

THE ROLE OF NATIONAL RADIO IN SOLID WASTE MANAGEMENT IN JUBA:  
A CASE STUDY OF SOUTH SUDAN RADIO

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## DECLARATION

I, Garang Kuol Gabriel declare that this project is my own work and it has never been presented to any other University for any academic certificate or anything similar to such.

Signature -----

Date -----

**Garang Kuol Gabriel**

K50/69510/2013

## APPROVAL

I certify that Garang Kuol Gabriel carried out this research under my supervision and submitted it with my approval.

Signature -----

Date -----

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God be with you

## **DEDICATION**

This research project is dedicated to:

My beloved wife Deborah Achol Ajang and My Children;

Cecilia Amou, John Garang and Jairus Deng for their unforgettable lenient and support they rendered to me during my studies epoch.

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## **ABBREVIATIONS AND ACRONYMS**

<b>CES</b>	Central Equatoria State
<b>CPA</b>	Comprehensive Peace Agreement
<b>FGD</b>	Focus Group Discussants
<b>JICA</b>	Japan International Cooperation Agency
<b>KII</b>	Key Informant Interviews
<b>MO</b>	Moral Orientation
<b>NEMA</b>	National Environmental Management Authority
<b>SPLA</b>	Sudan People Liberation Army
<b>SSR</b>	South Sudan Radio
<b>UN</b>	United Nations
<b>UNEP</b>	United Nations Environment Programs
<b>UNICEF</b>	United Nations International Children's Emergency Fund
<b>USEPA</b>	United States Environmental Protection Agency

## DEFINITION OF THE TERMS

### *National radio*

National radio which is also known as public radio is a State-owned radio which its waves cover the whole country with its programs being broadcasted using national language (s) as per the constitution.

### *Waste*

The word waste has several definitions; Mugambwa (2009) defined it as “a material or substance which a person has considered useless at any time and place. UNEP also defined it as any object or substance intended or is needed to be disposed according to the national law.

### *Solid Waste*

Solid waste or garbage according to NEMA (2007) refers to “organic and inorganic waste materials produced by households, commercial, institutional and industrial activities that have lost value in the sight of the initial user”.

### *Waste Management*

According to Mugambwa (2009), waste management refers to the “collection, transportation, processing, recycling or disposal of useless material.”

### *Media*

Media are channels use to disseminate messages or information to the audiences. Among them is radio, television, news papers, books etcetera.

*Izaa Junub*

Izaa Junub is an Arabic word meaning South Sudan Radio (SSR).

*Payam*

Payam is a south Sudanese word meaning sub-division under County; the sequence runs as follow: Country → State → County → Payam → Boma.

## **ABSTRACT**

The intention of this study was to explore the role of national radio in solid waste management. Its specific objectives were: to examine how radio helps in solid waste management in Juba; to establish the extent and form of public participation in solid waste management in Juba; to establish the effectiveness of the communication methodology adapted by South Sudan Radio towards solid waste management in Juba; And lastly, to find out the impact created by radio on people's beliefs, attitudes and behaviors towards solid waste management in Juba. Diffusion of Innovation theory and social mobilization were used and they were found relevant in solid waste management campaign in Juba. A conceptual frame-work was designed to illustrate the impact of national radio campaign on people's behaviors, attitudes and beliefs. A mixed methods research design was used; questionnaires were administered randomly to Juba residents and interviews were purposively done to the Key Informants as a means of the generating both Primary and Secondary data. The research revealed that overcrowding of the city plus manufacturers and industries operating in Juba were considered the main causes of solid waste in the City. Subsequently, poor collection exercise of solid waste by the City Council was also having hand in filthiness of the City and the reckless disposal of the waste by the residents was also being blamed. Regardless of the effectiveness of South Sudan radio in the fight against garbage in Juba, "My Waste My Responsibility" was the conclusion. However, integrated waste management approach and regular dissemination of the environmental awareness messages to Juba residents were highly recommended as means of curbing solid waste in the City.

# CHAPTER ONE

## INTRODUCTION

### 1.0 Introduction

This chapter covers the background, statement of the problem, study objectives, research questions, justification, scope and the significance of the study on role of radio in solid waste management in Juba City, South Sudan.

### 1.1 Background of the Study

Solid waste management has become a major problem facing almost all the developed and the developing countries across the world. The rise in population, urbanization and consumerism globally is being blamed of solid waste generation. According to UNEP (2009), the issue of solid waste management is infuriating because there are numerous sources generating solid waste across the globe, the amount of solid waste generated globally per a year is estimated to have increased by 8 percent. Therefore, much effort is needed to be applied even if authorities around the world work concertedly in tackling solid waste and its related issues.

Juba the capital city of the world's youngest Nations is the nastiest of all cities worldwide in term of solid waste management (UNEP, 2007); some cartridges and other remains of the last 21 years of the civil war between the North and South Sudan are still latent on the grounds in the City. Consequently, the City turned to commercial centre right after the signing of Comprehensive Peace Agreement (CPA) in 2005. According to the Census of 2009, Juba City was inhabited by 375, 000 while the recent report made by the United Nation (UN) estimates the population living in Juba to have reached over million

because majority of people left their own States, Counties, Payams (*Sic*) and even foreigners from our neighboring countries to come and run their businesses in the City.

This study focused on the role of national radio in solid waste management in Juba with South Sudan Radio (SSR) which is also known as *Izaa Junub (Sic)* in Arabic as a case study; this because South Sudan Radio is the only national radio in the Country and it's reliable. And all over the world, radio is deemed as the fastest, affordable and the best means of disseminating information to the dispersed heterogeneous population because it is flexible and it can cover a wide range of area.

Solid waste as a variable in this study is defined by Medina (2000) as materials generated from human activities in areas such as shops, hospitals, offices, streets among others. NEMA (2007) also defined it as an “organic and inorganic waste materials produced by households, commercial, institutional and industrial activities that have lost value in the sight of the initial user”. Solid wastes in Juba comprise plastic bottles of water, canes and plastic sodas, cartridges etc. “Waste management” is a collection, transportation, processing, recycling or disposal of useless material (Mugambwa (2009). In Juba the capital city of South Sudan, solid waste disposal is done randomly.

However, people and local authorities in Juba have low opinion on solid waste management given the obligation of waste collection, transportation and its disposal. The authorities fail to encapsulate the waste generated sources and even to show the public some specific area(s) of solid waste dumping. The Centre for International Media Assistance (2009) stated that, it is the role of independent media to provide the public with accurate and

high quality environmental news on how the citizens themselves can fulfill the environmental needs.

## **1.2 Statement of the Problem**

The reason of conducting this research (solid waste management) was that; people who are living in Juba dispose solid waste randomly in the City with others disposing them into River Nile which is the main source of water supply to the people living in the area. Consequently, the presence of garbage ubiquitously in the city has undermined Juba from the state of being the capital city if compared to the rest of the cities across Africa and the world at large. In addition, garbage is hazardous to human lives especially those wastes generated from the hospitals. Mismanagement of such waste may cause or increase human tribulations such as diseases in the area. According to USEPA (1993), garbage should be treated with care because it is very difficult to reverse its negative effects on human life and on environment. As a result, this research investigates the effectiveness of the State owned Radio (South Sudan Radio (SSR) in combating reckless disposal of solid waste in Juba.

According to Novacek (2008), the effective linkages between scientific, conservation community and the public must be achieved through media in the form of news and educational programs dissemination because environmental conservation, education and awareness are considered as concrete solutions in halting conflict between human and nature. The Canadian Environmental Grant-makers network (2006) believes that, solving of environmental problems facing humanity needs a communal effort from the general public regionally, nationally and international plus effort from the media because mass media is



considered as an indispensable partner in global biodiversity conservation and management of solid waste worldwide.

### **1.3 Objectives of the Study**

Objectives in research refer to specific aspects of the phenomenon under study that the researcher desires to bring out at the end of the research study.

#### *Main Objective*

The main objective of this study is to explore the role of national radio in solid waste management in Juba.

#### *Specific Objectives*

- 1) To examine how radio helps in solid waste management in Juba;
- 2) To establish the extent and form of public participation in solid waste management in Juba;
- 3) To establish the effectiveness of the communication methodology adapted by South Sudan Radio towards solid waste management in Juba;
- 4) To find out the impact created by radio on people's beliefs, attitudes and behaviors towards solid waste management in Juba

### **1.4 Research Questions**

The overall research question guiding this research is; what is the role of South Sudan Radio in solid management in Juba? The specific research questions are as follow;

- 1) How does South Sudan radio help in solid waste management in Juba?
- 2) What role do people play in solid waste management in Juba?

- 3) How effective is South Sudan Radio's communication methodology in solid waste management in Juba?
- 4) What are the impacts created by South Sudan Radio on people's beliefs, attitudes and behaviors toward solid waste management in Juba?

### **1.5 Justification**

The reason of conducting this research was that Juba city is the nastiest of all cities in the world (United Nations Environment Programs, 2007). The presence of garbage ubiquitously in the City has degraded Juba from its position of being the capital city. The remains of the last 21 years of civil war between North and South Sudan such as cartridges are still resting on the ground. Consequently, people dispose garbage erratically in the city without even being worried of their health and some other issues that may rise from irresponsible disposal of hazardous wastes such as burning of solid waste, landfills, rodent and odors which are the common issues in the developing countries threatening the health of residents (UNEP, 2007).

The importance of this research was to explore the effectiveness of South Sudan Radio (SSR) in solid waste management in Juba in relation to environment conservation in general. Its aim was to find out the role of national radio (South Sudan Radio) in solid waste management in Juba South Sudan for there was mismanagement of solid waste in the city and media is a valuable tool in disseminating educative messages which can change people's negative attitudes and behaviors towards environment sustainability.

The research will be helping policy-makers to design strategies that will aid them in eradicating unsystematic disposal of solid waste in the future. It will also encourage South

Sudanese to listen to radio educative programs in South Sudan. Moreover, the findings of this research will be of benefit to future researchers pursuing related topic for the purpose of their references.

### **1.6 Scope of the Study**

This research was carried out in Juba the Capital City of the Republic of South Sudan. The City is situated in Central Equatoria State (CES) and it has covered an estimated area of around 52km<sup>2</sup> as per Japan International Cooperation Agency (JICA) report of 2009. The study took a period of four months from April to August 2015 investigating the role of National Radio in Solid Waste Management in Juba with South Sudan Radio (SSR) as a case study.



Figure 1: Map of the Republic of south Sudan  
 Source: [GraphicMaps.com](http://GraphicMaps.com)



**Figure 2:** Map of Juba with its residential areas (Estates) of Juba.  
**Source:** [www.mapsofworld.com](http://www.mapsofworld.com)

## **1.7 Limitation**

Amongst the limitations encountered by the researcher in the field was the instability or insecurity in the City due to flare-up of December 15, 2013 war in the Country. The conflict has caused most of the indigenous residents of Juba fled the City and took refuge in the neighboring Countries. This had limited the researcher from getting some of the right people to answer the questionnaires. Nevertheless, lack of finance was also another issue; it had hindered the researcher from touring the whole City covering all the relevant information from all credible sources.

## **1.8 Summary**

This chapter looked at the background of the study from its global perspectives to its standpoint of Juba city. Furthermore, the statement of the problem had also been covered; general and specific objectives of the study were addressed as well as research questions, justification, scope and limitations of the study plus the two maps (the Republic of South Sudan and the Juba city map).

## CHAPTER TWO

### LITERATURE REVIEW

#### **2.0 Introduction**

This section covers the national radio and its role in development, national radio and its role in solid waste management, public participation in solid waste management, communication methodology and impact of national radio on peoples' behaviors, attitudes and beliefs. Diffusion of Innovation and social mobilization are used as theoretical framework. The conceptual frame-work has also been used to demonstrate the impact of repeated radio campaign on its audiences.

#### **2.1 National Radio and its Role in Development**

National radio is a government or State-owned radio which it waves covers the whole country with programs being broadcasted in national language stipulated in the constitution. Its core purpose is to serve the general public regardless of their ethnicities, religious, identities among others in a way sought by the government in power as best. In this new era of mass communication government radios are best known of their fairness and variety of programs they disseminate. They play lot of informative and educative programs which are raising public awareness political and socio-economic issues and how they can be tackled by people this is because national development (Dominick, 2005). However in developing countries, government owned radios are turned to be tools of propaganda, mouthpieces for the government policies and actions for the ruling party.

South Sudan Radio is an Amplitude Modulation (AM) kind of radio that its waves cover the whole country and is being owned by the Sudan People Liberation Movement

(SPLM) which is the current ruling party. The radio has varieties of programs being aired in English and Arabic. It sensitizes and raises public awareness about environmental challenges etcetera reason being that people gain and benefit through educative environmental programs. And whenever they have understood or learnt how their activities affect the environment, they can easily take on the responsibility of environment conservation and restoration as part of the national development (Mukharji, 2004).

## **2.2 National Radio and Its Role in Solid Waste Management**

This brings us to the question that; Do radio have role in solid waste management? Indeed yes, radio plays crucial role in solid waste management. Janowitz (1969) argued that mass communication as a technological means of reaching heterogeneous audiences by using devices such as radio to spread the environmental information, education works better in different parts of the world as an alternative solution to an environmental problems at hand.

Singhal and Rogers (1989), stated that media play crucial role of disseminating relevant environmental information which offer solutions to environmental issues and possibilities about suitable novelty because environmental awareness helps in conservation and sustainable development. Millar (2012) also stated that “media houses are useful tools for the promotion of sustainable development and campaign for social change.”

McDonald (2004) and Ura (2006), believed that devices such as radio raise people’s consciousness about how people can manage the garbage. In this modern era of technology, the progress in telecommunication networks have improved the work of mass media to cover distances faster availing environmental news to people around the globe to



achieve their ultimate goal of conserving the surrounding to suit their favorable living standard. It seems that media in South Sudan is not offering enough educative messages on environmental sustainability that's why garbage can be still seen all over the places in Juba yet South Sudan Radio was initiated in 2006. According to Alahari (1997) report, he stated that what bothers most of the communication researchers is not the effect of mass media on people but its latent functions of bringing positive impact on our social life that help us to achieve our national development. Hagen (1962) prioritized the need of modernization as a special need in development of the third world countries which he believes can be achieved through expansion of the media and its programs. Consequently Lerner (1958) believe that the correlation among urbanization, modernization and communication should be considered as a crucial step forward in enhancing media potentiality of its exposure which leads to the boost of economic and political partaking.

Fleur and Lowery (1988) argued that, development came as a result of modernization and the expansion of mass communication. This development is accompanied by environment conservation because whenever people understood the essence of the environment management, the wholesome development is easy to be achieved while the people residing in Juba are the die hearts of businesses which do generate a lot of solid waste which they have no interest to manage it at the same time, this made the surrounding in Juba untidy. Although media has placed much emphasis on development educative programs such as environmental campaigns (Prasad, 1999). People pay less attention to listening to radio programs while the rest who have actually listened to those environmental educative messages poor in implementing environmental sustainability.

### **2.3 Public Participations in Solid Waste Management**

There are numerous factors considered to have contributed to the increase of the solid waste in the developed and developing countries such as rapid urbanization (UNEP, 2007). The expansion of towns in term of socio-economic activities, infrastructures and industrializations lead to the rise of the population in the urban centers and definitely the increase in population result to high demand of consumable and commercial materials which can act as main sources of solid waste generation. The question is; what is the role of public participation in solid waste management? Public is considered to have a major obligation in solid waste management in diverse ways. Tsai (2007) stated that, if the society has the will of working together, indeed they have permitted opportunities for creativity and innovation of solving the waste problem. Tsai emphasis is on mutual understanding and team work in addressing environmental issues because if people work together, they can easily tackle their problems at hands for instance, solid waste management. Therefore, it's public responsibility to join hands in solid waste management yet the people in Juba have negligence on solid waste management.

Bournay (2006) argued that solid waste can also be generated as a result of “manufactured products which are not easy to be decomposed such as plastics, metal among others.” This is because in the Capitalistic world, manufacturers package their products according to the need of their clients and these packaging sometime may not be friendly to the environmental needs. So here, it is up on the consumer and other authorized authorities to collect and decompose the useless remain of objects and for sure in Juba most of the solid waste available are canes of soda, beer, and plastic bottles of water because of high importation of beer and soda from our neighboring countries such as Kenya, Uganda and

Sudan. In addition, the water factories within Juba are also producing a lot of plastic bottles and people throw them anyhow after use. This is not very different from what Bournay (2006) said that rich countries should be blamed of distributing or exporting wastes to the developing Nations.

Chung and Poon (2001) also say that, avoiding or reducing of waste is much easier than recycling and disposal. One of the major problems being faced by the developing countries is the importation of the second-hand materials from the developed States. These outdated materials when imported in large volume, some of them remained unused and these may end up as wastes. In this case South Sudan ports entry authorities must take heed of the goods entering the country, goods which their expiry date is almost should not be allowed to enter South Sudan for they can quickly expire and end up as solid waste.

Minimizing solid waste is considered to be one of concrete solutions to the environment crisis in the developing countries. According to Barr (2004), he argued that solid waste management should not be considered as a role of products producers alone but should be considered as a communal duty of the general public. Read et al., realized that local government now days are very punctual in encouraging means of managing solid waste.

According to the research conducted by Bekin, Carrigan and Szmigin, they have found out that the level of solid waste management in the communities that are practicing growing of consumption items such as vegetables and fruits have reduced (Bekin et al., 2007). Bekin et al. also believe that solid waste management can also be achieved if the community has control over items they produced and consume (2007). Consequently, Read

et al. agreed that it is through embracement of concentrations from both the public and private sectors that solid waste should be minimized despite the financial constraints (Read et al.1998). Bakin et al. (2007), further stated that people should buy second-hand items as a mean of reducing waste for recycling use this is because when there is re-use of items, there will be less disposal of wastes and the people in Juba have low opinion on buying the second hand materials, the only go for the brand new things. This actually has led to accumulation of solid waste in the city.

Tsai (2007), argued that, social capital play a major role in solid waste management because it offer chances to people to form a meaningful world with a clear vision when there is a collective effort concentrated together. He further claimed that “households living in a region with a higher degree of social capital are more likely to work against opportunism and participate in waste management.” Tsai further believes in the spirit of waste recycling as a perfect means of solid waste management, to him waste recycling is a viable way of achieving a sustainable development and a favorable environment (Tsai, 2007).

Yadava (1994) believed that, for a certain community to realize development, then it is necessary them first to define the specific objectives of the program they are about to undertake and make sure that communication obligations like inputs of achieving the development are in place. Lein (2003), development can be realized if there are integrated plans toward the environment conservation. These plans should be given rooms in recognizing the environment as an entity of worthy preservation. And the need for public consciousness and participation is imperative because it inculcates a predisposition of environmentalism via mass media such as radio (Dey, 2002). However in the developing

countries, there are insufficient resources and infrastructures to aid the management of solid waste. This sometime entails to improper disposal of waste and in most cases, some waste remain uncollected (UNEP, 2007). South Sudan as a new State is weak financially although the country has a lot of resources that can solve its issues; the country has been lacking stability since the independence. As a result, South Sudan pays less attention to its internal issues including solid waste management then the external aggressions.

## **2.4 Communication Methodology**

Communication methodology is a designed strategy agreed upon and should be followed by the station during the dissemination of programs. South Sudan radio is accustomed to Entertainment-education methodology. Edutainment is one of the communication strategies use to disseminate information through media. The methodology was originally developed in Mexico in the mid-1970s and it is today being used by both developed and developing countries as a mean of spreading development communication messages. Credit has been given to Edutainment on radio programs for it inculcate new changes in peoples' behaviors and attitudes towards specific idea such solid waste management. Edutainment offer push to those already predisposed to act in different ways Freedman (1997) and Zimicki et al (1994).

Singhal and Rogers (1999) stated that, Edutainment is a way of framing and executing media information to both entertain and educate the audiences in order to increase the knowledge about an issue at hand and to change peoples' behaviors and attitudes. In this modern time people are exposed to entertainment so most of the important educative

messages of the current days should be accompanied by music as a mean of easy capturing their minds thus why South Sudan Radio is applying this methodology.

South Sudan Radio adopted Edutainment methodology as a strategy of disseminating information to its wider public in the country. Base on this strategy, imitation and influence are the expected result of the campaign. According to Bandura (1994); Maibach and Murphy (1995), edutainment is not a theory but a communication methodology of passing effective messages in a combined form of entertainment and education.

## **2.5 Impact of Radio on People's Beliefs, Attitudes and Behaviors toward Solid Waste Management**

Mass media in the current world play a major role of bringing people together around the universe. This has enable people to share some educative information that help them build up their surrounding environment in a suitable manner that fit human life. Different societies adopt changes as per what they see and hear from the media. These changes are not limited to socio-economic activities, political matters and the world's environmental issues. The question is, does really have the capacity of changing beliefs, attitudes and behaviors? The answer is yes, According to Makali (2003), the media have powers to control and direct people's beliefs, attitudes and behaviors through direct appeals toward a specific objective via information that circulate daily among the people. It is believed that, with the help from South Sudan Radio, people in Juba will change their attitudes and behaviors toward the environment conservation.

Consequently, Media are important social institutions which fight against negative attitudes and the process of persuasion, or attitude change, by receiving information or

messages from the media can be achieved in series of discrete steps in different individuals. This is however the case where media are regarded effective for they genuinely concern with raising public awareness about the environment problem; its causes, consequences, and possible remedies. Beyond raising awareness, media also advocate and mobilize the people toward environmental sustainability: McGuire, Lindzey, and Aronson (1985).

According to McLuhan (1964), communication with the help of mass media has made the globe into a small village thus brings different cultures and communities together at a time. Information and communication have emerged as rim among mass media, people and their cultures have been considered by many scholars as the subject of investigation: Lerner, (1958); Hagen, (1962); Schramm, (1964); Rogers and Shoemaker, (1971); Roger, (1986); Alahar, (1997) and McDonald, (2000). South Sudan is a multi Tribe State which consists of 64 tribes and all these tribes are represented in Juba. South Sudan Radio as the only state owned radio is trying its best to deal with the diverse cultures of the Country's 64 tribes toward environment sustainability through solid waste management.

## **2.6 Theoretical Framework**

This research used the Diffusion of innovation and Social mobilization; the applicability of these theories in this research is that, Diffusion of Innovation highlights how the new idea spreads from the source (innovator) to the target audiences using any special medium of communication such as radio, television among others for people's daily information. Social mobilization deals with empowerment so that people can solve their problem by themselves.

### *Diffusion of Innovation Theory*

Diffusion of innovation theory was found by Rodger in 2003. This theory emphasizes that, “innovation spread through certain channels over time among the members of social system”. According to this emphasis, spreading of new innovations require communication, time and social system or target audiences that the message should be diffused to. In this regards, audience in Juba receive their environmental news from South Sudan Radio.

Diffusion of Innovations has been approved as a perfect model in spreading innovation: Sherry and Gibson, (2002). Dooley, (1999) and Stuart, (2002) recommended this model as a theoretical frame-work that work best in many disciplines such as political sciences, communications, and education and in environmental issues among others. This model (the diffusion of innovation) is the most effective theory for investigating the degree of adoption of technology higher education and educational environment; Medlin, (2001) and Parisot, (1995). Rodgers considered technology as “a design for instrumental action that reduces the uncertainty in the cause-effect correlations involved in achieving a desired outcome.” Due to emergence of South Sudan Radio right after the signing of the Comprehensive Peace Agreement between the North and South Sudan in 2005, Juba is improving environmentally as compare to those years back. This shows that radio is strong weapon when coming to environment management.

### *Social Mobilization*

Social mobilization model is the way of bringing together all the social allies to raise people’s awareness regarding one particular development program; it helps in mobilization of resources, community participation for sustainable development: Wallack,



(1989). Base on the definition given by the United Nations International Children's Emergency Fund/UNICEF (1993), social mobilization deals with a comprehensive planning approach concerning political and community action. South Sudan Radio is a national radio, its main focus is to focus attention on government issues and national development programs such as solid waste management in the City and the rest of towns countrywide.

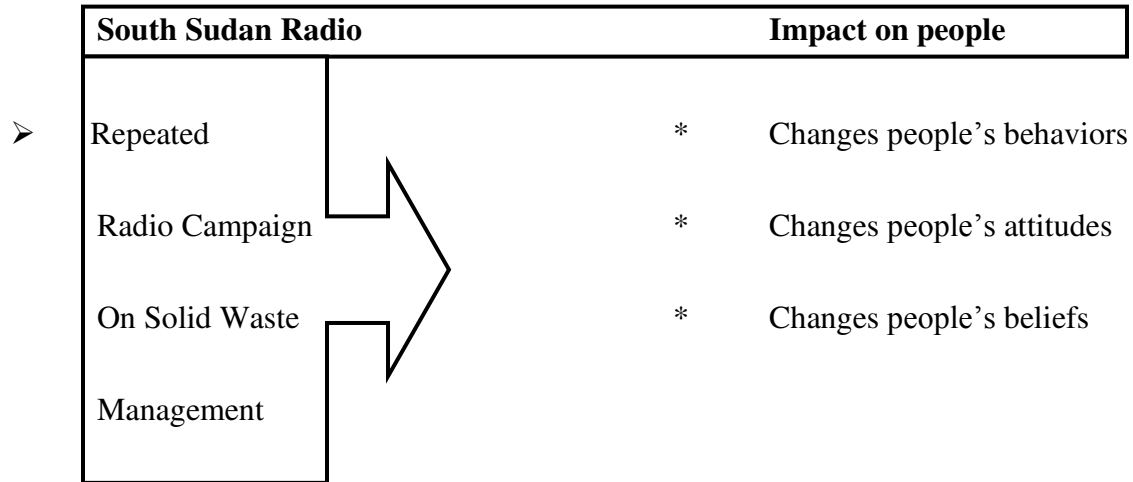
According to Thompson and Pertschuk (1992), mobilization had been defined as the process through which people in the community identify the problem and design strategies to be followed in addressing that particular problem. The key issue in Social mobilization is the empowerment for people to offer solutions to the problems facing them, Minkler (1990). South Sudan Radio is striving to educate Juba residents on how to manage solid waste in the city.

Mckee (1999) argued that, social Mobilization programs require communal effort from both the government and civil society to come together and evaluate the development program objectives and procedures of attaining the desired innovation. Social mobilization is the "glue that binds advocacy activities to more planned and researched communication programs activities" Mckee. South Sudan Radio messages bind the Juba residents together to combat the issue of solid waste management in the City.

## **2.7 Conceptual Frame-work**

This conceptual frame work conceptualizes the impact of South Sudan Radio's Educative programs on Juba Residents. The portrayed frame work below shows how the radio repeated campaign on innovation spread from the source through channel to the

recipients and how the power of radio transforms peoples’ attitudes, behaviors and beliefs towards the intended development.



**Figure 3:** South Sudan Radio campaign and its impact on people

## 2.8 Research Gap

After a meticulous scrutiny of the literature of this research, two gaps were identified: the *Communication gap* as a result of ineffective communication and *Implementation gap* due to lack of participation from the audiences. Media as a valuable tool of fostering development in both developing and the developed countries is regarded as the fastest mean of information dissemination. Singhal and Rogers (1989), stated that media play a crucial role in disseminating relevant environmental information which offer solutions to the environmental issues and possibilities about suitable novelty because environmental awareness helps in conservation and sustainable development. Millar (2012) also stated that “media houses are useful tools for the promotion of sustainable development and campaign for social change.” In South Sudan, this research will be the first of its kinds since the Country gained her independence. The research is going to bridge the gap that

exists; “the Role of National Radio in Solid Waste Management” to painstakingly investigate its effectiveness in solid waste management in Juba.

## **2.9 Summary**

In this entire chapter, the literature on national radio and its role in development, national radio and its role in solid waste management in global perspective and local point of Juba city were reviewed. Consequently, the form and extent in which the public participate in solid waste management was also looked at. Furthermore, Edutainment communication methodology and the impact of national radio on people’s behavior, attitudes and beliefs were as well reviewed. Diffusion of Innovation and social mobilization theory were used as well as conceptual framework to illustrate the impact of national radio campaign on people’s behaviors, attitudes and beliefs.

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.0 Introduction

This chapter focuses on the research methodologies that the researcher applied in gathering of both primary and the secondary data, research design (mixed methods), target population, sample size and sampling technique, instruments, data collection procedures, data analysis technique, validity and reliability.

#### 3.1 Research Design

A research design is the element use to structure the research, to show how all the major parts of the research project such as sample or group, measures, treatment or programs and methods of assignments are designed to address the central research questions while a design is the arrangement of condition for collecting and analyzing data in a manner that aim to combine relevance to the research purpose with economy in procedure (Kothari, 2004).

This study used a mixed methods research design; a mixed methods research design is a collection of both quantitative and qualitative data in a single study to understand a research problem being studied. This design deemed appropriate for this study because the study sought to gather information from Juba residents and from the subject key informed people such as Juba Mayor and other experts. As a result, questionnaires constructed with close-ended questions were administered to Juba local population who had access to South Sudan radio as a means of collecting quantitative data while qualitative data or information from the key informants were collected using interviews premeditated with open-ended questions to complement the information generated through survey.

Moreover, despite the numerous types of mixed methods research design, this study paid attention to explanatory mixed methods research design. An explanatory mixed methods research design places emphasis on quantitative data first, followed by qualitative data which are used to refine the results collected through survey. The information on questionnaires provided by the respondents were first collected and later complemented by the information generated through interviews from key informants and focus group discussions.

#### *Quantitative Method*

This is a kind of research method that deals with investigations that seeks casual determination, prediction and generalization of findings via statistical measures (Hancock, 2006). Quantitative approach was based on questionnaires which were administered to Juba residents in order to provide their opinions in regard to the research questions. Survey determines the reports the way things are. Descriptive research design is a process of collecting data in order to test hypotheses or research questions with the help of research objectives, method of data collection, sample and analysis of the results in regard to the study being conducted (Mugenda, 2003).

#### *Qualitative Method*

Qualitative research is a non-numerical analysis; generally limited to nominal variables such sex, race, religion which normally requires interpretation of the data (Hancock, 2006). Qualitative research was based on in-depth interviews using open-ended questions to generate ideas from South Sudan Radio manager, Juba city Mayor, Health personnel, civil society Activist and Environmentalist to provide their knowledge, understandings, and roles and beliefs on solid waste management in Juba. This enabled the

topic get richer and clearer responses which complemented the questions from the quantitative research method.

Focus Group Discussants was used: according to Dominick and Wimmer (1985), Focus Group is defined as the collection of data from two or more individuals at the same time with Facilitator guiding the participants in the topic of discussion. The study used Focus Group Discussants (FGDs) and the Key Informant Interviews (KII) to aid the researcher collected the relevant information regarding the research questions from the research population. Key informant Interviews and some discussions facilitated by the researcher were held about the topic as means of getting relevant information to enrich the subject.

### **3.2 Population**

According to Mugenda (2003), population refers to an entire group of individuals, events or objects having a common observable characteristic. It can also be defined as the aggregate of all that forms a given specification. Regardless of Juba city being over populated, the population of this was categorized into two: Survey and Qualitative population. The Quantitative (Survey) population was audiences of South Sudan radio who were residing in Juba while the qualitative population includes: the City council workers, South Sudan Radio Employees, Health workers, civil society, Environmentalists in Juba who had access to South Sudan Radio programs and had knowledge in solid waste management in Juba.

### **3.3 Sample Size and Sampling Technique**

#### *Sample size*

Sample size is a total number of individuals that the researcher is going to obtain the research information from. These people act as representative of the whole population being studied. This research used a sample size of 80 people: Eighty questionnaires were administered to the local residents of Juba who had access to South Sudan Radio. In regard to the qualitative data, Key Informants Interviews were conducted to people such as the Juba city Mayor, South Sudan Radio Manager, Environmentalist, Civil society Activist and the Health worker to aid the study with reliable information.

#### *Sampling Technique*

Regarding sampling techniques, both probability and non-probability sampling were applied. Under probability; Random sampling was used to select some participants who filled the questionnaires to avoid biasness in the research while under non-probability; purposive sampling was applied in selection of the Key Informant people from the city residents to provide vital information about the subject. City leaders helped the researcher by selecting the technocrats in the city council who were participated in the study and whom they thought were representative enough to the research topic and the population they were representing.

### **3.4 Instruments**

These are research tools which the researcher uses to gather information from the field. These research tools include; Questionnaires, interviews and the researcher himself.

### *Questionnaire*

Questionnaire is a list of questions to be answered by the respondents. Questionnaires with both close ended and open-ended questions were administered randomly to the audiences of South Sudan Radio residing in Juba to provide their opinions and suggestions on the research questions.

### *Interview*

This is a conversation between the interviewer and Interviewee guided by the list of questions arranged by the researcher to solicit facts and statements from the Subject or Interviewee. In this case, face to face interviews were conducted for the purposively selected respondents such as the Juba City Mayor, South Sudan Radio Manager, Health personnel, Environmentalist and the civil society Activist.

## **3.5 Data Collection Procedures**

The University of Nairobi's school of Journalism & Mass communication wrote an introductory letter that would be given to the respondents before the collection exercise of data began. This letter gave the respondents clue of the exercise and encouraged them to give out information concerning the topic knowing it that the research was only meant for academic purpose. The Quantitative data were gathered using questionnaires which were administered to South Sudan Radio audiences in Juba to give their views regarding the research topic. Consequently, Qualitative data were collected from the Focus Group Discussants' (FGDs) and Key Informant such as the Juba City Mayor, Civil society Activist, Health personnel, South Sudan Radio Manager and Environmentalist through face-to- face interviews with the help of unstructured or open-ended questions to enrich the study with reliable and relevant data.



### **3.6 Data Analysis Technique**

The data gathered from the field were analyzed manually and with help of Excel 2007 spreadsheet. Quantitative data were standardized and categorized to describe and discuss the results of the collected data: The data were clean and converted to numerical code representing attributes or the measurement of the variables with the help of the code book contained the coding details and there after entered into Spreadsheet to generate the results. The data were standardized and categorized to describe and discuss the results of the collected data. In the other hand, qualitative data were analyzed in a systematic way in order to come to an effective conclusion and recommendations with the help of matrix and content analysis. Moreover, the data generated for this study was analyzed using frequencies and percentages later presented by the use of tabulation.

### **3.7 Validity and Reliability**

Validity is the accuracy and a meaningfulness of inferences which based on the research results. It is the degree to which the results obtained from the analysis of the data actually represent the phenomenon under the study. Reliability on the other hand is a measure of degree to which a research instruments yield consistent results Mugenda, (2003).

This study used pretest or pilot survey as a means of ensuring reliability before the main research was carried out. Pretest according to Borg and Gall (1989), is the administration of research instruments to a sample of respondents not in the study.

### **3.8 Summary**

In a nutshell, the section explored both Primary and Secondary sources of information and an explanatory mixed methods research design were used; questionnaires

were administered to the audiences. Focus group and key informant people were also interviewed about the subject. The accessed population of the study was audiences of the South Sudan Radio in Juba and the research site was Juba City where the sampled radio station was situated. Purposive sampling technique was used in selection of interviewees, that was; the Juba city Mayor, South Sudan Radio manager, Civil society Activist, Environmentalist and Health worker. Validity and reliability of the research was ensured by the use of the pilot test.

## CHAPTER FOUR

### DATA ANALYSIS, PRESENTATION AND INTREPRETATION

#### 4.0 Introduction

This chapter deals with data analysis, presentation and interpretation of the research findings. The main objective of the study was to explore the role of national radio in solid waste management in Juba South Sudan and to establish the effectiveness of South Sudan Radio (SSR) in the fight against solid waste in the City (Juba). Eight (80) questionnaires were distributed and sixty-seven (67) questionnaires were successfully returned filled. Thirteen (13) questionnaires were not returned, these unreturned questionnaires were considered spoiled or damaged. Therefore, the 67 filled and returned questionnaires were considered as 100% of the randomly selected participants. Here, field results are presented in tabulation in form of frequency (f) counts and in percentages (%).

#### 4.1 Demographic Characteristic of Respondents

The respondents were asked to indicate their ages, occupations, gender, marital status, nationalities and their levels in education as narrated below.

##### *Demographic Characteristic on Ages*

The study asked the ages of the respondents participated in answering the questionnaires and found that the age categories of the respondents were divided into five groups as follow; 20 years and below were 11 (16.4%), 21-30 years were 16 (23.9%), 31-40 years were 18 (26.9%), and 41-50 years were 13 (19.4%) and 50 years & above were 9 (13.4) as summarized in the table one below:

**Table 1:** Responses on respondents' ages:

Respondent	Frequency (F)	Percentages (%)
20 years and below	11	16.4
21-30 years	16	23.9
31-40 years	18	26.9
41-50 years	13	19.4
50 years and above	09	13.4
Total	67	100

*Demographic Characteristic on Occupation*

In regard to respondents' occupation, participants were asked to indicate their occupation and their participations were as follows; 21 (31.3%) students responded, house wives were 14 (21%), soldiers were 7 (10.4%), traders were 17 (25.4%) and others were 8 (11.9%) of the respondents responded as illustrated in table two:

**Table 2:** Responses on respondents' occupations:

Respondents	Frequency (F)	Percentage (%)
Students	21	31.3
House wives	14	21
Soldiers	07	10.4
Traders	17	25.4
Others	08	11.9
Total	67	100

*Demographic characteristic on Gender*

The researcher also asked the respondents about their gender and the research findings showed that; 39 (58.2%) male and 28 (41.8%) female of the 67 respondents responded as shown in table three below:

**Table 3:** Responses on respondents' gender:

Respondents	Frequency (F)	Percentage (%)
Male	39	58.2
Female	28	41.8
Total	67	100

*Demographic Characteristic on Marital Status*

Respondents were also asked about their marital status and the research findings revealed that; 29 (43.3%) respondents participated in this research was married, 16 (23.9%) were singles, 7 (10.4%) were divorced and 15 (22.4%) of the respondents were separated as illustrated in table four below:

**Table 4:** Responses on respondents' marital status:

Respondents	Frequency (F)	Percentage (%)
Married	29	43.3
Single	16	23.9
Divorced	07	10.4
Separated	15	22.4
Total	67	100

*Demographic Characteristic on Nationality*

The researcher also requested the respondents to indicate their nationalities and according to the findings, their responses on nationalities were as follow; 48 (71.6%) were South Sudanese, 7 (10.5%) were Kenyans, 9 (13.4%) were Ugandans while 3 (4.5%) of the respondents were other nationalities as portrayed in table five:

**Table 5:** Responses on respondents' nationalities:

Respondents	Frequency (F)	Percentage (%)
South Sudanese	48	71.6
Kenyans	07	10.5
Ugandans	09	13.4
Others	03	4.5
Total	67	100

### *Demographic Characteristic on Levels of Education*

Base on the respondents' levels of education which was also asked by the researcher, the research revealed that; 14 (20.9%) were with primary school certificates, 19 (28.4%) were with secondary school certificates, 13 (19.4%) with certificates, 8 (11.9%) were with diplomas, 9 (13.4%) were with bachelor degrees and 4 (6%) of the respondents were with post graduate papers. Table six has these details:

**Table 6:** *Responses on respondents' level of education:*

Respondents	Frequency (F)	Percentage (%)
Primary certificate	14	20.9
Secondary certificate	19	28.4
Certificate	13	19.4
Diploma	08	11.9
Bachelor Degree	09	13.4
Post graduate	04	6
Total	67	100

#### **4.2 The Role of South Sudan Radio in Solid waste management**

The first objective of the research was to examine the role of South Sudan radio in solid waste management in Juba. Respondents were asked how South Sudan radio helps in solid waste management.

According to the respondents responses; 39 (58.2%) agreed that South Sudan radio plays a crucial role in solid waste management in Juba. 11 (16.4%) of the respondents were not sure of the role being played by South Sudan radio in solid waste management in Juba while 17 (25.4%) of the respondents totally disagreed that South Sudan radio is not playing any role in solid waste management in Juba as illustrated in the table seven below:

**Table 7:** *The role of South Sudan Radio in solid waste management:*

*Respondents' views*

Response	Frequency (F)	Percentage (%)
Agree	39	58.2
Not sure	11	16.4
Disagree	17	25.4
Total	67	100

Respondents were also asked to give their views on what role does South Sudan radio perform in solid waste management. And the study disclosed that majority of the respondents strongly agreed that South Sudan radio create awareness, educate and entertain.

In an interview with South Sudan Radio Manager, he divulged that the station is doing a lot since its initiation in 2006. “There are some positive changes being observed in term of solid waste management in the city for the station regularly disseminates environmental sustainability programs as from 6:30 PM and 9:30 PM.” The Manager also added that, South Sudan radio audiences pay less attention to the environmental news instead of being careful and listen to the news contents every day.



Subsequently in an exclusive interview, the Juba city Mayor urged South Sudan radio to double its efforts in the fight against solid waste in Juba. He (Mayor) advocated for an integrated strategy and the communal endeavours from various sectors of media such as televisions, radios and news papers to cover the environment related news as a means of sensitizing Juba residents.

Additionally, the Clerk in the Ministry of Environment and mining said urged the Juba residents to take care of the garbage surrounding their jurisdiction by collecting it and keep it in one place where it can be collected by the city council trucks. “I know our national radio is doing enough on environment sustainability because I normally listen to it.” He added.

#### **4.3 Public Participations in Solid Waste Management**

The second objective of the study was to establish the extent and form of public participation in solid waste management in Juba. As a result, respondents were asked to give their views on the role that people play in solid waste management in Juba.

Out of the 67 (100%) respondents; 38 (56.7%) of the total agreed that people do play a vital role in solid waste management in Juba and 29 (43.3%) disagreed that the public in Juba is not playing any role in solid waste management. Their responses are summarized in table eight below:

**Table 8:** *Public participations in solid waste management:*

*Respondents' views*

Response	Frequency (F)	Percentage (%)
Agree	38	56.7
Not sure	0	0
Disagree	29	43.3
Total	67	100

In addition, there are also some notable improvements seen in Juba in term of solid waste management, the research exposed that solid, liquid and electronic wastes are still making part of Juba city. However, solid waste is featuring in the greater extent as compared to the rest of wastes, and due to serious involvement of media and people in activities such as cleaning campaign, recycling of some garbage, proper disposal among others; Juba is experiencing a little glimpse in term of spotlessness.

The Juba city Mayor revealed that city council is being faced by numerous challenges in regard to Solid waste management. The City council gets no funds from the national government but depends on taxes, ground rents and house rents according to the local government Act. “Even though the issue of curbing solid waste still a challenging factor in Juba city, we are doing our best as City council only that we have shortage of compacter trucks and man power” the Mayor stressed. He also said that the city had 10 trucks but seven of them broke down leaving three on operation, this has slowed down the work expected to be done by the city council in keeping Juba clean. The City council sometimes end up hiring some private trucks to help them in collection of garbage. The

Mayor urged the national government to supply them (Juba City council) with some compacters trucks to help them in the transportation of solid waste to the designated dumping sites. According to Mayor, Juba City Council also needs enough funds from the national government as for recruiting enough workers since the city is expanding.



*Figure 4: Juba City council garbage trucks.*

Moreover, the Mayor also urged the Juba city residents to avoid illegal dumping of wastes but to properly manage their waste by putting it in one specified place where it can be collected by the garbage trucks. Wastes do not belong to the government; the role of the government is to facilitate the transportations of it (waste) only. “The battle of solid waste management in Juba is not for the media alone, the residents of Juba should take care of their useless materials and the municipal council of Juba must have to collect and transport

the garbage to the dumping sites and by so doing Juba will be clean.” Said the SSR Manager.

One of the doctors of Juba Teaching Hospital said, it’s very important to sensitize people on how to manage the environment because living in poor environment can make people contract diseases. “We normally have cases of cholera and diarrhea here in Juba Teaching Hospital because of poor hygiene in the City” He added. The Doctor further said that his ministry is in position of recruiting many community health workers to teach people on how to take care of the environment and its consequences if not well managed.

In addition, the Doctor also stressed that having clean environment needs a communal work from the Juba municipal council, the general public and the media to air educative programs on how to manage the environment. Finance and follow up committee also matters because this scenario needs regular monitoring so that people can avoid waste illegal dumping. “I have nowhere to take the waste to then to dump it or burn it in my own home” said one of the Malakia residents. “We are doing our part as residents but the government does not collect the waste” said one of the residents in Muniki. “Juba is dirty because governments is just eating money and is not doing the work” Resident in Jebel market.

According to JICA Environmentalist, He urged the residents of Juba that each and everyone should take care of his or her own solid waste like the way he or she take care of his or her other valuable material in the house. He also said that the National Environmental Ministry needs to have their environmental programs on environment sustainability being aired over radio and television always for public consumptions.

Environmentalists in the Ministry of Environment and Mining said that the environmental sustainability is a role of every citizen wherever he or she lives in, this because if the environment is not well managed, it turns against our health. Mismanagement of solid waste leads to different kinds of pollutions, contraction of diseases among others.

#### **4.4 South Sudan Radio Communication Methodology**

The third objective of this research was to establish the effectiveness of the communication methodology adapted by South Sudan radio towards solid waste management in Juba. Respondents were asked how effective is South Sudan Radio's communication methodology in solid waste management in Juba.

In regard to their responses; 35 (52.2%) of the respondents agreed that the communication methodology which is currently being used by South Sudan radio is suitable in solid waste management, 19 (28.4%) of the respondents were not sure of whether the current communication methodology being used by South Sudan radio and 13 (19.4%) of the respondents totally disagreed that the current communication methodology of South Sudan radio is not appropriate in solid waste management as demonstrated in table nine:

**Table 9:** *South Sudan Radio Communication methodology: Respondents' views*

Response	Frequency (F)	Percentage (%)
Agree	35	52.2
Not sure	19	28.4
Disagree	13	19.4
Total	67	100

Although the station (South Sudan Radio) is renowned of Edutainment as its communication methodology, the study revealed that about sixty percent of the respondents were advocating of the social mobilization and strategic participatory methodology as the best models to be used by South Sudan Radio in solid waste management in Juba.

According to the manager of South Sudan radio, the station is using Edutainment model in disseminating its programs including environmental sustainability campaigns and there are no complaints received from the audiences about the methodology since then up to now. However, the manager stressed that the station is being faced by several challenges including funds because the allocation being given to the station by the national government is little than the programs they run. “I am appealing to our national government to increase the media running cost so that programs should be done according people’s expectations.” The Manager added.

#### 4.5 Impact of South Sudan Radio on People’s Beliefs, Attitudes and Behaviors towards Solid Waste Management

The last of objective of this research was to find out the impact created by South Sudan radio on people’s beliefs, attitudes and behaviors towards solid waste management. Respondents were asked whether South Sudan radio created some impacts on people’s beliefs, attitudes and behaviors towards solid waste management.

According to the respondents’ views; 43 (64.2%) agreed that South Sudan radio has created impacts on people’s beliefs, attitudes and behaviors towards solid waste management in Juba while 16 (23.9%) of the respondents disagreed that no impact had been created by South Sudan radio and 8 (11.9%) respondents of the audiences were not sure whether there are some impacts created by the South Sudan radio on people’s beliefs, attitudes and behaviors towards solid waste management in Juba or not as shown in table ten:

**Table 10:** *Impact of national radio on people’s beliefs, attitudes and behaviors towards solid waste management: Respondents’ views*

Response	Frequency (F)	Percentage (%)
Agree	43	64.2
Disagree	16	23.9
Not sure	8	11.9
Total	67	100

As revealed by the study, South Sudan Radio is playing a crucial role in influencing people's behaviors, attitudes and beliefs towards solid waste management in Juba; the extent of random disposal of garbage by the populace has reduced as compared to those years back. And the issue of sicknesses such as diarrhea, cholera and typhoid are not longer frequent.

“In fact you cannot compare the current situation of Juba in term of Solid waste random presence with those years of 2006-2009; Juba is now a little bit okay.” said the Manager of South Sudan radio.

In an exclusive interview with an Environmentalist of Japan International Cooperation Agency (JICA), he said that his organization is offering much help to South Sudanese people in Juba especially in term of keeping Juba clean. “JICA hire garbage trucks after every three months to clean Juba city, they had been doing this since independence of South Sudan in 2011.” JICA “In fact Juba is full of solid wastes but if all the authorities concerning keep reluctant, it will be dirtiest than the way it is now.” Said the JICA Practitioner.

“In the past two years our Ministry used to offered trainings and workshops to community leaders on how to keep the environment clean but currently the issue of funds has refrained us from conducting trainings and workshops anymore” said a Clerk in the Ministry of Environment and Mining.





**Figure 5:** *Scavengers on the Street, Gumbo, Nyakuron, and Custom dumping sites.*

#### **4.6 Summary**

The data in this chapter signified the thoughts and experiences of the South Sudan radio audiences on the role of national radio in solid waste management in Juba. The findings were generated through questionnaires and key informant interviews. These research tools suggested that many factors are being blamed of solid waste random presence in Juba than South Sudan Radio alone. Among these factors include the government of the Republic of South Sudan for it doesn't allocate sufficient funds for environment conservation during its annual budgeting, Juba city council is too slow in solid waste management due to lack of waste mobility and manpower, and the public in Juba is not doing much in solid waste management than reckless disposal of waste in the City. In-depth

interviews were conducted; among those interviewed include the Mayor of Juba city, South Sudan Radio Manager, Health worker, Civil society practitioner, Environmentalist and some other local residents of Juba as a means of backing up the information obtained from the quantitative data.

## CHAPTER FIVE

### SUMMARY OF THE FINDINGS AND DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

#### 5.0 Introduction

This chapter covers the Summary of the Findings and Discussion on the role of South Sudan radio in solid waste management in Juba, Public participation, Communication methodology, Impact, Strengths and limitations of the study. Conclusion and Recommendations are also covered. The main objective of the research was to explore the role of national radio in solid waste management in Juba.

#### 5.1 Summary of Findings and Discussion

After a thorough review of the research findings, summary of major findings and discussion were made in regard to the problems sought to be addressed by the research. The study was exploring the role of national radio in solid waste management in Juba South Sudan. Public participation in solid waste management, Communication strategy being used by the station and the impact created by the national radio on Juba residents were investigated and summarized as follow:

##### *South Sudan radio*

The significance of the effectiveness of South Sudan Radio in solid waste management in Juba in relation to environment conservation in general was examined so that we can exactly know the position of it (South Sudan Radio) in solid waste management. According to the findings, the research revealed that national radio plays a very crucial role in solid waste management, the respondents strongly agreed that South Sudan radio create awareness, educate and entertain. This coincided with what Singhal and Rogers (1989) stated that media play

crucial role of disseminating relevant environmental information which offer solutions to environmental issues and possibilities about suitable novelty because environmental awareness helps in conservation and sustainable development. As reported by Dominick (2005), national radio plays a lot of informative and educative programs to raise people's awareness on political and socio-economic issues as a means of achieving national development.

### *Public Participation*

Public has a major obligation in solid waste management in diverse ways as shown by residents of Juba. The research exposed that solid, liquid and electronic wastes were making part of Juba city and with greater extent was the solid waste but due to serious involvement of the residents in activities such as cleaning campaign, recycling of some garbage, proper disposal among others. Juba is not longer dirty as compared to those years back. This finding coincided with the finding of Tsai (2007) that people can realize opportunities such as creativity, innovation and solutions to the problems facing them in life when they have mutual understanding and team-work. The majority of participants agreed that solid waste or garbage is part of Juba city but eradicating it requires integrated mechanism. This realms with what Barr (2004) said that solid waste management should not be considered as a role of products producers alone but should be considered as a communal duty of the general public, media and the government. Bekin, Carrigan and Szmigin (2007) further found that solid waste management can be achieved if the community has control over items they produce and consume while (Read et al., 1998) agreed that it is through embracement of concentrations from both the public and private sectors that solid waste should be minimized despite the financial constraint.

### *Communication Methodology*

Communication methodology which is a designed strategy agreed upon and to be followed by the station during the dissemination of the programs was sought by the researcher to exactly know the communication methodology being used by South Sudan radio during the news cast and its appropriateness to the audiences. Base on findings, the station (South Sudan Radio) is renowned of Edutainment as its communication methodology, however, the study also revealed that some respondents were advocating of the social mobilization and strategic participatory methodology as the best models to be used by South Sudan Radio in solid waste management in Juba; this finding matched with the finding of Freedman (1997) and Zimicki et al (1994) that credit has been given to Edutainment on radio programs for it inculcate new changes in people's behaviors and attitudes towards specific idea such solid waste management. Edutainment offer push to those already predisposed to act in different ways.

### *Impact of South Sudan Radio*

In regard to the impact created by South Sudan radio on Juba residents, the study revealed that South Sudan Radio has created a crucial role in influencing people's behaviors, attitudes and beliefs towards solid waste management in Juba; the extent of random disposal of garbage by the populace has reduced as compared to those years back. And the regular occurrences of sicknesses such as diarrhea, cholera and typhoid are not longer frequent because of the clean environment being experienced by the inhabitants; this finding coincided with what Makali (2003) that media have power to control and direct people's attitudes and behaviors through direct appeals towards the specific goal.

Moreover, the study also identified that the presence of solid waste in Juba city was linked to poor solid waste collection exercise being offered by Juba municipality. This corresponded with Mugambwa (2009) that waste management is a collection, transportation, processing, recycling or disposal of useless material. And it is the role of government authorities to encapsulate the waste generated sources and to show the public the specific areas set aside for dumping.

The study also exposed that much of the solid waste in Juba is generated by the Manufacturers and Industries operating in the area. This is in agreement with the finding of Bournay (2006) that solid waste can also be generated as a result of “manufactured products which are not easy to be decomposed such as plastics, metal among others.” This is because in the Capitalistic world, manufacturers package their products according to the need of their clients and these packaging sometime may not be friendly to the environment.

The study also revealed that the most affected areas by solid waste in Juba include; Sherikat, Jebel-shuk, Shuk-sita, Muniki, Gumbo, Mia saba, Nyakuron, Lologo and Custom. Shifting of blames among South Sudan radio, Government, public and the Juba city council was also shown by the research findings.

Consequently, the study found out that the cause of improper solid waste management in Juba is being blamed on media’s low level of awareness, poor waste handling facilities, absent of public outcry, low fund allocation, bad attitudes and low participation of the public and municipality. The research also revealed that overcrowding of the city due to rural urban migration has been considered to have contributed to solid waste presence in Juba.

Both theories used were found appropriate for the study (Diffusion of innovation and social mobilization). Generally, there were significant commonalities between the findings of this study and the existing findings found in the previous literature regarding the role of national radio in solid waste management. Media play lot of informative and educative programs which give raise to public awareness on political and socio-economic issues in regard to national development.

## **5.2 Strengths & Limitations**

The strengths of this study were the use of the semi-structured or open-ended questions, interviews and its flexibility. The respondents were free to voice their views while on focus while the limitations were lack of sufficient funds to facilitate the study requirements and the instability in the Country.

## **5.3 Conclusions**

Despite the commitment of South Sudan radio in disseminating educative and informative environmental messages to influence people's beliefs, attitudes and behaviors towards solid waste management in Juba, "My Waste My Responsibility" remains as the core wrapping up although other factors such as community radios, Juba municipality and direct involvement of the communities in sanitary improvement of the environment are also considered effective in curbing reckless solid waste disposal in Juba.

## **5.4 Recommendations**

The recommendations of this study are categorized into two: Recommendations on solid waste management policy changes and Recommendation for further research.

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

Recommendation on the policy changes are those recommendations which a researcher of this study thought could help in curbing solid waste in Juba city if embraced quickly by the authorities and residents of Juba while the further research recommendation is a long term policy which is only of benefit to the future researchers as reference to their works. The mechanisms suggested for this research were:

### ***Integrated Strategy***

After a keen scrutiny has been made on findings and conclusion, I recommend that: Integrated waste management approach is the best means of managing the environment. The approach refers to the harmonized complementary exercising of numerous activities to efficiently and successfully handle the solid waste in human surroundings.

In integrated waste management, there is reduction; the approach encourages people to use less and reusing more, this save material production, resource cost and energy, its aim is to minimize the amount of solid waste generated. Lein (2003), believe that, development can be realized if there are integrated plans toward the environment conservation. These plans should be given rooms in recognizing the environment as an entity of worthy preservation.



Re-use which is the recycling of materials such as bottles, plastic bags, metals, papers among others, the materials can be sold to commercial centers; they only cross the threshold to waste when they are not fit for domestic use. Land-filling; some dumping sites such as wetland and open grounds need to be identified and shown to the public to dispose their garbage into as a mean of bring up such areas to the expected level. The sites allow the waste pickers to sort out the valuable materials for their own utilization. It's obvious that landfill always depends on the municipal's management and administration. Landfill can be uncontrolled open sites, controlled dumps and secured sanitary. Although landfill can be considered as the least effective mean of solid waste management, it's considered useful in solid waste management in Juba.

#### *Regular Dissemination of Environmental News*

Regular dissemination of the environmental awareness messages to the public is recommendable. The City council and Ministry of Environment in Juba are encouraged to feed Juba residents on how to take care of their surroundings especially by managing their useless materials well.

The issue of a clean environment or solid waste management is not a task of one person or entity; it requires double effort from all the media houses operating in Juba regardless of it being public or private, print or electronic media and the general public.

#### *Social Mobilization Strategy*

Despite the effectiveness of Edutainment methodology in solid waste management programs, Social mobilization strategy is more recommendable in solid waste management in Juba this is because the model bringing together all the social allies to raise

people's awareness regarding one particular development for sustainable development. The model requires communal effort from both the government and civil society to come together and evaluate the development program objectives and procedures of attaining the desired innovation. The model empowers people to offer solutions to the problems facing them.

#### *Avoidance of Illegal Dumping*

For Juba to be clean, illegal dumping and random disposal of solid waste needs to be avoided and all the waste should be accumulated in one mentioned place where it can be collected by the City council trucks to the designated dumping sites.

#### *Formation of Follow-Up Committee*

The issue of solid waste management in Juba requires the Juba municipality in conjunction with community leaders to form a follow-up committee. This committee needs to do a regular monitoring in the communities to ensure that Juba residents are taking care of the environment in their residential areas and their vicinities. And whoever declined to do so must be held accountable.

#### ***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 solid 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

#### **RESPONDENTS' QUESTIONNAIRE**

The Role of National Radio in Solid Waste Management in Juba:

A Case Study of South Sudan Radio (SSR)

#### **Dear Respondent,**

My name is Garang Kuol Gabriel, I 'm a student in the school of Journalism and Mass communication of the University of Nairobi researching on “**The Role of National Radio in Solid Waste Management in Juba; A case Study of South Sudan Radio (SSR).**” You have been randomly selected to participate in answering the questions provided below as part of my Masters in Communication studies' requirements. The answers will be used for academic purpose only and they will be treated with greatest prudence.

#### **INSTRUCTIONS**

- ✓ Tick where necessary
- Do not write your name anywhere on this questionnaire
- Write the relevant information in the space provided

#### **SECTION A**

Demographic Characteristic of Respondents

##### **A1. Age**

- a) 20 years and below..... ( )
- b) 21 years to 30 years..... ( )
- c) 31 years to 40 years ..... ( )

- d) 41 years to 50 years ..... ( )
- e) 50 years and above ..... ( )

A2. Occupation -----

**A3. Sex**

- a) Male..... ( )
- b) Female..... ( )

**A4. Marital status**

- a) Married..... ( )
- b) Single..... ( )
- c) Divorced..... ( )
- d) Separated..... ( )

**A5. Level in education**

- a) Primary certificate..... ( )
- b) Secondary certificate.... ( )
- c) Certificate..... ( )
- d) Diploma..... ( )
- e) Degree..... ( )
- f) Post graduate..... ( )

**A6. Nationality**

- a) South Sudanese..... ( )
- b) Kenyan..... ( )
- c) Ugandan..... ( )

If other, specify -----



**SECTION B**

**B. The role of national radio in solid waste management**

B1. Do you have a radio?

- a) Yes..... ( )
- b) No..... ( )

B2. If yes, how frequent do you listen to it?

- a) Regularly..... ( )
- b) Occasionally..... ( )
- c) Hardly..... ( )
- d) Never..... ( )

B3. How long per day do you listen to the radio?

- a) 30 minutes..... ( )
- b) 1 hour ..... ( )
- c) 2 hours ..... ( )

If other,

specify.....

B4. To which extent does South Sudan Radio pay attention to Solid Waste Management?

- a) Greater extent ..... ( )
- b) Not sure ..... ( )
- c) Smaller extent ..... ( )
- d) Not at all ..... ( )

B5. How often do you hear it (Solid waste management) over the radio (SSR)?

- a) Always..... ( )
- b) Weekly..... ( )
- c) Fortnight..... ( )

d) Monthly..... ( )

If other, specify -----

B6. To what extent do you think South Sudan Radio play a crucial role in solid waste management?

a) Very high ..... ( )

b) High ..... ( )

c) Not sure ..... ( )

d) Low ..... ( )

e) Very low ..... ( )

B7. To what extent do you agree that South Sudan Radio plays the following roles in Solid Waste Management? (Tick)

1 = Strongly Agree

2 = Agree

3 = Not sure

4 = Disagree

5 = Strongly Disagree

S/No	Role of South Sudan Radio	1	2	3	4	5
1	Create awareness					
3	Educate					
4	Entertain					
2	Inform					
5	Mobilization					

**C. Public participations in solid waste management**

C1. To what extent can you claim that Juba is clean?

a) Greater extent ..... ( )

b) Small extent ..... ( )

c) Not sure ..... ( )

d) Not clean at all ..... ( )

C2. Which kind of waste is common in Juba?

- a) Liquid waste..... ( )
- b) Solid waste ..... ( )
- c) Electronic waste ..... ( )
- d) A, B & C..... ( )

If other, specify .....

C3. To what extent are these Estates (Residences) affected by Solid Waste? (Tick)

- 1 = Very high
- 2 = High
- 3 = Not sure
- 4 = Less
- 5 = Not affected

S/No	Estates (Residences)	1	2	3	4	5
1	Atlabara					
2	Custom					
3	Gudele					
4	Hai Amarat					
5	Hai Kuwait					
6	Hai Malakal					
7	Hai Tarawa					
8	Jebel					
9	Kator					
10	Konyo Konyo					
11	Lologo					
12	Malakia					
13	Mia Saba (107)					
14	Munuki					
15	New site					
16	Ngumbo					
17	Nimri Talata					
18	Nyakuron					
19	Rock City					
20	Sherikat					
21	Suksita					
22	Thong-Piny					
23	Tumbura					

If other, specify and rate it .....

C4. List the causes of solid waste in Juba that you know in the space provided below?

- i) -----
- ii) -----
- iii) -----
- iv) -----
- v) -----

C5. Why is it important to eradicate solid waste in Juba?

- i) -----
- ii) -----
- iii) -----
- iv) -----
- v) -----

C6. What should people do to reduce or eliminate solid waste in Juba?

- i) -----
- ii) -----
- iii) -----
- iv) -----
- v) -----

C7. What role do people play in solid waste management in Juba?

- a) Cleaning the environment..... ( )
- b) Recycling of garbage ..... ( )
- c) Proper disposal ..... ( )
- d) All of the above ..... ( )

**D. South Sudan radio communication methodology**

D1. Which communication methodologies does south Sudan Radio use in its campaign programs? (Tick all that applies)

- a) Social mobilization..... ( )
- b) Media advocacy..... ( )
- c) Edutainment..... ( )
- d) Advocacy ..... ( )
- e) Strategic Participatory ..... ( )

If other, specify .....

D2. In your opinion, which communication methodologies are suitable in environment sustainability campaign? (Tick all that applies)

- a) Social mobilization..... ( )
- b) Media advocacy..... ( )
- c) Edutainment..... ( )
- d) Advocacy ..... ( )
- e) Strategic Participatory ..... ( )

If other, specify .....

D3. Why do you think the methodology you ticked above is the best?

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**E. Impact of radio on people’s beliefs, attitudes and behaviors toward solid waste management**

E1. Can radio change people’s beliefs, attitudes and behaviors?

- a) Yes..... ( )
- b) No..... ( )

E2. If yes, how does South Sudan radio program change behaviors?

- a) -----
- b) -----
- c) -----
- d) -----
- e) -----

E3. What are the notable changes made by South Sudan radio on people’s beliefs, attitudes and behaviors towards solid waste management in Juba?

- i) -----
- ii) -----
- iii) -----
- iv) -----
- v) -----

E4. Why is it important to change peoples’ beliefs, attitudes and behaviors towards environment conservation? (All that applies)

- a) Healthy Living..... ( )
- b) Prestigious..... ( )
- c) To earn money..... ( )

If other, specify .....

F. What else can you say about the role of National Radio in Solid Waste Management in Juba?

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God bless you

## Appendix II

### **KEY INFORMANT INTERVIEWS**

The Role of National Radio in Solid Waste Management in Juba:

A Case Study of South Sudan Radio (SSR)

**Dear Interviewee,**

You have been chosen as an Interviewee for you are conversant with Juba and South Sudan Radio Station and your answers will be used to aid my research project. The purpose of this interview is to find out the role of National Radio in Solid Waste Management in Juba. The interview will run for about 20 minutes.

Name (Optional):

Gender:

Position:

#### **Radio Station Manager**

#### **Questions**

1. How does your station address issues of solid waste in Juba?
2. What are the causes of solid waste here in Juba?
3. What are the Changes made by SSR in regard to solid waste management in Juba?
4. Which Communication methodology does SSR use in waste management campaigns?
5. What are the challenges facing the station in regard to solid waste management?
6. What mechanism is in place to tackle these challenges?
7. What else can you say about this station?



## **Juba City Mayor**

### **Questions**

1. How long have you been here in Juba?
2. When were you given this position of the Juba City Mayor?
3. What role does your office plays in solid waste management?
4. What are the causes of Solid waste here in Juba?
5. What do you think should be done in order to keep Juba clean?
6. How is South Sudan Radio helping in solid waste management in Juba?
7. How can South Sudan Radio improve its role in solid waste management?
8. What are the challenges being faced by your office regarding solid waste management?
9. What mechanisms do you have in place to fight these challenges?
10. What else can you tell to Juba authorities and residents about solid waste management?

## **Civil Society Activist**

### **Questions**

1. When did you come to Juba?
2. What is your take on solid waste management in Juba?
3. What do you think should be done in order to keep Juba city clean?
4. Are authorities concerns in Juba doing enough in solid waste management?
5. What is the Role of your Organization in solid waste management in Juba?
6. How is South Sudan Radio helping in solid waste management in Juba?
7. How can South Sudan Radio improve its role in solid waste management?
8. What else can you tell to Juba Authorities and Residents about solid waste management?

## **Environmentalist**

### **Questions**

1. Why is it important to keep the environment clean?
2. What are the causes of Solid waste in Juba?
3. What do you think should be done to keep Juba clean?
4. What are the effects of solid waste on the environment and its surroundings?
5. What role does your ministry plays in solid waste management in Juba?
6. What are the challenges facing your ministry regarding the environment sustainability?
7. What mechanism do you have in place to solve these challenges?
8. What else can you share with people regarding solid waste management?

## **Health Worker**

### **Questions**

1. Does mismanagement of garbage has problem in human health?
  - (a) What are the common diseases associated to mismanagement of solid waste?
  - (b) Do we have these cases here in Juba?
2. What do you think should be done to avoid this mismanagement of garbage here in Juba?
3. What is the role of your organization in solid waste management in Juba?
4. How is South Sudan Radio helping in solid waste management in Juba?
5. How can South Sudan Radio improve its role in solid waste management?
6. What else can you share with me about human health and environment?

God bless you

Appendix III

**CERTIFICATE OF FIELD WORK**



**UNIVERSITY OF NAIROBI  
COLLEGE OF HUMANITIES & SOCIAL SCIENCES  
SCHOOL OF JOURNALISM & MASS COMMUNICATION**

Telegram: Journalism Varsity Nairobi  
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P.O. Box 30197-00100  
Nairobi, GPO  
Kenya

**REF: CERTIFICATE OF FIELD WORK**

This is to certify that all corrections proposed at the Board of Examiners' meeting held on 15/04/2015 in respect of M.A./Ph.D final Project/Thesis defence have been effected to my/our satisfaction and the student can be allowed to proceed for field work.

Reg. No: K50/69510/2013

Name: BARANG KUOL CAROL

Title: THE ROLE OF NATIONAL RADIO IN SOLID WASTE

MANAGEMENT. A CASE OF SOUTH SUDAN RADIO

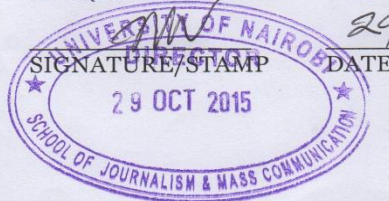
Samuel NGIGI  
SUPERVISOR

Dr Samuel Swangi  
PROGRAMME COORDINATOR

Dr. Ndeti Ndeti  
DIRECTOR

Swangi  
SIGNATURE

Swangi  
SIGNATURE



15-04-2015  
DATE

29/10/2015  
DATE

29.10.2015  
DATE

SIGNATURE/STAMP  
29 OCT 2015

Appendix IV

CERTIFICATE OF CORRECTIONS



UNIVERSITY OF NAIROBI  
COLLEGE OF HUMANITIES & SOCIAL SCIENCES  
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P.O. Box 30197-00100  
Nairobi, GPO  
Kenya

**REF: CERTIFICATE OF CORRECTIONS**

This is to certify that all corrections proposed at the Board of Examiners meeting held on 09/11/2015 in respect of M.A/PhD. Project/Thesis Proposal defence have been effected to my/our satisfaction and the project can now be prepared for binding.

Reg. No: K50/69510/2013

Name: GARANG KUOL GABRIEL

Title: THE ROLE OF NATIONAL RADIO IN SOLID WASTE MANAGEMENT IN JUBA:  
A CASE OF SOUTH SUDAN RADIO.

Samuel Abigi  
SUPERVISOR

[Signature]  
SIGNATURE

09/11/2015  
DATE

Dr Samuel Sirngi  
M.A. COORDINATOR

[Signature]  
SIGNATURE

09/11/2015  
DATE

Dr Samuel Sirngi  
DIRECTOR




[Signature]  
SIGNATURE/STAMP

09/11/2015  
DATE



Appendix IV

**LETTER OF INTRODUCTION**

  
**UNIVERSITY OF NAIROBI**  
**COLLEGE OF HUMANITIES & SOCIAL SCIENCES**  
**School of Journalism & Mass Communication**

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P.O. Box 30197  
Nairobi  
Kenya

**Your Ref:**

**Our Ref:** K50/69510/2013

**Date:** 20<sup>th</sup> April 2015

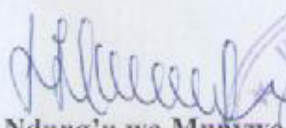
**TO WHOM IT MAY CONCERN**


**GARANG, Gabriel Kuol**

The above named is our student at the University of Nairobi's School of Journalism and Mass Communication pursuing a Master of Arts degree in Communication Studies. Mr. Garang is carrying out a research on the topic **"The Role of National Radio in Solid Waste Management in Juba: A Case Study of South Sudan Radio"**.

Any assistance accorded to him will be highly appreciated.

Yours sincerely,

  
**Ndung'u wa Muniye**  
Assistant Registrar  
School of Journalism & Mass Communication

  
UNIVERSITY OF NAIROBI  
DIRECTOR  
22 APR 2015  
SCHOOL OF JOURNALISM & MASS COMMUNICATION

/s/

Appendix VI

**EXPENDITURES**

<b>S/No</b>	<b>Items</b>	<b>Quantity</b>	<b>Unit cost</b>	<b>Total cost</b>
1.	Research Project printing	4	430	1,720Ksh
2.	Hard cover binding	6	300	1800Ksh
3.	Proposal printing	1	250 Ksh	250 Ksh
4.	Photocopying	3	250 Ksh	750 Ksh
5.	Spiral binding	6	50 Ksh	300 Ksh
6.	Fare	-	-	4,800SSP
7.	Other expenses	-	-	3,500Ksh
<b>Total</b>				<b>Ksh 8,320</b> <b>SSP 4,800</b>

**Note**

- **KSH** = Kenya Shillings
- **SSP** = South Sudan Pounds