev.</b>
The coverage misses presentation of various opinions	1.39	.151
The coverage doesn't consider the concerns of ordinary people	1.42	.201
The coverage lacks sufficient explanation on details and background	2.36	.322
The coverage misses active participation of ordinary people	2.40	.463
The coverage of this topic is satisfactory.	3.68	.169

*Source: Researcher 2015*

From the findings the study established that majority of the respondents opinion in relation to the coverage of electronic waste on 99.9 ghetto fm was: the coverage of this topic is satisfactory (mean=3.68). The coverage misses active participation of ordinary people (mean=2.40). The coverage lacks sufficient explanation on details and background (mean=2.36). The coverage doesn't consider the concerns of ordinary people (mean=1.42). The coverage misses presentation of various opinions (mean=1.39). This denotes that the coverage of electronic waste on 99.9 ghetto fm was still low and needed improvement.

#### 4.5.2 Organization that has sponsored a program on EWM on 99.9 ghetto fm

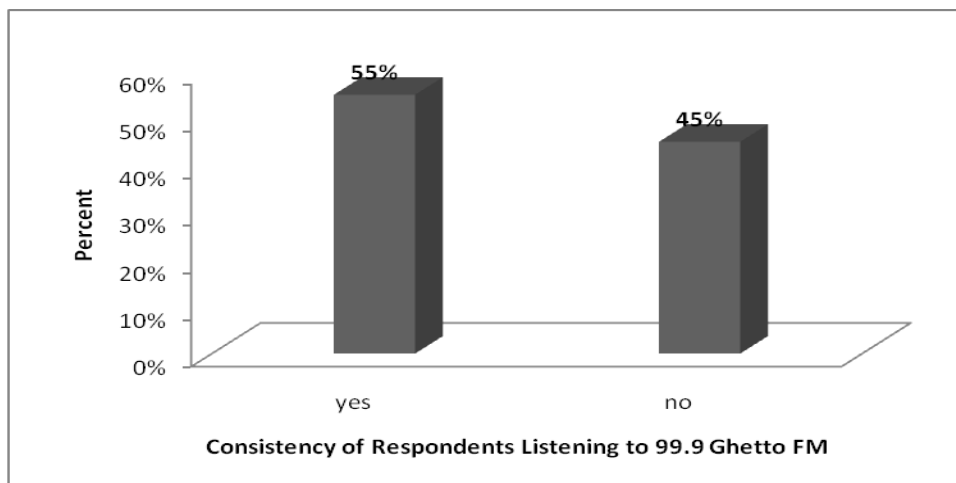
The respondents were asked if they know of any organization that has sponsored a program on EWM on 99.9 ghetto fm. All the respondents said they did not know of any corporate, government or social institution that has sponsored a programme on E-waste despite other topics such as security and health receiving sponsorship. This implies that ghetto radio relies on sponsorship for program making in its model.

When asked to name organizations dealing with e-waste that their station partners with, the presenters mentioned; Pumwani recyclers and Pumwani women group. The station gives them pro bono airtime to talk about their activities.

#### 4.5.3 Consistency of Respondents Listening to 99.9 ghetto fm

The respondents were asked to indicate whether they listen to 99.9 ghetto fm consistently. The findings are presented in Figure 4.5.

*Figure 4.5: Consistency of Respondents Listening to 99.9 ghetto fm*



*Source: Researcher 2015*

As per the findings, majority (55%) of the respondents said they listen to 99.9 FM Ghetto radio consistently while 45% said they did not.

The respondents who said they do not listen to 99.9 Ghetto radio FM were asked to state their reason for this. Accordingly, they said they are committed elsewhere such as work places and this limits their listenership additionally they stated that they are loyal to specific programmes especially the music and not the radio station in totality. A listener stated “I change the station

and listen to a different genre of music not offered by 99.9 ghetto fm or a sports programme. If it is time for football I switch and listen to radio jambo, and reggae time I listen to Mbusi and lion former Ghetto radio presenters who moved to radio Jambo.”

In an interview with the Station manager He asserted that the factors hindering increase of their radio listenership in Pumwani include; legislation, constant moving of offices leading to loss of faith by listeners, competition from mainstream media and lack of their listeners presence on social media.

“We are limited in terms of sourcing for advertisers yet we are required to fund programme production. This legislation on nonprofit nature of community radio affects cash flow hence most initiatives such as programme production on E-waste management remain grounded.

We have a social media platform that is not very interactive as it should be. This may be attributed to the low income our listeners get hence cannot afford internet. Due to high rental fees we have been forced to move time again and again to cheaper places. Our listeners find it hard to visit us and they shift their loyalty. With a low listenership base attaining our mission of giving a voice to the voiceless is affected greatly”

#### 4.5.4 Participation Respondents were Engaged in on 99.9 ghetto fm

The study sought to determine the kind of participation respondents engage in on 99.9 ghetto fm. The findings are as tabulated below.

**Table 4.6:** *Participation Respondents were Engaged in on 99.9 ghetto fm*

<b>Participation form</b>	<b>Number of Respondents</b>
Personal visit to radio station	03
Participation in the radio in section of personal confessions / experiences	15
Giving feedback about quality of programmes	05
Call-in / text-in for expressing my view in specific programmes	16
Call-in / text-in for greetings and music	43
Being interviewed as a source of information by the radio	10

*Source: Researcher 2015*

From the findings in Table 4.6 most of the respondents said that the kind of participation respondents have ever been engaged in on 99.9 ghetto fm was on call-in / text-in for greetings and music (frequency level of 43) this was followed by Call-in / text-in for expressing my view in specific programmes (frequency level of 16) Participation in the radio in section of personal confessions / experiences (frequency level of 15) being interviewed as a source of information by the radio (frequency level of 10). Giving feedback about quality of programmes (frequency level of 05). Personal visit to radio station (frequency level of 03). This implies that the community listeners actively participate in the activities of the CR except for the personal visit to the radio station and the giving feedback on the quality of the programmes.

The 99.9 ghetto fm board member further stated that the legislation (or lack of) that hinders their effectiveness in addressing EWM was the legislation on 5 km radius restriction on the area their CR covers.

“A community radio station should be allowed to broadcast to the whole of Nairobi, this will attract advertisers whose money can be used for initiatives such as street clean up or give incentives to the consumers to bring back their electronics facing the EoL.”

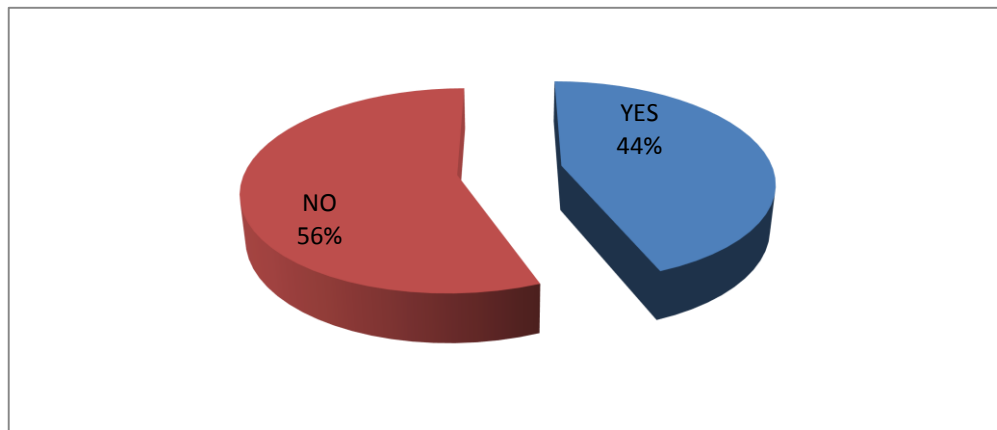
#### **4.6 How Factors Limiting Radio in Electronic Waste Management can be overcome.**

The third objective of this study was to establish how community radio limiting factors could be overcome to maximize community Radio Contribution in Electronic Waste Management

##### **4.6.1 Respondents Involvement in Program Making of CR Station**

The respondents were asked if they had ever been involved in program making of their CR station. The findings are illustrated below.

**Figure 4.6:** Respondents Involvement in Program Making of CR Station



Source: Researcher 2015

As per the findings, majority (44%) of the respondents agreed that they had ever been involved in program making of their CR station while 56% said they did not. This indicates that 99.9 ghetto fm doesn't involve majority of their listeners in program making.

#### **4.6.2 Respondents Willingness to Participate in Program Making of E-waste for 99.9 ghetto fm**

The respondents were asked if they would participate in making of a program on E-waste for 99.9 ghetto fm if approached. The findings are discussed below.

**Table 4.7:** Respondents Willingness to Participate in Program Making of E-waste for 99.9 ghetto fm

	<b>Frequency</b>	<b>Percent (%)</b>
Yes	66	95.0
No	4	5.0
<b>Total</b>	<b>70</b>	<b>100.0</b>

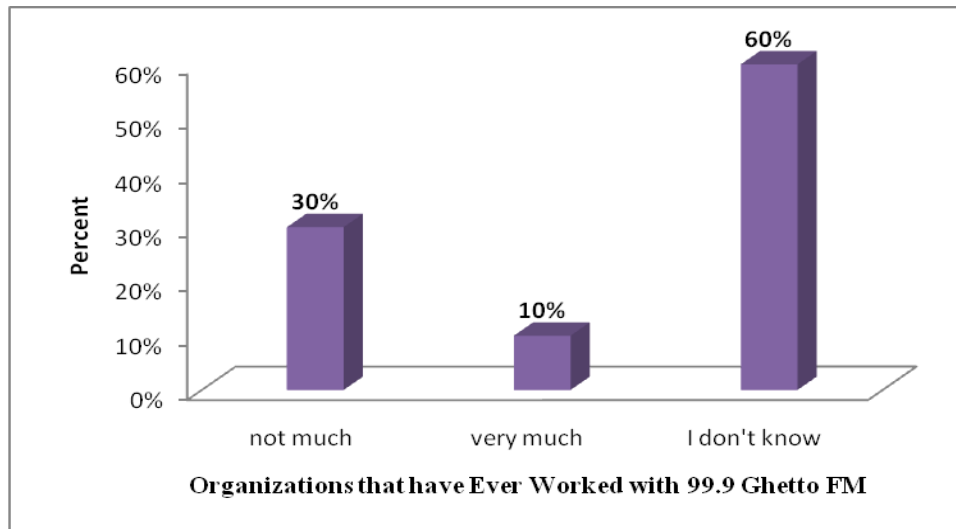
Source: Researcher 2015

According to the findings in Table 4.7 depict that majority (95%) of the respondents agreed that they would participate in making of a program on E-waste for 99.9 ghetto fm if approached while the remaining 5% said they would not.

### 4.6.3 Organizations that have Ever Worked with 99.9 ghetto fm

The study investigated whether there are organization/youth group/women group/ church/mosque ever worked/partnered with 99.9 ghetto fm. The findings are illustrated in Figure

**Figure 4.7:** Organizations that have ever Worked with 99.9 ghetto fm



Source: Researcher 2015

As per the findings, majority (60%) of the respondents did not know whether their organization/youth group/women group/ church/mosque ever worked/ partnered and the group benefitted in any project with 99.9 ghetto fm. 30% of the respondents said their organization/youth group/women group/ church/mosque worked with 99.9 ghetto fm but the benefit of working with ghetto FM was not so much. The remaining 10% of the respondents said their organization/youth group/women group/ church/mosque ever worked with 99.9 ghetto fm and the organization benefitted very much.

The KIIs also said CR has in the past been approached by organizations such as women groups to help solve e-waste management problems a small-scale level. With such organizations the CR took up joint cleanup initiatives. Additionally, according to the KIIs the CR has spearheaded e-waste management campaign(s) such as; Slum clean up exercise, street cleanup.

Area member of county assembly stated that “Most organizations that deal with waste management in Pumwani should be compelled to sponsor atleast one programme weekly to educate the public on e-waste.in other places where people congregate e.g. churches, the opinion leaders should encourage listenership of 99.9 ghetto fm programmes on e-waste.

#### 4.6.4 Benefits from Respondents Working with the Community Radio

The respondents were asked if they thought a local group working with benefitted from working/partnering with the community radio. The findings are presented in Table 4.8.

*Table 4.8: Benefits from Respondents Working with the Community Radio*

	<b>Frequency</b>	<b>Percent (%)</b>
Yes	4	5.0
No	28	40.0
Not sure	38	55.0
<b>Total</b>	<b>70</b>	<b>100.0</b>

*Source: Researcher 2015*

As per the findings, majority (38) of the respondents said they were not sure if local groups working with the community radio is beneficial, 28 of the respondents said working with a CR they had not (as a group) working with a CR is beneficial. 4 of the respondents said they had (as a group) benefitted from working with the community radio therefore working with the CR is beneficial. Therefore, very few of the respondents thought that local groups had benefitted from working with the community radio.

In relation to how factors limiting radio in electronic waste management can be overcome., the KIIs were of the opinion that to make CR in Kenya more effective in tackling EWM in Pumwani there should be more; awareness and support by companies, better pay for presenters and training of the same and partnering with NEMA.

## CHAPTER FIVE

### SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

#### 5.0 Introduction

This section of the study presents the findings, conclusion and recommendations based on the role played by community radio in promoting electronic waste management in informal urban settlements. After a thorough review of the research findings, summary of major findings and discussion were made with regard to the problems sought to be addressed by the research. The study was exploring the role played by community radio in promoting electronic waste management in informal urban settlements. Radio contribution in E-waste management, the challenges that limit the station in tackling E-waste and how the challenges can be overcome were investigated and summarized as follow:

#### 5.1 Community Radios' Contribution in Management of Electronic Waste in Informal Urban Settlements.

The contribution of 99.9 ghetto fm in E- waste management in Pumwani in relation to environment conservation in general was examined so that we can exactly know the CR's contributes in E- waste management.

##### *E-waste*

The study found out that e-waste is among the environmental challenges the community faces. Components of the inorganic waste stream that pose environmental problems include alkaline batteries and other toxic wastes. Spent batteries are commonly seen scattered about informal settlements as they represent a popular power source in the unserviced areas.

The most common form of e-waste the respondents have at home was phone parts followed by radio, television, air conditioners, camcorders, cameras, dishwashers, refrigerators and washing machines, computers, printers, fax machines and scanners. Most of these items are carried home from the high end estates that most inhabitants in informal urban settlements work. They hope that selling them or refurbishing them would earn them extra money.

The study enquired from the respondents the ways in which they consider e-waste to be a challenge in their community. From the findings, the respondents stated e-waste contents hazardous contains various such as, cadmium, mercury, beryllium, BFR, polyvinyl chloride and phosphor compounds.

Lead commonly found in car batteries exerts toxic effects on various systems in the body such as the central (organic affective syndrome) and peripheral nervous systems (motor neuropathy), the hemopoietic system (anemia), the genitourinary system (capable of causing damage to all parts of nephron) and the reproductive systems (male and female). This affirms what Mureithi & Waema found out that there is high accumulation of old ICT equipment in homes, offices and repair shops because the owners are not aware of safe disposal options and that information on how to discard E-waste is lacking right from the consumer to the final E-waste handlers.

### *Information Gap*

less than 5% of the listeners knew what e-waste is and the threat posed by E-waste This information was a preserve of key informants mainly policy makers at NEMA, WEE center and Nairobi county Environment ministry .The study found out that despite presenters having access to the internet and a library, they had scanty information on the subject, the station did not have a specific programme that informed the listeners on E-waste management .The subject was explored but within other main programmes.Majority (90%) of the respondents said they have never received information on electronic waste management while 10% said they had. This portrays that electronic waste management is not a commonly heard issue by the respondents. The few respondents who had received information on e-waste management said their main source of information was friends and television. NEMA had awareness initiatives according to the findings they used mainstream media such as Television .The exclusion of CR can be the reason the information they pass not reaching 90 % of the respondents in IUS.

Community radio on its part needs to bridge this information gap through programming but according to 100% of the listeners 99.9 ghetto fm doesn't have a specific programme on EWM. Jallo, 2012, argues that the program-content should address the people's needs and touch on all key areas such as elections, Women, conflict resolution, human rights and environment conservation.

In consideration of the levels of education and the physical environment the analysis revealed that, most (31.1%) of the respondents had completed primary education (class 8), 21.4% had attended secondary, 16% had completed secondary (form 4) education and 13% had completed tertiary college. 5.7% had attained a university undergraduate while 5.7% had completed tertiary college and no education .This contrasts with the analysis on the key

informants levels of education which revealed that, most (33%) of the respondents had attained University Undergraduate, 17% had completed tertiary college, 11% had a university master, completed secondary (form 4) and completed primary (class 8) each, the remaining 6% had no education each the finding affirms the knowledge gap hypothesis which states that Specifically, while people from all strata may learn new information as a result of a mass media campaign, those with higher levels of education are likely to learn more than those with low levels of education, and the informational gap between the two groups will expand.

Those who had attained higher education had a clue on what E-waste was but the research realized that majority of those who had completed secondary and primary education had difficulties defining e-waste yet they would comfortably name the e-waste found in their homes. Even though majority of those who had completed university knew about E-waste the information they had was scanty and limited .The researcher attributes this to interest. People will tend to know more on a topic they are well versed or they consider interesting, this is what Rogers says since diffusion of innovations takes place in the social system; it is influenced by the social structure of the social system. For Rogers (2003), structure is “the patterned arrangements of the units in a system” (p. 24). He further claimed that the nature of the social system affects individuals’ innovativeness, which is the main criterion for categorizing adopters.

To reduce the knowledge gap, the knowledge gap hypothesis says that this gap can be reduced through debates and choosing a platform for each social stratum, the organisations that can be termed as stakeholders in E-waste management stated that they have not worked with a community radio before yet they trust community radio stations. NEMA has a media and awareness campaign department that uses the internet, brochures and sponsorship of themes at school events as seen in the literature reviewed community radio rallied people to participate in development initiatives and social transformation In Community radio in Ghana (White G, 2007) observed Unlike public and commercial broadcasters, community radio has the mandate of intervening in the self-development initiatives of its community; has the mandate of involving communities in program making; and is mandated to remain politically neutral and nonprofit oriented (GCRN).

99.9 ghetto fm led the community to address these challenges by giving the local women group an interview and also supporting them in organising awareness campaigns. However the radio relies heavily on sponsorship hence the inadequacy of programs that talk about Electronic waste management.

#### *Role of the radio*

Community radio is important to the community because it creates awareness on what is happening around them and offers them a platform to air their views as well e.g. 99.9 ghetto fm brings community to consensus about action to tackle the problem by using opinion leaders to convey the message to the people .Additionally, the research established that majority of the respondents apply the message in the programmes by 99.9 ghetto fm radio by participating in initiatives commissioned by the CR, if for instance they are informing the public on the existence of a service they actually seek out the places they have been referred to. However the station has a challenge in selection of the topic to air. There are topics such as E-waste that have been identified as important and the existence as a major challenge yet this topics are given coverage considered inadequate.

Finally the CR has been involved in e-waste management campaign(s) such as; Slum clean up exercise, street cleanup. Accordingly, White (2011b) states that community radio, which is an appropriate tool in many ways, if well managed, can play a central role in mobilizing ideas of rural people for improvement of their lives. Similarly Govender et al., (2010) observed that an intensified sharing of ideas among people can culminate in greater participation of people in a common cause. It is helpful in the development process by their power to affect and change attitudes, thus helping in the adoption of new methods and techniques for development.

All this findings on the importance of 99.9 ghetto fm are what Mhaghama 2015 found out that Community radio can increase the opportunity for listeners to access and discuss crucial information necessary for the improvement of their livelihoods through the organization of listeners into community based group organized by community members themselves and uses radio programmes to facilitate development discourse within their own community. This provides a platform to discuss and unpack development conundrums (Manyozo 2012)

On the contrary, the research found out that the campaigns were initiated by a section of the community but not the community radio therefore going against the principles of community broadcasting in Bertolt Brecht's (1927, p. 2) argument, radio should not just be a tool of distribution but an active agent of social transformation in which the listener was allowed to speak and improving radio, to enable it to give a "truly public character to public occasions," which would "turn the normal audiences into teachers.

## **5.2 Factors Limiting Community Radio Contribution in Electronic-Waste Management**

The study found out that coverage of electronic waste on 99.9 ghetto fm was still low and needed improvement. These, the research attributed this to lack of partnerships with stakeholders and the station reliance on donor funding for its financial sustainability consequently the research established that financial constraints affected acquisition of skilled labour. Most presenters were untrained and often double as editors and producers of their programme. The staff have received no trainings on programming on Electronic waste management .They include 5 staff members who are full-time employees, namely; Kakaberu, David Mita, Collins Ananga, Odhis Odhat, John. 4 volunteers, namely; Ras, Emcee Piniton, Bunyali, Pastor Jeremiah. This contrasts with the USAID report that affirms that Pamoja Fm in Kibera has received grants in-kind from USAID and BBC World Service Trust to a tune of 19,000 USD worth of equipment, recognizing the positive role that the station played during the turmoil period (DAI USAID, 2008). The micro-finance group Jamii bora Trust is supporting a bi-weekly radio programme aired on Pamoja FM with sponsorship of 120,000 KSH

This concurs with Kamlongera (2001) who notes that in terms of training, formal training institutions such as universities and colleges have formal journalism and communication programs that do not offer specializations in radio for development or development communication.

Megwa 2005 also found out that CR regrettably do not have the technical capacity and financial resources to fully exploit and actualize these critically important development potentials. 99.9 ghetto fm activities are financed by donors mainly SIDAREC. Likewise, Manyozo (2007) notes that most rural and community radio initiatives are largely donor funded. Sourcing and purchasing broadcasting transmitters and equipment, transportation for broadcasters to make programs in communities, paying staff and volunteers, construction of buildings to house the stations, honoring electricity and water bills, as well as training staffers have largely depended on donor funding.

Despite that challenge however, according to the findings there was evidence that 99.9 ghetto fm current coverage on E-waste contained sufficient explanation on details and background, includes presentation of various opinions and considered the concerns of ordinary people and includes active participation of ordinary people. The station has sufficient technical capacity such as a community library but had inadequate material on E-waste.

The radio presenters determine what to air mainly from demand by the public. In addition, the station does not produce local drama on key issues affecting the community like Electronic waste. This, the research established, can be attributed to lack of a strategic plan. Sullivan (2007) avers that a radio station must have a clear strategic plan. Without a well-thought-out strategic plan and a well-structured way of producing and presenting programmes, the radio would find it difficult to achieve its objectives and thus unable to contribute to rural development. On the contrary, a strict schedule and fixed format limits discussions and hinders the presenter and the listeners from expressing themselves.

Whereas in other researches it is argued that some people mistrust the information from the community radio it was established that most of the respondents stated that 99.9 ghetto fm can be trusted to lead EWM initiatives since it reaches the people faster and effectively. Equally MISA (2003) note that community radio provides the means for cultural expression, community discussion, and debate; it is a practical and cost-effective means of reaching and connecting the world's poorest communities. Organizations dealing with EWM stated that they trust CR to lead EWM initiatives, ironically the factors these organizations consider before choosing a media platform to reach the audience i.e. Number of people that can be reached, coverage area of the station and exclude 99.9 ghetto fm from benefits of partnership with the said organizations.

The argument is that it will require many community radio stations in Nairobi to cover the whole city yet only one commercial radio station to reach almost everyone. The station has been approached by organizations such as local women groups to help solve e-waste management problems a small-scale level. With such organizations the CR took up joint cleanup initiatives but clearly big corporates and even government agencies shy away from the station.

NEMA and the Nairobi county Environment ministry are involved in other e-waste management initiatives which include; media awareness initiatives targeting consumers, recyclers, government, refurbishes NGO's and schools. They market these initiatives through printing brochures, organizing seminars, sponsorships of themes at schools drama and musical festivals. The cost of the initiatives ranges from 500,000 onwards annually. Community radio is overlooked yet the returns on using the platform would be higher and cheaper.

Majority of the respondents listen to 99.9 FM Ghetto. Those who do not listen to 99.9 Ghetto radio FM are committed elsewhere such as work places and this limits their listenership. The factors hindering increase of their radio listenership in Pumwani include; financial constrains manifested through constant moving of offices leading to loss of faith by listeners, competition from mainstream media and lack of their listeners' presence on social media. The station used social media contrary to Ohenjo & Githethwa (2014) observation that CR do not use social media it can be argued that the use of technology is supposed to increase the listenership of the CR but a look at 99.9 ghetto fm's the twitter handle and Facebook page showed lack of activity. The failure to engage the listeners online and the relevance of the social media platform needs further research. The researcher needed to clarify to a majority of the respondents that Ghetto radio is not 99.9 ghetto fm. This shows that 99.9 ghetto fm was facing stiff competition from a commercial radio station with a similar name thereby confusing listeners

The study established from one of the presenters that Local leaders interfere with their operations on stories touching on EWM if it portrays the leaders in the negative light they make threats. This is contrary to the definition of community radio by AMARC where a CR is supposed to be independent, but here it is covertly controlled by various powerful groups to serve their interests.

The study established that the CR involves and engages the community. The kind of participation some respondents have ever been engaged in on 99.9 ghetto fm was on being interviewed as a source of information by the radio, call-in / text-in for greetings and music, Call-in / text-in for expressing my view in specific programmes, Giving feedback about quality of programmes, Participation in the radio in section of personal confessions / experiences and but very few had made Personal visit to the radio station.

### **5.3 How Factors Limiting Radio in Electronic Waste Management can be overcome**

As per the findings, (44%) of the respondents agreed that they had ever been involved in program making of their CR station while 56% said they did not. The study established that Ghetto radio doesn't involve a majority of their listeners in program making. Majority of the respondents agreed that they would participate in making of a program on E-waste for 99.9 ghetto fm if approached. Therefore involvement of listeners can go a long way in helping the CR deal with electronic waste management.

Most key organizations in the field of E-waste have never worked with a community radio station before in as much as their organization policy on e-waste is to provide environmental protection from e-waste. This can be mitigated by organizations especially producers of E-waste providing financial, technical and educational support to the CR's. As per the findings, majority (60%) of the respondents did not know whether their organization/youth group/women group/ church/mosque ever worked/ partnered and the group benefitted in any project with 99.9 ghetto fm. 30% of the respondents said their organization/youth group/women group/ church/mosque worked with 99.9 ghetto fm but the benefit of working with ghetto FM was not so much

The suggested ways in which community radio can be helped deal with electronic waste management effectively were; there should be more; awareness and support by companies, better pay for presenters and training of the same and partnering with NEMA. Community radio on its part should create awareness about its role and activities to change the public's perception towards it. As per the findings, majority (38) of the respondents said they were not sure if local groups working with the community radio is beneficial, 28 of the respondents said working with a CR they had not (as a group) working with a CR is beneficial. 4 of the respondents said they

had (as a group) benefitted from working with the community radio therefore working with the CR is beneficial.

Technology can help community radio deal with EWM through research and reaching a wide audience. Myers (2011) says the Internet is a potential solution to the challenge of scaling up community radio so that voices of community radios can be raised at the national, regional, and international levels.

Increasing radio listenership and retention of the listeners is a solution to the CR's limitation in dealing with E-waste .To increase their radio listenership in Pumwani the following can be done; Restructure the content and playing interesting music.

There is over reliance of the station on donor funding therefore limiting it in its activities. The study established that there are other ways the CR can use to raise money. Other ways the station can raise money for its activities include; entrepreneurship, business, government funding. Supporting 99.9 ghetto fm to effectively deal with EWM can be done by partnerships in programme making

The findings depict that, majority (80%) of the respondents stated that they had applied the message in the programmes by 99.9 ghetto fm radio in their lives, 10% said they had not while 10% were not sure. This implies that the respondents are keen on the messages conveyed by 99.9 ghetto fm radio. The station can create quality programs to deal with EWM by researching on audience preferences. or funding EWM programmes and initiatives.

#### **5.4 Conclusion**

The study concludes that the gap in knowledge that exists and eradication of threat of E-waste can be bridged by 99.9 ghetto fm if well utilized. Because Community radio can be trusted to lead EWM initiatives since it reaches the people faster and effectively.

E-waste is an environmental challenge in the study area. The most common form of e-waste was phone followed by radio, television and house hold appliances. E-waste is a challenge in the community since it contains hazardous contents such as, cadmium, and lead compounds which are harmful to one's health and the environment.

The study concludes that The coverage of electronic waste on 99.9 ghetto fm was still low and needed improvement. 99.9 ghetto fm made an effort to lead the community to address these challenges However the radio does not air a program that specifically talk about Electronic waste management.

## **5.5 Recommendation**

### ***Recommendation on Policy Changes***

Recommendation on the policy changes are those recommendations which the researcher of this study thought could help community radio contribute in managing electronic waste in Pumwani IUS if embraced quickly by the authorities and residents. The suggested for this research were:

- i. There should be more; awareness and support by companies and government agencies, Telecommunication companies such as Nokia and safaricom through patnering with community radio. This will boost their take-back schemes which are either foreign or unpopular in IUS.
- ii. NEMA and the Nairobi county Environment ministry should help CR through training of presenters on how to use technology for research on EWM which would in turn spur audience involvement to deal with EWM.
- iii. 99.9 ghetto fm should increase their radio listenership in Pumwani the following can be done; Restructure the content and training of presenters ,developing work plans in line with the mission statement
- iv. The station should create other ways of generating income other than relying on donor funding. Other ways the station can raise money for its activities include; entrepreneurship and sourcing for corporate and government grants.
- v. The station should create quality programs to deal with EWM by researching on audience preferences regularly
- vi. Recycling should be encouraged for jobs creation and source for raw materials however the refurbishes and recyclers should be given training on safety measures.

### ***Recommendations for Further Research***

This research is recommendable as a best source of information to the future researchers of the related topic. It can help them design strategies which can help in eradication of reckless disposal of Electronic waste in people's inhabited areas as a means of environmental sustainability and human health related issues prevention.

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**APPENDICES**

**Appendix I: An Interview Guide for CR Manager/Board member/Workers.**

**INTERVIEW GUIDE**

**DEMOGRAPHIC INFORMATION**

**SECTION A**

1 Name .....

2 Age.....

3 Gender

Male

Female

4 Level of Education attained

5. Name of Organization

Designation

**SECTION B**

**How does Community Radio contribute management of electronic waste in informal urban settlements?**

1. What's the objective/purpose (mission and vision ) of your station?

2. How does your radio identify problems in the community?

3. Has your station identified electronic waste as a major problem?

3. if yes , What has your radio done in tackling electronic waste management?

4. How does it bring community to consensus about action to tackle the problem?

5. Has your CR ever been approached by any organization has approached to help solve e-waste management problems?

6. If yes In which ways did you partner?

7. Which e-waste management campaign(s) has your station ever spearheaded?

8. Do you have radio programs that specifically talk about Electronic waste management?

9. If what factors do you consider before designing the programmes?

## SECTION C

### **What Factors limit community radio contribution in electronic-waste management?**

1. How do you determine what to air?
2. Does your station produce local drama on key issues affecting the community like Electronic waste?
3. If yes, how many times per week is it aired?
4. In what ways do local leaders interfere with your operations on stories touching on EWM?
5. What are factors hinder increase of your radio listenership in Pumwani?
6. How many times in a week do you conduct community debates on EWM?
7. How much are community members involved in the making of radio programs?
9. How do you finance your radios activities?
10. Which trainings on programming about Electronic waste management have you and your staff attended?
11. How many staff members are full-time employees (names)?
12. Volunteers (names)?
13. Have you lost any of your best presenters to commercial stations?
14. Name organizations dealing with e-waste that your station works with.
15. What legislation (or lack of) do you think hinders your effectiveness in addressing EWM?
16. How independent of government, political party, or religious institution is your station?
17. How sustainable are activities of your station?
18. How do you monitor or evaluate the performance of the station?
19. How often do you research to determine the preferences of your audience? How do you do it?
20. Do you have a library for your presenters for research.
21. In what ways do you technology to reach a bigger audience

## **SECTION D.**

### **How can community radio limiting factors could be overcome to maximize community Radio Contribution in Electronic Waste Management?**

1. What do you think needs to be done to make CR in Kenya more effective in tackling EWM in Pumwani?
2. In what ways do you think technology can help community radio deal with EWM?
3. What can be done to increase your radio listenership in Pumwani?
4. What other ways can your station raise money for its activities?
5. How can your station do to create quality programs dealing with EWM?
6. What legislative initiatives through CR do you think can be enacted/implemented to help you deal with EWM?

#### **Conclusion.**

**Any general comments on community radio and Electronic waste management?**

**Appendix II: An Interview Guide for NGOS, Clergy, NEMA, RECYCLERS, County Government Officials.**

**SECTION A: DEMOGRAPHIC INFORMATION**

1 Name .....

2 Age.....

3 Gender

Male

Female

4 Level of Education attained

Name of Organization..... Designation.....

**SECTION B**

**Community Radios' contribution in electronic waste management in informal urban settlements.**

1. Which e-waste management awareness initiatives does your organization have?
2. How do you market these initiatives?
3. What is the cost of the initiatives?
4. Has your organization ever worked with a community radio station before?
5. If yes, what were the results?
6. In what way do you use community radio for awareness of EWM initiatives?
7. Do you have organization policy on e-waste?
8. What legislative backing on e-waste have you enacted/implemented through community radio?

**SECTION C.**

**Factors limiting community radio contribution in electronic-waste management.**

- 9.What is your understanding of a community radio station?
- 10.Do you think community radio can be trusted to lead EWM initiatives?
- 11.What do you consider before choosing a media platform to reach the audience?
12. How accessible is Ghetto radio to your organization?

## **SECTION D.**

**How can community radio limiting factors could be overcome to maximize community Radio Contribution in Electronic Waste Management?**

1. In what ways can you support 99.9 Ghetto radio to effectively deal with EWM?
2. What in your opinion is the place of technology in combating EWM?
3. What sources of revenue generation for Ghetto radio can you recommend apart from donor funding?

### **Conclusion.**

**Any general comments on community radio and Electronic waste management?**

### Appendix III: Questionnaire for Listeners

#### Introduction.

*“Good morning / afternoon.*

My name is Muluka Martin Joseph (K50/70008/2013), a master of Arts-communication studies student at the University of Nairobi. The main objective of using this questionnaire is to examine the relationship between community radio and electronic waste management in informal urban settlements. It is a case study of Ghetto radio in Pumwani. All the information will be treated confidentially and will further be used to draw conclusions to the objectives of this research project .Your information will not be used for commercial purposes.Your assistance will be highly appreciated. Your household has been selected for an interview. Would you be so kind to participate in this exercise and answer questions about your radio use? The interview will take between 30 and 45minutes.

<b>SECTION A. PERSONAL DATA .</b>
1.a)Name..... b)Exact location of Interview .....
2. Sex of Interviewee <input type="checkbox"/> Male <input type="checkbox"/> Female
3.Age of Interviewee.  <input type="checkbox"/> .....
4.Language: <i>What is your native language?</i> <input type="checkbox"/> Luo <input type="checkbox"/> Luhya <input type="checkbox"/> Kiswahili <input type="checkbox"/> Kisii <input type="checkbox"/> Kuria <input type="checkbox"/> Kikuyu <input type="checkbox"/> Kalenjin <input type="checkbox"/> Maasai  <input type="checkbox"/> Other: .....
5.Education

What is your highest level of formal education?

(Recorder: please mark the  with an x where appropriate, where other is mentioned please write it down verbatim)

- None
- Primary attended
- Primary completed (class 8)
- Secondary attended
- Secondary completed (form 4)
- Tertiary College attended
- Tertiary College completed
- University Undergraduate
- University Master
  
- Other: .....

### **6.Occupation**

What do you currently do? (please mark the  with an x where appropriate)

- Student
- Employee (worker, salaried, house help )
- Self-employed (farmer, businessman)
- Employed in family household (housewife, work for parents without salary)
- Jobless
- Other: .....

### **7.Socio Economic Status**

What is your economic status?

- A: In this household we do not have enough food every day
- B: In this household we have enough food every day and can buy clothes sometimes
- C: In this household we have enough food, clothes, clean water and electricity, but we sometimes struggle with school fees (for secondary school)
- D: In this household we have enough food, clothes, water, and electricity and we can always pay school fees (for secondary school).

**Socio Economic Status key.**

**A.** Eats at most a meal or two a day **B.** Eats at least three meals a day

**C.** Eats three meals a day, have enough changing clothes, tap water and electricity though fee payment is problematic

**D.** Affluent, usually have fridge, television set, and owns a permanent house

**SECTION: B Community Radios' contribution in electronic waste management in informal urban settlements.**

8. *Have you listened to GHETTO radio in the last 30 days?*

- Yes
- No

(If Interviewee doesn't listen to radio, we stop. We keep the interview but it doesn't count for the interviews in this location)

9. What environmental challenges does your community face?

10. What is e-waste? (*Write verbatim*)

11. what old/discarded electronics do you have at home?

12. In what way do you consider e-waste to be a challenge in this community?

13. Have you ever received information on Electronic Waste Management?

- Yes
- No

14. If yes, What was your main source of information on electronic waste Management in the community?

- a) Commercial Radio
- b) Community Radio
- c) Newspaper
- d) Television
- e) other(specify)...

15. In what ways has Ghetto radio led the community to address these challenges?

- A. Organising awareness campaigns.
- B. Coverage in news
- C. Petitioning leaders.
- D. Airing a specific program
- E. None
- F. Don't know
- G. Other.....

16. Which Ghetto program do you recall that deal with electronic waste management?

17. Do you think community radio is important to the community?

- a) Yes
- b) No

c)Not sure

18. If the answer is yes, in which ways is it important?

Name one of the Ghetto radio's program you like most.

14. What exactly do you like about these programmes?

15. What new thing did you learn from the program you listen to?

16. Do you apply the message in these programmes?

a)Yes

b)No

c)Not sure

17. If yes state briefly how you apply the message in your life

**PART C Factors limiting community radio contribution in electronic-waste management.**

18.How is the coverage of electronic waste on Ghetto radio

	<b>Strongly agree</b>	<b>Tend to agree</b>	<b>Tend to disagree</b>	<b>Strongly disagree</b>	<b>Don't know</b>
The coverage of this topic is satisfactory.					
The coverage lacks sufficient explanation on details and background					
The coverage misses presentation of various opinions					
The coverage misses active participation of ordinary people					
The coverage doesn't consider the concerns of ordinary people*					

\* coverage is not guided by the concerns of ordinary and poor people, does not cover their concerns

19.. Do you know of any organization that has sponsored a program on EWM on Ghetto radio?

a)Yes

b)No

20. If yes, What is the name of the organization?

21. Do you listen to Ghetto radio consistently?

a)Yes

b)No

23.

If no,why?.....

*What kind of participation have you ever engaged in on Ghetto radio?*

<b>Participation form</b>	<b>Yes</b>	<b>No</b>	<b>Don't know</b>
Call-in / text-in for greetings and music			
Call-in / text-in for expressing my view in specific programmes			
Giving feedback about quality of programmes			
Personal visit to radio station			
Participation in the radio in section of personal confessions / experiences			
Being interviewed as a source of information by the radio			
Other:			

**PART D. HOW FACTORS LIMITING RADIO IN ELECTRONIC WASTE MANAGEMENT CAN BE OVERCOME.**

23. Have you ever been involved in program making of your CR station?

- a) Yes
- b) No

24. Would you participate in making of a program on E-waste for Ghetto radio if approached?

- a) Yes
- b) No

26. If yes, how. 25.. Has your organization/youth group/women group/ church/mosque ever worked with Ghetto radio?

- a) Not much
- b) Very much

26. Have you (as a group) benefitted from your working with the community radio?

- a) Yes
- b) No

27. Precisely how has your group benefitted? 28. Suggest ways in which community radio can be helped deal with electronic waste management effectively