UNIVERSITY OF GHANA

ASSESSING HOW THE PRINT MEDIA FRAME WASTE MANAGEMENT IN GHANA

BY

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This thesis/dissertation is submitted to the University of Ghana, Legon in partial fulfilment of the requirement for the award of **MPHIL in CLIMATE CHANGE AND SUSTAINABLE STUDIES Degree.**

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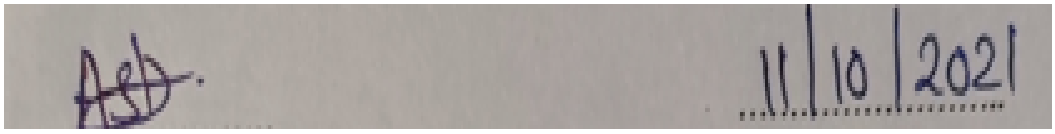
CERTIFICATION

I hereby declare that except for references to other peoples' study which have been duly acknowledged, this thesis was done by me in accordance with the procedures of the University.



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DEDICATION

To my grandparents, Mba Tindana Musah Sampa Sumkura and Mma Sheta Musah, who instilled in me the joy of schooling.

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LIST OF ABBREVIATIONS

CBMWTF	Common Biomedical Waste Treatment Facility
EIA	Environmental Impact Assessment
EU	European Union
E-waste	Electronic Waste
GHG	Greenhouse Gas
IPCC	Intergovernmental Panel on Climate Change
MMDAs	Metropolitan Municipal and District Assemblies
MSW	Municipal Solid Waste
NDCs	Nationally Determined Contributions
NGO	Non-Governmental Organization
NIMBY	Not In My Backyard
OECD	Organization for Economic Co-operation and Development
SDGs	Sustainable Development Goals
SPSS	Statistical Package for Social
StEP	Solving the E-waste Problem
WEEE	Waste Electrical and Electronic Equipment
UK	United Kingdom
UN	United Nations
UNCHE	United Nations Conference on the Human Environment

UNEP	United Nations Environment Programme
USAID	United States Agency for International Development

DEFINITION OF TERMS

Framing: "to frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described" (Entman, 1993, p. 52).

Waste Management: "waste management as collection, transport, recovery and disposal of waste, including the supervision of such operations and after-care of disposal sites" (Pongrácz, Phillips, & Keiski, 2004, p. 477)

Waste Generation: "refers to the amount of material that enters the waste stream before recovery, composting, or combustion. Recovery refers to materials removed from the waste stream for the purpose of recycling and/or composting" (Demirbas, 2011, p. 1283).

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ABSTRACT

The media is a very influential institution in a global effort to attain sustainable development, which includes waste management. Evidence suggests that little study has been done in the area of understanding media reportage of waste management issues within the Ghanaian Context. This study sought to unearth how the Ghanaian newspaper outlets namely the *Daily Graphic, Daily Guide, Ghanaian Times,* and *The Chronicles,* have presented the issue of waste management in Ghana between the period January 2015 and December 2019. This study examined the degree of prominence given to waste management issues, identified the dominant voices in waste management media discourse, examined how the issue has been presented and the focus of frames in waste management media coverage, and examine the perceptions of media practitioners on media narratives on waste Management. A mixed-method approach of quantitative content analysis and thematic analysis of interviews was employed and applied sequentially for the study. The study retrospectively reviewed newspaper articles on waste management published between the period 2015-2019, supported by the views of media practitioners. A total of 306 news editions were sampled by each paper based on a constructed week and purposive sampling technique. Three hundred and ten (310) stories were collected on waste management using a coding guide. Eight media practitioners were purposively sampled and interviewed using an interview guide. The quantitative data was analysed using SPSS version 21, while the qualitative data was analysed thematically. The study shows that waste management stories were dominated with positively framed stories, indicating that most of the stories were framed highlighting the benefits of proper waste management as well as expressing hope in the success of the measures put in place to manage wastes. More than 50% of the stories were also framed stories focusing on recommending solutions to the waste problem. Government officials serve as the dominant source of information for waste management stories. The study further revealed that little prominence was attached to waste management stories through story placement. However, much prominence was attached to stories through story enhancement. A major challenge media practitioners faced in framing waste management issues is the fear of being criticized and tagged corrupt for trying to be 'critical' towards those responsible. This thesis apart from its contribution to the body of literature in Ghana, the thesis has drawn the attention of media practitioners to the lack of flexibility in news reportage leading to the predominance of straight news stories. This study also exposes the challenges that confront waste management framing in media to policymakers, which is, the lack of 'criticality' in framing for the fear of being tagged corrupt or criticized for trying to be critical towards institutions responsible for waste management. This study recommends a policy that would advocate for the allocation of funds to support media outlets to do follow-ups on waste-related issues and to cover waste management and environmental related issues more often.

CHAPTER ONE

GENERAL INTRODUCTION

1.0. Introduction

The research aims at providing an analysis of media coverage on waste management by the print media between the period January 2015-December 2019. Chapter one discusses waste generation, waste management, and the impacts of waste management. This chapter also discusses the role of media in waste management communication. It also presents the research problem, research objectives, research questions, significance of the study, the scope of the study, organization of the study as well as a summary of the chapter.

1.1. Background of the Study

Waste problems have become a major concern to the world and it is peculiar to developing countries including Ghana. Some of these wastes contain hazardous substances which are harmful to the ecosystem as well as human life (Widmera, 2005). Mankind is becoming increasingly aware of these dangers and therefore developing solutions to address them.

According to Hicks, Heidrich, McGovern, and Donnelly (2004, p. 166), the European Union (EU) Framework Directive referred to waste as "any substance or object that the holder discards, or intends or is required to discard". Organization for Economic Co-operation and Development (OECD) defined waste as "materials other than radioactive materials intended for disposal" (Pongrácz & Pohjola, 2004, p. 142). United Nations

Environment Programme (UNEP) also defined waste as “substances or objects, which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law” (Pongrácz & Pohjola, 2004, p. 142). Elwood and Patashik, however, presented a different view on what waste is by stating that “ waste, like beauty, is in the eye of the beholder” (Pongrácz et al., 2004, p. 474). Based on the definition of EU, OECD, UNEP, and Elwood and Patashik waste can, therefore, be seen as an item or substance that is no longer valuable to the user and has been discarded or has to be discarded.

Hicks *et al*. (2004) indicated that waste can be classified based on its characteristics, which include its effect on health; such as radioactive, hazardous, or non-hazardous. Wastes can be classified based on their sources of generation which include animal wastes, domestic wastes, ashes, biodegradable wastes, biomedical wastes, construction wastes, non-biodegradable wastes, industrial solid wastes, sewer, commercial wastes, and hazardous wastes (Demirbas, 2011). Rao, Sultana, and Kota (2014) also classified waste as municipal solid waste (MSW), plastic waste, biomedical waste, hazardous waste, and electronic waste. Regardless of the categories waste can be generated in both liquid and solid form. Liquid waste is divided into three main streams which include sewage (Fonts, Gea, Azuara, Ábrego, & Arauzo, 2012), trade waste (Wareham & Bourke, 2013), and hazardous liquid waste (Gutiérrez-Gutiérrez *et al.*, 2013). Solid wastes on the other hand consist of plastics, scrap metals, metals, papers, bottles, inert materials, textiles, leather, food waste, wood, and many others (Miezah, Obiri-Danso, Kádár, Fei-Baffoe, & Mensah, 2015).

According to Hoornweg and Bhada-Tata (2012) report in 2012, the global MSW generated in cities all over the world is roughly 1.3 billion tons per year. This quantity is expected to increase to approximately 2.2 billion tons per year by 2025. This

representation shows a significant rise in per capita waste generation rates, from 1.2 to 1.42kg per person per day in the next fifteen years (Hoornweg & Bhada-Tata, 2012). Another report by Solving the E-waste Problem Initiative (StEP) also showed that 45.6million metric tons of e-waste were generated in 2012. Per this report, China reportedly generated 11.1 million tons of e-waste while the United States (US) also produced 10 million tons of e-waste (Perkins, Drisse, Nxele, & Sly, 2014). Indicating that, on averagely 29.5kg of e-waste is produced by each person in the United States of America (USA) as compared to less than 5kg per individual in China (Perkins et al., 2014, p. 287). Ghana also generates 0.47kg/person/day of waste which translates into about 12,710 tons of waste per day based on the 2015 population of 27,043,093 (Miezah *et al*., 2015). The quantity and composition of waste continue to increase on daily basis due to an increase in population and change in consumption patterns of societies (Karak, Bhagat, & Bhattacharyya, 2012), thus making wastes complex to treat and manage.

According to Pongrácz *et al*. (2004), waste management defined by the European Council Directive on Waste states that waste management involves the collection, transportation, recovery, and disposal, including the monitoring of the waste management operations and disposal sites management. The elements of waste management systems are also described as waste generation and segregation, collection, transfer and transportation, treatment, recycling, and landfill disposal (Guerrero, Maas, & Hogland, 2013). The views of (Pongrácz *et al.*, 2004) and (Guerrero *et al*., 2013) show a chronological flow of ensuring proper waste management.

In time past, the method of waste management involved freely throwing away waste in different places uncontrolled (Santamarta, Rodríguez-Martín, Arraiza, & López, 2014) such as drains, water bodies, and open spaces (Yoada, Chirawurah, & Adongo,

2014). This culture fueled the attitude of neglect in the management of faecal sludge in many West African countries, such as Ghana, Senegal, Mali, and other countries (Koné & Strauss, 2004). Koné and Strauss (2004) mentioned that there has been indiscriminate and uncontrolled disposal of faecal sludge in gutters and parks, among these West African countries creating a "fecal film". These indiscriminate disposals have an impact on public health through air and water quality pollution and create eyesores. Ghana, for example, has suffered a human loss due to sanitation-related diseases. In 2014, Ghana recorded "17,000 cases of cholera and 150 deaths through cholera" (Lartey, Ahenkan, Yeboah-Assiamah, & Adjei-Bamfo, 2018, p. 3). This crisis was attributed to poor sanitation and improper waste management. Ghana also suffers from seasonal flood disasters each year due to clogged drains by waste plastics and other waste materials (Adu-Boahen *et al*., 2014; Samwine et al., 2017; Yoada et al., 2014). For example, 2011 saw floods killing about fourteen people, affected 43,000 persons, and destroyed 17,000 homes (Afornorpe, 2016), and also the twin disaster of flood and fire in 2015 that killed over 150 people at the Kwame Nkrumah interchange, bringing the nation into mourning (Bokpe, 2015). Crisis due to poor waste management has cost the nation of Ghana lots of valuable assets. These accounts have left Ghana with no other choice than to explore all available options for appropriate solution to the waste management problem.

Waste management requires a collective responsibility of all stakeholders who have an interest in waste management, especially waste generators such as households, industries, and city authorities who are assigned the responsibility to manage waste (Guerrero *et al*., 2013). The stakeholders identified also include government ministries, private waste management services providers, commercial, civil organizations, academic and research institutions, politicians, farmers, hospitals, communication outlets, donors, Chamber of Commerce and Industry, companies in the recycling

business, security services, faith leaders, and waste pickers (Guerrero *et al*., 2013). For instance, there has been growing communication and the intervention of corporations on waste management and environmental issues in general which is credited as their corporate social responsibility (Pollach, Scharl, & Weichselbraun, 2009).

Waste management authorities have devised several technologies to manage waste generated. These technologies include waste incineration, landfilling, recycling and material recovery, aerobic composting, and anaerobic digestion and waste reduction (Hoornweg & Bhada-Tata, 2012). Waste recycling is one of the most recommended technologies in waste management, but sadly, waste such as e-waste is mostly recycled illegally in most developing countries to obtain valuable resources (Zeng, Duan, Wang, & Li, 2017). Places like Agbogloshie in Accra, Ghana is ill-famed for being one of the biggest illegal recycling sites of e-waste in the world (Otsuka, Itai, Asante, Muto, & Tanabe, 2012). This informal or illegal recycling of e-waste poses serious health problems (Zeng *et al*., 2017) which many people are exposed to (Srigboh *et al*., 2016).

The essence of recycling and recovery is to reduce the quantities of disposed waste and the return of materials to the economy (Tanskanen, 2013). Informal waste pickers usually recover a significant portion of wastes at both the collection and disposal sites (Wilson, Velis, & Cheeseman, 2006). In China, for example, about 20% of discarded wastes are recovered for recycling, through informal waste picking (Hoornweg & Bhada-Tata, 2012).

Generally, landfilling is the dominant technology used for waste management in most African countries. However, it is noted to lack proper engineering to help in minimizing its effect on the ecosystem and human health (Henry, Yongsheng, & Jun, 2006; Hoornweg & Bhada-Tata, 2012). For example, on 17th August 2019, the Kpone landfill

site in Ghana was in flames, and the area was engulfed in smoke, which caused fear and panic among residents close to the site (GhanaWeb, 2019). Due to the risks associated with waste management sites, communities have rejected proposals on setting waste management facilities around their localities (Desa, Kadir, & Yusooff, 2011; Marshall & Farahbakhsh, 2013). That is why many researchers discourage waste landfilling (Henry *et al*., 2006; Torres et al., 2016) and rather recommend waste reduction, reuse, and recycling as a better way of waste management (Yuan & Shen, 2011).

The major limitation of waste management in developing countries is the poor separation of waste at the generation source (Joshi & Ahmed, 2016), thereby affecting the entire process of waste management. A study carried out by Samwine et al. (2017) revealed that the poor attitude of Ghanaians exacerbates the problem of waste management. Irresponsible individuals choose to litter the environment instead of keeping waste in waste bins. This shows that perception and priorities allocated to waste management depend on the individuals and groups (Walker *et al*., 2019).

The problem of poor waste management may be associated with insufficient environmental awareness of societies (Stępień & Białecka, 2015). In the context of sustainable development, waste management is at the core of environmental protection (Karak *et al*., 2012). Sustainable development seeks to ensure a balance between environmental, social, and economic factors in development (Izvercian & Ivascu, 2015). With the growth of cities and population expansion, the waste management agenda is increasingly becoming a subject of priority (Abd Manaf, Samah, & Zukki, 2009) requiring effective communication. Since, individual "beliefs, attitudes, and behaviours relating to nature and environmental problems are mediated or influenced by communication" (Cox, 2013, p. 20).

Media as a medium of communication plays an unequivocal role (Rutsaert et al., 2013) in waste management communication. Through their daily news reports that help raise public awareness (Henrique & Tschakert, 2019). Stępień and Białecka (2015) suggested that communication on waste management is best considered at the community level since they are largely responsible for its effectiveness by taking actions aimed at ensuring a successful course (Stępień & Białecka, 2015).

The news media either in audio, print, video, or the web have adapted to the modern behaviour and needs of the public (Yadav & Rani, 2011). The media are for the good of society. On this basis, media professionals frame news aimed at educating and informing the public on the need to protect the environment in the changing scenario of climate change and to achieve sustainable development (Yadav & Rani, 2011). Education can influence social life, transmit and influence cultures, (Kasim, Ismail, & Wahab, 2018) contributes to shaping and directing policy discourse as well as influence public understanding and action on environmental issues (Boykoff & Roberts, 2007). The media has championed the fight against environmental degradation and pollution (Cox, 2013). As a result of their concern about environmental issues, electronic waste dumpsite such as Agbobloshie in Accra has attracted countless media coverage in the Ghanaian press. Through the media, the public is informed and educated about the current environmental challenges and solutions suggested as to how to deal with them. In July 2019, the Ghana Journalist Association (GJA) launched an environmental sanitation project as part of the 70th-anniversary celebration which was scheduled to run for two years. The project was designed to use various media platforms to educate the public on waste management related issues (Tetteh, 2019). Waste generation and management are currently the most debated issues (Chu & Hamid, 2010) in media in many countries across the world. The dominance of waste management in media

discussions aims at shaping public attitudes towards waste reduction. Studies have established that the attitudes and behaviours of the public at large play a critical role in the reduction of the quantity of waste generated and waste recycling (Pollach et al., 2009). Based on the role of media in shaping individual attitudes, framing waste management issues towards good waste management practices could influence individual attitudes toward sustainable waste management in Ghana.

1.2. Research Problem

Ghana for decades has made positive advancements in managing the waste generated in terms of strategies, plans, policy development, and their implementations which include technologies, communications, and many others to deal with the issue of waste management in the country. Despite all these initiatives, the problem of waste management is still overwhelming which according to Samwine et al. (2017) includes persistent increasing volumes of waste generated daily and lack of public participation in waste management. This is visible through the fact that most communities in Ghana still resort to unacceptable old methods of disposing of waste which includes dumping into gutters, parks, roadside, and drains (Samwine et al., 2017). Poor waste management practices create scenes that are unpleasant and also present suitable conditions that could trigger sanitation-related diseases such as malaria, typhoid, and cholera (Boateng *et al*., 2016).

According to Kala and Bolia (2020) media creates awareness among people about waste management. Many models on public opinion have shown that the presentation of issues in the media plays an important role in reinforcing the attitude and behaviour of the public (Jasperson, Shah, Watts, Faber, & Fan, 1998) towards sustainable waste

management (Pollach *et al*., 2009). However, it is not known, how the Ghanaian media, over years framed the problem of waste management in Ghana. Thus this study intends to bring to light media discussion on the subject towards reinforcing attitude and behaviours on waste management.

Also, media coverage of waste management is a growing area of interest in the literature. Authors including Chu and Hamid (2010), Goodman and Goodman (2006), Pollach et al. (2009), Wakefield and Elliott (2003), Goodwin, Raffin, Jeffrey, and Smith (2018), have conducted studies examining the framing of waste management-related issues in the media. However, none of these studies on media framing of waste management-related issues was conducted in Ghana. Also, none of the studies included prominence attached to waste management stories by the media in their studies. This study, therefore, sought to fill the gap by studying the media framing of waste management in Ghana and taking special interest in studying the prominence attached to waste management stories by the media.

1.3. Research Objectives

1.3.1 Aim of the Study

This research aims to find out how the Ghanaian press covers waste management issues. In doing this, the study focused on a five-year by tracking and examining the content of newspaper reports from 2015-2019 and supported by media practitioners' perspectives on the issue being investigated.

1.3.2 Specific Objectives

Specifically, the study sought:

i. to examine the degree of prominence (in terms of story placement story and enhancement) given to waste management issues by *Daily Graphic*, *Daily Guide, Ghanaian Times*, and *The Chronicles* newspaper.
ii. to identify the sources of information used by the four newspapers in reporting on waste management.
iii. to analyse how newspapers in Ghana have presented the issue of waste management over the past five years.
iv. to examine the focus of waste management news.
v. to examine the perceptions of media practitioners on media narratives on waste management.

1.4. Research Questions

i. What degrees of prominence did *Daily Graphic, Daily Guide, Ghanaian Times*, and *The Chronicles* newspapers give to waste management?
ii. Who are the sources of information used by the four newspapers?
iii. How have newspapers in Ghana presented the issue of waste management over the past five years?
iv. What is the main focus of waste management news?
v. What are the perceptions of media practitioners on media narratives on waste management?

1.5. Significance of the Study

The significance of this study can be identified within three themes which include; policy, practice, and research:

1.5.1 Policy

The study identifies and brings to the attention of policy-makers, issues that limit waste management reportage in the Ghanaian media.

1.5.2 Practice

The findings of this study serve as a guide to communicators of environmental related issues, such as waste management news reporters and editors on the nature of coverage to provide on such important issues. Also, this study identifies and recommends major areas in waste management that are receiving communication deficit as a step towards effective communication.

1.5.3 Research

This study contributes to scholarship on media framing of waste management in Ghana. This study also helped uncover critical areas in media reporting on the waste management process that is not explored in research. Thus, the need for this research to explore media communication of waste management.

1.6. Research Scope

This study is of the view that media fulfil an important role as the source of information to the public and this information may consequentially influence individuals' perception (Takahashi, 2011) towards waste management. This thesis, therefore, examines how newspapers in Ghana portray the issues of waste management to aid in understanding the kind of information being consumed by the public from the media. This study solely focused on studying the content of media on waste management and not the effect of the content. However, the findings from this study may contribute to future studies on media effects (Lim, 2017).

The four newspaper outlets selected for this study include *Daily Graphic*, *Daily Guide*, *Ghanaian Times*, and *The Chronicles*. The four traditional news outlets were selected because there are considered credible sources of information (Nijkrake, Gosselt, & Gutteling, 2015).

This study is limited to the coverage of waste management between the period of January 2015 to December 2019 because it provides current insight into the nature of coverage on waste management. Also, municipal waste management is one of the climate change mitigation measures developed in 2015 as an action plan in Ghana's Nationally Determined Contributions (NDCs). The UN Sustainable Development Goals as well have a waste management component as part of its SDG 11. It was important to study this period to help understand the progress made so far towards achieving these plans and goals especially in the area of waste management.

Apart from the news articles reviewed, the views of media practitioners on the subject were also sourced to add more insight into the reviewed articles. The selection of media

practitioners prioritized authors of the waste management articles reviewed because they will provide useful information.

1.7. Organization of Work

This study is organized into six chapters. Chapter one introduces the study by providing a contextual lay-out. This chapter includes the introduction, research problem, research objectives, research questions, the scope of the study, the significance of the study, organization of work, and chapter summary.

The second chapter discusses the theoretical and empirical literature related to media framing and waste management. Chapter three explains the methodology used in this study. The methodology contains the research approach, target population, the sampling technique and sampling procedures, data collection tools and procedures, ethical considerations, unit of analysis, data validity and reliability, and data analysis. Chapter four focused on the findings and chapter five discussion of findings. The final chapter covers the summary, study limitations, study contributions, conclusion, and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.0. Introduction

The theoretical literature and empirical literature review are the two components of this chapter. The theoretical framework that underpins this study is framing theory. The framing theory was explained to show its suitability for this study. Also, the framing process was extensively illustrated to show how news stories are developed.

Literature review on the other hand is the extraction, analysis, and synthesis of existing knowledge relevant to the subject under investigation (Hart, 2018). The Literature reviewed as part of this study took into consideration the major concepts of the topic, that is, media framing and waste management. Media framing topics reviewed in this study include environmental communication, related studies on how waste management related issues in media are studied, the role of print media in waste management communication. Waste management topics reviewed also include the type of waste, waste management from a historical perspective, waste management in the Ghanaian context.

Also, waste management was aligned with the Sustainable Development Goals (SDGs) to help explain the significance of waste management in achieving some of the goals. The SDGs aligned with waste management in this study include Sustainable Development Goal (SDG) 1 to end poverty in all its form and everywhere, SDG 2 end hunger, achieve food security and improve nutrition and promote sustainable agriculture, SDG 3 ensuring healthy lives and promoting well-being at all ages, SDG 6

ensure access to water and sanitation for all, SDG11 make cities inclusive, safe, resilient and sustainable, SDG 12 ensure sustainable consumption and production patterns, SDG 13 take urgent action to combat climate change and its impacts, SDG 14 conserve and sustainably use the oceans, seas and marine resources, and SDG 15 sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss.

2.1. Theoretical Literature

2.1.1 Theoretical Framework (Framing Theory)

The framing theory is accredited to a sociologist called Erving Goffman in 1974 (Fisher, 1997) who held the view that individuals rely on "broader interpretative schemas called primary frameworks" to make meaning of information (Tewksbury & Scheufele, 2009, p. 18). These primary frameworks enable audiences to "locate, perceive, identify and label the flow of information around them" (Goffman, 1974 p. 21 cited in Semetko & Valkenburg, 2000 p. 94). Media discourses as well are often shaped towards these "specific primary frameworks" to influence audience interpretation in a specific manner (Tewksbury & Scheufele, 2009, p. 18). Meaning that the individual ability to make sense of news content is dependent on the media's use of familiar frames. According to Fisher (1997) "frames provide a 'common sense' pattern that systematically shapes the way we interpret images by drawing our attention to some aspects of these images while encouraging us to ignore others". The framing theory suggests that media focus attention on events and places them within a certain field of understanding to influences audience interpretation (Tewksbury & Scheufele, 2009).

Through framing, audiences can make meaning out of a communication text. Facts become more meaningful when they are embedded in frames (Crawley, 2007).

According to Littlejohn and Foss (2009), frames put information into a certain context to help the audience understand media content through the reduction of complex processes (Littlejohn & Foss, 2009). It is identified that environmental issues are complex and multifaceted and cannot be easily communicated. Therefore, framing the news in different ways will create smaller stories inside a bigger concept which will enable the readers to build an understanding of the issue (Nurmivaara, 2014). Littlejohn and Foss (2009) pointed out that even when reporters in their coverage seek to be objective, their reports give audiences clues as to how to understand the problem and point them on which parts to pay attention to, which parts to disregard and how to assess the problem. Framing can have profound importance for the public perception of issues (Semetko & Valkenburg, 2000). Some of the most powerful media framings always reveal those who cause the problem and those who can offer solutions to the problem (Iyengar, 1991).

Although the definition of news framing is varied, the many that have been employed point up to similar characteristics (Semetko & Valkenburg, 2000). Some scholars define the concept of framing, focusing on content while others on the framing effect. Authors such as De Vreese (2005); Entman (1993); Tankard, Hendrickson, Silberman, Bliss, and Ghanem (1991), belong to the school of defining framing focusing on the content. On the school of content, one of the authors defines framing as "select some aspects of a perceived reality and make them more salient in a communication text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and suggest solutions for the item described" (Entman, 1993, p. 53). He further explained that to achieve salience is by making a piece of information more visible, using positioning, repetition, and/or by connecting the information with culturally familiar symbols (Entman, 1993). One could appreciate the fact that framing

issues along “these functions activate newspaper readers’ schemas, encouraging them to interpret news stories in specific ways” (Golan & Lukito, 2017, p. 216). Another defines, framing as a “communication source presenting and defining an issue” (De Vreese, 2005, p. 51). Tankard et al. (1991 cited in Papacharissi and de Fatima Oliveira, 2008 p. 54) conceptualize framing as “a central organizing idea for news content that supplies a context and suggests what the issue is through the use of selection, emphasis, and elaboration”. Based on the various definitions of framing by Entman, 1993, De Vreese, 2005 and Tankard *et al*., 1991, media defines issues by focusing attention on certain aspects of the issues making them more prominent in a news story.

The other school of thought defines the concept of framing, based on the framing effect. According to Gamson and Modigliani (1989) frames are “interpretive packages” that makes sense of a matter by providing “a central organizing idea . . . for making sense of relevant events, suggesting what is an issue” (Hart, 2011 p. 13). On the side of effect also, Chong and Druckman (2007) define framing as the process through which individuals attain a specific view of an issue or adjust their perception about an issue based on how the issues are presented to them.

Based on the various definitions frames by the two schools of thought, frames can be classified as either media frames or individual frames. According to Entman (1991), individual frames are individual information processing schemata whiles media frames are the news content themselves.

The theory is particularly relevant to this research work because it provides a comprehensive explanation of the implications of media frames on waste management. Studying media content on waste management will provide a clear guide, indicating popular knowledge and diverse perspectives about waste management. It is understood

that, by highlighting certain values, media messages can be very effective in shaping audience issue interpretations and attitudes (Shen, 2004).

Another concept related to the framing is the agenda-setting tradition. Agenda-setting is one of the pivotal theories from the sociological perspective, that examines how the media have been shown to influence a large group in general (Rosenberry & Vicker, 2017). The concept of framing and agenda-setting belongs to the school of media effect. The distinction between the two is accessibility and applicability (Tewksbury & Scheufele, 2009). Agenda setting deals with making an issue more accessible while framing focuses on the presentation of the issue (De Vreese, 2005). Through agenda setting the media makes one news appear as more important than the other (Kasim *et al*., 2018). However, these two must go together to make a real impact on waste management.

2.1.2 Identification and Studying of Frames

According to (De Vreese, 2005), most studies of framing have focused on either content, that is, the news itself, or framing effects, that is, the effect of the news on the audience. This research project examined the news content to determine how print media have framed waste management issues in Ghana over the past five years. The rationale behind analyzing media news content is that it reflects economic, social, and institutional layouts in society (Lim, 2017). Also, Fisher (1997) highlighted that studying media frames provides a clue on how individuals comprehend issues that arise through discourse. The focus of this study is on media content only, however, the findings of this study can serve as the premises for future research linking news content on waste management and its effects on individual and societal levels.

Frames in news content can be identified for studies based on certain criteria which include the "presence or absence of certain keywords, stock phrases, stereotyped images, sources of information, and sentences that provide thematically reinforcing clusters of facts or judgments" (Entman, 1993, p. 52). Tankard, however, developed a comprehensive empirical approach to identifying frames in news content which includes headlines, subheads, leads, quotes selection, sources selection, photo, photo captions, pull quotes, logos, statistics, and charts, and paragraphs, and concluding statements (Tankard 2001 cited in De Vreese 2005 p. 54).

There are two approaches to content analysing or studying news frames. These two approaches include the inductive approach and the deductive approach. According to Semetko and Valkenburg (2000), the inductive approach involves analysing a news story with the intent to identify possible frames. The limitation of the inductive approach is that, it is labour-intensive, can only study small samples, and also can be complex to replicate.

The deductive approach, on the other hand, involves analysing news stories with already predefined frames and to verify the extent to which these frames occur in the news stories (Semetko & Valkenburg, 2000). With this approach, the researcher has a clear idea of the kind of news frames likely to be recorded in the stories. The limitation of the approach is that frames that were not predefined before the analysis of news stories may be overlooked (Semetko & Valkenburg, 2000). However, the easy replicability of the approach is its advantage; it can also be used to study large samples (Semetko & Valkenburg, 2000). This research employed the deductive approach by making use of predefined news frames on waste management-related issues. This approach was used by Chu and Hamid (2010) in studying media frames of waste-related issues in selected newspapers in Malaysia. The study employed Entman's, four framing

functions to identify and study frames of waste-related stories. According to Entman (1993, p. 52) frames "define problem, diagnose causes, make moral judgment, and suggest remedies". He highlighted that a text may perform one or more of these four framing functions. Some text however may perform none of the four framing functions. The use of frame elements or functions in the analysis of news frames was proposed by Matthes and Kohring in 2008 (Vliegenthart, 2012). The frame element or function are used as generic frames. The four frame functions were operationalized by (Chu & Hamid, 2010, p. 43) as follows "1) To define it as a problem, 2) To diagnose causes, 3) To make a moral judgment, and 4) To suggest solutions". However, apart from using the four frame functions, the study also captured another frame function in the process of analysis which includes 5) To State Consequences. These five framing functions were used by (Chu & Hamid, 2010) to analyse news frames indicating that waste issues were framed to define the problem, state the cause of the problem, make a moral judgment, recommend solutions, and state consequences or risk of waste.

This study studied news frames (Chu & Hamid, 2010) by adopting all the five frame functions to identify and analyse frames in waste management stories. This study operationalized these five framing functions as follows 1) Define Problem, 2) State Causes, 3) Make Moral Judgment, and 4) State Solutions, and 5) State Consequences in the analysis of waste management news frames. Studying news frames based on the frame functions means this study is of the view that waste management news is framed must defining a problem, identifying a cause of the problem, providing some moral judgment, proposing a solution, and stating the consequence or risk associated with the problem. The use of the deductive approach does not limit this study from identifying other frame functions in the text. This study is open to record other frame functions in the process of coding.

De Vreese (2005) identified various typologies of frames that include issues-specific frames and generic frames. Issue-specific frames are pertinent to specific topics (De Vreese, 2005). Unlike specific frames, generic frames are not limited to specific topics and therefore can be used in the study of different topics, and cultures. The most used generic frames are episodic and thematic (Vliegenthart, 2012). Iyengar (1991) stated that news reports may be usefully analysed by their thematic or episodic content. Episodic framing depicts issues as particular instances or specific events, which lead to the exclusion of important details. Thematic framing, however, places events in a broader context of related events and takes the form of in-depth backgrounded reports. A thematic frame offers general trends and information about an issue (Hart, 2011). Iyengar (1991) added that the standards and norms of news organizations and production reinforce episodic framing. A news story depicted episodically covered issues that are restricted to individuals/events. The Episodic frame provides a case study of the issue, (Iyengar, 1990, 1991 cited in Hart, 2011 p. 29) for example, the health risk of waste management on an individual. According to Matthes (2009, p. 350), Semetko and Valkenburg proposed five generic frames which include "conflict, human interest, economic consequences, morality, and responsibility".

Valence framing is another prominent issue in news framing literature, which targets the emotional dimension of issues (Golan & Lukito, 2017). The study of valence in news stories reveals the emotions of the communicator. This study employed positive, negative, and neutral tones to study the valence of framing waste management stories. Frame valence, that is to say, if a news story is presented either negatively or positively way, has been said to persuade society to support particular policies (Walker, Godley, & Nuno, 2019).

2.1.3 Framing Process

According to Boesman, Berbers, d'Haenens, and Van Gorp (2017, p. 311), framing is a "process driven by the journalistic dealings with sources and news values". News frames are produced by journalists which include reporters, editors, and writers as part of their professional routine (Pan & Kosicki, 1993). Through framing, journalists can process bulky information quickly (Pan & Kosicki, 1993). Framing is influenced by the news organization itself, journalists, and their sources (Crawley, 2007). These news sources can exert significant influence on what becomes news and how it gets framed (Berkowitz & Terkeurst 1999 cited in Crawley, 2007 p. 320).

Reporters and editors are encouraged to consider diversity in every issue by seeking out diverse sources (Shoemaker & Reese, 1996). This is because diversity in news sources employed influences diverse perspectives on an issue. However, journalists prefer Paletz and Entman (1981 cited in Shoemaker, 1996 p. 172) official sources, such as government officials, because they are easily available to be interviewed. Also, because journalists believe in the credibility of these official sources and the fact that they can provide them with the needed information as well as been Gandy (1982 cited in shoemaker, 1996 p. 1772) more factual by providing more insight and Eshbaugh-Soha (2014) cost less to cover. Boesman et al. (2017) added that journalists increasingly depend on official sources because of increasing deadline pressure. Based on the influence of the news source in what becomes news. Studying news sources is vital to revealing who is behind the news and whose opinion dominates as well as the diversity in perspectives on the issue.

The process of framing consists of defined stages which include "frame-building, frame-setting, and individual and societal level consequences of framing"(De Vreese,

2005, p. 52). Frames are usually built on existing frames that are culturally familiar (Boesman et al., 2017). In frame-building, both external pressure and internal factors play a vital role in influencing the output of the news frame (Chacowry, 2016; De Vreese, 2005). Internal factors such as organizational norms regulate how news is framed on an issue (Staats, Wit, & Midden, 1996). This helps guides the standard of information transmitting between journalists and society (Kasim et al., 2018). External factors that shape news frames include political ideologies, social movements, or pressure groups (De Vreese, 2005) and ordinary people (Boesman et al., 2017). Although these external factors do not always have a clear agenda, nor a media plan, they still succeed in shaping the framing process (Boesman et al., 2017). According to Brüggemann (2014, p. 62) in Frame-building journalists can become "Frame-Senders" by intentionally allowing news sources to take lead in the frames. Journalists can also become frame-setters in frame-building by mainly being responsible for the frame selection. The outcomes of the frame-building process are the frames manifest in the news text (De Vreese, 2005). **Figure 1** is a diagrammatical representation of the framing process.

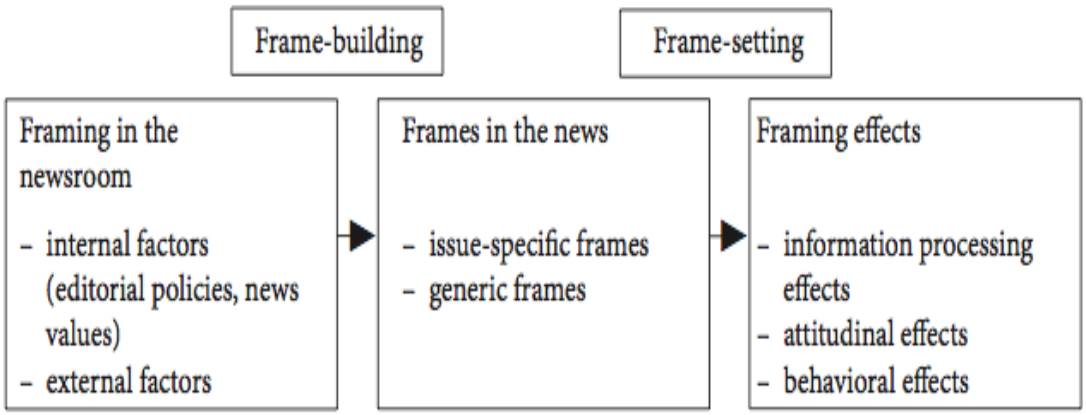

Figure 1: An Integrated Process Model of Framing

Source: News framing: Theory and Typology (De Vreese (2005, p. 52).

Frame-setting is the interaction between media frames and individuals' pre-existing knowledge and predispositions (De Vreese, 2005) on the issue, which selectively influences which schemas are activated to make meaning of the news (Lim, 2017). The outcome of the effect of a news frame can be perceived at an individual level (De Vreese, 2005). For example, change of an individual attitude towards waste management due to the exposure of certain news frames on waste management. The effect of frames on a community level is news frames effects on the public in terms of decision-making, and collective actions (De Vreese, 2005). Community or societal level effect is important, especially on issues that are environmentally related since the environment is a shared asset. The major effect of news frames is the "reinforcement of existing attitudes" (Scheufele, 1999, p. 105).

2.2. Empirical Literature

2.2.1 Environmental Communication

The "environment" particularly and recently in the shape of "waste pollution" and "climate change" has over the past three decades become political and public concerns of our time (Aram, 2012, p. 250). "Environmental Communication involves imparting knowledge to create public awareness" (Aram, 2012, p. 250) on environmental issues of which the media have been pivotal in that regard (Hansen, 2011). The mass media for decades have played a vital role in defining the environment as a life support and bringing environmental issues and problems to public and political attention (Hansen, 2011). Communication is an essential means through which scientists, politicians, and the public share knowledge on environmental issues (Moser & Dilling, 2011). Communication is necessary if the environment is to be considered a product of an interconnected global system (Aronczyk, 2018). Through communication, individuals

obtain the same kind of literacy about the environment (Aronczyk, 2018). Environmental communication can make people aware and for countries to appreciate the necessity to balance economic development with environmental protection. Despite the significance of environmental-related communication, it is still struggling to receive equal attention in media (Hansen, 2011). Even when they cover environmental issues the specialists such as sanitation workers who carry out the day daily tasks are mostly exempted from the story (O'Neil, Simon, Haydon, & Kendall-Taylor, 2012). According to Pollach et al. (2009), media paying little attention to the issue only means, the news media embrace sustainability issues such as waste management as a response to stakeholder demands, rather than being truly committed to the issue.

Other pressing issues like wars and economic crises have the propensity to take over or reduce media news agenda on the environment (Hansen, 2011). Journalists in their judgment decide which issues to cover by weighing their importance, novelty, and their ability to attract the interest of readers (Wakefield & Elliott, 2003). Shanahan (2009) indicated that one of the limitations of environmental communication in non-industrialized countries is the difficulty in persuading editors that environmental issues matter. Cox (2009 cited in Giannolis, Botetzagias and Skanavis 2010 p. 427) listed factors that constrain news production in general and environmental news especially, which include the influence of ownership and the economic interests of the owners of newspapers on the news content. Another constrain is the power of editors and media managers to decide the stories to cover or not to cover certain stories. Also, newsworthiness, that is, the ability of a news story to attract readers.

Eilders (2006 cited in Boukes, Jones and Vligenthart, 2020 p. 3-4 also found in Anderson, 2002 p. 9) identified factors that determine newsworthiness from the perspective of journalists which include:

1. Negativity - the negative aspects of an event or issue, for example, many people being killed through sanitation-related disease outbreaks;
2. Continuity - frequency; an event that has already received media attention is more likely to be considered newsworthy even if its scale is diminished;
3. Meaningfulness - cultural familiar and reflect everyday life;
4. Eliteness - the presence of persons, organizations, or nations of high status included in an issue, for example, UNEP involvement in a waste management event;
5. Influence and relevance - the relevance of an event based on its impacts and/or consequences;
6. Personification - the presence of a person in an event, such as eyewitness reports; and
7. Conflict - the presence of controversy and/or confrontation.

It is considered that the more news factors a news item has, the more newsworthy the news item is counted by media workers which then consequentially influence the prominence assigned to the news item (Boukes, Jones, & Vliegenthart, 2020). The factors that influence the newsworthiness of a story are likely to be the same ones that affect its prominence (Boukes et al., 2020). Environmental news being limited by these factors, still face other challenges on the way to being published (Nurmivaara, 2014). Due to the limitation of time and space, journalists should convince their editors of the newsworthiness of the stories that they are working on (Boukes & Vliegenthart, 2020). News factors play a significant role from the start to the end of the reporting and editing process. This process involves the selection of news, as well as the decisions on the prominence attached to a story (Boukes & Vliegenthart, 2020). Prominence refers to the degree of importance attached to a news story by journalists and/or editors in news

production (Boukes et al., 2020). The amount of exposure and placement on either the front page or placed deep inside the newspaper, as well as the use of headlines and images which are always news editors' decisions, can influence (Boykoff & Roberts, 2007) a story's prominence. The level of prominence attached to a story tells readers its importance. Some researchers use photograph enhancement as a measure of story prominence while others use story placement or word count (Wong & Harraway, 2019).

This research studied the degree of prominence of waste management stories using story placement and picture or photograph enhancement. In terms of placement, the front page is considered the most prominent page. The newspaper front page has significant relevance (Blood & Holland, 2004; Clayman & Reisner, 1998; Shaari, Ngu, & Raman, 2006). Stories featured on the front page has a special impact denied to the other stories appearing elsewhere in the newspaper. Front page stories achieve much exposure and are more likely than other stories published in other pages in the papers, to come to the attention of newsreaders (Clayman & Reisner, 1998). Because front pages are more prominent, stories published there may be considered to be more important by readers than other stories (Clayman & Reisner, 1998). There is some level of prominence attached to other pages as well, such as the back pages (North, 2012). The editorial page hosts the opinions of the newspaper and therefore, can influence newspaper readership. Based on the findings of Hallock (2007 cited in Marques & Mont' Alverne, 2019 p. 13) on the 1994 study of editorial page readership stated that 79 per cent of adult daily newspaper readers read the editorial page. The centre spread as well is one of the prominent pages.

Picture enhancement is also used to measure prominence. From a "Positive Discourse Analysis (PDA) perspective", the dominance of the pictures in environment stories may draw readers to such stories (Bednarek & Caple, 2010, p. 18). The Inclusion of pictures

in stories is to show to readers the prominence attached to the news and to encourage their emotional attachment to the news article (Wong & Harraway, 2019). It thus represents a clever way of persuading readers that may not normally have read a "boring" environmental story to engage with such stories (Bednarek & Caple, 2010, p. 9).

Hansen (2011, p. 11) highlighted that the extent and nature of media coverage of environment stories are highly dependent on the presence of an assigned environmental "beat" personnel in a media corporation, operated by skilled environmental correspondents. Hannigan identifies six major factors needed for the effective construction of an environmental problem:

1. Scientific endorsement of claims;
2. Media attention in which the problem is framed as novel and important;
3. Existence of popularizes who can bridge environmentalism and science;
4. A dramatization of the environmental issue using visuals;
5. Motivation economically for taking good action; and
6. The emergence of an institutional sponsor who can promote legitimacy and continuity (Nurmivaara, 2014).

Markowitz and Guckian (2018), revealed that existing literature on framing suggests that effective communication on the environment should focus on recommending solutions rather than placing more emphasis on effects and causes. Unfortunately, O'Neil et al. (2012) study of the media narrative of environmental health revealed that media places rather more emphasis on causes and conflict over solutions and corporative action. Adding that, the use of negative, risk-oriented messaging aims to increase the salience of the issue to motivate individuals to take action. Consequentially, such messaging leads many to the feeling of hopelessness and thus,

turns the audience off from the issue (Markowitz & Guckian, 2018). Narratives that employ the characters of heroes, victims, or villains can improve the clarity of environmental communication and enable individuals to relate to the issue and support arguments concerning the issue (Bushell, Buisson, Workman, & Colley, 2017; Jones, 2014). However, coverage of environmental health issues hardly have heroes but rather more villains, for example, government and business who choose profit over public health (O'Neil et al., 2012). According to Giannoulis, Botetzagias, and Skanavis (2010) previous studies that interviewed environmental journalists revealed that environmental journalists believe that environmental reporters should not be subjective in their coverage and unbiased in dealing with both corporations and environmental organizations. Journalists did, however, worry that some of their colleagues skewed stories toward environmental proponents and advocates (Giannoulis et al., 2010). They likewise expressed concern about the fact that many of the stories are focused on environmental problems and pollution rather than putting in effort to ensure that readers understand the complexity of the issues (Giannoulis et al., 2010).

2.2.2 Related studies on media framing of waste management

Through a literature search, this study came across few studies carried out examining media framing of waste management related stories. Although, these studies employed different approaches and studied different news media. The objective was to find out how this present study could benefit from the research approaches employed in various studies and their findings of the application of frames, tones, sources, and others that are applicable. This review shows how different approaches are used in studying media content and the different geographical settings in which these studies were conducted.

The first study by Goodwin et al. (2018) investigated six prominent UK news media which included the BBC, Daily Mail, Evening Standard, Telegraph, Express, and Guardian.

The objective of the study was to find out how the six news organizations framed the proposed wastewater reuse scheme in their online articles and how these frames influence public online reactions on the topic (Goodwin et al., 2018).

Goodwin et al. (2018) employed a purposive sampling strategy to collect news articles as well as the comments that followed on the statement made by Thames Water in May 2013 describing the indirect potable reuse water resource option. The study period considered 9-10 May 2013 for data collection because the articles were published over this short period. A total of 6 articles from the six news media outlets were purposively extracted and 1,323 comments on the six articles. The study employed an inductive, data-driven thematic analysis (Goodwin et al., 2018).

In their findings, Goodwin et al. (2018, p. 855) revealed that all articles disgustingly described the proposed project using "toilet to tap" as a dominant frame. On the whole, the BBC, Daily Mail, and Evening Standard were found to be more balanced in terms of the use of positive and negative attitudes towards the proposal. On the other hand, it was realized that the Telegraph, Express, and Guardian were more negatively biased in their overall attitude towards the proposed project. The findings also established that there was no conclusive evidence that shows that the framing of the single news event describing the water reuse scheme proposal had a great influence on online responses (Goodwin et al., 2018).

Another study by Chu and Hamid (2010) assessed how media frame waste-related issues for the past five years in selected Malaysian English-language newspapers in selected Malaysian. A content analysis was employed in this study. A total of 616

articles on waste-related issues were collected out of which 439 stories were published by the New Straits Times (TST) database whiles 177 stories were published by The Sun (TS) (Chu & Hamid, 2010).

The findings of the study indicated that the media played an important role by framing waste management issues defining the problem, causes, diagnoses, solutions suggestions, and consequences statements about waste issues (Chu & Hamid, 2010). The study had a dominant-negative tone. The frame of suggesting remedies was dominated with waste stories which were more positively framed indicating hope in solving the waste problems (Chu & Hamid, 2010). When waste stories were framed negatively, there were often associated with consequences and challenges faced in handling waste. The neutral frames were less applied in this study. Neutral frames were more associated with stories with less information about the waste issue (Chu & Hamid, 2010).

Chu and Hamid (2010) study was of theoretically (Framing theory) and methodologically (content analysis) relevance to this current research. Also, the applications of some key variables such as the tones and frames identified in the articles were relied on by this current study.

Also, a content analysis study by Goodman and Goodman (2006) investigated how the media framed biosolids, or treated sewage sludge, from 1994 to 2004. The objective of the study was to explore how the media defined biosolids, how the media frame biosolids, and whether these frames have changed over time. The attitude of the writers towards biosolids was also assessed and the change of attitude over time. Moreover, researchers have acknowledged that sources are allowed to control story frames, and therefore, important to be examined (Goodman & Goodman, 2006).

In the process of analysis, researchers randomly picked 10 per cent of the articles and qualitatively analyzed them to identify frames. The researchers found 13 possible frames: “regulatory, litigation, farm, urban versus rural, public nuisance, health and safety, disposal, environment, economic, public perception, management, research, and debate” (Goodman & Goodman, 2006, p. 365). These frames were used to code each story for possible frames

Goodman and Goodman (2006) reviewed 286 biosolid-related articles from newspapers in Florida, Virginia, and California. Unfortunately, the news stories reviewed that the provided definition of biosolids were inadequate, potentially misleading, or oftentimes negative sounding.

The analysis also indicated that the tone of frames was mostly neutral (1,958). However, a negative tone (507) happened three times more often than a positive tone (149). The dominant frame of biosolids was legal/regulatory issues or explored the impacts on the public. The findings also indicated the frames and the tones had not statistically significant change over the study period (Goodman & Goodman, 2006).

The most frequent information source of biosolid was local government officials, which were used twice as frequently as any other source. The high use of local governmental officials showed there are key gatekeepers (Goodman & Goodman, 2006). The other sources included State government, federal government, environmental or interest groups, farmers, educational institutions, corporations utility, trade organizations, citizens, non-affiliated scientist/experts, government scientists/experts, legal professionals, medical professionals, and others. The researcher further highlighted that other researchers have also found out that most environmental sources tend to be from the government (Goodman & Goodman, 2006).

A comparative study undertook by Pollach et al. (2009) in Austria to assess the content of environmental online communication using an automated approach. To show the strength of this approach, they compared environmental reporting on websites of organizations that publish environmental reports for different reasons altogether. These organizations include corporations, news media, and non-governmental organizations. The objective was to highlights the direction of the websites' positive or negative attitudes towards waste management (Pollach et al., 2009).

The study analyzed a total of 1,142 articles on solid waste management on websites to the three organizations to validate an automated approach to content and language analysis. A sample of 989, 39, and 114 was collected from corporate websites, websites of environmental organizations, and news media respectively for the comparative studies (Pollach et al., 2009).

Pollach et al. (2009) made a comparison of the three sub-samples that helped to corroborate the findings and validate the approach adopted. The analyses revealed that corporate attention to solid waste management is less compared with that of environmental Non-Governmental Organizations, but compares favourably with that of news media (Pollach et al., 2009).

The analysis also indicated that corporate attitudes towards waste management were more positive. News media rather expressed negative attitudes towards thermal waste treatment and solid wastes in their news frames. Those issues viewed negatively seem to reflect the burning issues in waste management that require urgent attention. The NGOs also viewed waste disposal slightly negatively (Pollach et al., 2009).

In the case of Wakefield and Elliott (2003), their study aimed to examine the role of print media as a tool for risk communication. The study traces the relationship between

an Environmental Assessment (EA) process on the proposed industrial waste landfill project in Ontario, news media coverage about the proposed project, and residence opinion on the issue. This was to better understand the role of newspapers in local risk communication. To achieve this, the study studied newspaper coverage of the potential risk, journalists' perceptions and resident perceptions on the project.

A mixed-method approach involving content analysis (media investigation) and in-depth interviews with journalists and residents. Thus allowing the exploration of the views of journalists, an investigation of resident access and views on newspapers and others on risk-communication messages (Wakefield & Elliott, 2003).

The study analyzed a total of 321 news articles quantitatively, in-depth interviews involved 3 journalists purposefully selected from 62 authors or reporters of the newspaper articles, and in-depth interviews of 20 residents. The mixed-method of content analysis of media frames and in-depth interviews of journalists employed by (Wakefield & Elliott, 2003) was consistent with the methodology used in this current study.

The findings from both the quantitative content analysis and in-depth interviews showed that the news issued by the newspapers was not necessarily the one that was the most concern to the community (Wakefield & Elliott, 2003). In terms of coverage, some areas were heightened in response to particular events. Also, coverage was more selective leading to some areas receiving more coverage than others. They concluded that newspapers were inconsistent sources of risk communication about the waste management project (Wakefield & Elliott, 2003).

2.2.3 The Role of Print Media in Waste Management Communication

Waste management communication is very critical in achieving sustainable development in the developing world. Waste management issues such as pollution from the heap of uncollected waste in urban areas, waste dump in streams and stagnant waters, and many others are a concern to many. Oteng-Ababio, Arguello, and Gabbay (2013) attributed poor disposal habits among residence to lack of awareness, hence, the need for waste management sensitization on such issues. Waste management communication is to ensure that citizens are not only informed and educated but bringing citizens on board in the waste management business. Public-Private-Community partnerships (Bhuiyan, 2010) is one effective strategy that can help in solving the waste management crisis in Ghana. For example, the National Sanitation Day (NSD) was initiated by the government of Ghana in 2014 due to an outbreak of cholera that claimed many lives (Blege, 2016). The mission was to reduce unsanitary conditions by encouraging communities to voluntarily carry out a clean-up exercise in their surroundings on every first Saturday of the month. This initiative was successful because of the role play by the media through publicity and continuous coverage of the cleaning exercises. The exercise saw the participation of the private waste management companies who usually collect and manage the waste gathered during the exercise.

The significant role and capacity of news media in news coverage of environmental issues has long been recognized (Hansen, 2011). The media play a critical role in informing and educating the public about environmental issues and raising awareness through news articles, editorials, columns, panel discussions, and debates (Koundal, 2019). Newspapers either in print or online format, remain a vital information source for the general public on most discussed environmental issues (Hannigan, 2006) such

as waste management. Issues of waste management are Chacowry (2016) regularly covered in the newspapers and often mirrors public opinion. The print media outlets are unique because of their ability to provide daily in-depth coverage on a broad variety of issues for their readers (Young & Dugas, 2011). In addition to this Wakefield and Elliott (2003) revealed that television stations are less likely to cover environmental issues as compared to newspapers. Newspapers are a regular source of information on issues concerning waste management as compared to other mediums such as television and radio (Wakefield & Elliott, 2003). Newspapers are a vital avenue for public discourse and due to their credibility, the public continues to rely on them to help construct their understanding of social issues (Ganowski, Gaede, & Rowlands, 2018). Since the individual perception of the environment is shaped largely by media (Aronczyk, 2018). Newspapers are part of the daily lives of their audience, the information presented in them help create a relationship between the public their ecosystem, construct public discourse and shape public opinions on the issue (Comby, Le Lay, & Piégay, 2014). Newspapers remain a credible source of news despite the growth of online news and citizen journalism that help provide information on events to the public. For example, the Ghanaian *Daily Graphic* a leading newspaper continues to be a credible source of news for the public as well as a reliable source of information for other news media such as online media, television, and radio (Sesenu, 2016).

2.2.4 Type of Waste

Rapid urbanization, changes in consumption patterns, (Santamarta et al., 2014) population growth, industrialization (Omar, Chowdhury, & Hashi, 2018) and increase in the living standard of the public have accelerated the growth rate of waste generation (Guerrero et al., 2013; Santamarta et al., 2014). Urbanization introduces society to a

new way of living (Onibokun, 1999) which comes with a density of negative externalities difficult to handle (Glaeser, 2014). Especially in African countries where rapid urbanization implies a rapid accumulation of refuse (Onibokun, 1999). The increased rate of waste generation puts pressure on existing sanitation facilities resulting in poor waste management and consequentially impacts the environment and human health. A global review of solid generation by Hoornweg and Bhada-Tata (2012) discussed earlier in the background in chapter one, showed an increasing rate of solid waste generation. These wastes generated contain both blessings and curses, meaning that waste contains valuable resources that are economically beneficial and as well as substances that are hazardous to life.

Although Demirbas (2011) gave an extensive classification of waste, he admitted the difficulty in the classification of waste. Demirbas (2011) classified waste based on its sources of generation which include animal wastes, domestic wastes, ashes, biodegradable wastes, biomedical wastes, construction wastes, non-biodegradable wastes, industrial solid wastes, sewer, commercial wastes, and hazardous wastes. This study, however, studied waste classification based on Rao *et al*. (2014) categorization which includes electronic waste, biomedical waste, hazardous waste, MSW, and plastic waste. This is because individual classifications are compacted, thus, contains bits of the different waste from the various waste sources.

Waste Electrical and Electronic Equipment (WEEE) describe discarded appliances that use electricity (Wäger, Hischier, & Eugster, 2011). Robinson (2009) differentiated between E-waste and WEEE, stating that E-wastes are waste electronic goods such as cell phones, laptops, and many others, whiles WEEE also includes traditionally non-electronic goods such as cookers, refrigerators, and many others. However, irrespective

of the differences, these electronic appliances are made up of materials that have similar properties that can be harmful.

According to Ongondo, Williams, and Cherrett (2011), the rate of growth of electronic waste is at an alarming rate, especially now that, Kiddee, Naidu, and Wong (2013) lifespan of many electronic goods has been considerably shortened resulting in a large volume of waste being produced annually. For example, the average lifespan of a computer has decreased from 4.5 years in 2.5 years to an estimate of 2 years in 2005 and is further decreasing (Widmer *et al*., 2005 Cited in Kiddee, Naidu & Wong, 2013 p. 1). Bushehri (2010) presentation at "The Regional Seminar on E-Applications Applications for the Arab Region" estimated that more than 500 million computers became obsolete in the USA alone between the period 1997 and 2007 and 130 million cellular phones were discarded in the USA in the year 2005. Also, 610 million mobile phone waste was generated and discarded in Japan in 2010. He further highlighted that every year, an EU citizen leaves behind 25kg of E-waste, and 25-50 million tons of E-waste were generated each year globally. According to Torres *et al*. (2016), a total of 42 million tons of e-waste were generated worldwide in 2014.

These wastes are seen as a threat not only by governments but also by the general public due to the hazardous material content (Cui & Zhang, 2008). E-waste contains toxic substances such as lead, cadmium, mercury, polychlorinated biphenyls and brominated flames retardants that are hazardous to human health and the ecosystem. The impacts of informal e-waste management such as open burning, backyard disposal, and other low-technologies by far exceed (Zeng *et al*., 2017). Informal e-waste management generates additional toxic pollutants such as polychlorinated dibenzo-p-dioxins and dibenzofurans, polybrominated dibenzo-p-dioxins and dibenzofurans, and heavy metals (Kiddee et al., 2013; Otsuka et al., 2012; Zeng et al., 2017, p. 1076). This implies

that the magnitude of the impact of e-waste on public health and the environment depends greatly on the waste management technology used. Proper E-waste management through recycling plays an important role by keeping hazardous substances out of the landfill and reduces the total global demand for new metal production (Kumar, Holuszko, & Espinosa, 2017). E-waste contains precious minerals such as aluminium, gold, silver, plastics, copper, iron, and palladium, which can be recovered and re-used (Kumar et al., 2017).

Another waste type that has been of great concern to the government and the general public is biomedical wastes. “Biological waste is defined as any waste which is generated during the diagnosis, treatment or vaccine of human beings or animals or in research or in the use of biological or in the health camp” (Bhalla, Bandyopadhyay, & Sahai, 2019, p. 241). The source of these wastes includes medical laboratories, hospitals, and clinics (IMANI Ghana, 2016). On average, a hospital generates waste between “0.5kg to 2.0kg/bed/day” which amounts to about 0.33milion tons annually (Bhalla *et al*., 2019, p. 240). The waste produced in delivering healthcare has a higher incidence of infection and injury than any other type of waste (V. Mathur, Dwivedi, Hassan, & Misra, 2011) due to its infectious material content. According to P. Mathur, Patan, and Shobhawat (2012) about 15% to 35% of hospital waste is regulated as infectious waste. Biomedical wastes are characterized as noninfectious, infectious, hazardous, and cytotoxic. Noninfectious waste includes wrappers, waste food, and many others (Rao *et a*l., 2014). Infectious waste includes sharps, pathological waste, surgical waste, blood soiled items, and body fluids. Cytotoxic and hazardous waste also includes pharmaceutical waste, discarded medicines, and chemical waste, (Rao *et al*., 2014).

Biomedical waste management varies across the world. There are low-risk disposal methods of management that include incineration, autoclaving waste, microwaving waste to make it inert. There is also high-risk disposal that involves disposing untreated waste directly into landfills (IMANI Ghana, 2016). Environmental and Public health risk is considered when choosing which method to use in managing biomedical wastes (IMANI Ghana, 2016).

In managing biomedical solid wastes, wastes are always segregated into colour-coded containers and bags for identification and management (Bhalla et al., 2019; IMANI Ghana, 2016; P. Mathur et al., 2012; Rao et al., 2014). These containers and bags are designed to suit the various waste properties. For instance, yellow plastic bags are for infectious and hazardous wastes, such as items contaminated with blood and body fluids. The method of disposal of this waste is through incineration. (Bhalla *et al*., 2019). Red coloured bags are for infected plastics. This type of biomedical waste is treated using autoclave or microwave or hydroclave at a common biomedical waste treatment facility (CBMWTF) followed by shredding or mutilation and recycling (Bhalla *et al*., 2019). White containers are for biomedical waste sharps. These waste sharps include syringes with fixed needles, needles from needle tip cutter or burner, scalpel blades, and fixed needles. The method of waste shapes treatment is through autoclaving and disinfection at a CBMWTF before final disposal at authorized iron foundries (Bhalla *et al*., 2019). The glass articles are discarded in a cardboard box with blue markings. The infected glass is pretreated on-site with autoclaving and disinfection before recycling or disposal. Non-infected glasses are disposed of without treatment (Bhalla *et al*., 2019; P. Mathur et al., 2012; Rao *et al*., 2014). Black Plastic bags are for general wastes that are disposed of at a secured landfill (Rao *et al*., 2014). Liquid biomedical waste also need to be

disinfected or treated to meet the required national environmental standards before discharge (Rao *et al*., 2014)

Another type of waste that is a threat to the environment, human health, and animal life is hazardous waste. Hazardous waste is any waste that because of its physical, chemical, biological, or infectious properties can cause "irreparable damage to the environment and incapacitative illness to human health" (Rao et al., 2014, p. 159). Industrial growth has resulted in the increased production of pesticides, pharmaceuticals, petrochemicals, fertilizers, textiles, leather products, dyes, chloralkali, and paint, (Rao *et al*., 2014). These wastes contain pesticides, cyanides, heavy metals, complex aromatic compounds such as polychlorinated biphenyls, and other toxins (Rao *et al*., 2014).

According to the United States Environmental Protection Agency, waste is regulated as hazardous waste if it exhibits one of the four characteristics. These characteristics include Ignitability. Waste is considered to be ignitable when it shares the following characteristics; firstly, a liquid, except aqueous solutions containing less than 24% alcohol, has a flashpoint of less than 60°C (Grasso, 2017). Also, a liquid and is capable, under normal temperature and pressure of causing fire through friction which can burn very vigorously, absorbing moisture, or undergo spontaneous chemical changes. It is also ignitable when is it an ignitable compressed gas (Rao *et al*., 2014).

The second characteristic of hazardous waste is corrosivity (Grasso, 2017). Waste is considered corrosive when its aqueous material has pH less than or equal to two or greater than or equal to 12.5 (Grasso, 2017). Also, when its liquid can rust steel at a rate greater than 1/4 inch per year at a temperature of 55°C (Grasso, 2017).

The third characteristic of hazardous waste is reactivity (Grasso, 2017; Hill, 2020; Rao et al., 2014). Waste is reactive when it is normally unstable and can quickly undergo

violent change without detonation. Also, when it reacts violently with water or forms potentially explosive mixtures with water. When mixed with water, it generates toxic gases, vapours, or fumes in a quantity sufficient to present a danger to human health or the environment (Grasso, 2017).

Another characteristic of hazardous waste is toxicity (Grasso, 2017; Hill, 2020; Rao *et al*., 2014). A solid waste exhibits the characteristic of toxicity if the Toxicity Characteristic Leaching Procedure provide results that prove that the extract from waste contains any of the contaminants with a concentration equal to or greater than these values which include barium 100.0, arsenic 5.0, cadmium 1.0, carbon tetrachloride 0.5, benzene 0.5, chlorobenzene 100.0, chromium 5.0, chloroform 6.0, chlordane 0.03, m-cresol ** 200.0, o-cresol**, 200.0, and many others (Grasso, 2017; Kiddee *et al*., 2013).

The negative effects of hazardous waste on health and the environment are very much evident (Nemerow & Agardy, 1998). This is why hazardous waste treatment is a rapidly growing innovative industry to ensure an effective, economically, environmentally sound, and an approved system of managing these wastes (Liu & Lipták, 1999). Liu and Lipták (1999) identified waste management options and hierarchy in managing hazardous waste which includes source reduction through process modification, separation and volume reduction, exchange or sale of obsolete as raw materials, energy recovery, treatment, and disposal at a secured landfill.

Environmental Impact Assessment (EIA) is a way of ensuring that hazardous waste producing industries integrate environmental and social concerns in their developmental activities at the proposed stage of project development (Nemerow & Agardy, 1998; Rao *et al*., 2014). EIA assists in identifying, predicting, and evaluating the foreseeable environmental and social consequences of waste to be generated throughout a project

lifecycle (Rao et al., 2014), then accordingly, develop mitigation measures to manage these consequences before project commencement. EIA is a tool used to ensure sustainable development (Nemerow & Agardy, 1998; Rao *et al*., 2014). Through EIA's impacts of hazardous waste on the environment, human health and biodiversity can be prevented.

In many cities, especially in developing countries, the ecosystem and, the health of dwellers have been degraded because the municipal waste management systems are ineffective (Mesjasz-Lech, 2014). Municipal or household waste are often generated from several sources such as institutions, industries, commercial areas, and places where human activities take place (Miezah *et al*., 2015). These wastes are usually heterogeneous and have varied physical compositions depending on their source of generation which includes, paper, food waste, leather, metal, textiles, batteries, and many others (Hamad, Agll, Hamad, & Sheffield, 2014; Midttun, Coulter, Gadzekpo, & Wang, 2015). It is therefore imperative for effective communication to ensure that wastes are segregated at their source of generation (Joshi & Ahmed, 2016). Managing unsegregated waste is challenging especially when waste is managed through recycling and waste recovery (Hettiarachchi, Meegoda, & Ryu, 2018).

Plastic is key for the innovation of many products in various sectors such as healthcare, electronics, automotive, packaging, construction, and others (Sharuddin, Abnisa, Daud, & Aroua, 2016). Discarded plastic products are plastic waste. Plastic waste is now one of the major components of MSW (Ashori, 2008). The total plastic waste generated in the world in 2011 was approximately 280 million tons (Sriningsih et al.,2014 cited in Miandad et al., 2017 p. 239). These wastes are a mixture of different plastic products, produce from low-density polyethylene high-density polyethylene, polypropylene, polystyrene, polyvinyl chloride, polyethylene, and polyethylene-terephthalate plastics.

Usually, Polyethylene and Polystyrene are the most common plastic products among municipal plastic waste (MPW) (Miandad et al., 2017).

Managing MSW including plastic waste involves waste reduction or prevention, waste reuse, waste recycling, and material recovery, aerobic composting, and anaerobic digestion (Hoornweg & Bhada-Tata, 2012). Methane is the by-product of anaerobic digestion which can be used to generate energy. Also, solid waste can be managed through incineration to reduce the volume of disposed waste (Hoornweg & Bhada-Tata, 2012).

2.2.5 Waste Management: Historical Origin

The central goal of waste management is to protect human beings and the ecosystem, conserve resources (Brunner & Fellner, 2007) and ensure efficient use of resources. Policymakers and researchers in both developed and developing worlds have undertaken several initiatives to provide an effective solution to the problem. Countries that are successful in reducing the amount of waste generated are regarded as an example of an effective economy (Hawkins, 2006). Studies have shown that many municipalities in developing countries use about 30-50 per cent of the municipal operating budget for waste management (Medina, 2010). Despite this huge expenditure, only about 50-80 per cent of the waste generated are managed properly (Medina, 2010). Improper waste management in the developing world can also be associated with insufficient waste management facilities in urban areas (Guerrero *et al*., 2013). There is, therefore, the need for monetary and technological investment in the sector.

In Europe and Northern America, waste is recycled employing an advanced level of technologies to prevent pollution. However, it is impossible to recycle waste without

impacting the environment (Osibanjo & Nnorom, 2007). The ultimate solution of waste management is wastes reduction which is achievable when people agree to act on themselves by changing their consumption habits (Hawkins, 2006). Fortunately, this has always been the target of environmental campaigners for decades to connect nature and culture, for individuals to identify themselves as agents for environmental protection (Hawkins, 2006). But surprisingly, the global quantum of waste continues to rise despite the efforts of these campaigners.

Some scholars attribute the continuous increase in wastes generation to urbanization and population growth (Simatele, Dlamini, & Kubanza, 2017). Unplanned urbanization in most developing countries aggravates the problem of waste management. The growth of unauthorized development such as wooden structures in slums preferably called 'kiosk estates or kiosk nation' is without the necessary sanitary facilities. Consequentially, resulting in wastes been found in every available open space and gutter in those localities. According to Medina (2010), urbanization in the developing world means the increase of existing slum areas and the development of new ones. Waste collection in slums is putting extra pressure on waste collectors in the formal sector, thus leading to the increase of the informal sector waste collectors who contribute immensely to waste management in these slums (Medina, 2010). In most cases, the informal sector is made up of poor disadvantaged marginalized social groups, the elderly, religious groups, and migrants (UN-HABITAT, 2010). For example, in Egypt, the Zabbaleen is made up of minority Christian groups with an estimated population of 60,000 people, who are involved in informal waste recycling (Ezeah, Fazakerley, & Roberts, 2013).

The drivers behind waste management have evolved over the years. Marshall and Farahbakhsh (2013); Wilson (2007) identified broad groups of drivers in the

development of waste management. According to Wilson (2007), the first driver for waste management is accredited to public health. The sanitation revolution began in London in the late 1830s resulting in the creation of a sanitation commission, which established the link between disease and poor sanitation conditions (Marshall & Farahbakhsh, 2013). This drove government interest to adopt better solid waste management practices through legislation, enforcement, and investment in infrastructure (Marshall & Farahbakhsh, 2013). Currently, public health benefits as a drive for waste management in industrialized countries is "largely taken for granted" (Wilson, 2007). The industrialized countries now focused on health issues such as cancer, cardiovascular diseases, drug abuse, and the issues of sustainability. However, waste management in the developing world is still driven by public health (Marshall & Farahbakhsh, 2013).

The second driver emerged in the 1970s where protecting the environment increasingly became a major concern, compelling nations to develop regulatory standards for environmental protection (Wilson, 2007). This came about due to the increase in wastes generation that contained higher plastic content after the second world war (Wolsink, 2010 cited in Marshall & Farahbakhsh, 2013 p. 990). Thus putting waste management into the national agenda of industrialized countries. The measures adopted then for waste management include covering and compacting retrofitting incinerators for dust control. Other policy stages that emerged in the 1980s and are still effective today includes landfill gas, and leachate control, incinerator gas, and dioxin reduction, and managing odour for composting facilities and anaerobic digester (Marshall & Farahbakhsh, 2013). The quest for environmental protection birth integrative policy known as the Integrated Approach which was much prominent in the 1990s. The Integrated Approach preaches that political, social, economic, financial, and

institutional aspects alongside the technical and environmental should be considered in waste management policies (Wilson, 2007). Unlike developed countries, environmental protection is relatively low on the public and political agenda in the developing world. Though there are legislations, the only challenge is the weak enforcement of these legislations meant to phase out poor disposal methods (Wilson, 2007).

The third driver is characterized by the resource value of waste known as the waste hierarchy. According to Marshall and Farahbakhsh (2013) during the pre-industrial era, resources were scarce and therefore, any valuable items in the waste stream were mined for recycling and reuse. This system is currently being practised in the developing world, where resources are mined from the waste stream through scavengers. The waste hierarchy was first introduced in 1977 in the EU's Second Environment Action Programme (CEC 1977) and advocated for a shift from the disposal of waste, to towards more sustainable options (Wilson, 2007). The global hierarchy is ranked with source reduction, reuse, recycling, and energy recovery, and lastly landfill (Ham & Lee, 2017). The waste hierarchy can be referred to as a historical first step towards a move away from the "end of pipe" concept of waste management (Wilson, 2007, p. 200).

The fourth driver is climate change, leading both to a move away from landfilling of biodegradable wastes which is a major source of greenhouse gas (GHG) emissions, to "energy recovery from waste" (Defra and Wrap, 2007 cited in Wilson, 2007 p. 200). The EU landfill directive sets targeted at the diversion of biodegradable waste from landfills to lower the impact of waste management on the environment (Ham & Lee, 2017, p. 519). Since the Kyoto protocol took place in 1997 and including the Paris agreement in 2015, the increase of renewable energies usage is largely recommended (Ham & Lee, 2017). To support this, also the EU Directive on Energy from Renewable

Sources was established to set the target for all EU Member States to provide 20% of total domestic energy from renewable sources by 2020 (Ham & Lee, 2017).

Another driver of waste management is Public Awareness where people were concerned about the impacts of poor waste management (Marshall & Farahbakhsh, 2013; Wilson, 2007). These impacts of poor waste management practices have led to the "Not in My Backyard" (NIMBY) syndrome, which means waste management facilities should be planted elsewhere and not near me (Desa et al., 2011; Eerskov-Klika, Lokner, Subasiae, & Schaller, 2002; Marshall & Farahbakhsh, 2013, p. 991; Wilson, 2007). This behaviour is fuelled by their experience with waste management strategies such as open burning, landfill sites not engineered, and open dumping. This perception of the public has hindered the establishment of sustainable waste management facilities. According to Marshall and Farahbakhsh (2013) communication is needed for the public to change their attitude towards effective waste management measures such as recycling, composting, and others. However, attitudes cannot be changed by simple education through communication. To adopt a new idea is dependent on the communicator, how the idea is presented, the credibility of the communicator, and the conditions by which the knowledge was received (Desa *et al*., 2011). Henry et al. (2006, p. 100) also, suggested that regular activities such as clean-up of neighbourhoods, schools, parks, and roadsides can be effective in changing the "NIMBY" attitudes. Another suggestion by Eerskov-Klika et al. (2002) to solving the problem is by ensuring that all participants involved in waste management such as companies, scientific institutions, government authorities, ecological groups, and institutions, should be straight to the public. Through face-to-face communication (Wakefield and Elliott (2003) to enable them make a respectable decision concerning the project (Eerskov-Klika *et al*., 2002).

2.2.6 Waste Management: The Ghanaian Context

Ghana like many other developing countries has waste management challenges. Although the nature and magnitude of this problem may vary between and within these countries (Appiah Boamah, 2011) they share similar priorities, that is, solving the problem. According to Mariwah (2012), Ghana generates 3.0 million tonnes of solid waste annually based on the 24 million population. Waste generation is expected to increase with the 2015 projected population of Ghana that stood at 27,741,176 (Gyimah, 2018). This population growth has intensified the pressure on existing urban infrastructure already overburdened with the provision of waste management services (Medina, 2010), especially in heavily populated cities in Ghana of which Accra is leading (Frimpong, 2018). It is estimated that only about 10% in Ghana of solid waste generated is properly managed (Gyimah, 2018). Ghana waste management challenges can be seen in the state level to the metropolitan, municipals, and districts levels (Frimpong, 2018).

Regrettably, there are available laws and policies aimed at ensuring effective waste management in Ghana. According to the 1992 Fourth Republican Constitution of Ghana, the Local Government Act 462 of 1993, and the Environmental and Sanitation Policy of 1999 revised in 2010, the Assemblies are supposed to enact bye-laws to regulate the management of waste in their areas of jurisdiction. At the local level also, it is the responsibility of the Assemblies to strengthen their local unit committees through the Assembly Members to protect and manage their respective environments. It is hard to pinpoint where the policy is lacking in its regulation of waste management in Ghana. Ghana's policy and practice gap in the area of waste management is possibly due to Mwesigye et al., (2009 cited in Appiah Boamah 2011 p. 2) "capacity constraints

or absence of waste management facilities for a different kind of waste". Policies provide a guide for stakeholders to operate to ensure Ghana achieves its aim for making Accra the cleanest city in Africa (Ngnenbe, 2019). Generally, waste management in Ghana is the responsibility of the Ministry of Local Government, Rural Development and Environment, which supervises the decentralized Metropolitan, Municipal, and District Assemblies (MMDAs). The Ministry for Sanitation and Water Resources was also created in 2017 to strengthen the area of sanitation. However, the Environmental Protection Agency (EPA) is assigned the regulatory authority, with the responsibility for setting environmental quality standards and ensuring their enforcement (Gyimah, 2018; Puopiel, 2010). Kumar & Nandini (2013 cited in Kala K, Bolia NB, Sushil 2020 p. 662) indicated that the government alone cannot handle waste management unless other stakeholders are involved, if not, then waste management will remain unsatisfactory. These stakeholders in Ghana include Metropolitan/Municipal/District Assemblies, Government Agencies and Ministries, companies in the waste management business both formal and informal, Environmental Non-Governmental Organizations, religious bodies, security services, academic institutions, civil societies, media, and communities.

In Ghana, the most dominant proper waste management methods used include waste deposal at landfill sites, incineration, composting, sewage sludge treatment, and recycling. The placement of solid waste in landfills is the oldest and the most used form of solid waste disposal (Zerbock, 2003 cited in Puopiel 2010 p. 331). Waste disposal at the landfill helps to minimize the amount of waste Adewole (2009), placed on the road median, inside gutters, and roadside which does not represent well for effective waste management. The challenge of landfill waste management in Ghana is that most of these disposal landfill sites are not engineered except few Metropolitan Assemblies

which have engineered sanitary landfills (Samwine *et al*., 2017). Also, the available landfill is not able to cope with the ever-increasing volume of solid waste being generated especially in Accra. Hence, the public sometimes employs various means of waste disposal (Puopiel, 2010). Incineration is another waste management technology applied in Ghana, however, waste incineration without proper controls can be highly polluting, generating dioxins, and depositing toxic heavy metals into water bodies (USAID, 2009).

Composting and recycling are other methods used in waste management in Ghana. The Accra Composting and Recycling Plant is one of the largest composting plants in Ghana that receive approximately "500tons of municipal solid waste" per day both organic and non-organic (Samwine et al., 2017, p. 99). Recycling, recovery, and composting of waste are methods that are also extensively advocated for but still minimally used (Samwine et al., 2017). The treatment of sewage sludge is a valuable way of producing nutrient-rich manure for agriculture (Koné & Strauss, 2004). In Ghana, pond systems have been developed to polish effluent of the settling or thickening tank pre-treatment units. The challenge is that algal growth is inhibited in the pond system due to the excessive ammonia content caused by the highly concentrated public toilet sludge (Koné & Strauss, 2004).

Informal waste disposal occurs in areas of Accra where waste collections services are not available and most of the places in which roads are inaccessible. Informal solid waste disposal sites include abandoned stone quarry sites, gouged natural depressions in the ground, old mining sites, or manmade holes in the ground. Open burning occurs at some of the open dumps (Oteng-Ababio et al., 2013), particularly in the dry season. These methods of waste management are considered improper.

Despite, all these methods employed to manage waste in Ghana, waste management remains a problem. The government of Ghana aims at making Accra the cleanest city in Africa (Ngnenbe, 2019) of which a narrative given by Appiah Boamah (2011, p. 1) as "a walk through Accra, the capital of the city of Ghana show evidence of improper solid waste management; choked drains, littering of the streets and uncollected overflowing from waste containers". Koné and Strauss (2004) added that developing countries like Ghana are challenged by what is called the "urban shit drama" where faecal sludge are indiscriminately and uncontrollably disposed into drains, and open spaces. It can, therefore, be concluded that "the current state of sanitation in Accra is very unsatisfactory" (Owusu, 2010, p. 146).

The current state of waste management in Ghana has severe implications for public health. For example, places like Agbogloshie is considered one of the most toxic places in the world due to the amount of electronic toxic deposit presently at the location (Otsuka et al., 2012; Srigboh et al., 2016). It is frightening to know that the most toxic place in the world is the largest foodstuffs hub in the capital city of Ghana, Accra. Korle Lagoon in the nearby estuary close to Agbogloshie has become one of the most polluted water bodies on earth which discharge directly into the sea (Otsuka et al., 2012). Aside from e-waste pollution, the ecosystem there is as well disturbed by volumes of untreated industrial waste emptied into the estuary regularly (Otsuka et al., 2012). Also in 2012, it was alleged that liquid medical waste from the 37 Military Hospital was released into the main gutters of the capital city for over a year. It is worrisome to accept that irrigated crops grown around the area use this same source of water (IMANI Ghana, 2016).

As Ghana works towards reaching middle-income status by 2020, it is expected that a wealthier population will most likely generate more of all types (Appiah Boamah, 2011; Samwine et al., 2017). Environmental advocates, environmental consultants, and waste

management companies often recommend waste-to-energy as a win-win, environmentally sustainable solution to the overwhelming challenges facing waste departments in cities such as Accra (Oteng-Ababio et al., 2013). Hence, a call for technological and financial investment in such areas of waste management.

Proper waste management does not only reduce the negative consequence of waste management on health, economy, environment, biodiversity, and water and it also yields additional benefits (Zeng *et al*., 2017). According to Myers (2017, p. 14) solid waste can be seen as a ‘‘livelihood resource or a health hazard’’. For example, proper e-waste management adds to the economy precious metals and valuable metals such as copper, ferrous metals, gold, aluminium, platinum, silver, and many other minerals (Ikhlayel, 2017). In terms of resources from waste, pyrolysis oil can be generated from recycled plastic waste (Joshi & Ahmed, 2016; Miandad *et al*., 2017). In 2015 60% of total worldwide renewable energy production was obtained from waste and biomass (Ham & Lee, 2017). Also, composting recycles organic materials by converting them into beneficial products. The output of composting, which is compost can be used as a soil amendment to improves soil texture and fertility (Mu, Horowitz, Casey, & Jones, 2017). The use of compost can replace or reduce the use of synthetic fertilizers in farms and gardens. Compost used in soil has the additional benefit of increasing the carbon storage capacity within the soil, which reduces GHG emissions into the atmosphere (Mu *et al*., 2017). Biosolids are other resources a nation can get from properly managed faecal sludge which can also be used as fertilizers (Goodman & Goodman, 2006).

Based on these benefits, Ghana’s government in 2015 captured MSW among the strategies in their Nationally Determined Contributions (NDCs) which aimed to reduce greenhouse gas emissions (Antwi-Agyei, Dougill, Agyekum, & Stringer, 2018). Proper waste management reduces the amount of methane and carbon emissions into the

atmosphere. Ghana making waste management part of its NDCs means it aims to have a win-win by enjoying all the benefits that come with proper waste management as well as meeting its target of reducing greenhouse gas emissions.

2.2.7 Waste Management and The Sustainable Development Goals

Global environmental degradation and social problems that strained societies for several decades led to a historic global political agreement (Pedersen, 2018). In September 2015, 193 countries signed the United Nations Sustainable Development Goals for 2030, which can be called "Global Goals" (Pedersen, 2018, p. 21). The United Nations' SDGs are made of 17 goals. The United Nations 2030 agenda on sustainable development interlaces economic, social, and environmental targets in the 17 SDGs (Nilsson, Griggs, & Visbeck, 2016). These goals recognize hunger and poverty eradication, equality, and inclusive economic growth, preserving the environment and population health (Myers, 2017). Waste management is fundamental in achieving sustainable cities and sustainable development as a whole (da Silva, Prietto, & Korf, 2019). Waste management is one comprehensive indicator (11.6.1) under SDG 11. The goal of SDG 11 on waste management is to ensure that "by 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to municipal and other waste management" (Klopp & Petretta, 2017, p. 94). Indicator 11.6.1 of SDG 11 states that "Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated by cities" (UN-Habitat, 2018, p. 2).

The SDGs are global problems defined into 17 goals with sets of targets. The goals serve as a guidebook for countries aimed to achieve sustainable development. The

SDGs are not new plans, they are "old sustainability agenda" made much easier (Pearson & Perera, 2018, p. 24). This agenda set the pace for collaboration between and among policymakers, non-governmental organizations, civil societies, and businesses to work towards achieving sustainable development (Pearson & Perera, 2018). Paying much attention to waste management is crucial to achieving many other SDGs. According to da Silva et al. (2019), SDGs cannot be met unless waste management is addressed as a priority. Waste management is a cross-cutting subject that affects various aspects of society and the economy. It has strong linkages to some of the SDGs such as climate change (SDG 13), health (SDG 3), poverty reduction (SDG 1), food security (SDG 2), water resource security (SDG 6), and sustainable production and consumption (12) (Wilson & Velis, 2015), SDG 14 life below water, and SDG 15 life on land.

In the area of climate change, decompose organic waste produce methane gas that contributes to climate change (Hettiarachchi *et al*., 2018). Methane gas has "approximately 21 times the global warming potential of carbon dioxide" (Mavropoulos & Newman, 2015, p. 11). The waste sector is a major contributor to greenhouse gas emissions, responsible for approximately 5% of the global greenhouse budget (Chalvatzaki & Lazaridis, 2010). This 5% greenhouse emission mainly constitutes methane (CH4) from anaerobic decomposition of solid waste and carbon dioxide (CO2) from wastewater decomposition (IPCC, 2006 cited in Chalvatzaki & Lazaridis, 2010 p. 108). According to the Intergovernmental Panel on Climate Change (IPCC), solid waste management accounted for about 3% of global greenhouse gas emissions in 2010, of which much is attributable to methane emissions from landfill sites (UNEP, 2016). However, the potential impact of appropriate waste management on climate change mitigation surpasses negative impacts by far (UNEP, 2016). Proper waste management and especially reuse and recycling reduces the amount of

greenhouse gas emission through waste management and therefore, helps in achieving SDG 13. Waste Management and composting especially, mitigate climate change by reducing the emission of greenhouse gases (Pollach *et al*., 2009).

To Achieve SDG 3 it is a necessity to ensure that people live healthy lives and promote well-being for all, at all ages (Howden-Chapman *et al*., 2017). Attaining this health goal heavily depend on waste management since (Howden-Chapman et al., 2017) improper waste management can be dangerous to human health. The uncollected heap of wastes serves as a reservoir for disease by providing a place suitable for the breeding of potentially disease-carrying vectors such as insects and rodents (A. G. Hart & Ratnieks, 2002; Hoornweg & Bhada-Tata, 2012). UN-HABITAT health data have it that households, where waste is not regularly, collected and households that practice open burning, the incidence of diarrhoea and acute respiratory infection among children are significantly higher as compared to children living in households that receive regular waste collection (UN-HABITAT, 2010). Especially now, that the volume of plastics is increasing daily in waste, the health impacts of open burning are devastating (Mavropoulos & Newman, 2015). Burning of plastics and other waste materials increases the concentration of air pollutants such as nitrogen oxides (NOx), sulfur oxides (Sox), heavy metals such as mercury, lead, chromium, cadmium, and others, dioxins and furans, and particulate matter (Mavropoulos & Newman, 2015). The covid-19 pandemic has made it extra difficult for the achievement of SDG 3. The covid-19 pandemic is a public health burden that came with extra package, that is, waste which include used nose masks, empty hand sanitizer bottles and covid-19 vaccine waste. These waste have biomedical properties which when not managed properly can have a public health concern.

The SDG 6:3 acknowledged the impacts of waste dumping on water quality (Rodić & Wilson, 2017). Effective waste management is vital in achieving clean water and sanitation (SDG 6) (Hettiarachchi et al., 2018). Waste management dumping in open spaces and parks is still a common practice in the developing world (Hettiarachchi et al., 2018). Chemicals that seep from these immense quantities of dumped waste can contaminate and poison groundwater, streams, and rivers from which the populace usually take water for drinking, cooking, and cleaning (UN-HABITAT, 2010). Uncollected solid waste is mostly the cause of local flooding which can result in water pollution (Hoornweg & Bhada-Tata, 2012). This can be detrimental to public health especially in rural Ghana where communities depend on streams, rivers, and wells as their main sources of water.

Life on land (SDG 15) can only be healthy when waste is properly managed. Leachate that is generated in dumping sites or uncontrolled landfills pollutes the surrounding ecosystem (UN-Habitat, 2018). The health of the planet and its inhabitants is threatened due to the dangers posed by waste most especially plastic. According to Mavropoulos and Newman (2015) plants near landfill sites can be impacted directly by activities such as waste burning. Also, dead vegetation close to landfills is often associated with a direct impact of the dumpsites (Mavropoulos & Newman, 2015).

Achieving (SDG 14) is not different when it comes to waste management since waste is seen everywhere on beaches. It is observed that three-quarters of the massive open dumps in the world are on the coast, leaching hazardous materials into our oceans (Mavropoulos & Newman, 2015). Thus wastes need to be properly managed to reduce the number of plastics that end up floating in the ocean. Adequate waste collection and elimination of uncontrolled dumping prevent plastics waste from ending up in the oceans (Rodić & Wilson, 2017).

Large marine mammals are endangered by plastic waste that is washed into the sea (Hill, 2020). Animals that look for food among waste will most probably die of poisoning or disease infection (UN-HABITAT, 2010). The dying of animals and sea creatures will consequentially reduce the amount of protein food available for consumption (SDG 2). Proper waste management, however, can improve the availability of food through the production of organic compost for farm use (Hettiarachchi *et al*., 2018).

SDG 12 is achieved when resources are used sustainably. Countries that support recycling reduces resource consumption as well as waste disposal into the environment, attaining greater output rates (Di Vita, 2004 cited in Pollach, 2009 p. 138) and generate income (Hettiarachchi *et al*., 2018). The global market for recyclables has increased significantly in recent years. The world market for scrap metal is estimated at 400 million tons annually and around 175 million tons annually for paper and cardboard (UN-Habitat, 2009 cited in Hoornweg & Bhada-Tata 2012 No.15, p. 27). Hettiarachchi et al. (2018, p. 12) proposed organic waste buyback "changes the value proposition of waste by turning it from an economic bad to an economic good".

Above all, "improper waste management accelerates poverty and social exclusion", and thus, defeating the efforts towards achieving SDG 1 (UN-Habitat, 2018, p. 4). When waste is not properly managed money or resources that will have been used for development are channelled into hospitals for the treatment of sanitation-related diseases such as cholera, malaria, typhoid, and others. However, waste management such as reuse and recycling have a significant potential for job creation and income generation (Rodić & Wilson, 2017).

2.3. Conceptual Framework

The Conceptual Framework in **Figure 2** explains how the media frame waste management stories and their influence on public perception with regards to waste management. Framing is a cultural process that mirrors the decision on what is considered more important than the others, influenced by the news space, work routine, and assumptions made by reporters and editors (Blood and Holland 2004 cited in Kasim, Ismail, Abd Wahab, 2018 p. 333). In framing waste management stories journalists take into account information sources which may include government ministries, and agencies such as the EPA, MMDAs, waste management companies such as Zoomlion, Jakora Venture, Zoil, and others, academic institutions, research institutions such as IMANI Ghana, and individuals who have interest in waste management in Ghana. Aside from the source journalists take into consideration, the editorial policy of the news house as well as news value as important factors that influence the framing of waste management stories. Journalists decide what information to include or exclude and what deserves the greatest priority in news content resulting in news been presented in a particular manner.

The content of media coverage is characterized by the presence of certain news frames in addition to tones (Nijkrake *et al*., 2015). The tone of waste management stories reveals the emotional dimension of the stories while the frames are focused on the cognitive dimension. Waste management stories depending on the tone or frame employed in framing could influence individual attitudes either positively or negatively towards waste management.

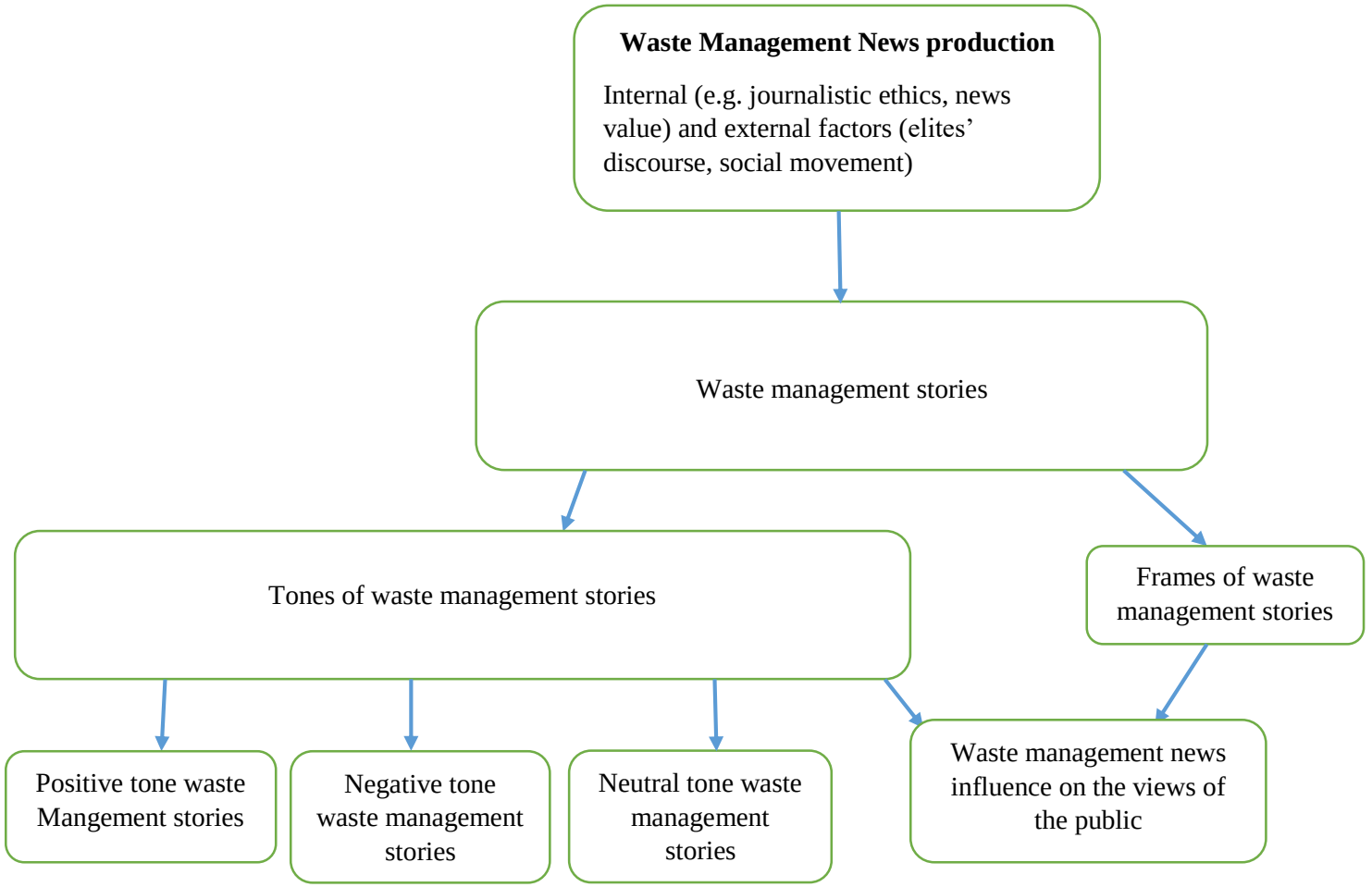

Figure 2: Conceptual Framework

Source: Author's Construct 2020

When stories are framed either positive, negative, or neutral is believed to have an influence on public perspective on waste management towards a particular angle base on the assumptions of the framing theory. This study, therefore, studied the tone of waste management news stories as well as the frames of news content to help understand public perception about the issue.

2.10. Summary and Conclusion

This chapter looks at the theoretical framework and literature related to the research project. The research topic was informed by the impacts of waste management on public health, the economy, and the environment and the role of communication as an effective tool to attain sustainable development. The study, therefore, examines how media discusses the issue of waste management since the media serves as an important mechanism to educate and inform the public on waste management. This study introduces the framing theory as the theory that underpins the research.

A literature review on related studies on media framing of waste management-related issues is provided. This was to present what other authors have done regarding the subject under study. This chapter also indicates the usefulness of environmental communication, highlights the role of media in waste management, and reviews the literature on waste management globally, and finally, the state of waste management in Ghana. This was to highlight the importance of efficient waste management in Ghana. A conceptual framework was also developed to explain waste management news production and its influence on public opinion.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0. Introduction

This study was inspired by the broad objective of the study which sought to examine how the print media in Ghana has framed waste management issues over the past five years, from 2015-2019 for the general public and decision-makers as a step towards providing recommendations for improved or sustained media communication. This chapter presents and explains the research methodology used in undertaking the study. The chapter specifically discusses the research approach, the study design, study population, overview of the newspaper outlets selected for the study, sampling procedure, data collection techniques, data collection instruments and tools, ethical consideration, unit of analysis, data validity and reliability and data analysis employed in this study.

3.1. Research Approach

There are three types of research approaches namely qualitative, quantitative, and mixed-method approaches. This study employed a mixed-methods research design. “A mixed-method study involves the collection or analysis of both quantitative and/or qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority and involve the integration of the data at one or more stages in the process of research” (Creswell, Plano Clark, Gutmann, & Hanson, 2003, p. 212).

Integration in a single study can be more effective when both methods are integrated into each of these procedures involving the research questions, units of analyses, samples being studied, data collection instruments and methods, and analytic strategies (Yin, 2006). He further noted that if each method procedure is individually used in a single study and not necessarily involving integration, the result will be complementary, and not mixed methods research. Nevertheless, integration during analyses produces results that help researchers unfold the complex associations in the topic of study (Bazeley, 2009). In a research study where integration is deliberate, the mix of methods could occur through iteration, blending, nesting, or embedding or through performing a common substantive or ideological purpose (Greene, 2007). For example, conversion of qualitative to quantitative coding to allow for descriptive, inferential, or exploratory statistical analysis is an approach for integrating data particularly through analysis, rather than as a conclusion to analysis (Bazeley, 2009). This study converts news text into quantitative data through some set of categorizations. The mixed-methods approach posits that both qualitative and quantitative methods have their associated strength and weaknesses which can complement each other to more completely answer the research questions (Abowitz & Toole, 2009).

A mixed-methods approach was therefore employed taking into consideration the strength and limitations of both qualitative and quantitative approaches. The purpose of mixing approaches is to offer the opportunity to gain a more comprehensive understanding of research problems (Dorly, Brady & Byrne, 2009). An advantage of the quantitative methodology is that it permits a value-free analysis, by allowing a more scientific and objective mode of inquiry to produce findings that can be inferred to a larger population (Lim, 2017). The study investigates media content on waste management, by employing the quantitative analysis of the sampled media stories. The

quantitative analysis, however, has a limitation of only focusing on counting the occurrence of specific words or content (Hsieh & Shannon, 2005) and not identifying meaning and interpretation of the content. Qualitative methodology, on the other hand, focuses on the interpretation of collected data to establish order, make sense of the data, and communicate results (Harding & Whitehead, 2013; Lim, 2017). Qualitative research is known for simplifying and managing data without destroying its complexity and context (Atieno, 2009). The main limitation of the qualitative approach is that the results cannot be generalized to a wider population since the results are not tested to determine whether they are statistically significant or due to chance (Atieno, 2009). This study, employed qualitative research to examine the perception of media practitioners about media narratives on waste management. The qualitative findings of this study will shed more light on the quantitative findings.

The philosophical tradition of the study is pragmatism. A pragmatist approach is a mixed-method approach made up of quantitative and qualitative techniques (Maloreh-Nyamekye, 2013). Pragmatists are of the view that both subjectivists and objectivists must be brought together to understand social issues. However, this ideology has been contested strongly by both sides (Doyle, Brady, & Byrne, 2009). Arguing that the two have incompatible philosophical approaches (Ahren and Chapman 2006 cited in Lim 2017 p. 119). Nonetheless, the advantages mixed-methods approach provides in a research study are more important than philosophical arguments (Caracelli & Greene, 1997; Doyle *et al*., 2009). Scott *et al*. (2007) stated that although qualitative and quantitative methods have their different roots and seemingly incompatible paradigms, fusing the findings of both methods may play a vital role in understanding social issues.

Johnson and Onwuegbuzie (2004) hope that the field of mixed methods research moves beyond the fights of qualitative versus quantitative and rather focuses on

acknowledging the advantages of the two and how they can work together in a study to maximize the strengths and minimize the weaknesses of each approach. The purpose of mixed research is not to replace qualitative research or quantitative research (Johnson & Onwuegbuzie, 2004). The two methods rather complement each other, for instance, in the data analysis stage, quantitative data can enable the assessment of the generalizability of the qualitative data and add more insight to the qualitative findings. Likewise, in data analysis, qualitative data can play the role of interpreting, expounding, and validating quantitative results (Johnson & Turner, 2007). The use of mixed-method approaches in a study provides a suitable and comprehensive way of understanding research problems either than using one approach alone (Creswell, 2009). Mixed methods go beyond a combination of different analyses, it has been recognized as a separate research orientation with philosophical assumptions and methods of inquiry guided by those assumptions (Mason, 2002 cited in Lim, 2017 p. 119).

This study employed a mixed-methods approach because it is the most effective way of providing comprehensive answers to the study research questions. A mixed-methods research approach answers the same research question in different ways and from different angles (see chapter 4), as well as analyze issues in more in-depth (Lim, 2017). This research assessed print media framing of waste management in Ghana in two dimensions: a mixed-methods of quantitative examination of how newspapers in Ghana presented the issue of waste management and qualitative assessment of media practitioners' perceptions of media framing of waste management issues. This approach adopted was to provide a better understanding of the what, how and why certain news stories were presented. Analysis of news articles only, provides hard data that explains the what, however interview of the media practitioners explains the how and the why. Another justification for the preference of mixed-method in this study was to ensure

validation of the text data by the views of the waste management news producers themselves and allow collaboration of the quantitative and qualitative data.

The explanatory sequential mixed-method approach was adopted for this study because it provides the opportunity to analyze the quantitative data followed by the collection and analysis of the qualitative data. Explanatory mixed-method was very appropriate for this study because it allowed analyses of the newspaper articles quantitatively and extraction of authors who were selected as respondents for the in-depth interviews.

3.2. Research Design

This study adopted a retrospective study design. This design was aimed to discuss reported events on waste management for the past five years. The study retrospectively reviewed newspaper articles on waste management published by the Ghanaian media for the past five years from 2015-2019.

3.3. Inclusion /Exclusion Criteria for Study Participants

The subjects in this research were print news media outlets in Ghana. In selecting the news outlets for the study, an official letter (Attached in Appendix F) was submitted to the National Media Commission to help with the list of print media outlets that could be used for the study. A list of thirty (N=30) outlets was provided by the National Media Commission. More details on the N=30 is in **Table 1.**

The study could not study all the N=30 outlets provided because of the constrain of time and resources. The study then employed an inclusion and exclusion criterion to select some outlets to represent the whole. The inclusion criteria used for the selection of the print media include that the print news media should be a newspaper, hence print

media that were not newspapers were excluded from the study. The exclusion criteria also took into consideration multisector coverage. This is because N=30 of print media in Ghana does not have a single outlet that was particularly focused on waste management. Thus, selecting newspapers that publish on diverse issues may increase the chance of getting waste management stories rather than the newspapers that are less diverse in coverage. The exclusion criteria also considered the age of the paper of which 25 years or older was the benchmark. Other issues in the exclusion criteria were the Lim (2017) wider distribution and level of influence in the local media scene. In terms of distribution, the print media should have a wider distribution covering at least 10 regions of Ghana and a daily circulation rate of at least 35,000. The rationale is that (Giannoulis *et al*., 2010) newspapers with a wider circulation are most likely to have more than one environmental reporter. This study apart from reviewing newspaper articles also interviewed environmental reporters, therefore, knowing the presents or absence of environmental reporters in an outlet was a priority. Lastly, the exclusion criteria considered the frequency of publication of which five times a week was acceptable. The rationale was to have a daily representation of the subject under investigation. Also, daily newspapers are more likely to have at least an environmental reporter (Giannoulis *et al*., 2010). Therefore, the newspapers that do not publish daily were excluded from the study.

Table 1: List of Print Media in Ghana

No.	Name of Print Media	Type of Print media	Frequency of Publication
1.	The Finder	Newspaper	Daily
2.	The Enquirer	Newspaper	Daily
3.	Junior Graphic	Newspaper (state-owned, sister paper of the Daily Graphic, aimed at 11- to 22-year-old)	Daily
4.	Ghanaian Times	Newspaper	Daily
5.	The chronicles	Newspaper	Daily
6.	Daily Guide	Newspaper	Daily
7.	Daily Graphic	Newspaper	Daily
8.	Daily Heritage	Newspaper	Daily
9.	The stateman	Newspaper	Weekly
10.	The showbiz	Newspaper (entertainment)	Daily
11.	Business and Financial Times	Business Newspaper	Daily
12.	The Spectator	Newspaper	Weekly
13.	The Daily Dispatch	Newspaper	Daily
14.	Gold Street Business	Newspaper	Weekly
15.	The Mirror	Newspaper	weekly
16.	The Ghanaian Observer	Newspaper	Daily
17.	The public Agenda	Newspaper	Daily
18.	The Catholic Standard	Christian newspaper	Weekly
19.	Apostolic Herald	Christian magazine	Quarterly
20.	Graphic Times	Newspaper (Sport)	Daily
21.	Student Loan Trust Fund	Academic Journal	Quarterly

22.	Journal of Construction Management and Civil Engineering In Developing Countries	Academic Journal	Yearly
23.	Alpha Lotto	Lotto papers	Quarterly
24.	Lotto Victory	Lotto paper	Quarterly
25.	Agoo	Magazine	Quarterly
26.	HR focus	Magazine	Quarterly
27.	Adenta Town News	Community paper	Monthly
28.	Akuafur Magazine	Farmers magazine	Bi-monthly
29.	Natural Medicine Today	Health Magazine	Bi-monthly
30.	Water quality news	Water quality paper	Bi-monthly

Source: Author's Construct (2020)

The inclusion and exclusion criteria were used to select participants to be used to conduct the research study (Kulaszewicz, 2015). The participants were selected by evaluating them against the inclusion and exclusion criteria. Before the assessment, the profile of each print media was read to find out more information on them.

Firstly, the assessment was done by considering the type of print news media. In the first assessment, it was realized that Akuafur Magazine, Natural Medicine Today, Agoo, HR Focus, Student Loan Trust Fund, Journal of Construction Management and Civil Engineering in Developing Countries, and Apostolic Herald were not newspapers. In this first screening process, N=7 newspapers were excluded from the initial batch of N=30 remaining N=23.

The second screening was carried out by considering the frequency of publication for the newspapers. In this assessment, it was realized Alpha Lotto and Lotto Victory

papers were published quarterly, Adenta Town News and Water Quality News were published monthly, also, The Statemen, The Spectator, Goldstreet Business, The Mirror, and The Catholic standards were published weekly. A total of N=9 papers were excluded from the remaining N=23 reducing to N=14.

The third screening also, N=4 newspapers were excluded because Graphic Times is focused on sport, The Showbiz on entertainment, Junior graphic news is mainly for youngsters between the age of 11 and 22, and Business and Financial Times mainly focused on business news. N=3 outlets were also excluded because the researcher could not get enough information on their influence, circulation, or distribution of these newspapers which include the Finder newspaper, Public Agenda newspaper, and The Ghanaian Observer. N=3 newspapers which include The Enquirer, The Daily Dispatch, and Public Agenda were also excluded because they could not meet the age criteria of 25years and older.

The remaining four newspapers met the criterion developed to select the newspapers for the study. These newspapers include; *Daily Graphic, Ghanaian Times, Daily Guide*, and *The Chronicles* newspaper. **Figure 3** represents the summary of the process used to extract four newspapers for this study which include *Daily Graphic, Daily Guide, Ghanaian Times*, and *The Chronicles* newspaper for the study.

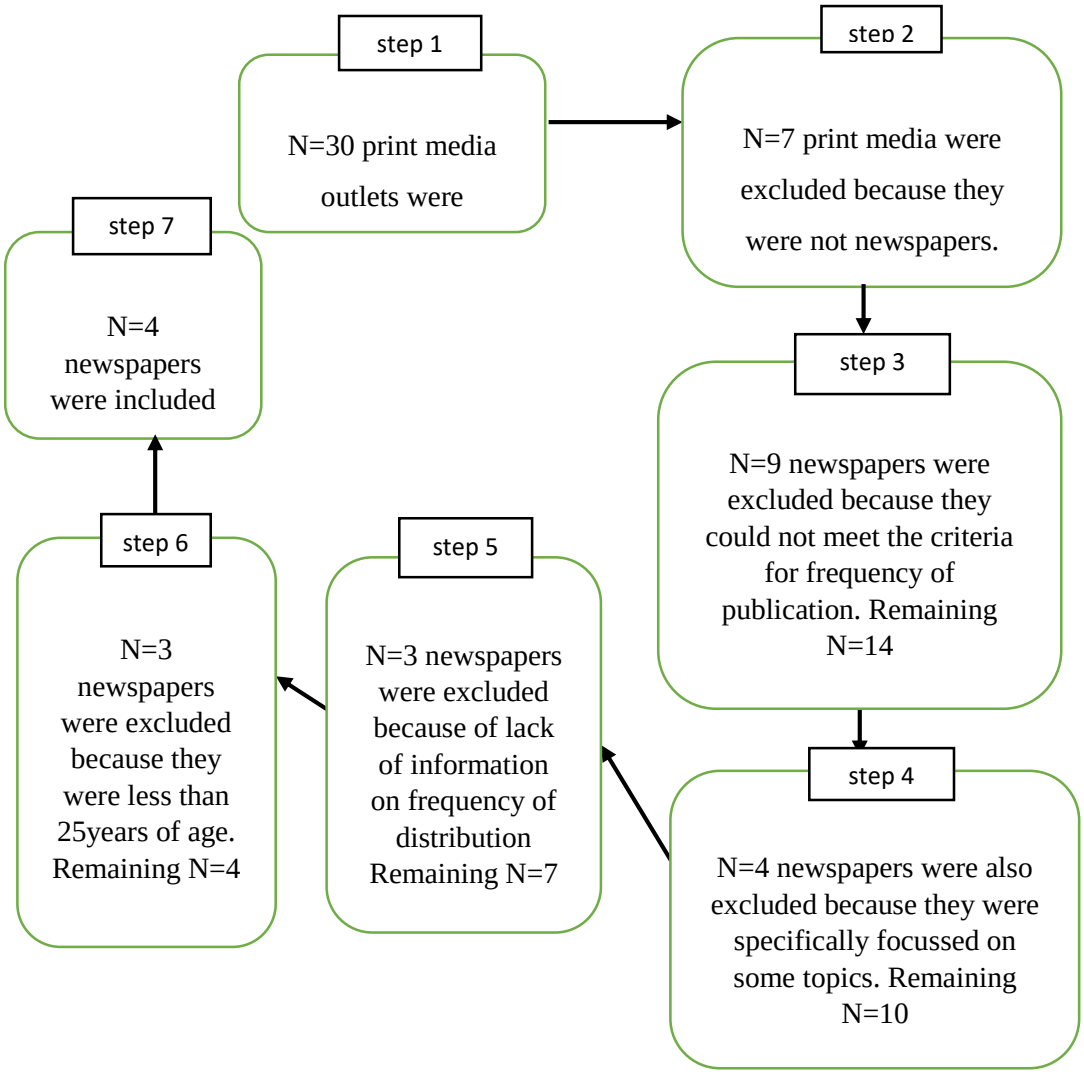

Figure 3: Diagrammatical Representation of Newspapers Selection Process

Source: Author's Construct 2020

3.4. Study Setting

Based on the criterion used, four newspaper outlets were selected from the Ghanaian press and they include *Daily Graphic*, *Daily Guide*, *Ghanaian Times*, and *The Chronicles* newspaper. These newspaper outlets selected met the minimum age of 25 years in local news coverage, they are daily newspapers with the largest circulation in the study area and also are the most popular newspapers with the ability to influence

public opinion and push policy agenda. The decision to analyze traditional newspapers instead of other media sources is because newspapers can be an interesting source of information in the retrospective analysis of the socio-environmental context (Comby *et al*., 2014). newspapers are also perceived to be more credible, for information. Despite the competition from online news providers, newspapers remain influential media actors, particularly in providing detailed coverage and analysis of local and regional news (Lim, 2017).

3.4.1 Profile of Daily Graphic

Daily Graphic was established in 1952 by the Daily Mirror Group of Britain and was later acquired by Dr Kwame Nkrumah's government in 1962. Daily Graphic operates as an independent newspaper in the stables of Graphic Communication Group even though is a state-owned newspaper. The Newspapers are supervised by a board of directors constituted by the National Media Commission in consultation with the president of Ghana and under constitutional provisions (Sesenu, 2016).

Daily Graphic over the past two decades has grown from eight pages in 1988 to its current 80 pages (Yovonoo, 2016). It is leading in the newspaper industry in Ghana with a daily circulation of about 100,000 copies (Kuehnhenrich, 2012 Cited in Sesenu, 2016 p. 39). According to Sesenu (2016) these other media organizations whether television, radio, or online rely on *Daily Graphic* for their information source.

3.4.2 Profile of Daily Guide

Daily Guide is a privately owned newspaper published by Western Publications Limited. The paper was launched in 1984 as a four-page weekly Sports Guide with the

third page of the paper reserved for subtle political commentary on events unfolding in the country. The *Daily Guide* later became a weekly paper and eventually a daily paper in 2001 (Yovonoo, 2016).

Daily Guide is considered to be one of the leading privately-owned newspaper outlets in Ghana (Sesenu, 2016). It is also considered to be largely circulated with 45, 000 copies a day and widely read private daily newspapers in Ghana (Yovonoo, 2016).

3.4.3 Profile of Ghanaian Times

Ghanaian Times (New Times Corporation (NTC), formerly known as The Guinea Press Limited, was established in 1957. It is a state-owned press that does a daily publication. It has a circulation of 80,000 copies and is published six times per week.

3.4.4 Profile of The Chronicles

The Chronicle is one of the leading private newspapers in Ghana. It was established in September 1990 and was one of the most widely read private newspapers from 1992 to 1993. It is owned by General Portfolio and Chronicle Media Limited. It publishes from Monday to Friday with 16 pages. *The Chronicle* was voted the best investigative newspaper of the year in 2003. According to Press Reference (2010 cited in Yeboah, 2016), the paper has a daily circulation figure of 40,000.

3.5. Sampling Technique

Composite week sampling was employed to sample newspaper articles. Composite week sampling is also referred to as constructed week sampling. Constructed week

sampling is a sampling procedure that is becoming a popular tool for communication researchers (Luke, Caburnay, & Cohen, 2011). This technique is will be used to select the days that represented the months in the study. Constructed week samples "involve identifying all Mondays, and randomly selecting one Monday, then identifying all Tuesdays, and randomly selecting one Tuesday", and the process continues for the rest (Hester & Dougall, 2007, p. 812). The sample for this study was drawn from the entire publication on waste management from the four newspaper outlets of each month from the period of January 2015 to December 2019. The days that represented the month in this study were Monday, Tuesday, Wednesday, Thursday, and Friday. Monday to Friday was considered because *The Chronicles* newspaper only publishes from Monday to Friday. In sampling one edition was randomly selected to represent each day (Monday to Friday) in a month. For example, a list of all the dates in a month was made and grouped into containers of the following strata: Mondays, Tuesdays, Wednesdays, Thursdays, and Fridays. Out of the four or five Mondays that could be listed, one was randomly sampled to represent Mondays in the month. A similar random sample was done for the Tuesday stratum through to Friday each month. The days that were randomly sampled for January 2015 (5^{th}, 13^{th}, 21^{st} 22^{nd}, and 30^{th}).

Using this approach, a total of (5days*12months) = 60 editions for a year for each paper, (60*5years) =300 editions for each paper for five years. An additional edition was purposefully sampled on April $24^{th,}$ 2017 which represents the Monday after the President made the declaration in a durbar to make 'Accra the Cleanest City in Africa' on Sunday, April $23^{rd,}$ 2017. Also, November 19^{th} represents World Toilet Day was purposefully sampled and any November 19^{th} that fell on Saturday or Sunday was replaced by the Monday following. This is to draw samples that look at how liquid waste is managed in Ghana.

This means that 1 day (November 19th) was added each year for the five years making a total of 305 for each plus the 1 day of April 24th, 2017 making 306 editions for each paper.

Purposive sampling was used to draw respondents or participants for the qualitative aspect of this study. A list of reporters whose by-lines appeared on stories of waste management-related was generated. A total list of 146 reporters was collected from the stories. This list is made up of *Daily Graphic* 57 reporters, *Daily Guide* 20 reporters, *Ghanaian Times* 54, and *The Chronicles* 15 reporters. The list excluded columnists and also writers to the editor. Also, any name that appeared more than once was counted once. Initially, a simple random sampling was conducted to select eight of these journalists, two from each of the newspapers listed to participate in the study. However, there were some challenges and the selected list had to be amended to include only those journalists that had experience in reporting on waste management-related issues and were available and willing to participate in the study. Even with this challenge, the list of authors was prioritized especially for the reporters. The editors who had experience in reporting on waste management issues and were not on the list were identified and interviewed.

3.6. Sources of Data

This study made use of both secondary and primary sources. The secondary data sources included archive news stories from *Daily Graphic, Daily Guide, Ghanaian Times,* and *The Chronicles* newspaper selected for this study. The data from the secondary source comprise of archive newspaper articles on waste management for the period 2015-2019.

Primary data was collected using a semi-structured in-depth interview guide. The interview involves two media practitioners each from the four selected news outlets. Interviews were more like discussions and were usually one-on-one between the interviewer and interviewee (Harrell & Bradley, 2009). In-depth interviews are used because the researcher seeks to find "deep" information and knowledge about a subject under study (Johnson, 2002, p. 104). This usually occurs when a researcher is committed to finding out the truth on the matter (Johnson, 2002). The interview was conducted to obtain information on media practitioners' perceptions of waste management narrative in media.

3.7. Data Collection Instruments

The main data collection instrument for the secondary data used in this study is a coding guide. The coding guide was developed based on the research objectives. The data collection instrument for the primary data for this study was an in-depth semi-structured interview guide.

3.7.1 Quantitative Data Collection Instrument

According to Lim (2017), content analysis is a predominant research method in communication and media studies use to examine the content of texts. Content Analysis is the second-most popular form of research method used in communication academic research after surveys (Rosenberry & Vicker, 2017). Content analysis is a method used in analyzing written, verbal, or visual communication messages (Elo & Kyngäs, 2008). According to (Weber, 1990) Content analysis is a systematic, replicable technique for compressing many words of text into fewer content categories base on specific rules of

coding. Holst offers a broad definition of content analysis as, "any technique for making inferences by objectively and systematically identifying specified characteristics of messages" (Holsti, 1969 cited in Stemler, 2001 p. 1). Holst definition did not limit content analysis to the domain of textual analysis only but also it may be applied to other areas such as coding student drawings (Stemler, 2001). The content to be examined can come from a variety of sources such as books, interviews, manuscripts, videotaped events, recorded conversations, news stories, blog posts, and many others (Weber, 1990). Although, the credibility and reliability of content analysis are uncertain especially when the data comes from different sources and also when the interpretation of the media tests are not well defined (Macnamara, 2005 cited in Chacowry, 2016 p. 205). The advantage of content analysis is that it allows the analysis of bulky data covering a long period (Chacowry, 2016).

Given a historical account of content analysis Hsieh and Shannon (2005) indicated that early studies that used content analysis, used content analysis as either a qualitative or quantitative method in studies. Later, content analysis was used mainly as a quantitative research method, with text data coded into explicit categories and then described using statistics. This approach is sometimes referred to as a quantitative analysis of qualitative data (Hsieh & Shannon, 2005). Lately, the potential of content analysis as a method of qualitative analysis was accepted, leading to its increased used and popularity. This indicates that content analysis can be defined in a quantitative, qualitative, and mixed-method perspective (Hsieh & Shannon, 2005). The rationale behind studying news media content is rooted in the notion that the media frame societal views (Lim, 2017). Also, analyzing media content may expose the intentions, attitudes, and emotions of the communicator (Lim, 2017). This thesis is of the thinking that how media present the issue of waste management influences how waste is perceived and managed. Hence,

studying waste management news stories in Ghana reveals the popular ideas being communicated on the topic.

In this study, content analysis was applied quantitatively by converting text news content into quantitative data to answer the research questions. The quantitative first research question examines the degree of prominence of waste management in the four newspapers in the period between 2015-2019. The second research question examined the sources employed in reporting waste management stories. The third research question investigated the attitude of stories in terms of negative, positive, and neutral tones. The fourth research question answered frames, using the frame functions. Content analysis reveals the trends (Stemler, 2001) depicting the divergences in coverage over the five-year study period as well as allows for comparison among the news outlets used. A content analysis study offers the flexibility to convert data. In this research qualitative data is initially generated and converted into quantitative data through counts (Creswell & Clark, 2017). The main categories used in the coding guide include the name of the newspaper, date of publication, name of author, headline, type of story, picture enhancement, story placement, newsmakers or sources, frame functions, and tone of the story.

3.7.1.1 Coding Guide

The coding guide was used to guide the coding of the identified stories in the newspapers manually (see attached a detailed coding guide in Appendix A). To help in the coding process, some content categories were generated. The content categories that were used were operationalized as:

1. **Name of paper:**
    i. *Daily Graphic;*
    ii. *Daily Guide;*
    iii. *Ghanaian Times;* and
    iv. *The Chronicles.*
2. **Date of Publication:**
    i. Monday;
    ii. Tuesday;
    iii. Wednesday
    iv. Thursday; and
    v. Friday.
3. **Byline (Name of the author):** This helped identified the authors of the articles. The authors identified were purposefully sampled as participants of the interview carried out as part of this study.
4. **Headline:** The headline is always very important because it gives the readers clues and helps them attend to what is in the frame and what is excluded (Blood & Holland, 2004). Despite the effectiveness of the headline in the identification of waste management stories, the study did not limit itself to the use of the only headline. The justification was to enable the study to draw all the articles that were on waste management. Articles with 'waste management' mentioned either inside the article or in the headline or any of these waste management related terms which include 'waste segregation', 'waste recycling', 'waste resource recovery', 'waste reuse', 'waste-to-energy', 'waste incineration', 'landfilling/ 'waste disposal', 'composting', 'waste reduction', 'waste

prevention', 'waste collection', 'waste treatment', and other waste management related issues was selected as a waste management story.

5. **Prominence:** Prominence reflects the degree of importance given by journalists and/or editors to a story (Boukes & Vliegenthart, 2020). This study investigated prominence given to stories by examining the significance of story placement (front page, back page, central spread, editorial page, and other pages) and story enhancement through imagery.
    i. Story Placement
    ii. Picture enhancement.
6. **Type of story:** This was to help determine if a story was editorial, feature, straight news story, opinion, or letter to the editor
    i. **Editorial:** Presents the official viewpoint of the newspaper on the topic;
    ii. **Feature:** Explores news stories in-depth. Features are more analytical and expose the mind of the writer;
    iii. **Straight news report:** Straight to the point and presenting the facts of the story. Inform readers about things that are happening in the world or the local area. They respond to questions about who, what, when, where, why, and how;
    iv. **Opinion/Columns:** Presents the author's opinion about a subject; and
    v. **Letter to the editor:** Letters written by individuals on the subject to the newspaper for publication.
7. **Source of Story (Newsmaker):** The sources of a story are individuals cited as providers of information. Sources are important to analyze because they are an indication of diverse perspectives that exist within society on a given issue. Studying sources helps to reveal the voices behind waste management

messages. According to Cox (2013, p. 26), the voices of environmental communication in public include "Citizens and community groups, Environmental groups, Scientists and scientific discourse, Corporations, Public officials" and others. The source of waste management information for this study was driven from (Cox, 2013) list and was realigned to suit the problem and the context. The source of waste management information includes:

i. Waste management companies
ii. NGOs and other social groups
iii. Governmental officials
iv. Experts
v. Religious leaders
vi. Traditional leaders and communities
vii. Academic Institutions
viii. Corporate Organisations
ix. Politicians
x. Other sources.

8. **Frame functions:** The five frame functions were used to study frames of stories and include:
   i. **Define Problem:** Stories that focus on the facts or historical background of waste management in Ghana**.**
   ii. **State Cause:** Stories on poor public attitude, lack of waste management equipment, the inefficiency of waste management officials.
   iii. **Make Moral Judgment:** There are propose actions on duty, honour, or any other sense of ethics or social responsibility (Boydstun, Gross, Resnik,

& Smith, 2013). Mainly focus on who is responsible for waste management.

iv. **State Solution:** reports on policies, strategies, actions, and technologies focused on providing solutions to waste management.

v. **State Consequence:** reports that indicate waste management-related health challenges, waste pollution, environmental consequence, and others.

9. **The tone of the story:** Each waste management story was examined to indicate whether it had a negative, neutral, or positive tone on reporting. The tone was determined based on how the issue is described in the headline and within the article (Razali, Sanip, & Sa'ad, 2018). Tones were applied as:

i. **Positive Tone:** A positive waste management story tone is the one that had its title or main story contain, statements that indicate hope for overcoming the problem, or benefits of waste management.

ii. **Negative Tone:** A negative tone waste management story is the type of story with either the title or main story contain issues of criminality, deprecating wording, irresponsibility, blaming, and expressing danger.

iii. **Neutral Tone:** A neutral tone was assigned to a story where it did not have such negative or positive connotations or contain both.

3.7.2 Qualitative Data Collection Instrument

The main data collection instrument used for the qualitative data was a semi-structured in-depth interview guide. Interviews are one common data collection technique used in qualitative research projects. The purpose of an interview in a study is to help provide useful information that could not have been obtained through observation alone

(Rosenberry & Vicker, 2017). Interviews also enable the researcher to see the research topic from the angle of the participants and to understand how and why they come to have this particular viewpoint (King, 2014 cited in Nyarko & Teer-Tomaselli, 2018 p. 37). The interview involved eight media practitioners, two from each of the four newspapers selected for the study. Find interview guides for news reporters (Appendix C) and news editors (Appendix D). The qualitative data was used to generate data to answer research question five.

3.8. Data Collection Procedure

A period of three weeks was used for data collection for both the quantitative and the qualitative data. A coding guide was used for quantitative data collection while the interview guide was used for qualitative data collection.

The quantitative data was collected by converting text data of newspaper articles into quantitative count using a coding guide with defined categories. Quantitative data collection was carried out by the researcher and another student using the same coding guide. Both coders extensively discussed the written definitions of categories. This was to ensure that both coders thoroughly understood the categorizations and to enable them to obtain reliable data for the study. Before the main data collection exercise, a pre-test was carried out by both coders' individually using the same data. This was to test the coders' level of understanding of the individual categories they were trained on and also the coders level of agreement on the categories. The exercise was carried out with the Business and Financial Times which is different from the four news outlets selected for the study. The major challenge encountered during this process was the initial criteria used to identify a waste management story. In the process of data collection for

the pre-test, it was realized that the criterion used was limiting the number of stories collected meanwhile other stories were equally relevant. Due to this, the criterion was redefined and the whole process re-started to ensure that the needed stories were collected. The results of the pre-test indicated a high level of agreement between the two coders.

After the pre-test, the main quantitative data collection exercise extracted relevant newspaper articles from the four different locations that include the University of Ghana Library, Library of the School of Communication, School of Africa Studies Library, and from the individual libraries of the selected newspaper outlets. The coding guide was used to code the individual articles to determine the appropriate category/categories selected for each of the variables examined. Severin and Tankard (2001) framing mechanisms were used to determine how waste management related articles were framed. The framing mechanisms included specific headlines, subheads, captions, photos, leads, quotes, sources, and concluding statements. The categories on the coding guide were represented by numbers and then entered into a spreadsheet template (see attached in appendix B). It is this data that was used for analysis.

Also, a pre-test was carried out on the interview guide with a media practitioner at the Business and Financial Times newspaper. The purpose of the pre-test was to ensure that the questions for the interview will be able to generate the correct and needed information. The pre-test revealed some lapses in the questions which were revised before the main interview exercise.

Qualitative data were collected through face-to-face interviews and telephone interviews from 8 participants (N=8) from the Nyarko and Teer-Tomaselli (2018) print media landscape which includes news reporters and editors using interviews for all

respondents. The interviews were taped record to ensure that relevant information was not missed. Interviews were conducted only in the English language because it was a common language between the interviewer and interviewee and also the participants were comfortable using it as a medium of communication (Nyarko & Teer-Tomaselli, 2018). **Table 2** gives more details on the 8 participants interviewed for this study.

Table 2: The List of 8 Participants Interviewed

No.	Name of Participants	Position	Name of Newspaper	Coded
1	Emmanuel Bonney	Reporter	Daily Graphic	PaDGR
2	Edmund Smith Asante	Editor	Daily Graphic	PbDGR
3	Melvin Tarlue	Reporter	Daily Guide	PaDGU
4	Adul-Rahman Gomda	Editor	Daily Guide	PbDGU
5	Malik Sulemana	Reporter	Ghanaian Times	PaGT
6	Mathew Ayinne Ayoo	Editor	Ghanaian Times	PbGT
7	Maxwell Ofori	Reporter	The Chronicles	PaC
8	Emmanuel Akli	Editor	The Chronicles	PbC

Source: Field Data 2020

3.9. Unit of Analysis

According to Rosenberry and Vicker 2017, the unit of analysis should be selected based on what should be examined. The unit of analysis makes it easy to determine what was included in a study or what was not. The study only considered news articles in the *Daily Graphic, Daily Guide, Ghanaian Times*, and *The Chronicles* newspaper which focused on waste management issues and were within the specified period of the study (see attached some newsletters in Appendix E). Advertisements on waste management

in the four newspapers were not considered waste management stories and therefore were not counted as such and not analysed. Also, waste management stories that were foreign or focus on waste management in different countries were not considered for the study. The reason being that the focus of this study was to understand how media presents waste management stories based on the Ghanaian context of waste management. This study examined media communication text using quantitative and scientific methods. Hence, frequencies were measured based on the definitions of categories used in this study.

3.10. Ethical Issues

The researcher obtained an approval letter from the ethical committee of Basic and Applied Sciences (see attached in Appendix G) after fulfilling all the requirements.

In the data gathering part, consent was obtained by writing a letter to the head of corporate affairs/human resource units of the selected media houses. The introductory letters detailed the purpose of the research (Find attached copies of the introductory letter in Appendix H). This was meant to ensure that participants fully understood the research and what information was required of them. Participants were also made to understand that the information gathered would be used only for academic purposes.

3.11. Validity and Reliability

Inter-coder reliability is widely used to determine the extent to which independent coders evaluate the characteristics of a message to reach the same conclusion (Lombard, Snyder-Duch, & Bracken, 2002). In this study, the researcher undertook an inter-coder reliability test by employing Cohen's Kappa inter-coder reliability test. The test was

carried out on the coding done by the two independent coders of the four newspaper editions studied. Using the SPSS software, the data submitted by the two coders were tested with Cohen's Kappa inter-coder reliability function. **Table 3** shows the level of agreement between the two coders using Cohen's Kappa.

Table 3:Results of Inter-coding Reliability Test

Variables	Cohen's Kappa
Placement of Story	0.895
Picture Enhancement	0.938
Source of Information	0.968
Tone of Story	0.819
Define Problem	0.832
State Cause	0.851
Make Moral Judgment	0.860
State Solution	0.840
State Consequence	0.833

Source: Data from Archive News Articles

The test yielded values higher than 0.67 are deemed substantial, a very satisfactory test value indicating a high level of agreement between coders.

According to Galanis (2013), a pilot study should always be carried out to evaluate the validity and reliability of a questionnaire. The aim is to ensure that to ensure the corrections are made. To ensure the validity and reliability of qualitative data of this study, a pre-test was carried out before the main data collection exercise. This process

allowed the interview questions to be tested and the necessary correction made. During the main data collection exercise, the interviews were audio-recorded to allow for a repeated reexamining of the data collected to check emerging themes as well as remain true to interviewees' accounts on the issues (Noble & Smith, 2015).

3.12. Analysis

This study content analysis data collected using the coding guide was analysed quantitatively. Qualitative data collected through in-depth interviews were thematically analysed and themes were generated to answer the research questions.

3.12.1 Quantitative Analysis

The analysis was based on the assumption that the prevalence of a particular concept or idea in a text shows the importance, attention or emphasis (Pollach *et al*., 2009). Quantitative content analysis typically used physical units. The Statistical Package for Social Scientists (SPSS) version 21 was used to generate frequencies. Descriptive statistics and multiple responses were used to generate tables and graphs for data presentation.

3.12.2 Qualitative Analysis

Data was collected through in-depth interviews and transcribed manually to generate themes. Research question five seeks to investigate the perceptions of media practitioners on media narratives on waste.

3.13. Summary and Conclusion

The two major approaches of quantitative content analysis and thematic qualitative analysis were used in this study. These approaches were extensively discussed to revealed the relevance of adopting such approaches and how they were applied in the study. The chapter threw light on the systematic steps used in selecting the newspaper editions to ensure that every edition had an equal chance of being selected for the analysis. The instrument used in data collection and the process involved in data collection and the tools used in analysing the data were discussed in detail.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.0. Introduction

This chapter presents, a summary of the findings of the research study, the analysis and the presentation of data collected using the various approaches and methods. The findings are from quantitative content analysis and thematic analysis of in-depth interviews from the eight media practitioners of the four news media outlets used for the study. Although brief descriptions are added to the results, the comprehensive and detailed discussions of these findings are given full attention in chapter five.

4.1. Quantity of Published Stories on Waste Management

The study examined newspaper coverage of waste management issues by four major news outlets in Ghana, for the period between January 2015 to December 2019. The data collected revealed that a total of 310 stories were published by the four newspapers. *Daily Graphic* has the highest number of waste management stories, followed by the *Ghanaian Times* been the second-highest, *Daily Guide* was the third-highest and the least was *The Chronicles*, representing 126 (40.6%) stories, 97 (31.3%) stories, 49 (15.8%) stories, and 38 (12.3%) stories respectively. This shows that *Daily Graphic* has more space for waste management stories than the *Ghanaian Times* newspaper as well as the publication of both *Daily Guide* and *The Chronicles* combined. *Ghanaian Times* as well as published more on waste management than the publication of both *Daily Guide* and *The Chronicles* newspaper combined. **Table 4** represent the frequency of

distribution of waste management stories published by the *Daily Graphic*, *Daily Guide*, *Ghanaian Times* and *The Chronicles* newspaper.

Table 4: Frequency of Distribution of Waste Management Stories

Name of Paper	Frequency	Percentages
Daily Graphic	126	40.6
Daily Guide	49	15.8
Ghanaian Times	97	31.3
The Chronicle	38	12.3
Total	310	100.0

Source: Data from Archive News Articles

From the qualitative analysis, it was realized that 'economic inequality', between public-owned and private-owned newspapers could have influenced the difference in coverage especially between the two public-owned and the two private-owned newspapers. Nyarko and Teer-Tomaselli (2018) had interesting findings on funding and agenda-setting among Ghanaian print media outlets by considering advertisement as a revenue-generating source of the print media outlets, that influences agenda-setting patterns. They indicated that 87% of government and corporate adverts are placed on state-owned newspapers whiles 13% went to private-owned newspapers. This indicates that the private-owned is financially starved of funding through advertisement leading them to depend more on sales as compared to public-owned. PbDGU an editor of the private-owned newspaper lamented that:

> *private newspapers are driven by cover sales and advertisement, so I mean if it is a state-run paper where there is funding from the central government that is a different ball game but this is a private newspaper,*

we have to make profit we have to pay our staff. Our stories are driven by what the readers want (PbDGU).

The private-owned been limited by funding through advertisement is also challenged by the fact that 'waste management stories do not sell' meanwhile the financial dependency of the private newspapers on news story sales is much higher. This was reported by PbDGR and PbC:

The story for many editors is that they don't sell but trust me, I was it in 2014 we had the crisis with cholera. I happened to be a member of the national committee so every story I broke it. That was sanitation-related that was timely otherwise if you are writing about sanitation you just need to have a passion for it. Otherwise, it really doesn't sell (PbDGR).

The problem is that. Yes, we are journalists we are supposed to educate the public. I am also looking at the business aspect of it, Majority of the people who will read are not interested in some of these things (PbC).

4.1.1 Trend of Publication

The results of the descriptive analysis represented in **Figure 4** shows a yearly distribution of articles published by the four newspapers on waste management, indicating 2015 as the highest coverage of 78 (25.2%) stories. This was followed by 2018 with the coverage of 67 (21.6%) stories and 2017 covering 57 (18.4%) stories. Coincidentally, 2016 and 2019 recorded an equal amount of coverage representing 54 (17.4%) each.

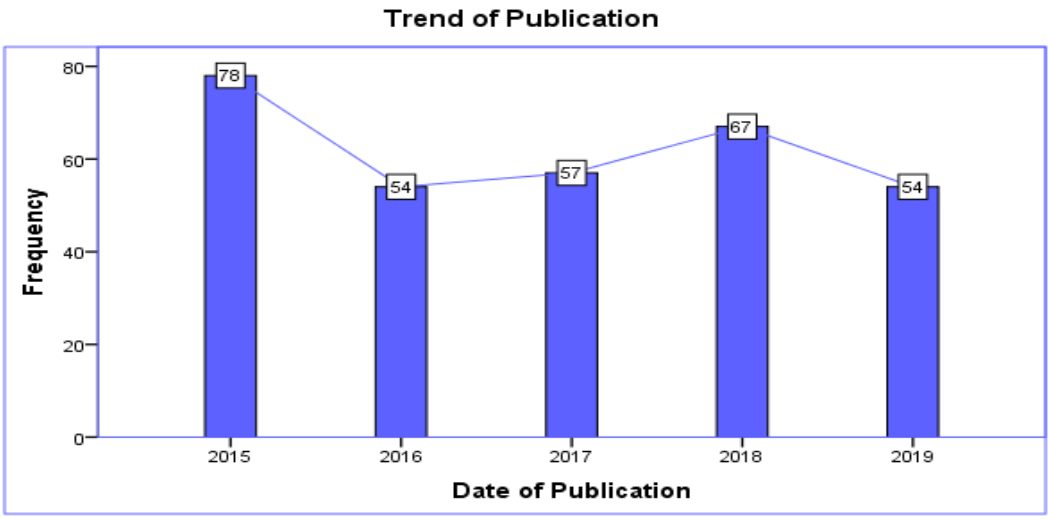

Figure 4: Trend of Publication from 2015-2019

Source: Data from Archive News Articles

4.1.2 Type of Story

Newspaper stories can be presented in different ways. In this study, newspaper articles were characterized as editorials, features, straight news, opinions/columns, and letters. Analysis of stories published showed that the study was dominated by straight news stories representing 257 (82.9%) of all the stories. The second-highest was the editorial news type representing 19 (6.1%) of all the stories published followed by feature 14 (4.5%) stories as the third-highest and opinion/column representing 11 (3.5%) stories. The least story type published by four newspapers was letters to the editor representing 9 (2.9%). According to Golan and Lukito (2017, p. 216) opinion journalism stories such as editorials, opinions, and letters to the editor help mitigate the "narrow news" type, that is, straight news. According to them such news provides readers with news coverage different from other news platforms and allows journalists to provide their subjective analyses on debated issues. Unfortunately, opinion journalism type of stories

was less published by the *Daily Graphic*, *Daily Guide*, *Ghanaian Times*, and *The Chronicles* newspaper but rather published more of what is referred to as ‘‘narrow news’’ which is the straight news. Straight news stories are news type that is not peppered with journalistic commentary or analysis (Eshbaugh-Soha, 2014). **Figure 5** shows the type of story and frequency of distribution of waste management stories published between the period 2015-2019.

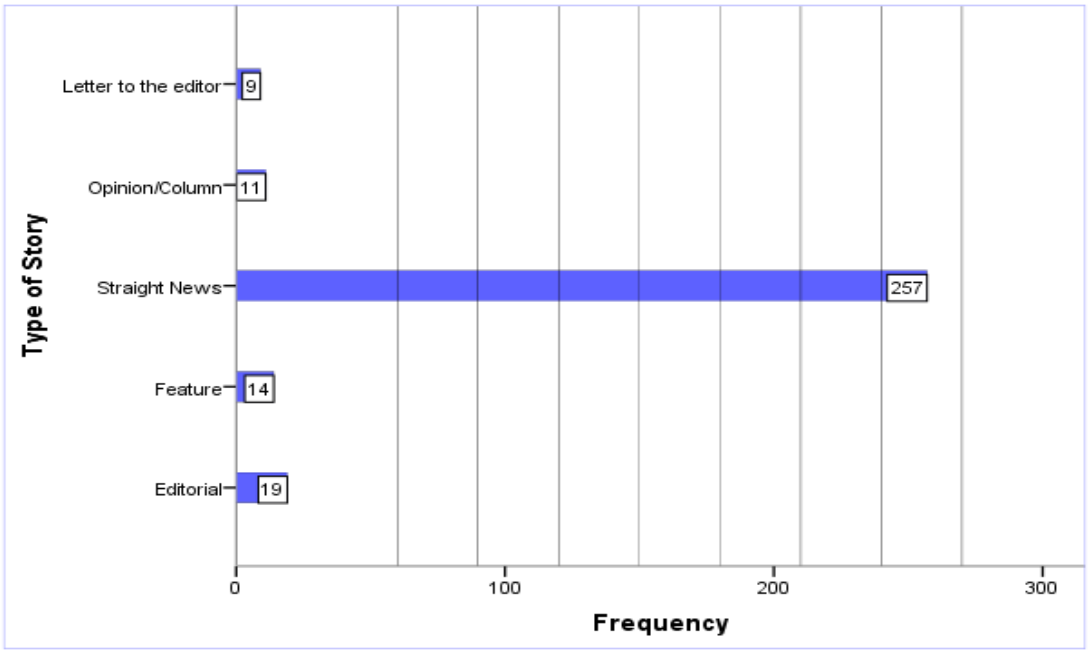

Figure 5: Type of Story

Source: Data from Archive News Articles

The interviews with the media practitioners conducted confirmed the dominance of the ‘straight jacket way’ of writing waste management stories or straight news stories. PaGT deeply lamented:

> *we don’t attach prominence to waste management stories we tend to go the straight jacket way, for instance, let me show you something, this is my story experts urge government to pay 42 million owed to landfill operators. So, I*

have just placed it as it is…I need to go beyond this maybe go to the communities where this landfill is located to find how many people have died as a result of the unsanitary conditions that they live…. because these people if they are not paid, they will leave the site open and flies will move about sit on their food they don't know and eat and they will get cholera…., Because we don't do this…we don't frame waste management stories. It is mostly placed as it is. I should go beyond this maybe six months until these issues are resolved. Go beyond this 42 million Ghana cedi (PaGT).

The results of the Chi-square statistical test ($\chi 2 = 29.519$, df = 12, p = 0.003) shows a significant difference in the type of story published among the four newspapers. Although all the four newspapers preferably used straight news stories in their coverage of waste management issues in Ghana, *Daily Graphic* emerged to have more diversity in the type of story than the other three. *Daily Guide*, *Ghanaian Times*, and *The chronicles* did not publish some type of stories, unlike *Daily Graphic* that published in all of the types of news stories. *Daily Guide* did not use feature and opinion/column, *Ghanaian Times* did not publish any letter to the editor and *The Chronicle* also had zero counts for feature and letter to the editor. **Table 5** shows the difference in the type of stories used by the four news outlets.

Table 5: Comparison Type of Story by Newspapers

Name of Paper	Type of Story					Total
	Editorial	Feature	Straight News	Opinion/Column	Letter to the editor	
Daily Graphic	12	5	95	7	7	126
	3.9%	1.6%	30.6%	2.3%	2.3%	40.6%
Daily Guide	3	0	44	0	2	49
	1.0%	0.0%	14.2%	0.0%	0.6%	15.8%
Ghanaian Times	2	9	85	1	0	97
	0.6%	2.9%	27.4%	0.3%	0.0%	31.3%
The Chronicle	2	0	33	3	0	38
	0.6%	0.0%	10.6%	1.0%	0.0%	12.3%
Total	19	14	257	11	9	310
	6.1%	4.5%	82.9%	3.5%	2.9%	100.0%

$x^2 = 29.519$ df = 12 p = 0.003

Source: Data from Archive News Articles

4. 2. Degree of Prominence attached to Waste Management Stories

The degree of prominence that the *Daily Graphic*, *Daily Guide*, *Ghanaian Times*, and *The Chronicles* newspapers attached to waste management stories were measured using story placement and story enhancement through images or pictures.

4.2.1 Story Placement

The findings revealed that stories on waste management were given very little prominence in terms of placement by the *Daily Graphic, Daily Guide, Ghanaian Times*, and *The Chronicles* newspaper. The front page is considered the most important page (Blood & Holland, 2004; Shaari et al., 2006) which was less used for publication by the four newspapers. Out of 310 stories, an overwhelming majority of 270 (87.1%) stories were publications on other pages. The significant pages which include the editorial page counted 19 (6.1%) stories followed by back page 10 (3.2%) stories, centre page 7 (2.3%) stories, and front-page 4 (1.3%) stories. **Figure 6** represents the frequency of placement of waste management news stories.

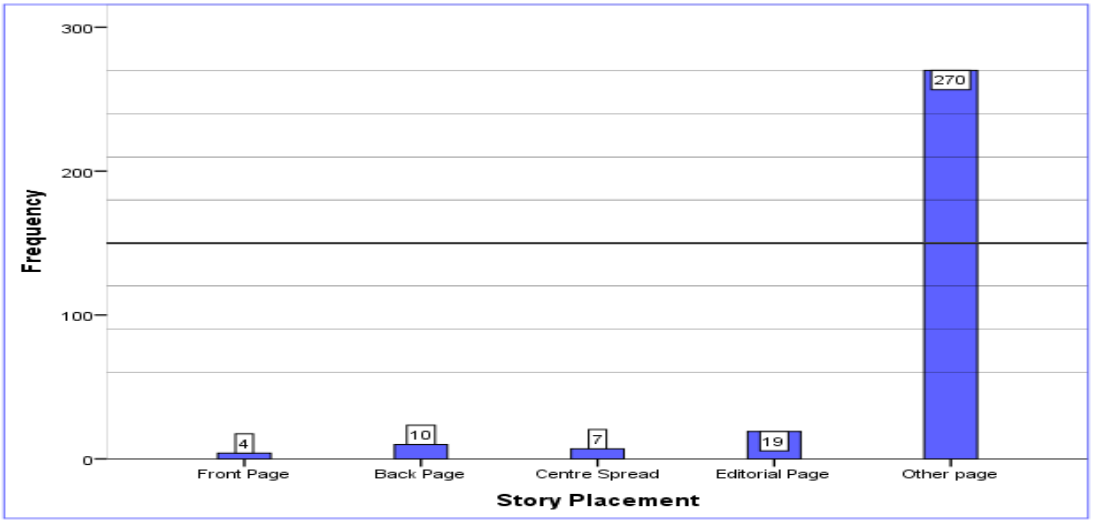

Figure 6: Story Placement

Source: Data from Archive News Articles

Media practitioners consider waste management news as 'dull-looking' which on an ordinary day will not attract readers, therefore placing such stories on the front page chases potential customers away. Respondents indicated:

> *So, you go and bring a subject to an ordinary man on the street on the front page and it is dull-looking he won't buy (*PbDGU).

> *so if I am going to sell my paper and the front page is like waste management issues and bla bla bla will you buy it..putting some of these stories on the front pages you will lose your customers* (PbC).

The results in **Table 6** indicates that there was a significant difference in how the four newspapers place their stories. This difference was further elaborated by the Chi-square results ($x^2 = 21.149$, df = 12, p = 0.048). Although all the four newspapers chose other page placement as their dominant page placement of waste management stories, there were significant differences in the use of the back page, front page, central spread, and editorial page. *Daily Guide* did not publish on the back page and centre spread, *The Chronicles* likewise did not use back page, front page, and centre spread in their publication of waste management issues. *Daily Graphic* and *Ghanaian Times* on the other hand published on all the page placement types on waste management issues.

Table 6: Comparison of Story Placement by Newspapers

Name of Newspaper	Story Placement					Total
	Front Page	Back Page	Centre Spread	Editorial Page	Other pages	
Daily Graphic	2	8	6	12	98	126
	0.6%	2.6%	1.9%	3.9%	31.6%	40.6%
Daily Guide	1	0	0	3	45	49
	0.3%	0.0%	0.0%	1.0%	14.5%	15.8%
Ghanaian Times	1	2	1	2	91	97
	0.3%	0.6%	0.3%	0.6%	29.4%	31.3%
The Chronicle	0	0	0	2	36	38
	0.0%	0.0%	0.0%	0.6%	11.6%	12.3%
Total	4	10	7	19	270	310
	1.3%	3.2%	2.3%	6.1%	87.1%	100.0%

x^2 = 21.149 df = 12 p = 0.048

Source: Data from Archive News Articles

4.2.2 Story Enhancement

This category sought to find out the degree of importance attached to waste management stories through the use of picture enhancements. Picture enhancement can be used to study the prominence attached to a story. This is by considering the presence or absence of images and infographics accompanying texts in stories.

The findings in **Figure 7** revealed that, in terms of enhancement, the four newspapers attached much prominence to waste management. 84.8% representing 263 texts were enhanced with pictures. On the other hand, 15.2% representing 47 stories were text-only without picture enhancement.

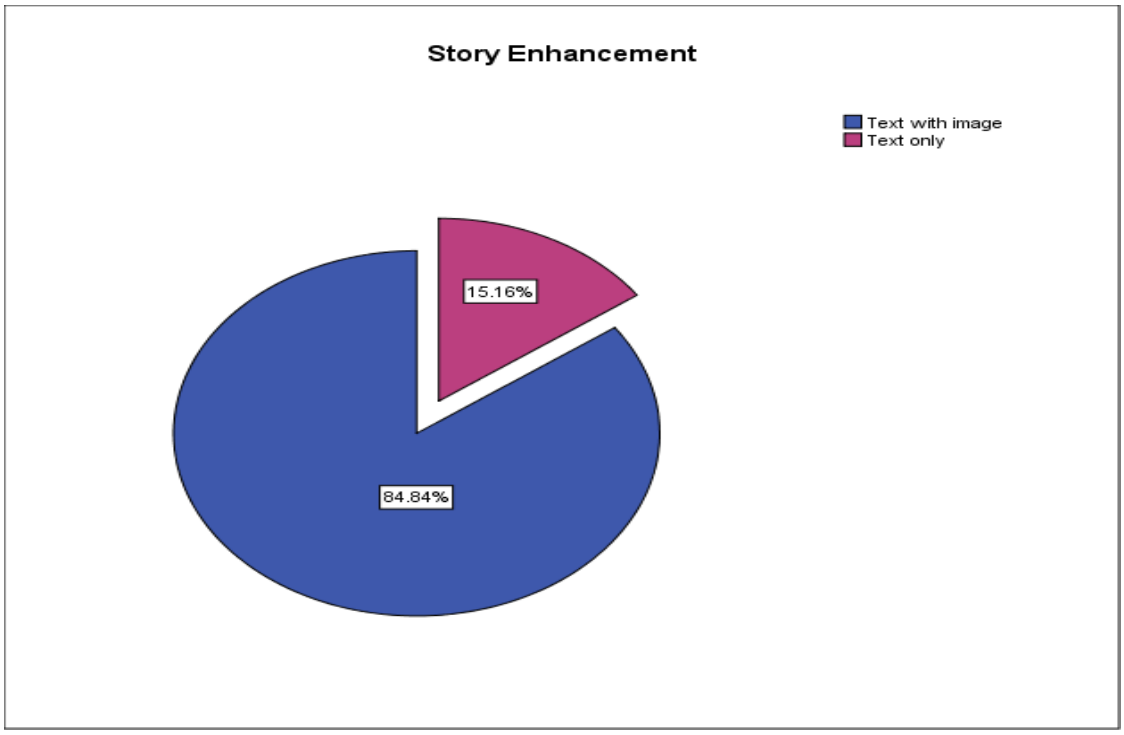

Figure 7: Story Enhancement

Source: Data from Archive News Articles

The results of the Chi-square (x^2 = 7.566, df = 3, p = 0.056) represented in **Table 7** shows that there was no significant difference among the four newspapers in story enhancement. *Daily Graphic*, *Daily Guide*, *Ghanaian Times*, and *The Chronicles* newspaper gave much prominence to waste management issues by predominantly enhancing their stories with pictures.

Table 7: Comparison of Story Enhancement by Newspapers

Name of Newspaper	Picture Enhancement		Total
	Text With Image	Text Only	
Daily Graphic	100	26	126
	32.3%	8.4%	40.6%
Daily Guide	40	9	49
	12.9%	2.9%	15.8%
Ghanaian Times	89	8	97
	28.7%	2.6%	31.3%
The Chronicle	34	4	38
	11.0%	1.3%	12.3%
Total	263	47	310
	15.2%	84.8%	100.0%

x^2 = 7.566 df = 3 p = 0.056

Source: Data from Archive News Articles

4.3. Source of Information for Reporting Waste Management Issues

The sources of information used by the media are capable of influencing the perspectives of readers. This is because sources have a significant influence on the formation of news frames. This study, therefore, investigated the sources of information that the *Daily Graphic, Daily Guide, Ghanaian Times,* and *The Chronicles* newspaper

employed in reporting issues of waste management. This was to help determine the voices that were often presented in stories on the issue.

The findings in **Figure 8** showed that the dominant sources of information by the four newspaper outlets were government officials' 142 (45.8%), seconded by waste management companies 47 (15.2%). The other sources recorded 36 (11.6%) stories, academic institution source 21 (6.8%), NGOs and other social groups recorded 20 (6.5%), experts' source recorded 17 (5.5%) of the total sources used, Traditional leaders and community members also recorded 11 (3.5%), and corporate organisations 7 (2.3%). politicians and religious leaders were the least employed sources representing 5 (1.6%) and 4 (1.3%) respectively.

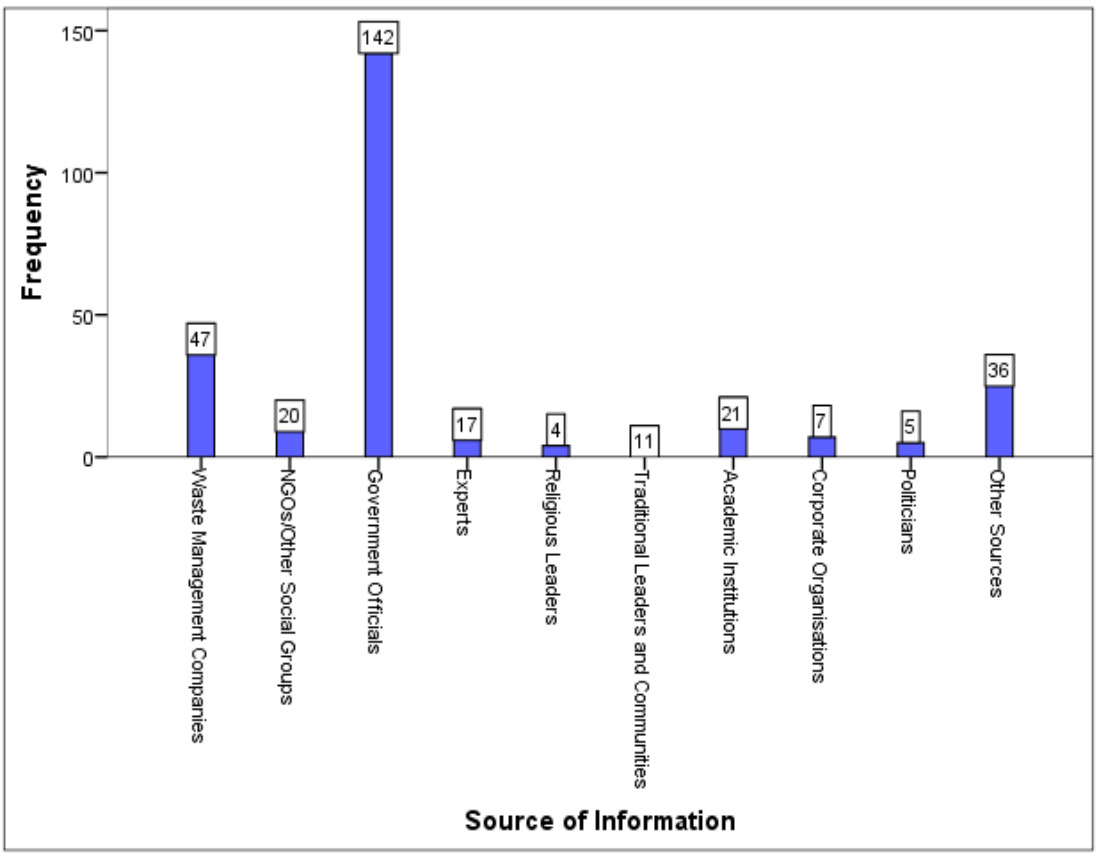

Figure 8: Source of Information

Source: Data from Archive News Articles

Concerning the sources employed in waste management news coverage, government institutions, agencies, and departments were mentioned. Also, private waste management companies such as Zoomlion and Jakora ventures were mentioned as well and Communities members. PbDGR and PaDGU mentioned their various sources of information:

> *you cannot just write if you don't know and you need the right sources and for me, because I have been writing on it for long. I have a lot of source players be it in the ministry, be it in the private sector* (PbDGR).

> *Like I said the last time, we have multiple sources of information gathering, we have the private sector, we have the government institutions and agencies and departments, we have the communities themselves, so there isn't that one particular area that we will say we will go and get information or news on waste. There are multiple areas that we rely on for information. So, we deal with private companies like Zoomlion, Jakora Ventures, and other leading waste management companies in Ghana. And also, community members-market women, for instance, some of them sometimes raise concerns about how waste management service providers are delayed in coming for the waste or the borla trucks in the market* (PaDGU).

Media practitioners indicated that newsmakers or sources determine the kind of news stories that journalists generate in a day. This confirms the thinking that, news sources can exert significant influence on what becomes news and how it is framed (Berkowitz & Terkeurst 1999 cited in Crawley, 2007 p. 320). Also, in frame-building journalists can become frame-senders by deliberately allowing sources to influence news frames

whiles journalists as frame-setters in frame-building are largely responsible for frame selection in the story (Brüggemann, 2014). Respondent PaDGU explained that:

> *The newsmakers determine the kind of stories that we will generate in the day. We also try on our own to do investigatory reports. Largely the newsmakers will inform our decision for the day, we as the producer of the news or disseminators of the news will then look at which one to pick which one to drop, why we drop this why we pick this and we can go ahead with the production (PaDGU).*

The Chi-square (x^2 = 45.081, df =27, p=0.016) values indicate that there was a significant difference among the four different newspapers on the news sources or newsmakers employed. Although all the four newspapers similarly employed government officials representing 142 (45.8%) as their dominant news source. There were differences in the number of sources employed by each. **Table 8** shows that the *Daily Guide* did not use waste management expert sources and *The Chronicles* as well did not use experts, religious leaders, and corporate organisation sources. Comparing the public-owned and the private-owned newspapers in sources used, it can be seen from **Table 8** that the two private-owned newspapers were less diverse in their sources employed.

Table 8: Comparison of Source of Information by Newspaper

Name of Newspaper	Waste Management Companies	NGOs/Other Social Groups	Government Officials	Experts	Religious Leaders	Traditional Leaders and Communities	Academic Institutions	Corporate Organisations	Politicians	Other Sources	Total
Daily Graphic	20	6	44	12	3	2	8	4	1	26	126
	6.5%	1.9%	14.2%	3.9%	1.0%	0.6%	2.6%	1.3%	0.3%	8.4%	40.6%
Daily Guide	8	1	27	2	0	3	4	1	1	2	49
	2.6%	0.3%	8.7%	0.6%	0.0%	1.0%	1.3%	0.3%	0.3%	0.6%	15.8%
Ghanaian Times	12	8	54	3	1	4	7	2	1	5	97
	3.9%	2.6%	17.4%	1.0%	0.3%	1.3%	2.3%	0.6%	0.3%	1.6%	31.3%
The Chronicles	7	5	17	0	0	2	2	0	2	3	38
	2.3%	1.6%	5.5%	0.0%	0.0%	0.6%	0.6%	0.0%	0.6%	1.0%	12.3%
Total	47	20	142	17	4	11	21	7	5	36	310
	15.2%	6.5%	45.8%	5.5%	1.3%	3.5%	6.8%	2.3%	1.6%	11.6%	100.0%

$x^2 = 45.081$ df= 27 p= 0.016

4.4. Newspapers Presentation of Waste Management issues in Media

The tone of a story reveals the attitude, intentions, and emotions of the communicator. For this study, the tone of stories was classified into three: positive, negative, and neutral. The tone of a story was classified as being positive when it contained words or phrases that indicate hope for overcoming the problem, and also statements that shows the possible benefits of waste management. Stories with negative tones on the other hand used words or phrases that denoted criminality, an act of irresponsibility, or expressing worry or danger associated with waste management and were more blaming. Neutral stories were stories that had neither negative nor positive connotations. As illustrated in **Figure 9,** out of 310 stories published within the five years, 145 stories representing 46.8% of all the stories portrayed waste management positively, 86 (27.7%) of stories had negative tones, and 79 (25.5%) of stories were neutral.

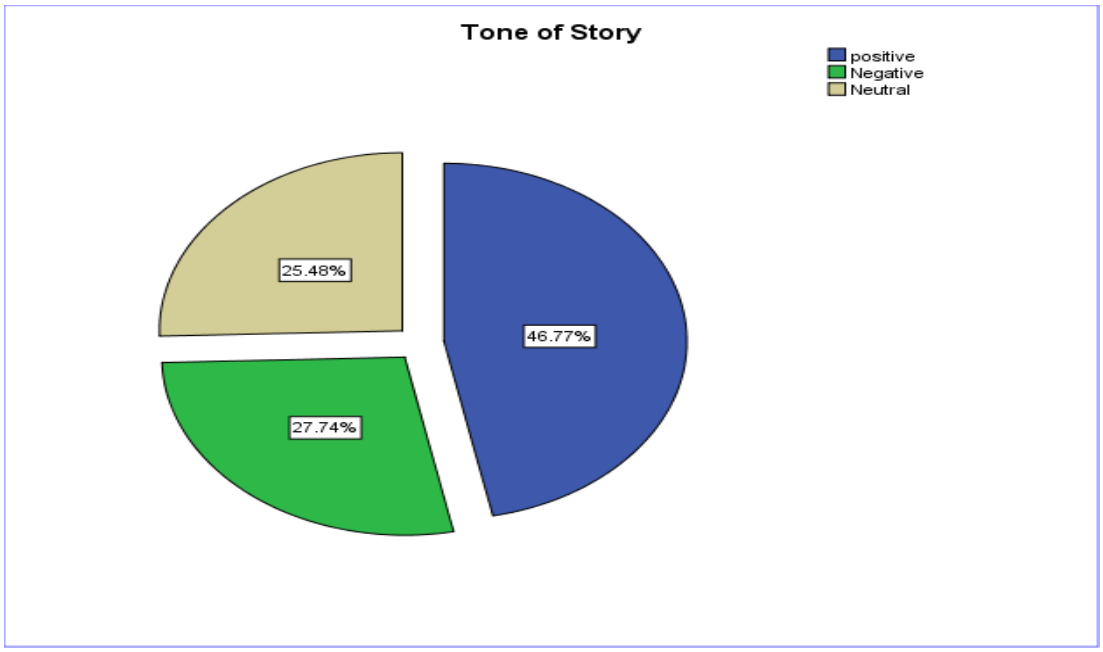

Figure 9: Tone of Story

Source: Data from Archive News Articles

Participants share similar views about waste management in Ghana. All eight participants expressed 'dissatisfaction' with the way waste is managed in Ghana. For instance, PaDGU stated that:

> *Generally speaking, the level of waste management in Ghana is a bit poor. Waste is not properly managed in Ghana as it should be managed. If you visit our market centres you should conclude for yourself* (PaDGU).

Also, PbGT added that:

> *We don't manage our waste properly we burn waste that we shouldn't burn. Waste management in Ghana is a big challenge...one can describe Ghana as a filthy nation* (PbGT).

Participants were however impressed with the progress made by the government in the area of waste management especially employing the service of private service providers. PbC praisingly said:

> *The government is doing its best, formally we did not have anything called Zoomlion but now we have Zoomlion* (PbC).

PaDGR added that:

> *I think the government is doing its part in waste management…government has created an opportunity for waste management companies to take charge of waste disposal and other things* (PaDGR).

The journalists' interviews however clarified that despite their views on waste management issues in Ghana, they are factual, unbiased, and objective in the writing of waste management news.

> *As a journalist, I am supposed to be neutral…If you are working with a credible news house like a daily guide you just don't frame... you have to write what is credible because anything that you write that is not true, affects the organization's reputation…We don't try to say things that are not true.… The media have a responsibility to do right to ensure that it put on the right messages and don't try to be biased towards the government or bias towards the service providers* (PaDGU).

According to them journalistic interference with stories that can influence a tone is dependent on the type of story. According to Cohen (2008 cited in Eshbaugh-Soha, 2014 p. 1282), straight news stories are not peppered or interfered with journalist analysis. PbDGR confirmed this by stating that they do not interfere with straight news stories. One of them specifically states that in writing a straight news story he takes himself out of the story. They went further to state that unless it is opinion journalism such as feature or opinion piece where they share their subjective opinions. Golan and Lukito (2017) indicated that stories such as editorial, opinion piece, and letters to the editor are the type of news stories that allow journalists to provide their subjective analysis of the issues. PbDGR explained:

> *It depends on what I am writing. If it is a feature, feature you can be free to write everything. If it is a straight news story about what the government is doing or people in the sector are doing, that is straight news. If it is a feature*

and I want to juxtapose some situations in the piece, I do that. Straight news is on whatever that was said (PbDGR).

Some of the participants highlighted that sometimes their desire for a change comes to play when writing such stories and the reason is to drive the needed attention for those responsible to take action. This trend was described by PbDGU and PaC who strongly alluded that:

Yea it does. When I am writing about the subject…my passion for Ghana…comes to play (PbDGU).

when you are writing anything about sanitation knowing very well it can kill people at any point in time you are very passionate about it and then you know that when you write in such a way that people will appreciate what you have written and see the need in taking action. So, it does (PbC)

A crosstab examination of the tone of the story by the four newspapers showed that there was no significant difference between the four papers. All the newspapers employed more positive tones for waste management stories. This Chi-square analysis findings represented in **Table 9** signifies that the tone of a story either positive, negative, or neutral was not influenced by the type of paper (x^2 = 4.448, df = 6, p = 0.616).

Table 9: Comparison of Tone of Story by Newspapers

Name of Newspaper	Tone of Story			Total
	Positive	Negative	Neutral	
Daily Graphic	56	37	33	126
	18.1%	11.9%	10.6%	40.6%
Daily Guide	25	16	8	49
	8.1%	5.2%	2.6%	15.8%
Ghanaian Times	44	26	27	97
	14.2%	8.4%	8.7%	31.3%
The Chronicle	20	7	11	38
	6.5%	2.3%	3.5%	12.3%
Total	145	86	79	310
	46.8%	27.7%	25.5%	100.0%

x^2 = 4.448 df = 6 p = 0.616

Source: Data from Archive News Articles

The Chi-square results show that there was a relationship between the sources employed and the tone of the news frame. **Table 10** revealed that information sources such as waste management companies, government officials, NGOs and other social groups, corporate organisations, religious leaders, politicians, and academic institutions had more positive framed stories. On the other hand, traditional leaders and communities, Other sources, which is, journalists, own initiated stories had more negatively toned stories. Experts also had more of its stories neutral.

Table 10: Relationship Between Tone of Story by the Source of Information

Source of Information	Tone of Story			Total
	Positive	Negative	Neutral	
Waste Management Companies	34	4	9	47
	11.0%	1.3%	2.9%	15.2%
NGOs/Other Social Groups	8	5	7	20
	2.6%	1.6%	2.3%	6.5%
Governement Officials	72	35	35	142
	23.2%	11.3%	11.3%	45.8%
Experts	3	6	8	17
	1.0%	1.9%	2.6%	5.5%
Religious Leaders	2	1	1	4
	0.6%	0.3%	0.3%	1.3%
Traditional Leaders and Communities	3	6	2	11
	1.0%	1.9%	0.6%	3.5%
Academic Institutions	10	7	4	21
	3.2%	2.3%	1.3%	6.8%
Corporate Organisations	5	1	1	7
	1.6%	0.3%	0.3%	2.3%
Politicians	3	2	0	5
	1.0%	0.6%	0.0%	1.6%
Other Sources	5	19	12	36
	1.6%	6.1%	3.9%	11.6%
Total	145	86	79	310
	46.8%	27.7%	25.5%	100.0%

$x^2 = 47.416$ df= 18 p= 0.000

Source: Data from Archive News Articles

Crosstab examination showed that the tone of a story was influenced by the focus of the story. Positive tones were more influence by the state solution frame function. **Table 11** revealed that out of 310 stories 46.8% representing 145 stories were framed positively. The state solution frame function takes a large share of 44.8% of the positive tone stories. Whiles, the define problem, state cause, and state consequence frame function were more negatively framed stories. The make moral judgment frame function also had many of its stories being neutrally toned.

Table 11: Relationship between Tone of Story and the Frame Functions

Frame Functions	Tone of Story			Total
	Positive	Negative	Neutral	
Define Problem	3	16	4	23
	1.0%	5.2%	1.3%	7.4%
State Cause	5	38	8	51
	1.6%	12.3%	2.6%	16.5%
Make Moral Judgment	5	4	7	16
	1.6%	1.3%	2.3%	5.2%
State Solution	139	28	67	234
	44.8%	9.0%	21.6%	75.5%
State Consequence	6	33	8	47
	1.9%	10.6%	2.6%	15.2%
Total	145	86	79	310
	46.8%	27.7%	25.5%	100.0%

Source: Data from Archive News Articles

4.4. Focus of Waste Management news by Newspapers

The study examined five frames functions include defining problem, state cause, make a moral judgment, state solution, and state consequence from the total 310 stories published. However, a total of 371 frame functions were analysed because some stories contained more than one frame Function. The representation in **Figure 10**, shows that the *Daily Graphic*, *Daily Guide*, *Ghanaian Times*, and *The Chronicles* overwhelmingly framed stories that were geared towards providing a solution to the waste management problem. This state solution frame function constituted 234 (75.5%) representing more than half the frames function analysed. The state solution function is followed by the state cause frame function 51 (16.5%) and the other frames functions including state consequence, define problem, and make moral judgment representing 47 (15.2%), 23 (7.4%), and 16 (5.2%) respectively.

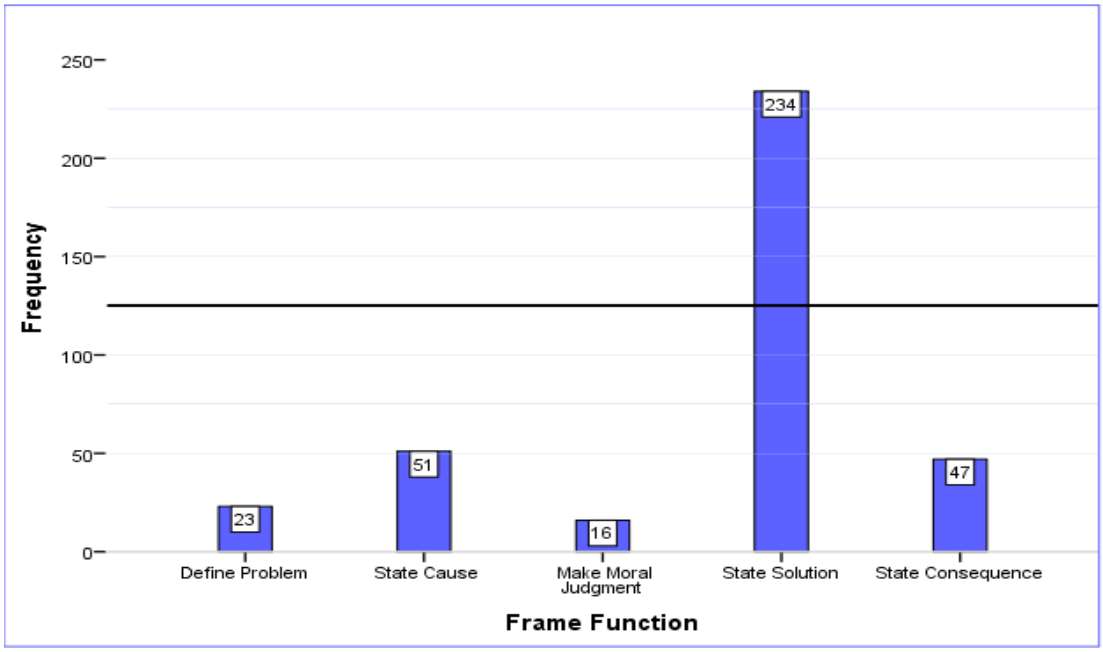

Figure 10: Frame Functions

Source: Data from Archive News Articles

The respondents shared similar thoughts on the topics that should be of focus when writing waste management stories.

With regards to Defining the Problem Frame Function PaDGU indicated that stating the reality on the ground could convey the message of problem definition on waste management. This was illustrated this way:

> *We have tried as much as possible reporting on waste, base on the reality of the day and allowing the reader or the audience to make a judgment on what is happening* (PaDGU).

In terms of the cause of the problem of waste management, respondents mentioned 'irresponsible dumping' 'uncollected waste' 'poor waste segregation' inaccessible truck routes' 'problem of logistics' 'policy and practice gap'. They indicated that:

> *Our attitude like I said some of us we sit in the commercial vehicles we throw rubbish into the street and all of that. Like I said our attitude as well... uncollected refuse. Refuse that have been left for days… dealing with waste management has been an issue because of the problem of logistics (PaDGR).*
>
> *…it has to do with the irresponsible dumping of refuse (PaC).*
>
> *One of the things that don't help us in this country is separating our waste…lumping everything together…Most places the routes to our houses are very impassable* (PbDGR).

They looked at the aspect of 'responsibility' in terms of who was supposed to do the work and who is not doing his/her work well. These are stories that are thought-

provoking and questioning individual morality. In terms of moral judgment, PaGT and PaDGR highlighted:

> *journalists must frame stories to ensure that those who are responsible to do this do their work to ensure we live a clean, safe and long life. These are the things we must look at when framing waste management stories* (PaGT).
>
> *You don't leave it to government or organisations alone. It's a collective thing because it affects all of us* (PaDGR).

In terms of solution, stories focus on 'waste segregation', 'recycling' 'waste incineration' 'policy enforcement' 'investment', and a general 'call for action'. They have also emphasized issues regarding 'provision of adequate landfill', Landfill size is a major challenge faced in waste management in Ghana. The available landfill is not able to cope with the ever-increasing volume of solid waste being generated especially in Accra. Due to this the public sometimes employs various means of waste disposal (Puopiel, 2010).

The solution to the problem of waste management was emphasized by PaGT, PaC, PaDGU and PaDGR:

> *The prominent message in waste management content should be a call to action…Waste framing should be done along this line encouraging segregation. we should separate our plastics and metals and so on and so forth, nondegradable and degradable must not be put together* (PaGT).

That aside is the dumping site as well, landfill site, which means we have to have a larger place to dump refuse…recycle our waste. These are the...major things people write about (PaC).

It should be from the policy area, I mean, policy regarding waste management should change and then they should be a real investment in it (PaDGU).

People should be able to have backyard incinerators to burn our refuse and all that (PaDGR).

…ensuring the enforcement of sanitation by-laws (PaDGU)

With regards to the consequence of poor waste management journalists indicated: 'health implications', economic impact', 'impact on tourism', 'social impact', 'flood disasters', and 'reputational implications'. The risk or consequence of poor waste management was stressed by PaGT and PaC:

…you need to look at the health impact, the economic impact, you need to look at the social impact also looking at the image of Ghana and of course tourism (PaGT).

Every day whenever there is a flood the causal factor is refuse, people, dumping refuse in drains (PaC).

Table 12 is a representation of a comparison of the focus of frames employed by the four different newspapers in their stories. The table indicates that all four newspapers preferably used frames that focused on the solution to the problem of waste management.

Table 12: Comparison of Frame Functions by Newspapers

Name of Newspaper	Frame Functions					Total
	Define Problem	State Cause	Make Moral Judgment	State Solution	State Consequence	
Daily Graphic	12	26	8	88	23	126
	3.9%	8.4%	2.6%	28.4%	7.4%	40.6%
Daily Guide	4	9	2	37	7	49
	1.3%	2.9%	0.6%	11.9%	2.3%	15.8%
Ghanaian Times	4	14	5	77	11	97
	1.3%	4.5%	1.6%	24.8%	3.5%	31.3%
The Chronicle	3	2	1	32	6	38
	1.0%	0.6%	0.3%	10.3%	1.9%	12.3%
Total	23	51	16	234	47	310
	7.4%	16.5%	5.2%	75.5%	15.2%	100.0%

Source: Data from Archive News Articles

4.5. Waste Management Narratives from the Perspective of Media practitioners

In-depth interviews were conducted with media practitioners from the *Daily Graphic*, *Daily Guide, Ghanaian Times*, and *The Chronicles* newspaper. The findings from the interviews yielded diverse perspectives on the media narrative on waste management. The findings were categorized into four themes which include: factors to consider in framing waste management story, the characteristics of waste management news frames, challenges that affect waste management framing and coverage and thoughts

on effective communication (their views on how to ensure effective communication on waste management).

4.5.1 Factors to consider in framing waste management stories

Participants highlighted that the public interest, private sector, and government interest should be considered in framing a waste management story.

PaDGU explained that:

> *We write the news according to the information that we have but then we also look at the public interest. So public interest should come first (PaDGU).*

PaC added that:

> *When framing waste management, I look at the public, private sector, and government together they become the stakeholders (PaC).*

4.5.2 The Characteristics of Waste Management News Frames

The purpose of communication is achieved when the recipient understands the message sent. Stories that reflect the day to day life of people help readers identify themselves in the issue. The participants indicated that waste management stories mostly reflect the reality of the day. PaDGU illustrated that:

> *What we report most at times for me is the reality because the by-laws there are not working, the communities are dirty which means government or the assemblies are not enforcing the sanitation by-laws, the service providers too it means they are not doing their work too because why will you allow*

heaps of dirt at a market square for one, two-three weeks and they are not collected what is the issue (PaDGU).

4.5.3 Challenges that Affect Waste Management Framing

The analysis also revealed that practitioners faced the challenge of either being tagged corrupt or being criticized when journalists try to be 'critical' especially towards those who are responsible for waste management and are not doing their duties well. This explains Nyarko and Teer-Tomaselli (2018) findings that both state-owned and private-owned newspapers were more neutral in terms of criticality in social and environmental issues. Thus affecting the kind of information presented in news articles for their audience. PaDGR worriedly shared:

> *some of the organizations may think that when you do certain stories, they may have some problems because they think that you are trying to downplay the work that they are doing. They think that you are targeting them. Thinking that some other organizations are influencing your work in order to get at them. Meanwhile is not like that is a collective interest of everybody (PaDGR).*

PbGT added that:

> *It will surprise you, if you want to take these private companies on as to their roles, you will have some aspect of the public backing the companies and you have even government backing the companies. It is really a challenge* (PbGT).

PbC also stressed that:

To me the authorities too must open up sometimes when you write some of these stories, a political party in power will think that you are trying to destroy my government. You see the point, even though the idea is to inform the people on how to deal with the situation once and for all, but somebody sitting somewhere will think that you have an agenda to destroy my government. That is one of the major challenges facing journalists.

Regarding coverage and prominence, it was realized that waste management stories are struggling to receive equal priority in media. One of the reason is that 'political issues' in media overshadows all other issues which include waste management. The participant highlighted:

Not always, often the reason is because, you know in this country, we do more politics so all other issues are secondary matters including sanitation…if you read our front pages not only Ghanaian Times but most newspapers in Ghana you will find more of political stories than sanitation and other issues. I think as a nation that yet grasps on the menace of sanitation it is important that we attach some prominence to sanitation, waste management or stuff like that. (PaGT).

4.5.4 Strategies to ensure Effective Communication of Waste Management Issues

Concerning effective communication strategies that will make impacts in the current state of waste management. Some participants recommended increase reportage on waste management issues which can only be achieved when issues of waste management issues are prioritized in the agenda of the newspapers. One participant

suggests public ‘increase reportage’ and another also suggested ‘advocacy’ framing and ‘attaching prominence’. PaDGU suggested:

> *We need to do more reporting on waste management issues. We have to talk to the people involved. Reportage will go a long way. As we do reportage, we also need education they must all go together in order to have a very good waste management system in the country* (PaDGU).

PaGT added:

> *as a journalist I will say unfortunately, we have failed to deliver that mandate towards that side collectively, that is my opinion. I think we have not done much on attitudinal change when you report you do advocacy and the essence of advocacy is to cause social change, change in behaviour, change in attitude…it deserves the needed attention and we must attach prominence* (PaGT).

PaDGR and PbDGU interviewed indicated that communication on waste management can be more effective if different mediations are used to reach out to communities. Since studies show that our conception of the environment is shaped largely by media and mediation (Aronczyk, 2018). Communication can be more effective when individuals gain the same kind of literacy around the same types of information. This can only be achieved when the mediation used could communicate to people from a different cultural and religious background on the level in which they can understand. According to them, effective waste management can be achieved when there is a shift from making waste management conversation an elite conversation to include religious bodies and schools. This by involving all stakeholders. This was stressed by PaDGR and PbDGU:

when I was growing up the National Commission for Civic Education was very visible now where are they…we should have the National Commission for Civic Education in the fourth front educating Ghanaians it is their mandate (PaDGR).

*The policy-makers the stakeholders should reach out to the media they should create a certain platform to interact and to trigger a national conversation on the subject and sustain it so that it will continue. We leave out the local languages most of the times, these things are handled by the elites in boardrooms they do not get down to the ordinary person in the street, get all involved. Revolutionize how we are dealing with this subject, revolutionize it, get the churches involve, get the mosque involve, get school children involve (*PbDGU).

4.6. Summary and Conclusion

The findings of the study were presented in this chapter using descriptive statistics and thematic analysis for the quantitative and qualitative aspects respectively. The quantitative studies, among other things, revealed that waste management stories were predominantly framed towards stating solutions, and the source of information was predominated by government officials. Also, the tone of the majority of stories was found to be positive. In terms of prominence, waste management stories were given much prominence through picture enhancement whiles little prominence was attached to waste management stories through placement. Findings from the qualitative aspect also showed the inability of waste management stories to attract readers. The qualitative analysis also highlights major topics to consider in framing waste management stories.

The issues that affect waste management framing were also discussed and finally strategies that can facilitate achieving effective communication.

CHAPTER FIVE

DISCUSSIONS

5.0. Introduction

This study employed a mixed-methods approach a combination of (quantitative content analysis and thematic analysis). This chapter seeks to integrate the findings of the two techniques used to help understand how media frame waste management in Ghana by the *Daily Graphic, Daily Guide, Ghanaian Times,* and *The Chronicles* newspapers. it also discussed the study findings based on the objectives of the study. The findings are discussed speaks to previous literature and the theoretical framework which underpinned the study.

5.1. Degree of Prominence attached to Waste Management

Prominence reflects the degree of importance given by journalists and editors to a news story (Boukes & Vliegenthart, 2020). The amount of exposure and placement either on the front page or other pages elsewhere in the newspaper, as well as the use of headlines and photographs, can affect (Boykoff & Roberts, 2007) story prominence. Story prominence can be measured using photographs, placement, or word count (Wong & Harraway, 2019). This study used only story placement and story enhancement as a measure of prominence.

Concerning story placement as a measure of prominence, stories were considered important based on their position on the front page, back page, centre spread, editorial

page, or other pages. According to Entman (1993), strategic placement can influence prominence. Findings from the quantitative data analysis revealed that waste management stories were given very little prominence in terms of placement by the *Daily Graphic*, *Daily Guide*, *Ghanaian Times*, and *The Chronicles* newspaper. All the four newspapers preferably used other pages for publishing waste management-related stories with little publication on the most significant page among all the pages, that is, the front page. From the statistics, it is seen that out of 310 stories, an overwhelming majority of 87.1% of stories were publications on the other pages. The editorial page also counted 6.1% followed by back page 3.2% stories, centre page 2.3% stories. The front page had the least publication of 1.3%.

Although, stories published on the back pages are prominent (North, 2012), as well the editorial page which hosts the opinions of the newspaper. Hallock (2007 cited in Marques & Mont' Alverne, 2019 p.13) studies confirm the prominence of the editorial page by stating that the page has 79 per cent of adult daily newspaper readership. The centre spread as well cannot be left out in terms of prominence.

However, the front page of the newspaper has unique importance (Blood & Holland, 2004; Shaari et al., 2006). Stories featured on the front page exert an impact denied to stories appearing on other pages in the newspaper (Clayman & Reisner, 1998). Front page stories achieve greater exposure and are more likely to come to the attention of newsreaders. Because the front page is more prominent, stories featured there may be considered more important by readers as compared to other stories published elsewhere in the paper (Clayman & Reisner, 1998). The finding of this study shows that only 4 waste management stories out of 310 stories were considered more important by the four news media for the five years' study period. This figure is virtually insignificant, especially if the newspaper media aims at making a real impact on waste management

issues through story placement. Strategic positioning of waste management stories on the front page could improve its prominence and increase its accessibility to both passersby, and newspaper buyers Clayman and Reisner (1998).

The findings of the content analysis on story placement or positioning in this study are supported by the views of media practitioners about waste management news coverage and how it is treated by newspapers. In terms of placement, the in-depth interview revealed that waste management stories are 'dull-looking' and therefore, not attractive enough to pull potential newsreaders. Thus, continuous placement of stories such as waste management on the front page could put away customers and consequentially reduce the number of readers. Based on the narrative of the media practitioners, covering waste management issues as a paper is 'bad enough', and placing it on the front page is 'worse'. Boukes et al. (2020) argue that the newsworthiness of a story influences the prominence attached to the story - which might be true in this study. It is sad to admit that waste management stories on a normal day are considered less newsworthy unless an event occurs making it timely. The findings further revealed that the two public news outlets which include *Daily Graphic* and *Ghanaian Times* attached more prominence to waste management stories in terms of placement as compared to the other two private news outlets which include Daily Guide and The Chronicles newspaper.

In the case of picture enhancement, the finding revealed that *Daily Graphic, Daily Guide, Ghanaian Times,* and *The Chronicles* newspaper presented waste management as important through the use of image or picture enhancement. Out of 310 stories analysed 84.8% representing 263 stories were enhanced with pictures whiles 15.2 per cent representing 47 stories were text-only without picture enhancement. This overwhelming 84.8% picture enhancement signifies that waste management stories

were given high prominence in terms of picture enhancement. The Inclusion of pictures in stories is an indication to the audience of the significance of the story and inspire them to emotionally invest in the news story (Wong & Harraway, 2019). According to Hannigan (1995 cited in Nurmivaara, 2014), one of the factors to consider in constructing or framing an environmental problem is through the dramatization of the problem using symbols and visuals. Using pictures is a clever way of persuading their audience or readers to read "boring" environmental stories that they will not have (Bednarek & Caple, 2010). Indicating that the four newspaper outlets frame waste management stories with the intent to attract readers.

Bednarek and Caple (2010) use of the word "boring" with regards to environmental stories accidentally coincide with the term 'dull-looking' in waste management stories as described by the media practitioners interviewed in this study. The findings on picture enhancement and story placement from this study show that although waste management stories were not attached much prominence through placement by positioning most of the waste management stories elsewhere other than the prominent pages of the newspapers. Pictures were however used to enhance these stories as a way to attract the interest of potential readers.

Also, from the findings of the in-depth interview, it can be assumed that differences in coverage between the public-owned and private-owned newspapers were influenced by the issue that 'waste management stories do not sell' and 'economic inequality'. Newspapers are financially sustained by sales and advertisements. In terms of advertisement, Nyarko and Teer-Tomaselli (2018) revealed private-owned newspapers receive 13% of government and corporate advertisement whiles 87% of goes into the state-owned newspapers. The disparity in funding between the two shows that the private-owned newspapers may be focusing more on stories that are saleable because

of their financial dependency on story cover which may not necessarily be the same with the public-owned because they receive a high percentage of all the advertisements. Based on this, if private-owned newspapers cannot count waste management stories as money but only as a media role to provide information to the public. Waste management stories will most likely receive low coverage by private-owned newspapers as compared to the state-owned newspapers. The coverage gap agrees with Nyarko and Teer-Tomaselli (2018) findings that state-owned newspapers pay more attention to social and environmental issues as compared to private-owned newspapers. The quantitative analysis collaborated this by comparing the frequency of coverage among the four papers revealing that *Daily Graphic* was leading in terms of coverage by publishing 40.6% of the total waste management stories. This was followed by *Ghanaian Times* 31% of the total coverage, *Daily Guide* also published 15.8% of the total coverage, and *The Chronicles* 12.3% of the total coverage. Explaining that the *Daily Graphic* and *Ghanaian Times* being the two public-owned newspapers used in this study dedicate more space for waste management stories than *Daily Guide* and *The Chronicles* newspaper which are privately-owned.

5.2. Source of Information for reporting Waste Management issues

The news sources employed by newspapers in the framing of waste management stories include government officials, waste management companies, NGOs and other social groups, experts in waste management, traditional leaders and community members, academic institutions, corporate organizations, politicians, and religious leaders and other sources. The news stories reflect the ideologies and opinions of their sources which can influence societal reality (Armstrong, 2004) on waste management. The source of information used by the media is capable of influencing the perspectives of

readers. Desa et al. (2011), however, clarified that the level of influence of a source on readers is dependent on the credibility of the information source.

According to Goodman and Goodman (2006), most environmental sources tend to be from the government. Similarly, the findings of this current study showed that the four newspapers mostly employed government officials as their dominant source of waste management information. The content analysis conducted in this study shows that government officials' 45.8% source was the most frequently employed news source for waste management stories by the *Daily Graphic, Daily Guide, Ghanaian Times*, and *The Chronicles* newspaper. Government officials include metropolitan/municipal/district assembly officials, workers/staff of government agencies and ministries, and many others who make laws, policies and are required to enforce them to ensure sustainable waste management.

Governmental officials are the most prefered because government officials are key gatekeepers (Goodman & Goodman, 2006) that provide credible, factual information, always available to be interviewed (Shoemaker & Reese, 1996), and they cost less to cover (Eshbaugh-Soha, 2014). The views of these authors make it seem like journalists intentionally choose some of these sources. However, the findings of the in-depth interview as media practitioners highlighted that there are no special reasons as to why a particular source is used for a story. They further argued that the source of the day is dependent on the happenings and who is involve and therefore, not the journalists. The diverse news sources employed by the Ghanaian media is an indication of the diversity of perspectives on waste management media.

The in-depth interview exposed the influence of news sources in the framing process by indicating that the new source determines the kind of news stories that journalists

generate in a day. Framing is the interaction between journalists and their sources to present stories in a particular manner. It affirms the thinking that news sources can exert significant influence on what becomes news and how it gets framed (Berkowitz & Terkeurst 1999 cited in Crawley, 2007 p. 320). Brüggemann (2014) said that sometimes in frame-building, journalists can become frame-Senders by deliberately allowing sources to take the lead in the frames. This finding is also consistent with (Boesman et al., 2017; Crawley, 2007; Shoemaker & Reese, 1996) who highlighted the importance of news sources in news framing.

The quantitative analysis further showed a significant difference in the sources employed by the four different newspapers. Although all the four newspapers similarly employed government officials representing 45.8% as their dominant news source. There are, however, differences in the number of sources employed especially, between the public-owned and the private-owned newspapers. The *Daily Graphic* and *Ghanaian Times* which are the two public-owned newspapers employed all the sources whiles the *Daily Guide* did miss expert sources and *The Chronicles* as well did not use experts, religious leaders, and corporate organization sources. Comparing the public-owned and the private-owned newspapers in the diversity of sources used, it can be concluded that the two private-owned newspapers were less diverse in the news sources employed.

5.3. Newspapers Presentation of the issue of Waste Management

The third objective examined the tone used by the print media in presenting waste management stories. According to Nijkrake et al. (2015), news contents contain tones in addition to news frames. The tone of stories is more focused on the emotional dimension of news stories (Golan & Lukito, 2017). The tone of stories can influence

readers or audiences to think in a certain way about a particular issue (Nijkrake et al., 2015).

According to Nijkrake et al. (2015), a story tone can be classified as positive, neutral, or negative. Similarly, this study studied tones that were operationalized as positive, negative, or neutral. The tone of a waste management story was considered positive when it contained words or phrases that indicate hope for overcoming the problem, or a statement that shows possible benefits of proper waste management. A waste management story was classified as having a negative tone when it has words or phrases that denoted criminality, an act of irresponsibility, or expressing worry or dissatisfaction about how waste is managed. Neutral stories were stories that had neither negative nor positive.

The quantitative findings revealed that 46.8% of waste management stories were positively expressed, 27.7% of stories were framed negatively whiles 25.5% were neutral. The findings of dominant positive framed waste management stories in this study is significantly different from the findings of these researchers (Chu & Hamid, 2010; Goodman & Goodman, 2006; Goodwin *et al*., 2018; Pollach *et al*., 2009) whose study results differ from the dominance of positive frames.

The dominance of positively framed waste management stories is an indication that journalists frame stories highlighting the benefits of proper waste management. The benefit of a healthy society, resource benefits, a healthy ecosystem as well as climate change mitigation are the benefits of proper waste management. Positive framed stories also indicate that waste management stories were framed showing prospects of the measures employed by Ghana towards waste management. Media practitioners interviewed in this study confirm this by indicated that although they are dissatisfied

with the current state of waste management. They are, however, impressed by the measures employed by the Ghana government towards waste management most especially contracting the services of Zoomlion and other service providers to manage the waste generated.

They further revealed that on the side of personal opinions about waste management influence on framing waste management news, journalists emphasized that they are ethical in their practice by framing stories that are factual, credible, and unbiased. Although, sometimes when writing stories, they become passionate about the issue and the aim is to drive that needed attention for those responsible to take action on the issue but in either way, they are still ethical in their reportage. This agrees with previous studies that interviewed environmental journalists, revealing that environmental journalists believe that environmental reporters should not be subjective in their coverage and unbiased in dealing with both corporations and environmental organizations (Giannoulis *et al*., 2010).

The influence of news sources in framing is much emphasized in this study. The dominance of government official news sources which include government ministries, agencies, and MMDAs, and the influence of waste management companies who are responsible for waste management in Ghana could have influenced the positive tone of waste management stories. The quantitative analyses revealed government official and waste management companies sources as some of the sources with more positive toned stories. The dominance of straight news stories in this study is an indication that waste management news was dominated by views and opinions of news sources. According to Cohen (2008 cited in Eshbaugh-Soha, 2014 p. 1282), such news reports were not peppered or interfered with journalistic analysis and only focused on the views of the news source.

Maybe the aim for the dominance of positive tone frames is to ensure that the frame of reference or the major idea that people get from reading the stories would be to ensure proper waste management which may result in positive attitudes towards waste management. According to Walker *et al*. (2019), when a media report is presented either positively or negatively manner, it has been suggested to influence public support for a specific policy.

De Vreese (2005) also argued that the selection of news frames by the media can determine the tone of coverage. The quantitative findings of this study revealed that positive toned stories were more associated with news frames that focused on stating or suggesting solutions to the waste management problem. Although the other frames also had positive frames, the state solution's positive frame was more significant. These findings confirm Chu and Hamid (2010) findings that the solution recommending frames has more positive dominant tone stories as compared to the others. According to Chu and Hamid (2010), the dominance of positive frames of waste-related stories means that most stories contained statements that indicate hope and success about an action taken in solving the problem.

However, the negative dominated tones stories were more associated with defining the problem, stating the cause of the problem, and state consequences frames. This means that these three frames have more news stories that contained statements that were more blaming, worrying, expressing danger, and dissatisfactory about waste management issues, hence, presenting a negative image in terms of waste management in Ghana. According to O'Neil *et al.* (2012), environmental communicators use negative, risk-oriented messaging with the intent to increase the salience of the issue to motivate individuals to take action. Some of the participants interviewed in this study admitted that the passion to drive change in the area of waste management comes to play in their

writing and the reason is to drive the needed attention for those responsible to take action. Markowitz and Guckian (2018) however, had it that although such messaging is important, it should not be prioritized more than solution frames because such messaging leads many to the feeling of hopelessness and thus, turns the audience off from the issue.

Neutral toned stories on the other hand were more aligned with frames that were making a moral judgment and solution as well. Indicating that such stories contained neither positive nor negative statements about waste management.

5.4. The Focus of Waste Management News

This study was interested in examining how waste management issues in Ghana were primarily framed by four major newspapers. This study examined the frames of waste management news using the five frame functions. This approach was used by a previous study to study waste-related issues in print media which is much related to the current study. This study then adopted a similar approach by using the five frame functions that include defining problem, state cause, make moral judgment, state solution, and state consequence to answer the research question.

The analysis showed that the most used frames by the *Daily Graphic*, *Daily Guide*, *Ghanaian Times*, and *The Chronicles* were geared towards providing solutions. This state solution frame function constitutes 75.5% representing more than half of the frame functions analyzed. The dominance of state solution framed waste management stories analyzed is consistent with (Chu & Hamid, 2010) findings on how media frame waste-related issues in Malaysia. The findings of this study also agree with Markowitz and Guckian (2018) who stated that existing literature on framing, recommends that

effective communication should focus more on recommending solutions rather than emphasizing more on effects and causes.

The predominance of state solution frames in the Ghanaian press is not surprising at all because of the current poor state of waste management in the country. Researchers such as (Frimpong, 2018; Gyimah, 2018; IMANI Ghana, 2016; Koné & Strauss, 2004; Mariwah, 2012; Oteng-Ababio et al., 2013; Otsuka et al., 2012; Puopiel, 2010) in their studies raised concerns about the poor state of waste management in Ghana. The challenges faced in the area of waste management is not new, the most important thing is revising the current trends which was much evident in news stories of the four newspapers. Therefore, the dominance of the state solution frame in news stories is an indication that effective measures are still been the sort to treat wastes and manage the waste generated. Waste management news stories in terms of recommending solutions are framed highlighting issues such as the provision of 'adequate landfill sites' to accommodate the waste generated 'waste segregation', policy improvement' 'monetary investment', and 'waste recycling'. This kind of messaging aims at influencing attitudes toward sustainable waste management.

The state cause frame function 16.5% were stories that touch on the cause of poor waste management. These are the stories that draw the attention of individuals, corporations, industries, and service providers on their contribution to the waste management problem. Although, researchers have indicated that in media communication much focus should not place on the cause but rather on solutions to environmental issues (Markowitz & Guckian, 2018).

However, framing stories attributes responsibility to the cause of poor waste management. Several factors led to the cause of poor waste management. These factors

include the gap between policy and practice in waste management, irresponsibility of actors responsible to manage waste, low investment in the waste management industry, lack of available landfills for waste disposal, and poor attitude of individuals. The media practitioners interviewed in this study also associated the cause of poor waste management in Ghana with 'irresponsible dumping' 'poor attitudes' 'poor separation of waste' 'inaccessible routes by waste collection trucks' problem of sanitation logistics. Therefore, stories on waste management that use the state cause frame are to attribute individual responsibility to the cause of the problem.

Apart from news frames stating solutions and stating the cause of the problem. Waste management stories were also framed by the media to highlight the consequences or the risks associated with poor waste management 15.2%. These stories were framed to educate and inform the audience or readers about 'health implications' of poor waste management, for example, cholera, typhoid, and malaria 'social impacts', 'economic impacts', 'impact on tourism', 'reputational implications', and 'flood disasters caused due to improper waste management. This type of framing exposes the dangers of poor waste management to the population and the impact economically.

Many stories were not framed to define the problem of waste management in Ghana. however, it was not the least used frame function among all the five frame functions used in this study. Stories that were framed to define the problem were more historical, fact telling stories and bringing to one attention the current state of the waste management issue. Framing of environmental stories that focus on the existing problem can make people aware of the issue and the importance to balance economic development with environmental protection (Aram, 2012).

Make moral judgment frame function 5.2% was least used in waste management framing. Stories on moral judgment were stories that question individual morality, and ethics in the area of waste generation and waste management. Morality in waste management looks at the duty or responsibility of individuals and institutions in ensuring a waste pollution-free environment. The qualitative analysis revealed that waste management should be a collective responsibility and should not be left to some particular government ministries, agencies, metropolitan/municipal/district, or organizations. According to Iyengar (1991), some of the most powerful media frames are those frames that mention who is responsible to provide a solution to the problem.

Several initiatives have worked on awakening individual consciousness on their duties in waste management. Successive political leaders in Ghana have in different ways drawn the attention of citizens to their role in waste management. In 2008 the then vice president Alhaji Aliu Mahama of the John Kufour administration started a very vigorous campaign against filth in Ghana. Likewise, President John Mahama launched a day in a month community cleaning exercise in 2014 called the National Sanitation Day (Blege, 2016). This campaign made citizens in charge of cleaning their communities and neighbourhood. Currently, the campaign running is 'Making Accra the Cleanest City in Africa' which was launched in 2017 by President Nana Akufo Addo. Religious leaders also joined these waste management campaigns was by associating cleanliness with righteousness and encourage their believers to protect the creation of God by keeping their environment clean. This is encouraged by the famous phrase of John Wesley in 1778 that 'cleanliness is next to Godliness'. The way and manner a country manages its waste reflect its people's norms, morality, and identity (Hawkins, 2006).

Despite the significance of this kind of framing it was the least used by the newspapers in this study. The newspapers in the process of framing waste management issues failed to be critical towards those responsible for managing the waste generated by not morally judging them and pointing them to their responsibilities. The cause of this can be assumed to be newspapers' lack of flexibility in framing, by preferring ‘straight news’ or ‘narrow news’ which are always less analytical and dominated by views of news sources. These types of stories may have led to the overlooking or underemphasizing of several dimensions of the issue.

5.5. Waste Management Narratives from the Perspective of Media Practitioners

This objective aimed to understand the waste management narrative from the perspective of media practitioners. The practitioners indicated that news stories are framed taking into consideration the interest of all stakeholders and reflect societal reality as well. The aim is to enable individuals and communities to easily relate themselves to the problem of waste management, hence making waste management stories more appreciated and meaningful to readers. In the process of frame-building journalists always aim at influencing the audience or readers' perspectives on an issue.

The media practitioners however pointed out some of the limitations that affect waste management framing and coverage as a whole. On framing, they revealed that in framing they fear being ‘critical’ towards institutions responsible for waste management because they can be criticized or tagged corrupt or accused of trying to tarnish those institutions' reputation. This consequentially affects the kind of information being presented on the issue. This confirms Nyarko and Teer-Tomaselli

(2018) findings that both state-owned and private-owned newspapers were more neutral in terms of criticality on social and environmental issues.

On coverage, waste management news is threatened by newsreaders 'preference of political news'. Thus, result in political news receiving preference in coverage by the Ghanaian media as compared to waste management issues. The responses of the media practitioners suggest that waste management stories meeting 'political issues' or other issues that are more preferred by their readers on a normal day may not stand a chance for publication. This is collaborated by the findings Nyarko and Teer-Tomaselli (2018) that shows that Ghanaian print media prefer political news as compared to social and environmental issues of which waste management is identified. It is heartbreaking to know that despite the scientific evidence on climate change, environmental health, and pollution, Hansen (2011); Nyarko and Teer-Tomaselli (2018) environmental issues are still struggling to receive equal attention in media. Shanahan (2009) indicated that one of the limitations of environmental communication in non-industrialized countries is the difficulty in persuading editors that environmental issues matter.

Media practitioners interviewed recommended strategies for effective communication to make a positive impact on the current state of waste management in Ghana. These strategies include increase reportage, adoption of advocacy framing and attaching prominence to stories. Journalists' suggestion of advocacy framing coincides with Aram (2012) recommendation for a shift from a dispassionate kind of framing to advocacy framing that presents critical information on waste management issues with a clear stand that persuades readers to adopt an environmentally sensitive attitude. This can only be achieved when issues of waste management are prioritized in the agenda of the various newspapers. Apart from newspaper media communication, there are other channels of communication such as face-to-face, and others that can be used to educate

communities. The appropriateness of a channel should be considered based on the target audience taking into consideration cultural, religious, and educational status. This sinks with Aronczyk (2018) suggestion that communication can be more effective when individuals gain the same kind of literacy around the same types of information by ensuring the appropriateness of the medium. Journalists also held the view that waste management communication can be effective if there is a shift from making waste management conversation an elite conversation to include religious bodies and schools. This is by involving all stakeholders.

5.6. Application of the Theoretical Framework to the Study

The framing theory posits that how information is presented to the public influences the choice they make to interpret the information. This study is theoretically significant by empirically examining how waste management news was presented. On this basis, this study considered frames and the tone of the news because they reflect the kind of message or information that the Ghanaian media have fed the public over the past five years and the resultant influence it has had on the public. The source of information which is believed to influence the news content was examined as well as the degree of prominence looking at how placement and images were used to attain salience in waste management news.

5.7. Summary and Conclusion

This study aimed to open the black box of media discourse on waste management in Ghana. Specifically how the media frame waste management for the past five years. This study generated useful findings from both the quantitative and qualitative

approaches used for the study. The quantitative content analysis studied media content provided quantitative findings explaining how media frame waste management. The in-depth interviews helped to understand the topic from the angle of the media practitioners which added more insight to the quantitative findings.

The findings of both media content and in-depth interviews suggest little prominence is attached to waste management stories through placement but rather attached much prominence through picture enhancement. These study findings had more positively framed waste management stories. The analysis also revealed that waste management news stories were framed to influences readers' perspectives on the causes and solutions to waste management issues and the way they make judgments about who or what is responsible as well as providing facts to give a comprehensive understanding of the problem (Entman, 1993) and the consequence that arise as a result of the problem (Chu & Hamid, 2010). The challenge of framing waste management stories is the lack of criticality.

CHAPTER SIX

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

6.0. Introduction

This begins with a brief overview of the study. This overview involves the aim of the study, the study research objectives, and the methodology employed for both quantitative and qualitative aspects of the study. This chapter discusses the major findings from both quantitative (content analysis) and qualitative (thematic analysis) approaches and demonstrates how the results were integrated and discussed. The study further underscores valuable contributions to knowledge - literature. The researcher gave further details about the implications of the present study findings to policy development and waste management communication as a practice. The limitations of the study have been duly acknowledged. Areas worthy of re-consideration in the future for study have been suggested. This ended with a summary and conclusion of the entire study report.

6.1. Summary of Key Findings

6.1.1 Objective 1: Degree of prominence attached to Waste Management issues

This study measured the degree of prominence using story placement and story enhancement through pictures. The quantitative findings showed that waste management stories were attached little prominence in terms of story placement but rather, much prominence was given with regards to picture enhancement. The waste management stories are ‘dull-looking’ notion could have possibly contributed to waste

management stories received less coverage on the most significant pages which include front, back, editorial, and the centre spread. The findings of story placement and picture enhancement show that pictures were used to enhance stories as a means to attract readers.

6.1.2 Objective 2: Sources of Information for reporting Waste Management issues

Regarding the main source of information for waste management stories by the four newspapers. The findings revealed that government officials' sources were the most cited in waste management stories. The other sources include waste management companies, communities, religious leaders, experts, NGOs, politicians, academic institutions, corporate organisations, and other sources. Some of these sources were confirmed by the media practitioners interviewed. In terms of the paper type and the diversity of sources used in this study, the findings from the content analysis revealed that *Daily Graphic* and *Ghanaian Times* which are the public newspapers were more diverse in sources used as compared to *Daily Guide* and *The Chronicles* newspaper which are private-owned newspapers.

6.1.3 Objective 3: Newspapers presentation of Waste Management stories

With regards to how the media presented the issues of waste management in terms of positive, negative, or neutral tone. It was realized that waste management stories were more positively framed as compared to negative and neutral framed stories. The findings further revealed that positive tone stories were more associated with stories framed towards providing solutions to the problem of waste management. Also, negative tone stories were more on stories that were framed to define the problem,

attribute the cause of the problem, and state the consequences of the issues. Neutral tone stories had more of their stories making a moral judgment.

6.1.4 Objective 4: The Focus of Waste Management News

The findings from the content analysis indicated that *Daily Graphic*, *Daily Guide*, *Ghanaian Times*, and *The Chronicles* newspaper predominantly framed stories that were geared towards providing solutions to waste management problems. The dominance of the state solution frame is an indication that effective measures are still been the sort to treat wastes. Such stories call for action on recycling, incineration, landfilling, waste segregation as a solution to waste management problems. The state solution frame is followed by the state cause frame as the second-highest. In terms of the cause of the problem, issues such as poor attitude, meaning the actions and inactions of individuals caused the problems were highlighted. The state consequence frame is the third-highest news frame which is followed by defining the problem frame. The in-depth interview reveals similar findings looking at the effects or risks of poor waste management which can be health, economic, reputational. Stories were also framed that tell the state of the problem by defining the problem. Make moral judgment was the least used frame in waste management stories and were stories that focused on individual responsibility and duty to keep the environment clean.

6.1.5 Objective 5: Waste Management Narratives from the Perspective of Media Practitioners

The analysis provided the understanding that framing a story takes into consideration the interest of all the stakeholders which include the public, government, and the private

sector. This is to reflect social reality so that readers can easily relate to the stories. The limitation of waste management framing in Ghana is the fear of being tag corrupt for trying to be ‘critical’ towards institutions responsible for waste management.

6.2. Study Limitation

A limitation of the study is the use of fewer study participants of media outlets and media practitioners due to time constraints.

This study can not be generalised to cover all media studies since it only covered print media.

Another limitation of the study is its inability to study waste management news content inductively to bring out specific frames.

6.3. Summary and Conclusion

This study aimed to examine how media frame waste management issues from 2015-2019. The study employed quantitative content analysis to study archive newspaper articles for the study period and used in-depth interviews to help understand the issue from the worldview of media practitioners.

The findings of both media content and in-depth interviews showed the four newspapers did not give much prominence to waste management stories in terms of story placement. This may be attributed to the fact that waste management stories do not attract readers, denied it the place of prominence in terms of placement.

The role of news information sources cannot be underestimated in frame-building. The findings of this study show that news sources determine the kind of news stories that

journalists generate in a day. This confirms Berkowitz & Terkeurst (1999 cited in Crawley, 2007 p.320) thinking that framing is influenced by journalists, news organizations, and their sources. He went further to state that news sources can exert significant influence on what becomes news and how it gets framed. The news sources identified in this study include Government officials waste management companies, communities, religious leaders, experts, NGOs, academic institutions, corporate organisations, politicians, and many others.

The findings also showed the predominance of a positive tone and state solution frame function. The framing theory suggests that how a story is presented influences readers' interpretation. This indicates that the persistence of positive tone and state solution stories is an indication that the frame of reference or the major idea that people get from reading the stories would be to ensure proper waste management which may result in positive attitudes towards waste management.

Journalists revealed that waste management stories should focus on health impacts, social impacts, economic impacts, reputational impacts, disaster impacts, landfilling of waste, irresponsible actions of individuals that contribute to the current state of waste management in Ghana, pointing to persons responsible to do their job well and letting readers know the facts of the issue. One of the limitations of waste management framing in Ghana is the fear of being tagged ‘corrupt’ for been critical towards some of the stakeholders in waste management.

6.4. Contribution to the body of knowledge

Media framing of waste management investigated in this research thesis and findings have valuable literature, policy, and practical contributions. The next section of this report briefly present these contributions:

6.4.1 Contributions to Literature

Studying media framing of waste management in Ghana has not well been researched. In fact, this study could not locate a single previous study done in this area. Even, if there are previous studies available on media framing of waste management, the researcher is yet to come in contact with them. It is undeniable the contribution this study makes in the area of media framing on waste management in Ghana.

6.4.2 Contribution to Practice

In terms of practice, the findings of this study have drawn the attention of media practitioners to the lack of flexibility in news reportage leading to the predominance of straight news.

6.4.3 Contribution to Policy

This study also exposes the shortcomings that confront waste management framing in media to policymakers, which is, the lack of 'criticality' in framing for the fear of being tagged 'corrupt' for being critical towards institutions responsible for waste management.

6.5. Recommendations

This study has established that in Ghanaian Media, readership is counted as money and from the analysis, it was understood that newsreaders were less interested in waste management stories. This could have a consequential impact on the number of stories published as well as the prominence attached to the stories. A policy that will advocates for the allocation of funds to support media outlets to do follow-ups on waste-related issues, and to cover waste management and environmental-related issues periodically will be valuable.

6.6. Avenue for Future studies

Future studies should consider public perceptions, media practitioners' views, and review of media content on waste management. The findings will provide a comprehensive understanding of the subject and make useful contributions to theory.

Future studies of media framing of waste management should employ a data-driven inductive approach to identify issue-specific frames.

Also, future studies should widen the scope to include other forms of media such as online, television, and radio. This will offer some insight into how these other media types frame waste management in Ghana.

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APPENDIX A

Coding Guide

1. Name of newspaper
    1. Daily Graphic
    2. Daily Guide
    3. Ghanaian Times
    4. The Chronicles
2. Date of publication
    1. 2015
    2. 2016
    3. 2017
    4. 2018
    5. 2019
3. By-line (Name of the author)
4. Headline of Publication
5. Type of story
    1. Editorial
    2. Feature
    3. Straight news report
    4. Opinions/Column
    5. Letters to the editor
6. Story placement
    1. Front page
    2. Back page
    3. Central spread
    4. Editorial page
    5. Other pages
7. Story enhancement
    1. Text with image
    2. Text alone
    3. Image alone

8. Source (Newsmakers)
    1. Waste Management Companies
    2. NGOs and Other Social Groups
    3. Government official
    4. Expert opinion
    5. Religious leaders
    6. Traditional leaders
    7. Academic Institutions
    8. Corporate organisations
    9. Politicians
    10. Other sources (Specify)
9. Tone of frame
    1. Positive
    2. Negative
    3. Neutral
10. Frame Functions
    1. Define problem
    2. State causes
    3. Make moral judgment
    4. State solutions
    5. State consequences
    6. Other (Specify).

APPENDIX B

Coding Sheet

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10

APPENDIX C

Interview Guide for News Reporters

Section A

Introduction

I am Asha Sumkura, a master's student from the Centre for Climate Change and Sustainability Studies. This interview is being conducted as part of a thesis study on the topic "Assessing how the Print Media Frame Waste Management in Ghana". Under this topic, the main focus of the interview is to understand the perceptions of media practitioner's narratives on waste management.

Your responses will be used anonymously and for academic purposes.

With your permission, I will tape-record the session because I do not want to miss any of your comments. Although I will be taking some notes during the session, I cannot possibly write fast enough to get it all down.

All responses will be kept confidential. This means that your interview responses will only be shared with an approved Research Assistant and we will ensure that any information we include in our report does not identify you as the respondent. You do not have to talk about anything you are not comfortable with and you may end the interview at any time if you so desire.

Section B

1. Sex:
2. Age of interviewee:
3. Educational background:
4. Name of organization:
5. Position of interviewee:
6. Number of years spent in Journalism:

Section C

1. What is your opinion about waste management in Ghana?
2. What is your opinion about how the government manages wastes in Ghana?
3. How has waste management in Ghana affected you? Positively or negatively, please elaborate.

4. How often do you cover waste management stories? **(frequency of coverage)**
5. How do these view you have about waste management influence how you frame news on waste management?
6. What factors should be considered in framing waste management news?
7. What picture do Ghanaian media create when they frame waste management?
8. What is the most prominent message in waste management news content?
9. Do these messages reflect societal reality? Please explain
10. In your opinion how does the message resonate with popular culture? **(popular culture set of the practices, and beliefs that are dominant in society at a given point in time).**
11. What is your general overview of waste management news frames?
12. What problem have you observed in the way waste management is portrayed by the media? **(focus on inaccuracies, shortcomings observed in waste management messages in media).**
13. What do you think can be done better in media framing of waste management? **(considers alternatives strategies).**

Thank you.

APPENDIX D

Interview Guide for News Editors

Section A

I am Asha Sumkura, a master's student from the Centre for Climate Change and Sustainability Studies. This interview is being conducted as part of a thesis study on the topic "Assessing How the Print Media Frame Waste Management in Ghana". Under this topic, the main focus of the interview is to understand the perception of media practitioners on media narratives on waste management.

Your responses will be used anonymously, and for academic purposes.

With your permission, I will tape-record the session because I do not want to miss any of your comments. Although I will be taking some notes during the session, I cannot possibly write fast enough to get it all down.

All responses will be kept confidential. This means that your interview responses will only be shared with an approved Research Assistant, and we will ensure that any information we include in our report does not identify you as the respondent. You do not have to talk about anything you are not comfortable about. You may end the interview at any time if you so desire.

Section B

1. Sex:
2. Age:
3. Educational background:
4. Name of organization:
5. Position of interviewee:
6. Number of years spent in Journalism:

Section C

1. What is your opinion about waste management in Ghana?
2. What is your opinion about how the government manages wastes in Ghana?
3. How has waste management in Ghana affected you? Positively or negatively, please elaborate.

4. How often does your newspaper cover waste management? (frequency of coverage)
5. How do these view you have about waste management influence how you frame news on waste management?
6. Do you have a news editorial policy?
7. If yes, what does it say about waste management?
8. If no, why not?
9. What factors should be considered in the framing of waste management news?
10. What problem have you observed in the way waste management is portrayed by the media? (focus on inaccuracies, shortcomings observed in waste management messages in media)
11. What do you think can be done better in media framing of waste management? (considers alternatives strategies)

Thank you

APPENDIX E

News Articles

54 News

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Visit: www.graphic.com.gh/showbiz
www.graphic.com.gh/graphicsports
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Daily Graphic, Thursday, December 5, 2019.

Tackle solid waste management to promote sanitation

— Rev. Dr Richard Amponsah

News Desk Report

THE Managing Director of AFex Consult, Rev. Dr Richard Amponsah, has called on stakeholders in the sanitation sector to tackle solid waste in order to promote good sanitation in the country.

He said this at the annual Ghana Consulting Engineers Association week celebration at the Ghana Institution of Engineers.

According to him, one of the most pressing environmental issues in Ghana was the problem of perennial flooding phenomenon, which had become a disturbing issue, especially in the capital city, Accra.

He attributed the problem to the lack of proper waste management systems, citing the recent motorway flood case as a classic example.

He noted that the Accra-Tema Motorway, until recently, had never experienced flooding.

Rev. Dr Richard Amponsah

However, the current practice, where the small waste collection motors dump their waste along the stretch and into drains of the highway, is directly responsible for the floods currently being experienced around the city.

He linked this problem closely to some district assemblies, who, in a bid to regulate waste collection in their various districts, set up very low monthly fees for waste collection.

This practice, he said, had discouraged private waste collection companies from engaging in the collection of waste in these districts, a situation which had opened up the space for private individuals, who used alternative motorcycles as waste collection vehicles.

"As a result of the charges in transportation and other dump-associated costs, most of these motorcycle operators end up dumping the waste in drains, in a bid to reduce costs," Dr Amponsah said.

"As a result of the charges in transportation and other dump-associated costs, most of these motorcycle operators end up dumping the waste in drains, in a bid to reduce costs."

Statistics

Dr Amponsah also revealed that research had shown that about 3500 tonnes of waste was generated daily, with about 1000 tonnes being unaccounted for. That meant that about 1000 tonnes of waste did not end up on dump sites but rather found their way into various drains and surrounding neighbourhoods.

He said waste collection was an expensive venture which required partnership from both the people and the private sector in order to be fully managed well.

Also, he added that since everyone generated waste, everyone should be able to help government pay for the management of the waste created.

Dr Richard suggested that in order to effectively manage the current waste situation in the country, there must be the creation of more strategic transfer stations to aid in the transfer of waste from one point of the city to the final dump site destinations.

He also suggested that government should be able to ensure that good land fills, which could last for more than 20 years, were provided.

04 www.ghanaiantimes.com.gh News

GHANAIAN Times FRIDAY, SEPTEMBER 20, 2019

GHANAIAN Times
Mass Authoritative Newspaper

EDITORIAL

Ban or not to ban single-use plastics

ONE of the major environmental hazards confronting the country today is management of plastic waste.

As of 2017, the United Nations Development Programme (UNDP) stated that Ghana produces 1.7 million tonnes of plastic waste annually.

It estimated that only two per cent of the waste is recycled despite enormous opportunities if all was recycled.

This has been attributed to inadequate investments by government and the private sector as well as limited capacity in the business of recycling.

It is for this reason that all around the country, drains, rivers, farms and the oceans are inundated with plastic wastes.

The problems with the management of plastic waste appear to be overwhelming because no solution has yet been found.

Fortunately, the government is taking steps to address the phenomenon in the country by collaborating with the Global Plastics Action Partnerships (GPAP).

The government together with the GPAP will launch a special initiative that is expected to tackle the plastic waste menace head-on.

According to Mr Oliver Boachie, Advisor to the Minister of Environment, Science, Technology and Innovation, the focus of the initiative which will be launched by President Nana Addo Dankwa Akufo-Addo on October 1, will be tackling particularly single-use plastics in the country.

Single-use plastics, which are polythene materials used in packaging, pure water sachets, black polythene bags and rubber wrappers, have become a major source of worry and a menace.

For the *Ghanaian Times*, it is welcoming news that the partnership would focus on single-use plastics which are creating a lot of problems for the environment.

We are not going to go into those problems, but it is important to state that their use must be contained in order to save the environment.

We are happy that the government has hinted of measures it intends taking to ensure that plastic use in the country is done in a manner that will be sustainable and not disruptive to the economy.

We welcome the initiative that is expected to free the world of plastic waste and pollution in the country and applaud the government and the partners for the steps taken that has been described as "the most powerful and concerted global efforts to address the plastic wastes challenge."

We also call on all the partners and the general public to cooperate with the agencies mandated to lead this initiative so that together, we can all contribute toward plastic wastes management in the country.

Environment & Sanitation

Ghana risks reoccurrence of June 3 · If attention is not paid to waste management now – ESPA

By Naa Lamiley Bentil

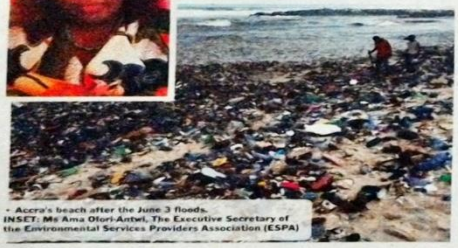
THE collection and disposal of waste, particularly solid waste, must improve if a reoccurrence of the June 3, 2015 disaster is to be avoided, the Executive Secretary to the Environmental Services Providers Association, (ESPA), Ms Ama Ofori-Antwi, has said.

Speaking at a meeting with the Chief of Staff, Mr Julius Debrah, and other executive members of association, Ms Ofori-Antwi stated that "if nothing is done to help us improve on waste management, particularly in Accra, the June 3, 2015, disaster might reoccur."

On June 3, last year, about 150 people died as a result of a flood and fire disaster that occurred at the Kwame Nkrumah Circle in Accra. The Odaw drain, which carries run-off water into the Atlantic Ocean through the Korle Lagoon, overflowed its banks because it was choked with garbage.

The executive members, including the First Vice, Mr Stanley Owusu; a Consultant, Mr Ben Laryea, and a member, Nana Ama Adobea, met Mr Debrah to deliberate on some of the challenges facing members of the ESPA.

The ESPA is an umbrella body of waste management companies in Ghana, with a membership of about 90 contractors in the formal sector and over 4,000 in the informal sector.



• Accra's beach after the June 3 floods. INSET, Ms Ama Ofori-Antwi, The Executive Secretary of the Environmental Services Providers Association (ESPA)

Responsibility of government

Ms Ofori-Antwi stated that sanitation was the responsibility of the government, and it must, therefore, support the private sector, which had assumed that role, to succeed in keeping the country's environment clean.

She said members of the ESPA had in the past few years carried out their mandate to the best of their abilities, which had resulted in some parts of the city being clean.

"However, we have not been perfect and that is why we need the government to help us," she stated.

"The bye-laws of the assemblies clearly state that they should provide landfills and dumping sites but that is not the case. Currently, the waste collectors are expected to even pay for dumping at the final disposal sites," she added.

She said the fluctuation of the cedi against the world's major currency, the dollar, was having a toll on the finances of ESPA's members, because the waste trucks and other equipment needed for effective waste management operations were imported.

Mr Laryea also observed that the waste management sector was one of the few that faced a rigid price control regime, with the assemblies determining how much a contractor should charge at the end of the month, despite the fact that everything is imported at the contractor's cost.

Support needed

Mr Laryea said it was also in the interest of the government to support the private sector to reduce the burden on the National Health Insurance Scheme (NHIS) claims.

"Our work impacts on the health and wellbeing of all those who live in Ghana, and money paid into the NHIS could be reduced if sanitation improves," he stated.

Mr Stanley Owusu, who is also the Chief Executive Officer of J. Stanley Owusu Company Limited, recommended that the government should act as an intermediary for the private sector to get access to loan facilities from international banks, including the Exim Bank of India, Hungary Exim Bank and European Union Bank, among others.

"It is envisaged that the interest rates from these banks are comparatively lower to those from local banks," he said.

He also asked the government to, as a matter of urgency, waive tax on imported waste equipment to enable the companies to procure new trucks at reasonable cost to carry out their work.

Madam Adobea said the government needed to completely take over the collection of refuse from low income but densely populated areas such as Glefe, Charker and Avenor, since contractors operating in such areas were unable to break even. "Some of the residents in these communities cannot even pay 50 pesewas to a contractor at the end of the month," she stated.

Daily Graphic
EDITORIAL

Wednesday, November 15, 2017

It's our duty to make the environment clean

SANITATION is key to the health, wealth and general well-being of the people, and that is why all countries give it utmost attention.

Poor sanitation has the tendency to cut back development, for which reason any move to tackle the canker makes sense.

Over the past few decades, Ghana has failed woefully in delivering sanitation to its people. The sector has not been prioritised by our governments and the metropolitan, municipal and district assemblies (MMDAs) have reneged on their responsibilities to make the environment clean.

It is a shame that a country that prides itself in being the gateway to West Africa is ranked second in Africa in open defecation, with 19 per cent of its population resorting to the practice.

Our cities and big towns are engulfed in filth, and although the authorities have tried hard to confront it, the outcomes have been nothing to write home about.

The UNICEF recently gave a damning verdict on Ghana's waste management. In its report on the Sustainable Development Goals (SDGs), the global body ranked Ghana as the seventh worst country in the world with access to basic sanitation.

It is against this background that President Nana Addo Dankwa Akufo-Addo launched the National Sanitation Campaign last Monday to galvanise resources, both human and material, to arrest the problem once and for all.

But this is not the first time that an attempt is being made to confront the sanitation challenge. The late Vice-President Aliu Mahama started this with his campaign against indiscipline. In 2014, the immediate past government also launched the National Sanitation Day, under which citizens were enjoined to dedicate five hours on the first Saturday of every month to clean their environment.

Although the programme started well, the enthusiasm fizzled out, and before the Mahama government bowed out of office, it had almost died out.

The *Daily Graphic* believes that the current government has learnt lessons from the previous attempts and will thus not travel the path of the past.

Details of the National Sanitation Campaign appear heavily loaded and it will demand all hands on deck to achieve the desired result.

Refreshingly, the President himself has promised his all for the campaign. He is on record to have said " "I will not be left out of this exercise. I will be directly involved, as I intend to monitor the activities of the national campaign to ensure that its goals are attained. I will review, on a quarterly basis, with the Minister of Monitoring and Evaluation the performance of each metropolitan, municipal and district assembly and publish the results of the review."

It is clear what the President wants to achieve with the campaign and we are clear in our minds that the government does not want to treat sanitation issues as variables.

And that is why the President has directed that all Ghanaians should clean their sorroundings every day instead of wanting to do so on a monthly basis.

The *Daily Graphic* will take President Akufo-Addo for his word and follow closely how he goes about implementing the lofty details of the campaign.

This country has suffered for far too long from poor sanitation and the time to end this negative tag is now.

Your voice

How can we get to the days when good hygiene was part of our values, in the wake of the launch of the National Sanitation Campaign? Our reporter, Porcia Oforiwaa Ofori, asks.

Mabel Delasi Awuku, journalist

The government must ensure that those found culpable of sanitation offences are dealt with to serve as a deterrent to others.

Emmanuel Ashitey, national service person

Our laws must be enforced strictly without fear or favour, as that is the only way to save the situation in this country.

Priscilla Amo Gyan, administrator.

Rubbish collection fees should be added to the taxes we pay, so that people do not have to pay when disposing of rubbish at sites.

Kojo Dei, broadcast journalist.

We need to revise our school curriculum to include topics on personal hygiene.

Mudor waste plant begins full operations

By Dominic Moses Awiah, ACCRA

THE Mudor Faecal and Waste Water Treatment Plant has begun full operations with a call on the Accra Metropolitan Assembly (AMA) to put in place a mechanism to ensure that no individual or group is allowed to discharge liquid waste into the sea.

"We are currently operating fully. We receive about 250 trucks of human waste daily without any challenge," Mr Haidar Said, the Managing Director of Sewerage System Ghana Limited, operators of the facility; said.

That notwithstanding, he appealed for government support to enable the company to expand its project to other parts of the country and added that without support, it would be extremely difficult to operate efficiently.

"We have made the investment, but now is the time for the government to give us all the support and assistance to deliver efficiently," Mr Said made the appeal when the Deputy Minister of Environment, Science and Technology, Ms Patricia Appiagyei, led Parliament's Select Committee on Local Government to tour the Lavender Hill/ Mudor Waste Water Treatment Plant.

The Plant

The purpose of the tour was to allow members of the Committee to familiarise themselves with the operations of the plant inaugurated in November last year.

The $80 million plant, which is owned and operated by Sewerage System Ghana Limited, is a subsidiary of Jospong Group of Companies.

It has a well-equipped laboratory, a 5,500 cubic metre tank and a machine for odour control, among other facilities.

Currently, the facility has the capacity to receive about 80 per cent of the entire liquid waste generated in the region.

Ms Appiagyei stressed the commitment of the government to partner the private sector to properly tackle the country's sanitation situation.

She said one of the major focuses of the government was to join forces with the private sector in its agenda of improving Ghana's sanitation condition.

More partnership

Touching on the role of the private sector, Ms Appiagyei said since the management of waste played a crucial role in the development of every nation, there was the need for proper attention to be given to companies to improve the sanitation condition.

"Government alone cannot address the problem, so we will need the partnership and support of the private sector. The government intends to support this project to enable it to achieve the maximum target," she said.

Ms Appiagyei commended the management and operators of the faecal treatment plant for the investment made to help improve sanitation in the region.

The AMA had since 2010, been saying it would close down the Lavender Hill.

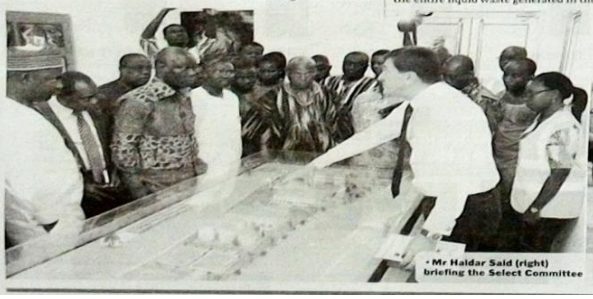
In 2013, it said six anaerobic digesters at the new scientific liquid waste facility at Mudor in Accra, intended to treat the waste into organic material and biofuel, could not process the 120 trucks of liquid waste generated in a day.

After a long battle between the Environmental Protection Agency (EPA) over the closure of Lavender Hill, which ended in court, the facility was completed in November 2016.

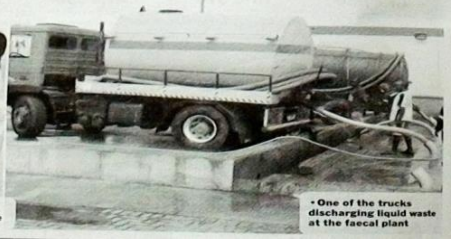
Quick Read

ADEHYEMAN SAVINGS & LOANS LIMITED
Financing a better future

The Parliamentary Select Committee on Local Government has toured the Lavender Hill Faecal and Mudor Waste Water treatment plant to familiarise itself with the operations of the facility.



• Mr Haidar Said (right) briefing the Select Committee



• One of the trucks discharging liquid waste at the faecal plant

Accra File
By Bernice Bessey

Filth surrounds Kaneshie Market

It is becoming a normal scene to sight heaps of refuse at the Kaneshie Market Complex.

The surrounding area is full of refuse deposited by traders, hawkers, shoppers and passengers.

The market, which can be described as one of most planned in the Accra Metropolis, does not have a single refuse bin placed at vantage points for individuals who trade or shop to deposit refuse.

And as a result, people indiscriminately litter the environment, resulting in heaps of rubbish in an area where health and hygiene is very important.

The traders told the **Accra File** that it is a daily ordeal to inhale bad odour from the heaps of refuse.

"Ah! This is nothing. You have not seen anything yet. This is least of the refuse heaps you will find here," one trader said.

Participants at the Urban Development Initiative event

Zoomlion to revolutionise waste management in Ghana

Zoomlion Ghana, a waste management company and subsidiary of the Jospong Group of Companies, has stated that it would continually strive to revolutionise waste management and introduce modern innovative integrated solutions.

The company is currently operating in 12 industries/sectors in all 216 Metropolitan, Municipal and Districts across Ghana, and five African countries.

Mr. Mohammed Mahama Adams, a Communications Officer at Zoomlion Ghana, revealed in a presentation made at a Ghana side event, organised by the Ministry of Local Government and Rural Development, at the ongoing United Nations Housing and Sustainable Development (UN Habitat) Conference in Quito, Ecuador.

The Ghana side event was on the theme: "Urban Development Management in Ghana and Implications for the New Urban Agenda: "The Case Study of the Urban Management Pilot Programme, and the National Priority Planned City Extension of Ningo-Prampram."

On the topic, the intervention of Zoomlion in the waste management revolution in Ghana, 'Keeping Africa Clean, Green and Healthy,' Mr. Adams said the mission of Zoomlion Ghana was to be at the forefront of the environmental services industry in Africa and beyond.

This, he said, was done through the introduction and utilisation of simple, but modern, technologies and methods of waste management by Zoomlion Ghana, at affordable and competitive rates, while its vision was to be Champion of Clean, Green and Healthy Communities in Africa.

The Communication Officer said the situation before Zoomlion in Ghana was that the population growth was not matching the sanitation infrastructure, high unemployment, no treatment facility within the industry except dumpsites, lack of enforcement of sanitation laws, and lack of qualified human resource.

He said the intervention of Zoomlion in two ways of partnering the government, through Private Public Partnership (PPP) and building subsidiaries along the whole waste management chain, had changed the situation.

Mr. Adams said there were various forms of PPP, including the Ghana Youth Employment and Entrepreneurial Development Authority Waste & Sanitation Module, Public Cleansing, Public Cleansing, Sanitation Guards Programme and Zoom Kids Programme in Schools, the National Mosquito Control Programme, Sanitation Improvement Package, Volta Lake Transport, Zoil and Afforestation.

The second mode of intervention includes the production of waste bins and inner lining for waste bins, door-to-door waste collection, offers scientific interior cleaning and care for floors, landscaping, horticultural and beautification services, provision of convenient, mobile, safe, and healthy sanitary toilet facilities.

"It is also including the Teshie-Nungua & Achimota Transfer Stations, Treatment of Health Care Waste, the Accra and Kumasi Compost, Biogas and Recycling Plants, liquid waste treatment plants at Lavender Hill and Mudor, and dredging of the Korle Lagoon in Accra."

The other interventions are the tackling treatment and management of waste, oil and hazardous waste and oil spill treatment facility in Takoradi in the Western Region, construction and management engineered landfill, and the nationwide plastic trash for cash.

Source: GNA

EDITORIAL

Plastic Pollution: The Trend Continues

WHEN HE took his turn at the meet-the-press series, the Science and Environment Minister, Prof. Frimpong-Boateng, said a new policy on plastics was awaiting cabinet approval for implementation.

While we are excited that after all there is a response from government about the worldwide trend of plastic pollution, the efficiency of this in the direction of managing the situation in Ghana is what bothers us. To put it brusquely, we do not think that Ghanaians would turn away from the wanton use of plastics and dumping same in our uncovered gutters.

The outright ban which is the way many countries have gone by way of response to the challenge in our view should have been the module to apply. Kenya and others have begun the rather challenging 'ban plastics' approach which it would appear is changing the picture in the East African country.

We are aware that many factors went into the final decision not to go the way of an outright ban of the product.

The attitudinal engineering and other social responses have so far not worked in the country on other subjects and so we wonder whether in the case of managing the threat of plastics, the results would be different in the Ghanaian setting.

Little or nothing is being said about the threats posed by plastics at public forums where the subject is treated largely for academic purposes.

Even our fishermen have started complaining about plastics competing with their catches when they go on sometimes weeklong ventures.

We appreciate government's concern about the loss of jobs and the trickling effect of the socio-economic action of plastic ban and how this informed the 'not-to-ban' approach.

Considering the volume of plastic wastes we are generating on a daily basis in the country and how some of these end up in the Atlantic Ocean and the effect thereof, we think a radical approach should be a better option.

It might appear too late to do something about the subject; now that the final document is only awaiting cabinet nod, we nonetheless suggest that another look be given to the subject.

Domestic livestock are dying after ingesting plastic products, evidence of which can be found in the digestive tracts of ruminants when they survive the foreign matter in their entrails and slaughtered for meat.

The seriousness we should attach to the anti-plastic war should go beyond the kid's glove approach. Perhaps the compulsory inclusion of the addition of a certain chemical additive to render plastics biodegradable should be considered. That is, in our opinion, the way and not the unfeasible attitudinal change approach.

The emptying of domestic wastes in our drainage systems continues unabated as will plastic pollution through our recklessness and uncaring attitude towards the environment.

APPENDIX F

Introduction Letter to the National Media Commission

UNIVERSITY OF GHANA
CENTRE FOR CLIMATE CHANGE AND SUSTAINABILITY STUDIES (C_3SS)

20th January, 2020

NATIONAL MEDIA COMMISSION
RECEIVED
2 0 JAN 2020
ACCRA

The Director
National Media Commission
Abdul Nasser Ave, Ridge
Accra, Ghana

Dear Sir,

LETTER OF INTRODUCTION

I would be very grateful if you could provide Ms.Asha Sumkura with information for her research work.

Ms.Asha Sumkura is an MPhil student at the University of Ghana Centre for Climate Change and Sustainability Studies in Climate Change and Sustainable Development.

She is undertaking a research on the topic **"Tragedy or Opportunity: Assessing how the print media frame waste management in Ghana."** as part of her studies.

I would very much appreciate your assistance in any form to enable her complete her work.

Thanks very much.

Yours Faithfully,

Bernice Komla

Administrative assistant, C3SS.

For: Director

COLLEGE OF BASIC AND APPLIED SCIENCES
P.O. Box LG 25, Legon, Accra, Ghana
Telephone: +233-302905269 Email: C3SS@ug.edu.gh Website: www.ug.edu.gh/c3ss

APPENDIX G

Ethical Clearance Approval Letter

UNIVERSITY OF GHANA

ETHICS COMMITTEE FOR BASIC AND APPLIED SCIENCES (ECBAS)

P. O. Box LG 1195, Legon-Accra

Ref. No: ECBAS 057/19-20

27th July, 2020.

Ms. Asha Sumkura
Centre for Climate Change
and Sustainability Studies
University of Ghana
Legon, Accra

Dear Ms. Sumkura,

ECBAS 057/19-20: TRAGEDY OR OPPORTUNITY: ASSESSING HOW PRINT MEDIA FRAME WASTE MANAGEMENT IN GHANA

This is to inform you that the above reference study has been presented to the Ethics Committee for Basic and Applied Sciences for a full board review and the following actions taken subject to the conditions and explanation provided below:

Expiry Date:	17/07/2021
On Agenda for:	Initial Submission
Date of Submission:	18/05/2020
ECBAS Action:	Approved
Reporting:	Annually

Please accept my congratulations.

Yours sincerely,

Professor Daniel Bruce Sarpong
ECBAS Chairperson

ETHICS COMMITTEE FOR BASIC AND APPLIED SCIENCES
APPROVED
27 JUL 2020
UNIVERSITY OF GHANA

APPENDIX H

Introduction Letters to News Outlets

UNIVERSITY OF GHANA
CENTRE FOR CLIMATE CHANGE AND SUSTAINABILITY STUDIES (C_3SS)

4th February, 2020

The Director
Business and Financial Times
P. O. Box CT 10766,
Cantonments - Accra
Accra, Ghana

Dear Sir,

LETTER OF INTRODUCTION

I would be very grateful if you could provide Ms.Asha Sumkura with information for her research work.

Ms.Asha Sumkura is an MPhil student at the University of Ghana Centre for Climate Change and Sustainability Studies in Climate Change and Sustainable Development.

She is undertaking a research on the topic "**Tragedy or Opportunity: Assessing how the print media frame waste management in Ghana.**" as part of her studies.

I would very much appreciate your assistance in any form to enable her complete her work.

Thanks very much.

Yours Faithfully,

Bernice Komla

Administrative assistant, C3SS.

For: Director

BUSINESS AND FINANCIAL TIMES
P. M. B. CT 10, CANTONMENTS
ACCRA - GHANA
TEL:(+233) 0302 785 869

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P.O. Box LG 25, Legon, Accra, Ghana
ephone: +233-302905269 Email: C_SS@ug.edu.gh Website: www.ug.edu.gh/c3ss

UNIVERSITY OF GHANA

CENTRE FOR CLIMATE CHANGE AND SUSTAINABILITY STUDIES (C_3SS)

4th February, 2020

The Director
News Times Corporation
P. O. Box 2638,
Ring Road West
Accra, Ghana

Dear Sir,

LETTER OF INTRODUCTION

I would be very grateful if you could provide Ms.Asha Sumkura with information for her research work.

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Thanks very much.

Yours Faithfully,

Bernice Komla

Administrative assistant, C3SS.

For: Director

12/03/2020

COLLEGE OF BASIC AND APPLIED SCIENCES

P.O. Box LG 25, Legon, Accra, Ghana

Telephone: ~~+233 302905269~~ 0206446913

Email: C3SS@ug.edu.gh

Website: www.ug.edu.gh/c3ss

UNIVERSITY OF GHANA
CENTRE FOR CLIMATE CHANGE AND SUSTAINABILITY STUDIES (C_3SS)

4th February, 2020

The Director
Daily Guide
Stephen Amartey Close, Nima Residence
Nima
Accra, Ghana

Dear Sir,

LETTER OF INTRODUCTION

I would be very grateful if you could provide Ms.Asha Sumkura with information for her research work.

Ms.Asha Sumkura is an MPhil student at the University of Ghana Centre for Climate Change and Sustainability Studies in Climate Change and Sustainable Development.

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Thanks very much.

Yours Faithfully,

Bernice Komla

Administrative assistant, C3SS.

For: Director

Irene
13/3/2020
(0302229576)

COLLEGE OF BASIC AND APPLIED SCIENCES
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Telephone: +233-302905269 Email: C3SS@ug.edu.gh Website: www.ug.edu.gh/c3ss

UNIVERSITY OF GHANA
CENTRE FOR CLIMATE CHANGE AND
SUSTAINABILITY STUDIES (C_3SS)

4th February, 2020

The Director
Graphic Communications Limited
Accra, Ghana

Dear Sir,

LETTER OF INTRODUCTION

I would be very grateful if you could provide Ms.Asha Sumkura with information for her research work.

Ms.Asha Sumkura is an MPhil student at the University of Ghana Centre for Climate Change and Sustainability Studies in Climate Change and Sustainable Development.

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I would very much appreciate your assistance in any form to enable her complete her work.

Thanks very much.

Yours Faithfully,

Bernice Komla

Administrative assistant, C3SS.

For: Director

Agnes Akuetia
0302684001-10
12:58
A.M

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UNIVERSITY OF GHANA
CENTRE FOR CLIMATE CHANGE AND SUSTAINABILITY STUDIES (C_3SS)

4th February, 2020

The Director
The Ghanaian Chronicles
P. M.B
Accra - North
Accra, Ghana

Dear Sir,

LETTER OF INTRODUCTION

I would be very grateful if you could provide Ms.Asha Sumkura with information for her research work.

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Thanks very much.

Yours Faithfully,

Bernice Komla

Administrative assistant, C3SS.

For: Director

receipt acknowledged

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