A COMPARATIVE ANALYSIS OF NEWSPAPERS' COVERAGE OF CLIMATE CHANGE IN NIGERIA (January 2013- December 2014)

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A DISSERTATION SUBMITTED TO THE SCHOOL OF POST GRADUATE STUDIES, AHMADU BELLO UNIVERSITY, ZARIA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF A MASTER OF SCIENCE DEGREE IN MASS COMMUNICATION

DEPARTMENT OF MASS COMMUNICATION,

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ZARIA, NIGERIA

MAY, 2017

DECLARATION

I declare that the work in this Dissertation titled A COMPARATIVE ANALYSIS OF NEWSPAPERS' COVERAGE OF CLIMATE CHANGE IN NIGERIA (January 2013-December 20114) was carried out by me in the Department of Mass Communication, Faculty of Social Sciences, Ahmadu Bello University Zaria, Nigeria. That the information derived from the literature has been duly acknowledged in the text and in the list of reference. No any part of this dissertation was previously presented for another degree in this or any other Institution.

MOHAMMED HABIBA SANI …….. ……..
Signature Date

CERTIFICATION

This Dissertation titled A COMPARATIVE ANALYSIS OF NEWSPAPERS' COVERAGE OF CLIMATE CHANGE IN NIGERIA (January 2013- December 2014) by MOHAMMED HABIBA SANI meets the requirements, regulations and a standard governing the award of the degree of Master of Science (M. Sc) in Mass Communication of the Ahmadu Bello University, Zaria and it is approved for its contribution to knowledge and literary presentation.

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ABSTRACT

This study content analysed four Nigerian newspapers; *Daily Trust*, *Leadership*, *The Nation* and *This Day* from Jan 2013 to Dec 2014, with the aim of finding the pattern in climate change reporting in the selected newspapers. The objectives of the study include ascertaining the level of attention given to climate change in Nigerian newspapers, analysing the various frames used in reporting climate change, determining the prominent genre of reporting climate change and comparing the pattern of climate change reporting in the four selected newspapers. The study adopted framing theory as its theoretical approach. Content analysis was used to gather data for the research. Stories with any of the key words; climate change, global warming or green house, were the content categories. Units of analysis include news, features, editorials, interview and opinion. Findings from the study show a slight disparity in the volume of reportage of climate change in all papers except The Nation which had the lowest volume. Climate change mitigation was the major frame of reportage in all the papers and features were the major genres used in reporting climate change. A comparison within the papers shows that climate change reportage is similar across the papers with little differences. In conclusion climate change stories were not given much attention by all the papers considering the low volume of reportage, page placement, keyword appearance and story length. More so, issues that are keen to certain areas should be taken more serious, more frames on the causes and effects of climate change should be used in reporting as this will help educate the public of the dangers of climate change so they can willingly change their behaviour towards a greener society.

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CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

The worlds' climate has been an issue of utmost importance to discuss and its change is causing adverse effects on lives and property. Due to the change in climate, our world is facing one of the biggest challenges of the 21st century. Researchers (Anderson, 2008, Onyekachi Solomon and Ifeanyi, 2012 , Fawole and Olajide, 2012, Kleinschmit and Sjostedt, 2014) have shown that the last 20 years has seen an unprecedented climate change in centuries. In an article published in The Guardian newspaper on the 22/04/2016, the year 2015 was said to be the hottest year since record keeping began in 1880, but temperatures for the 1st three months of 2016 have already demolished that record.

According to Wilson (2000:203) "the global warming story is one of the most complicated stories of our time which is affected by a number of journalistic constraints such as; deadlines, space, one-source stories, complexity and reporter education". Other factors like geographical location, happenings and events, media ownership and gate keeping also contribute to its complication. Climate change stories involve abstract and probabilistic science, labyrinthine laws, grandstanding politicians, speculative economics and complex interplay of individuals and societies, (Stocking and Leonard, 1990 as cited in Wilson 2000). In developed countries with high science and technical level, climate change is seen as a threat to human existence.

Climate, according to Ajayi (2003:58) "is the average weather condition of a place over a long period of time usually about or over 30 years". It comprises of elements such as temperature, rainfall, atmospheric pressure, humidity, wind, sunshine and cloud. Climate change as defined by the Inter- Governmental Panel on Climate Change (IPCC, 2007:2) "is a change in the state of the climate that can be identified (using statistical tests) by changes in

the mean or variation of its properties- and that persists for an extended period of time". Green- house effect is the ability of the atmosphere to capture and recycle energy emitted by the earth surface. This is a natural process, but human activities have altered the process through the release of green-house gases like carbon-di-oxide, water vapour, methane and chlorofluorocarbons (CFC's). This makes the atmosphere trap more heat.

Worldwide losses due to natural disasters have been roughly doubling since the 1960s; with the European Insurance Federation highlighting that 91% of all natural catastrophes between 1980 and 2005 can be classified as extreme weather. The International Federation of Red Cross and Red Crescent Societies attest that weather related disasters have increased from an annual average of 200 in the early 1990s to more than 350 since the year 2000. The increase in disasters relates to equally rising numbers of people affected world- wide. These numbers have risen from 190 million in the 1990s to 243 million in 2008. The IFRCS further states that the high number of climate related disasters accounted for 60 percent of grants allocated by its Disaster Relief Emergency Fund (DREF). (IRFC 2009 as cited in Lekwot, Uchenna and Alfred, 2012).

According to Boykoff and Yulsman (2013:2), "research in the last decade has consistently found out that the general public gains understanding of science (and more specifically climate change) largely through mass media accounts". Since the news media are the central interpretative system of modern societies, they are thus crucial for the societal uptake on climate change issues. They are central agents for awareness rising and information dissemination. As global climate change lies beyond the life-world and biographical horizons of most people, knowledge about it is mainly disseminated via public communication. Most citizens would not learn about climate change research directly from the cautious lexicon in

science journals but rather from the mass media (Peters and Heinrich 2005 as cited in Schmidt, Ivanova and Schafer, 2013).

Through media coverage, the public can learn a lot about science and the environment. However, climate change reporting is low and of poor quality in all major media across the African continent. Media owners/editors have little appreciation of climate change, and do not view climate as worth prime space in newspapers (Luganda, 2008). Besides, there has been limited training in climate change communication for development; there are few institutions for specialized training in the continent.

1.2 Statement of the Research Problem

Ihedioha (2007) as cited in Fawole and Olajide (2012:32) observes that "every state of Nigeria across the various ecological zones suffer from the effects of one climate variable change or the other". Nigeria is vulnerable to climate change impacts due to its geographical location, climatic variation, vegetation, population, settlement, agricultural practices, (rainfall dependent) energy demands, economic and political structure. Some of the effects of climate change felt across the country includes: heat waves, desert encroachment, flooding, drought… these are supposed to be the trending issues in Nigerian newspapers as the climate affects all facets of life.

However, empirical data shows that the Nigerian mass media do not give the needed attention to the coverage of the environment. According to Nwabueze (2007) as cited in Onyekachi et al (2012:24), the quantity of climate change coverage in African media is disproportionate to the level of threat it poses to the continent. In Emekaumejie's weblog @justanotherwordpress.com, he stated that "Nigeria would risk the worst ravages of global climate change if most of its mass media continue in their present ignorance of the basic issues and the grave challenges they face". Given the serious effects climate has on Nigeria,

the researcher finds it worthy to assess the coverage of climate change by Nigerian newspapers, how and what the newspapers are saying about climate change.

1.3 Research Objectives

The following objectives are developed around the core issues in global climate change debate which includes:

1. To ascertain the level of attention (prominence) given to the coverage of climate change in *Daily Trust, Leadership, The Nation and This Day* newspapers.
2. To analyse the frames used in reporting climate change in these newspapers.
3. To determine the dominant genre of climate change reportage in the four selected newspapers.
4. To compare the coverage of climate change among the four newspapers.

1.4 Research Questions

The research attempts to provide answers to the following questions:

1. What is the level of attention given to climate change stories in *Daily Trust, Leadership, The Nation* and *This Day* newspapers?
2. Which are the various frames used in reporting climate change in the four selected newspapers?
3. Which is the dominant genre used in reporting climate change in the four selected newspapers?
4. What are the similarities and differences in climate change reportage in the four newspapers?

1.5 Significance of the Study

Studies on newspaper coverage of climate change in Nigeria have been carried out by some researchers like; Nwabueze, Nnaemeka, Okika and Umeora (2015), Oyeyinka et al (2015),

Ayogu, Agwu and Enwelu (2015), Popoola (2014), Batta, Ashong and Bashir (2013), Agwu and Amu (2013), Ukonu, Akpan and Anorue (2013), Onyekachi et al (2012), Fawole and Olajide (2012) . However, a gap as to the reason behind the low representation of climate change stories in newspapers has not been filled. Therefore, accurate investigation of print media coverage of climate change issues in Nigeria would help to study comprehensively, the pattern of reportage of climate change in Nigeria. This study will also serve as a guide for newspaper organizations to increase their space, time and prominence as well as increase journalists awareness on environmental issues.

Furthermore, this research adds to the body of existing literature on climate change by analyzing the relationship between journalist's knowledge and level of reportage of climate change in Nigeria. The study would also contribute to knowledge by confirming or affirming the results of the past findings on press coverage of climate change. Findings and conclusions of these studies would also be used in the analysis of this research.

1.6 Scope of the Study

This research is aimed at investigating the reportorial pattern of climate change in Nigerian newspapers. For this purpose, four daily newspapers were analysed; *Leadership, This Day, The Nation* and *Daily Trust* due to their regularity of publication, ownership, geographical location, wide reach and circulation level. The study began newspaper review from January 2013 to December 2014. 2012 is the year Nigeria experienced severe flood all through the country, as such Nigerian newspapers are expected to take climate issues more seriously after the flood incident. The total population of the study is 2912 editions of the four selected newspaper out of which 528 sampled editions were analysed.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter examines related concepts regarding newspaper's coverage of climate change. Conceptual approaches which include; climate change, press coverage of climate change, and factors affecting press coverage of climate change are reviewed to shed more light on the research topic. Literatures related to this study are reviewed to get an insight into what scholars have done relating to the topic. A theoretical approach was used to support the conceptual and empirical review.

2.2 Conceptual Review

Reviewing core concepts relating to this study will harness a proper understanding of the aim of this research. Therefore, the conceptual review entails concepts as; climate change, press coverage of climate change and factors affecting press coverage of climate change.

2.2.1 Climate change

According to Tagbo (2010), the history of the science discovery of climate change began in the early 19th century when natural changes in climate were first suspected and natural green-house effect first identified. In the late 19th century, Scientists first argued that human emission of green- house gases could change the climate, but the details of the calculations were disputed. By 1950s and 1960s, the calculation of the warming effect of carbon dioxide emission became increasingly convincing, although some scientist also pointed out that human activities in form of atmospheric aerosols could have cooling effects (IPCC 2010). By 1970s and 1980s, scientific opinions increasingly favoured the warming view point. The consensus position formed that human activity was in the process of warming the climate, leading to the modern period of what we have today as global warming. Climate change, green-house effect and global warming are used interchangeably.

Scientists have spent decades trying to figure out what is causing climate change by looking at natural cycles and events that are known to influence the climate. But the amount and pattern of warming that has been measured cannot be explained by these factors alone. The only way to explain the pattern is to include the effect of greenhouse gases (GHSs) emitted by humans.

Interest in climate change, potential impacts, and adaptation /mitigation policy options increased dramatically during 1995-96. While there are many explanations for this, one contributing factor was the conclusion, reached by the Intergovernmental Panel on Climate Change (IPCC) in its Second Assessment Report (SAR)(IPCC 1996a-c) that, even considering remaining uncertainties, "the balance of evidence suggests that there is a discernible human influence on global climate." This conclusion, which was negotiated over a period of a year by hundreds of scientists and policymakers, acknowledged the strong belief of most experts that human modification of atmospheric composition has led to noticeable climatic effects and likely significant climate change in the decades ahead (Moss and Schneider 2008). The build-up of green-house gases (GHGs) in the atmosphere, much of which is driven by human activity, is already affecting the global climate. Under current projections, concentrations of GHGs will continue to increase into the indefinite future, entailing a process of continued global warming.

Greenhouse gas emissions, the main cause of anthropogenic climate change, have increased steadily since the Industrial Revolution. However, the rate of emissions has been steadily increasing over time and computer models of the earth's climate system (including both natural and human causes) are unable to simulate recent warming without the inclusion of anthropogenic causes. Computer simulation models of the earth's climate which include only natural forces (for example solar variability due to both internal and orbital variations,

volcanic activity etc.) indicate a cooling of the earth after 1960, which is inconsistent with the observed warming. This has led the IPCC to conclude recently that most of the warming of the last 50 years is attributable to human activities (IPCC, 2007).

Anthropogenic factors that increase global warming E.g. Fossil fuel combustion, tree felling and gas flaring are referred to as causes of climate change. The main cause of climate change have been attributed to anthropogenic (human) activities for example, the increased industrialization in the developed countries has led to the introduction of large quantities of Green House Gases (GHGs) which include carbon IV oxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) into the atmosphere. (Ogbo, Lauretta and Ukpere: 2013) These gases are said to have damaged the ozone layer which controls the sun's radiation and water evaporation. Many of the developed countries today for example US, China, Germany have reached a threshold of development with our environment at stake. With industrial revolution came changes to our environment especially the climate through release of poisonous gases to the atmosphere.

"The global increase in concentration of CO_2 is due primarily to fossil fuel combustion and land use while those of methane and nitrous oxide are due to agricultural practices. There is no doubt therefore that the earth is getting warmer and human beings are to be blamed" (Spore, 2008 as cited in Ogbo et al 2013:2). Coal burning power plants for electricity production releases enormous amounts of carbon dioxide into the atmosphere. Our modern car culture and appetite for globally sourced goods is also responsible for huge emissions of carbon dioxide as fossil fuel combustion produced as a result of transportation and manufacturing is on the increase.

Methane is another extremely potent greenhouse gas ranking right after carbon dioxide. This gas is produced when organic matter is broken down by bacteria under oxygen-starved

conditions (anaerobic decomposition) as in rice paddies. This process also takes place in the intestines of herbivorous animals. With increase in these agricultural practices comes increase in methane production. Another source of methane is methane clathrate, a compound containing large amounts of methane trapped in the crystal structure of ice. As methane escapes from the Arctic seabed, the rate of global warming increases significantly.

Constant felling of trees for fuel (both wood and charcoal) is the major cause of deforestation. The (IPCC, 2001 as cited in Austine, Augustine and Iwuchukwu, 2014) predicted that extreme weather events could result in large scale global forest loss. Today, in developed countries, forests are being cut for planting genetically modified crops, making space for wind mills and solar power. While in developing countries, forests are being cut for palm plantations, livestock grazing, wood and paper products, housing and development, roads e.t.c. This increases desert encroachment which reduces the importance of the forests in curbing global warming.

Nigeria as an oil rich nation has become a major contributor of Green House Gas, "Gas flaring in the Niger-Delta contributes 30% of total carbon emissions into Nigeria's atmosphere" (Chigbo 2008 as cited in Onyekachi et al, 2014:24). The gas flared causes environmental pollution resulting in hazards like acid rain, thereby limiting the access to clean drinking water. The soil for farming is polluted either by oil spillage or acid rain. Fishing in the Niger Delta is no longer a way of life as the aquatic habitat is also polluted

Climate change as an environmental factor is related to development. Weather and climate, rainfall pattern, temperature and humidity determine the agricultural and socio-economic welfare of a given state. Disasters associated with climate change have been increasing over the years, these includes killer heat waves prominent in Europe, India and Pakistan, wild fires in the United States, drought in Australia and deadly flood in Mozambique, Pakistan and

Thailand. These highlight how vulnerable humanity is to extreme weather (Nwoanicha, 2015).

“Climate extremes experienced around the world are the greatest environmental challenges confronting the world today” (Onyekachi et al, 2012:22), examples could be seen in the greatest ever recorded Tsunami water disaster that affected 11 countries, claiming 230,000 to 280,000 lives and more missing the Haiti earthquake that claimed more than 220,000 lives and over 300,000 injured and the Pakistan floods being the worst in 80years, leaving the people physically, mentally, socially, psychologically, economically and politically vulnerable.

With reference to Africa, there is growing interest on the likely impacts of climate change on agriculture, economic growth and sustainable development. Indices of climate change in this region include changes in soil quality, atmospheric temperature, flood, unprecedented drought and desertification, rise in sea level, insecurity, specie-extinction, erosion and many more. These adversely affect food security over the continent (Thornton et al 2006 as cited in Ogbo et al 2013). The IPCC report in 2007 predicted that by 2020, between 75 and 250million people in Africa will be exposed to increased water stress caused by climate change, hence agricultural production and access to food in many African countries may be further threatened as most farming practices are dependent on rainfall. The economic activities in Nigeria clearly show that over 60% of the population are engaged in agriculture for their livelihoods directly or indirectly. However overtime especially in the last decade, a dwindling state of agriculture and the decreasing number of farming population mostly in Northern Nigeria, known for the production of over 70% of the food crops in the country and other West African countries call for concern. Recent geographical survey has attributed

these happenings to desert encroachment into farmlands caused by the changes in climatic conditions. Okunola and Ikuomola, (2010)

Flood is also a major effect of climate change in the country as it affects both the North and South due to changing patterns of rainfall. This day editorial of 11th July 2013 in Okoro, Odoemela and Martin (2013:4), "it is noteworthy that floods are among the most frequent and costly natural disaster in terms of human hardship and economic loss and they have caused untold damage in the last couple of years". The 2012 flood in Nigeria can be termed among the worst in the country as it affected more than 16 states. This had serious devastating effects on lives and property, destroying arable lands and rendering the people homeless. 2015 also saw a series of flood disaster across the country.

Forests remove and store carbon dioxide from the atmosphere and desertification releases large amounts of carbon and reduces the amount of carbon capture in the atmosphere. This distorts the ability of the atmosphere to naturally get rid of green-house gases thereby increasing desert encroachment. Desertification which is a serious problem affecting people in the far Northern part of Nigeria has brought about the Great Green Wall project where thousands of trees are being planted across the zone. Other disasters like hurricane, typhoons, tsunamis and earth quakes caused by climate change are not witnessed in Nigeria, albeit adequate knowledge about such issues would help the public gain knowledge on the mitigation and adaptation strategies engaged in such situation because what did not happen in Nigeria before can happen later due to the change in climate.

Despite scientific warnings in earlier decades, global warming did not become a significant public issue until Dr. James Hansen's "greenhouse effect" testimony before the U.S. Congress in 1988 –one of the hottest years on record at that time – made headlines around the world (Corfee-Morlot et al., 2007; Leiserowitz, 2007 as cited in Meier 2010). Ever since this

milestone of putting global warming on the world stage, leading scientific authorities have consistently observed that anthropogenic climate change represents a serious problem, demanding decisive action in the future. Most notably, the Fourth Assessment Report (AR4) by the Intergovernmental Panel on Climate Change (IPCC) provided convincing evidence for the case of human-made global warming (IPCC, 2007). Article 2 of the 1992 United Nations Framework Convention on Climate Change (UNFCCC), states as ultimate objective; a stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. (UNFCCC, 1992)

The ever-increasing social and economic cost associated with extreme weather-related events in recent times have led to an upsurge in interest in the adaption and mitigation agenda from a range of different actors across both the public and private sectors. In reacting to the challenge of climate change, legal and institutional measures are used to collectively tackle the issue of climate change. Some of the institutions governed by international environmental laws include the pertinent provisions of the UN Framework Convention for climate change (UNFCC), the Kyoto Protocol (KP), the decisions of the Conferences of the Parties (COPS) as well as by Vienna Convention on the law of treaties, international custom and national legislation. The IPCC was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) in 1988, to assess scientific information about climate change relevant for international and national policy formulation. (Unit one, 2016)

The UNFCCC identifies two policy responses to address climate change: mitigation of climate change by reducing greenhouse gases (GHGs) in the atmosphere and enhancing carbon sinks, and adaptation to the impacts of climate change (Klein et al. 2005 as cited in Olufunsho et al 2012), ever since, numerous strategies to cope with climate change have been

devised. In spite of these strategies that have been designed, either locally or globally, the mitigation and adaptation strategies remain elusive to many people.

Climate change adaptation is the ability of a system to adjust to climate change in order to reduce its vulnerability and enhance the resilience to observed and anticipated impacts of climate change. E.g use of Genetic Modified Organisms (GMO's) to produce climate resistant crops. While climate change mitigation is any strategy or action taken to remove or reduce the green-house gas released into the atmosphere. For example: planting of trees, use of clean and renewable energy instead of fossil fuel.

Climate change mitigation is action to reduce the intensity of radioactive forcing in order to reduce the effects of global warming. United Nation defines mitigation in the context of climate change, as a human intervention to reduce the sources or enhance the sinks of greenhouse gases. Example includes using fossil fuels more efficiently for industrial processes or electricity generation, switching to renewable energy (solar energy or wind energy), improving the insulation of buildings, and expanding forest and other "sinks" to remove greater amounts of carbon dioxide form the atmosphere(UN climate change of Copenhagen, 2009 as cited in Verheyen 2002).

A mitigation effect of global warming is trying to limit the future effects of anthropogenic climate change. So where adaptation to global warming seeks to deal with the effects of global warming, mitigation tries to identify the causes of global warming. This way, activities that contribute to global warming can be limited. Mechanisms that reduce the greenhouse effect can also be put to use in a mitigation effort. Many countries, both developing and developed, are aiming to use cleaner technologies. Use of these technologies aids mitigation and could result to substantial reduction in carbon dioxide (CO_2) emissions reduction,

increase the use of renewable energy, and increased energy efficiency (world Bank 2010, as cited in Verheyen 2002).

2.2.2 Press coverage of climate change

Newspaper publication started in Nigeria by the British missionary in 1859 and today, there are quite a number of government and privately -owned newspapers in the country varying in frequency and time of publication as well as circulation rate, target audience and achievements. (Ifenkwe: 2008). These papers come in tabloid formats.

The communication and interpretation of science to the general public is achieved through a variety of media the most important of which are the traditional print media, TV, radio and now the electronic channels such as the internet. Ladle, Jepson and Whittaker (2005), are of the view that environmental scientists have a prime responsibility to report findings that are likely to be of concern to society in an accurate, objective and simple a fashion as possible.

Since the general public relies on the mass media as main source of its knowledge about science, investigating the mass media's portrayal of global warming is crucial (Boykoff, 2007; Boykoff and Boykoff, 2004 as cited in Wilson, 2000). However, the media do not simply mirror reality. On the contrary, they make their own selections according to some implicit criteria. This could be tied to political economy, ownership, management structure and news commercialization.

News coverage on global warming has increased markedly in recent decades (Doulton and Brown, 2009 as cited in Mazur: 2009), although McManus (2000) argued that the heterogeneous impacts of climatic change in fact reduce the likelihood of its being reported extensively. The communication of the climate change issue from scientists and policy-makers to a general audience via the mass media has also been a subject of increasing scientific interest because of its implications for the public understanding of the problem.

Africa Talks Climate (2004) as cited in Oyeyinka, Olawole and Abdulbaqi (2015:2) reports that "There is low awareness of the concepts of climate change and global warming among the Nigerian public. Many understand climate change to mean changes in the weather or seasons. Opinion leaders agree the general public has very low awareness of climate change concepts and terminology." Moreover, Ogbo et al (2013) posit that the constant reportage of disasters occurring in Nigeria in the print and electronic media signals the enormous vulnerability of Nigerians to day-to-day natural and human-induced hazards. Recent Nigerian history is replete with various accidents and mishaps which reveal the lack of preparedness of this populous State to deal with emergencies.

Akpati (1996:1-2) as cited in Popoola (2014) provides further insight into the character of environmental reporting in the Nigerian print media. He notes that, while environmental issues made more headlines in 1995 than ever before, most of the newspaper reports were not only "poorly packaged and presented but also lacked accuracy in the causal information disseminated" (1996:3) ostensibly because the reporters did not understand the phenomenon they were describing. He further observed that environmental news reporting in the Nigerian print media suffers chronically from sensational headlines which do not relate to the stories.

In assessing newspaper advocacy for rural development and environmental education in Nigeria, Ifenkwe (2008) investigated the extent to which the print media, and particularly the newspapers, faced the challenge of informing, educating and championing the rights of the people in rural development and environmental education in 2006. The researcher analysed five leading national newspapers for a period of twelve months to ascertain their level of coverage and reportage of environmental and rural development information and specialty events. He concluded thus "viewed from the perspective of editor's enhanced academic

background, the rising educational profile of members of the public and the synergy between environment, health and rural development, newspapers need to improve on their advocacy role in order to enhance their credibility as promoters of issues of public interest".

Shanahan (2011) pointed out that media coverage of climate change still occupies only a small proportion of total media reporting relative to the scale of the problem, which threatens the lives and livelihoods of billions of people. Public awareness of climate change may be rising worldwide but in many countries, public understanding of climate change, its causes and consequences, remains low. This could be related to the low interest shown by reporters, more so, reporters lack the adequate knowledge to report on such issues. Influencing the public about climate change will be a difficult task as it is a slow process that takes place over a long period of time.

The media is not doing enough in depth analysis of the climate factors that may be causing the disasters. Neither do they deliberately and as a strategy, develop specialized reporters on climate issues, let alone science writers. "The media mainly focus on what the politicians are saying; they do not seek scientists' input" (Sundblad, 2008 as cited in Agwu n Amu 2012:2). "Climate change is a global environmental problem that has transcended the boundaries of science and environmentalism to become a main stream political, economic and social concern". (Munoz and Sommer, 2011:1). In developed countries, climate change policies are used for campaigns in politics as it is an issue of public concern.

2.2.3 Factors affecting media coverage of climate change

Despite the intensity of the climate change problem, African media are not doing enough to create awareness on the dangers associated with the issue. This care-free attitude could also be seen in the government structure as there are little or no policies regarding climate change.

Politics and economics are the major trends in African media. This could be attributed to the developing nature of the continent.

The mass media still has a lot of responsibility on creating awareness on issues related to climate change. A number of authors still hold that the coverage of the mass media, either space or time, is not enough on climate change. For instance, Shanahan (2007), Boykoff 2007, Shanahan (2011), and Fawola and Olajide (2012) all believe that though the mass media report on climate change matters is rising, the gap between the expected level of awareness of the public, and their present level of orientation of issues relating to climate change is still very wide, most especially in developing countries like Nigeria. Oyeyinka et al (2015) posit that it is of relevance to note that the level of media reportage of climate change related issues is high in developed countries and low in developing countries. A survey revealed that more than half of Americans had been aware of climate change as far back as 1988.

Boykoff (2007) discusses the media and contradictions in the fight against climate change. The researcher notes that there is widespread agreement on human-induced climate change (anthropogenic climate change) in addition to natural causes. Using results of empirical studies, Boykoff (2007) argues however that the media are succumbing, sometimes unknowingly, to the machinations of opponents of anthropogenic climate change who entice journalists to portray climate change as controversial, complex and uncertain.

Bill Blake Moore an ABC News correspondent stated that "media coverage of climate change is probably the biggest failure of quality journalism in the United States". The reason may be found in analysis by Boykoff and Boykoff (2007:1192) which illustrates how adhering to journalistic norms can lead to biased coverage. According to them, "by operating in accordance with widely accepted journalistic norms, influential mass media newspapers

and TV sources in the US have misinterpreted the top climate scientific perspective and have thus perpetrated informational bias regarding climate change".

With complex scientific, political and economic issues, accuracy in reporting is widely seen as unnecessary for good journalism. Balance in reporting climate change issues often leads to quoting people without credentials. The Guardian 10/1/13 as cited in Greenberg, Robbins and Theel (2013:5) writes that "you wouldn't have a homeopath speaking alongside a brain surgeon for balance as that would be absurd. It's just as absurd to have a climate sceptic for balance against the work of the overwhelming majority of climate scientists".

Wilson, (2000:203) also states that "global warming story is one of the most complicated stories of our time which is affected by a number of journalistic constraints such as deadlines, space, one-source stories, complexity and reporter education". Climate change is not a subject solely for science or environmental reporters to cover because it's not just a story but the context in which so many other stories would unfold. It is therefore essential for journalists, editors and media owners to understand at least the basics of climate change and realise that there is more to it than water and disasters. Climate change is a difficult story to recreate for daily news budget, while a short term drought episode or any other weather event is much easier to visualise and portray. Wilson (2000)

Ann Kathrine Eckardt of NEON magazine in Munoz and Sommer (2011:3) points out that "climate change is a difficult story to cover because it is very abstract: there are no good stories or headlines from a journalistic point of view and the long term nature of climate change makes it lack the freshness of immediacy of other news". Stocking and Leonard put it: "It ain't news unless it's new," and this leads to an "issue-of-the-month syndrome" that "allows persistent, and growing, environmental problems to slide out of sight if there is

nothing ‘new’ to report”. Part of what makes news is timeliness, climate change takes place as a gradual process and it may not always make it to the news desk.

Boykoff and Boykoff (2007), in a study Climate change and journalistic norms; a case study of US mass media coverage, demonstrates that consistent adherence to interacting journalistic norms has contributed to impediments in the coverage of anthropogenic climate change science. The study was carried out through analysis of US newspaper and television coverage of human contributions to climate change from 1988 through 2004. The paper finds that adherence to first-order journalistic norms – personalization, dramatization, and novelty – significantly influence the employment of second-order norms – authority-order and balance – and that this has led to informational deficient mass media coverage of this crucial issue.

Tagbo (2010), after a study, found that apart from being a disposable beat, climate change is a relatively new subject in many African media. Less than 30 per cent of climate change journalists interviewed during the course of her study have reported the subject for more than three years of these, 60 per cent identified a lack of training and time pressure as major reasons why the topic has rarely generated coverage commensurate to its significance for the comments future prosperity. In Africa, socio-cultural and religious belief of the people also poses as a threat to public’s understanding of climate change. Isaac Barry, presenter of the programme “climate change and you” of Federal Radio Corporation of Nigeria (FRCN) in an interview disclosed that 60% of the audience believed in the human causes of climate change while as much as 40% attributed it to God. Complexity of the issue, occurrence of events and lack of sponsor also formed parts of the obstacle faced by the programme.

Fleury (2006) as cited in Akingbade, (2009) considered lack of journalists’ with specialized reporting skills as one of the obstacles faced by Nigerian press regarding climate change issues. The general problems facing reporters who cover climate change in developing

countries include; lack of training, unsupportive editors and limited access to information, interviewees and limited resources. This means that few journalists from these nations can follow and report on the international negotiations aimed at addressing climate change under the UNFCCC. Oyewo et al (2012 as cited in Oyeyinka et al, 2015) detailed reasons why climate change report is low in developing countries such as Nigeria. Among other reasons cited by the duo are high level of information disparity between journalists in developed countries and developing countries, lack of training, unsupportive editors and unavailable access to climate change experts, hence the need to look at journalist's knowledge on climate change.

Evidence provided from evaluative studies by environmental experts shows gross deficiencies in the reportorial patterns of environmental issues in the Nigerian news media. Okunlola"s (1996:1-10) as cited in Popoola (2014) analysis on "Reporting the Environment: The Nigerian Print Media Experience" shows that environmental concerns are neither prominent nor considered as major issues that sell a newspaper in the contemporary Nigerian context. Employing the "lead-story" as the garment that sells a paper and ultimately contributes substantially to determining its public affairs issues thrust. He further reviews the issues which dominated cover pages of two newspapers: the Guardian and the Daily Times over a period of 12months. The result shows that the two single subjects which dominated the cover pages of the two newspapers were business and economy-related stories and political news.

2.3 Empirical Review

Several studies have been carried out on media coverage of climate change issues around the world. However, Boykoff and Roberts (2007/2008) observed that the academic literature in the area of climate change reportage in Africa is quite limited. There is considerable research published on media coverage of climate change in many developed countries like the USA,

the UK and even in some developing countries like Japan, India and Latin America, but the issue has been given less attention by developing countries.

In a study titled "newspaper coverage of climate change in Canada", Dodds and Ahchong (2012) content analysed two Canadian newspapers. The study explored aspects of climate change such as salience, image, scope, country representation, participants and the origins of scientific information reported in the articles between a regional and national newspaper. The result of the analysis showed that climate change is portrayed by both papers as a large scale (National and Global) problem. Although in striking a balance, there is no fairness in comparing a national and regional newspaper because their contents vary.

Liu, Vedlitz and Alston (2008) in a paper titled "Regional news portrayal of global warming and climate change" to examine how the issues of global warming and climate change have been characterized during the period of 1992 through 2005 by the Houston Chronicle one of the leading newspapers in Canada. The researchers used content analysis to find that climate change is often discussed as a national or international global issue and is frequently linked to a number of other public issues rather than just being viewed as an environmental-ecological problem. In view of the researchers, widening the scope of covering climate change as a large scale problem will intensify the gravity of the situation in the part of the readers.

Schmidt et al, (2013) did a "comparative analysis of newspaper coverage of climate change in 27 countries around the world". Samples included countries that have committed themselves to Green House Gas emission reduction under the Kyoto Protocol such as Germany as well as countries that are strongly affected by the consequences of climate change such as India. The content analysis showed that climate change coverage had increased in all countries studied. A rise in international concern coupled with an increase in disaster led to an increase in the reportage of climate change issues around the world.

Hurricanes, earthquakes, floods and the likes affects one country or the other at an alarming rate, this causes a growing concern about climate change on an international scale.

Coverage of issues by the media tends to create awareness and concern of such issues by the public. Sampei and Aoyagi-Usi (2009) in their paper titled "Japanese newspaper's coverage of global warming from 1998-2007 and how public opinion during parts of that period was influenced by the newspaper coverage" content analysed newspapers in Japan. The result showed that, a dramatic increase in newspaper coverage of global warming correlated with an increase in public concern of the issue. The way the media covers climate change will affect how well societies duel with the problem.

In another study by Greenberg et al (2013) titled "Media sowed doubt in coverage of UN climate report", a combination of content analysis and interview were utilised by the researchers. The result show that many mainstream media outlets amplified the marginal viewpoints of those who doubt the role of human activity in warming the planet even though the report itself reflects that the climate science community is more certain than ever that humans are the major drivers of climate change.

In another finding by the research, the doubters were more likely to lack scientific credentials. Instead, some media opted for bloggers, political figures and media pundits to disparage the scientific consensus on climate change. Many of the doubters were found to have also received a considerable amount of funding from the fossil fuel industry.

Anderson (2008) carried out a study on "media, politics and climate change: towards a new research agenda", with the aim of finding the relationship between politics and science in news stories of global warming. Through content analysis and in-depth interview, the research highlights major research themes and assesses future potential research

development. It argues that, analysis of the reporting of climate science must be placed in wider context of the growing concentration and globalization of news media ownership and an increasingly promotional culture.

Boykoff and Yulsman (2013) in their study "political economy, media and climate change as a sinews of modern life" addresses contemporary political economics, science journalism and new media organizational forms as they relate to media coverage of climate change. The paper also explores how media representations of climate change have changed over time and particularly how the rise of digital media has shaped climate coverage. Findings of the study show that there is a considerable rise in the coverage of climate change despite the political and economic activities attached to climate change.

Quigley (2006) wrote on "print media coverage of climate change: why environmental organizations should care and what they can do to achieve greater coverage". With the aim of analysing the relationships that already exist between environmental organizations and mass media outlets as well as the trends prevalent in current print media coverage of global climate change. The goal of the thesis is to offer specific recommendations to environmental organizations about how they can more fully harness the power of the mass media to more efficiently educate the public and effect greater environmental concern and responsible action. The method used in the research was content analysis and interview. Findings from the research show that environmental organizations can affect greater media coverage of climate change by working together more often and focusing on presenting climate change in potentially relevant ways.

In assessing US, UK and Australian newspapers, O'Neill (2013) designed a two-part study to explore climate change imagery in newspapers. The researcher carried out a content analysis of visual images about climate change during 2010 from 13 US UK and Australian

newspapers. The analysis showed broad patterns across all newspapers in the visualization of climate change. A frame analysis was undertaken for the second part by examining the composition and tone of particularly salient images in their cultural and political contexts. Together, both analyses indicate that two visual frames are prominent in shaping the cultural politics of climate change in important ways. The use of pictures in reporting climate change will help readers understand the graveness of the situation.

In another study by Doulton and Brown (2008) titled "Ten years to prevent catastrophe? Discourse of climate change and international development in the UK press", the researchers applied Dryzek's 'components' approach to explore the media construction of climate change and development in UK 'quality' newspapers between 1997 and 2007. The findings demonstrate media perceptions of a rising sense of an impending catastrophe for the developing world that is defenceless without the help of the West, perpetuating to an extent views of the poor as victims.

Pasquare and Oppizzi (2011) carried out a study on "how the media affect public perception of climate change and geo hazards in Italy", with the aim of exploring the Italian print media construction of climate change and geo-hazards between 2007 and 2010. The paper used a combination of a qualitative approach and a quantitative software-based approach to explore the Italian print media construction of climate change and geo-hazards between 2007 and 2010. Results from the study show that the two newspapers appear to have different "agendas" that might have different impacts on their own readerships: the La Republica has been on the forefront of forging a broad public consensus on the need for actions aimed at tackling climate change, whereas the Corriere della Sera has gradually built a journalistic agenda aimed at minimizing the urgency of the climate change problem. This will cause confusion to the readers.

However, in reporting climate change in Nigerian newspapers, several daily newspapers have been content analysed. Fawole & Olajide (2012) in their study titled "reporting of climate change news in three selected Nigerian newspapers" to investigate the reportage of climate change news in Nigeria. A content analysis of the Guardian, Punch & Nigerian Tribune was carried out. Findings from the research show that the newspaper coverage of climate change news was widespread covering all areas of climate change. Most climate change news bothered on what applies to Nigeria's local climate. Limiting climate change news to Nigeria's climate will give the reader limited news about the issue. Events like Hurricanes and earthquakes that happen outside the country will not be known by the readers thereby localising their understanding of the whole issue. However, Shanahan is of the view that most reports in developing countries rely on western agencies rather than local reports.

Similarly, Onyekachi et al (2012) in a content analysis assessed the reportage of climate change in the Guardian, Daily Sun, This Day and Vanguard to situate the Nigerian newspaper's reportage of climate change within the domain of global discourses on climate change. The study found news items to be the dominant genre in the reporting of climate change issues. They recommended that Nigerian newspapers should use lots of non-news stories in reporting climate change to enable them handle more analysis needed to portray the important issues in climate change solutions. Non-news stories will give the writer more space to give useful in-depth analysis of the issue. Boykoff (2007) however, recommends that the media should rely more on interpretative stories (than on news) to help them handle the analysis necessary to put climate change reporting in clear perspective for the audience.

Batta et al (2013) in a study titled "press coverage of climate change issues in Nigeria and implications for public participation opportunities" content analysed selected daily Nigerian newspapers to find out how climate change issues are covered and framed in Nigerian

newspapers. Findings from the research show a low representation of climate change in the newspapers and that most of the reports were sourced from wire services. They therefore recommend that Nigerian newspapers should broaden the scope of climate change coverage and framing, widen local sourcing of reports, diversify the formats of reporting and frame the issues more in mould of adaptation. Climate change being more scientific is not suitable for straight news report. Editorials and discourses would better explain the science of climate change to the lay man. In this regard, editors and journalists may lack the grasp of the theoretical models, assumptions and extrapolations that characterise much climate change science. According to Smith (2005), the limited understanding of science compared with other fields of contemporary discourse among media professionals has been frequently acknowledged in discussions.

Popoola (2014) in a research titled "content and hermeneutical analysis of selected newspapers' reportage of environmental issues in Nigeria" with the aim of analysing how environmental issues which may have implications for climate change are reported in Nigerian newspapers found out that the newspapers reported environmental issues considerably, the papers mostly used feature stories to report on environmental issues. As such, the papers were able to describe the environmental issues extensively. Furthermore, Okoro et al (2013) in "an analysis of editorial discourse on environmental challenges in Nigerian newspapers: the case of 2012 flooding" content analysed newspapers to find out how Nigerian editorials present discourses on environmental challenges. Result from the content analysis shows that newspapers use experts as major attributors. The therefore recommend that since editorial discourse on public risk are seen as crucial drivers of environmental policies and government response; editorials should be used more often to develop constructive discourses on environmental sustainability.

Climate change is seen to be beyond the four walls of the environment as it affects economic and social welfare of the people. Agwu and Amu (2012) in their study titled "attitude and knowledge of print media journalists towards reporting climate change news in Nigeria" examined the framing of climate change news in four national daily newspapers in southern Nigeria. The content analysis yielded 332 climate change related articles with the greater proportion of the articles using a negative tone in reportage. Blame and action frame dominated the framing of the reports. While findings form the interview reveal that majority of the journalists perceive the internet as being the most important source of climate information. Climate change according to the researchers is broader than the environment, politics and science. They therefore recommend that more of the specifics behind the mitigation and adaptive solutions that would help the general public deal with global climate change and aid climate protection should be framed.

In another research by, Tagbo (2010) titled "media coverage of climate change in Africa: a case study of Nigeria and South Africa". Content analysis of Nigerian and South African newspaper was carried out with the aim of exploring and analysing the media coverage of climate change in Nigeria and South Africa in order to find the trend of climate change reportage in Africa. Findings show politics and economics as the driving force in Nigerian newspapers giving less attention to the environment. This might be because of the developing nature of the country where scientific and technological issues are given less attention due to other pressing issues faced by the country. It has been observed by Agwu and Amu (2012:2) that "the media have a poor understanding of the climate change debate going on in the international arena and they express little interest in it". According to them, most of the information about climate change is often considered boring and unexciting by practicing journalists.

Ukonu, Akpan and Anorue (2013) in their study "the media and the contradictions in commitments to fight against climate change" to situate Nigerian newspaper reportage of climate change within the domain of global discourses on climate change used results of content analysis to argue that the media are succumbing, sometimes unknowingly, to the machinations of opponents of anthropogenic climate change who entice journalists to portray climate change as controversial, complex and uncertain. In their view, the media thus risk becoming one of the forces against global efforts to fight climate change given that media coverage shapes public perception, understanding and action. The paper recommends that the media should represent a pattern in climate change reporting to help them detect and eschew unnecessary views. The paper did not discuss other issues like knowledge awareness, newspaper ownership, editing and journalists' attitude and belief towards climate change. These would have helped to explain further why journalists' report issues as they do.

Nwabueze, Nnaemeka, Umeora and Okika (2015) in a study titled "Nigerian newspaper's coverage of climate change issues" content analysed three national dailies (Vanguard, Guardian and Daily Sun Newspapers) to determine the coverage of climate change issues for a period of four months. It was found that the volume of coverage of the issue is poor and that the dominant form of presentation was feature stories. It was also found that most of the stories on climate change reported in the Nigerian media were based on specific events on climate change. It was recommended among others that Nigerian press should give priority attention to the coverage of climate change issues as regular communication. The study concentrated on southern papers with no representation from the north.

Similarly, Ayogu, Agwu and Enwelu (2015) in their study investigated "print media journalists' coverage of agriculture related climate change news in Nigeria: Implications for achieving Vision20:2020". The Vision 20:2020 conceptualizes a transformation in agriculture

that would ensure food security, the right to sustainable development and adaptation to the climate change challenge. Four national daily newspapers were purposively selected for content analysis and a questionnaire was administered to 150 randomly selected journalists'. The study revealed that majority of the journalists' sourced climate change information from the internet and most of the climate change articles were not agriculture- related. Major constraints to the coverage of agriculture-related climate change news include: lack of training and lack of specialization among journalists. This study which is agriculture- related limited its search to news ignoring other newspaper genres.

Oyeyinka et al (2015) in their paper "evaluating the use of the mass media and the value of indigenous communication on climate change in Nigeria" considered the global media challenges and those challenges peculiar to African journalists on the issue of climate change. An evaluation of the roles of the mass media was done and it was discovered that lately, the mass media, print media to be specific, has improved in the frequency of their report on climate change. This study conforms with other studies that checked the frequency of reportage of climate change. However, awareness on the causes of climate change, mitigation and adaptation was still low among the majority of local community people in Nigeria. On the other hand, there seems to be hope in indigenous communication channels in disseminating and/or relaying information and education on climate change related issues. The study also discovered that there is better future in fussing both the mass media and indigenous media.

A report released by BBC World Service Trust (2009) aptly captured its findings on public understanding of climate change in Africa under the title 'Least responsible, most affected, least informed'. The report states that African citizens are at humanity's climate change frontline, yet they are also among the least informed about human-induced global climate

change, its causes and its consequences. Journalists in Africa therefore have a crucial role to play in explaining the causes and effects of climate change as most citizens would not learn about climate change research directly from the cautious lexicon in science journals, but rather from the mass media. Therefore, Journalists' knowledge of climate change would go a long way in providing the public with useful information for a more climate friendly environment.

2.4 Theoretical framework

The study adopts framing as its theoretical framework.

2.4.1 Framing theory

Frank Luntz was the first professional pollster to systematically use the concept of framing as a campaign tool and George Lakoff published a short manual titled "Don't think of an elephant" for liberals on how to successfully frame their own messages (Scheufele and Tewksbury, 2007). Approaches like priming and framing were based on the idea that mass media had potentially strong attitudinal effect, but that these effects also depend on predisposition, schema and other characteristics of the audience that influence how they process messages in the mass media (Mc Quail. 2005).

Gamson and Modighani (1987) define media frame as a central organizing idea or story line that provides meaning to an unfolding strip of events. It helps view media or news frames as necessary to turn meaningless and unrecognizable happenings into discernible events. Framing of climate change stories has therefore become necessary as climate happenings around the world are gradual and unrecognizable. Most of the citizens especially in developing countries find climate change stories meaningless until it is put in the right frame. Media frames according to Tuchman (1978) as cited in Scheufele (1999) serve as working routine for journalists that allow them to quickly identify, classify and package information

for efficient relay to their audiences. The way a journalist frames an issue may be influenced by several individual, ideological, socio-structural or organizational variables.

Entman (1993) as cited in Agwu and Amu (2013:2) states that "to frame is to select certain aspects of a situation and highlight them in the media in a way that promotes a specific definition, interpretation or evaluation of recommendation". Numerous analyses of media content on climate change were also made using framing analysis.(e.g, Agwu and Amu 2013, Fawole and Olajide 2012) According to Kleinschmit and Sjostedt (2014:1), the mass media has the power to attach a specific meaning to an issue that an audience may subsequently use as a frame to discuss and interpret this issue. This applies to specific issues that cannot be experienced or known by mere knowledge but only be explained by scientists who carry out various researches.

Framing is based on the assumption that how an issue is characterized in a news report can have an influence on how it is understood by audiences. The media draws the public attention to certain topics. It decides what people think about because the journalists are responsible for selecting the topics. The way in which the news is brought and the frames used are brought by the journalist (University of Twente, 2010). Part of the structural dimension of news that influence the formation of frames according to Pan and Kosicki (1993) as cited in Scheufele (1999) is the tendency of journalists to impose a casual theme on their stories, either in form of explicit casual statements or by linking observations to the direct quote of a source.

The concept of framing is related to the agenda setting tradition but expands the research by focusing on the essence of the issues at hand rather than on a particular topic. The basis of framing theory is that the media focuses attention on certain events and then places them within a field of meaning. McCombs (2006) has argued that framing is simply a more refined

version of agenda setting. Framing, from that perspective, means making aspects of an issue more salient through different modes of presentation and therefore shifting people's attitudes. He labels this phenomenon ''second-level agenda setting.''

The Agenda setting theory in media studies is often referred to the perceived power of the news media to influence the reportage of issues and events in the society. The term was first used by Mc Combs and Shaw in 1975 to mean "a process of media influence by which the relative importance of news events, issues or personages in the public mind are affected by the order of presentation (or relative salience) in news reports" (Mc Quail, 2005:548). It is assumed that the more the media gives attention to a particular topic, the greater the importance attached to it by the audience.

Price & Tewksbury, 1997 as cited in Scheufele, (1999:184) summarize this distinction as follows "Agenda setting [sic] looks on story selection as a determinant of public perceptions of issue importance and, indirectly through priming, evaluations of political leaders. Framing focuses not on which topics or issues are selected for coverage by the news media, but instead on the particular ways those issues are presented". While agenda setting looks at which topic to discuss in the media, framing theory deals with how topics are being presented thereby understood. Frames can therefore be utilized to suggest causes, effects or procure certain solutions as in climate change mitigation and adaptation.

The relevance of framing theory to this research is that, a major strategy for analysing newspapers according to Entman (2012) is to look at how contents are framed. Since newspapers have important roles in analysis and interpretation of daily happenings, this study is an analysis of newspaper contents on climate change. Over the years, scholars have tracked frames to identify trends in issue definitions, compare coverage across media outlets and examine variations among types of media (Batta et al, 2013). In this study, articles or stories

are identified via keyword searches (climate change, global warming or green-house) which typically serve as the unit of analysis. The study also compared climate change coverage and how the stories are reported in four selected newspapers.

Climate change stories are scientific stories that need expert analysis and interpretation to the lay man. It is mostly surrounded by scientific controversies which if not well presented will mislead the readers. As such reporting of climate change stories using different frames will be relevant in helping the readers understand the issue more. Presenting climate change stories within a certain frame suggests the attention given to the stories by different media organizations.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction:

Research methodology deals with the right techniques, strategies or means to carry out a research. This chapter deals with how the data for this research was collected and analyzed. Odoh (1995:2) refers to research methodology as "identifying available strategy or framework to generate, collect, organize and analyze data on a problem which has been identified".

3.2 Research design:

The design employed for this study is the quantitative and qualitative approaches. In this study, quantitative approach was used to determine the amount of space allocated for climate change issues. The qualitative approach showed the quality of newspaper coverage of climate change issues in terms of frame allocation (interpretative meaning) and prominence given to such reports. According to Rubin, Rubin, Haridakis and Piele, (2010), content analysis systematically transforms non-quantifiable verbal, visual or textual materials into quantitative data to which standard statistical analysis techniques may be applied. Therefore, this study analysed textual materials (articles) from newspapers to determine the level of coverage of climate change in the newspapers. Moreover, several studies on climate change coverage (Batta et al, 2013, Antilla 2005, Fawole and Olajide, 2012 Agwu and Amu 2013.) employed content analysis.

3.3 Instrument and Method of Data Collection:

Since the study involved content analysis, the instrument used in data collection was content analysis code sheet. Parameters used in coding include;

3.3.1 Units of analysis:

The unit of analysis for this study was the thematic content on climate change and climate related articles contained in the selected publications on the study population. Accordingly, the following formed the units of analysis for this study;

- News stories
- Feature articles
- Editorials
- Opinion
- Interview

3.3.2 Content categories

The sample selected for this study was categorised in line with the objectives of the study, therefore the content categories for this study were determined using the following variables;

- Prominence: this category refers to attention given to the stories. This was coded based on: keyword appearance whether keywords for the study appeared as headlines or within the text of the story, length of report either full page, half page, one quarter page, one eight page…), page placement either appearing on front, inside or back pages of the newspaper and frequency of such articles.
- Newspaper column: this refers to the different bits/sections covered by the selected newspapers. This includes agricultural section, education, entertainment, sports, advertorials, environment and business sections.
- Frames: This refers to the specific definitions, interpretation and evaluation of recommendations given to issues of climate change in the newspapers selected.
    - Frame on causes: this framing category determined what the newspapers portrayed as the causes of climate change.

- Frame on effects: this category examines the climatic issues affecting the country.
- Frame on adaptation: the category determines what the newspapers are recommending for the public to cope with the climate situation.
- Frame on mitigation: this centre's on how the media are suggesting ways to curb the climate change issue.

- Genre: this indicated the nature of stories coded. Genre for this study included; news, features, editorials, opinions and interview.

This study adopted both the primary and secondary methods of data collection. Primarily, data for this study was collected with the help of one research assistant in collecting data for content analysis, the use of this assistant enabled the researcher maximize time and energy.

3.4 Reliability Test:

In testing inter-coder reliability for this study, the Cohen Kappa Statistic was used. This type of statistic is used to measure inter-coder or observer agreement when two coders or observers are measuring or observing the same thing. The calculation is based on the difference between how much agreement is actually present and how much agreement is expected to be present by chance. In Freelon (2010), Inter-coder reliability in Mass communication and other social science disciplines is often deployed as a component of content analysis a standard method of summarizing the substance of a set of mediated messages. In this context, it assesses the degree to which two or more judges agree on their evaluations of a group of messages. The quality of research according to Li (2015) depends on the coherence of coding judgements.

The formula for calculating Cohen Kappa is:

K= Po-Pe/1-Pe

Where Po= proportion of observed agreement

Pe= proportion of expected agreement

According to Landis and Koch (1977a, 165) as cited in Li (2015), Cohen's K, has a range of 0-1.00, with larger values indicating better reliability.

- Below 0.0 poor
- 0.00-0.20 slight
- 0.21-0.40 fair
- 0.41-0.60 moderate
- O.61-0.80 substantial
- 0.81-1.00 perfect

For acceptance standard according to Neuendorf 2002 in Li 2015 is; "coefficients of .90 or greater would be acceptable to all, .80 or greater would be acceptable in most situations, below .80, there exists great disagreement. The criterion of .70 is often used for exploratory research. More liberal criteria are usually used for the indices known to be more conservative (i.e Cohen's K and Scott's pi.)

To ensure reliability in the coding process and the data obtainable from such a process, careful training of coders was done. The intention was to realize a more reliable analysis as was suggested by Wimmer and Dominick (2011). The training ensured that the coders were thoroughly familiar with the study's mechanics and peculiarities and also ensured that all aspects of the construct within the research instrument was covered taking note of clear definitions of the construct and its components.

To collect the data from the sample, two code sheets were prepared in line with the coding guide with instructions to the coders on how to fill them and entered the data into an excel file, which was later uploaded to Recal2 an online reliability calculator.

To calculate Cohen's K, it will be necessary to make use of a cross tabulation table that displays frequencies with which each coder agreed upon each category. The table below contains these frequencies

		Coder 1			
		Category 0	category1	category 2	category 3 total
	Category 0	17	18	18	7
	Category 1	12	17	15	8
Coder 2	Category 2	8	15	13	8
	Category 3	9	13	8	7

After uploading the above table to Recal2 online reliability calculator, the result indicates that Cohen's K=0.67. Thus using the Kappa interpretation table above, it shows that there was a substantial agreement between the coders. This implies that findings from the content analysis are reliable.

3.5 Population of the Study:

This study covers daily publications of four Nigerian newspapers (*Daily Trust, Leadership, The Nation and This Day*) for two years (24months), from January 2013 to December 2014. One of the major issues that had serious public, environmental and health significance in the year 2012 in Nigeria was flooding (Okoro et al 2013:1). Flooding is considered a key issue in the world's climate arena. The Inter-governmental Panel on Climate Change (IPCC) also held a meeting concerning policy makers in Rio de Janeiro, Brazil in 2012. As such journalists were supposed to gear their attention towards climate change adaptation and mitigation. These are the basis for kick starting this study in the year 2013 following the year of the flood incident.

The study universe is 2912 editions of the four selected papers. The papers were being selected for reasons of availability, regularity of publication, ownership, wide circulation, relevant content and geographical location. Each paper has a total of 364 editions of daily publication a year. The population reviewed for the two years of the study was 728. Therefore, 2912 then becomes the total population of four newspapers for two years.

3.6 Sample size and sampling technique:

Sampling becomes necessary when the population of a study is too large or cannot be controlled by the researcher. Thus Asika (2009) posits that the rationale for choosing a sample size must be defended in terms of its representativeness and for the purpose of generalization for the entire population. This study falls within such that the population is too large for the researcher to handle. Gay (1995) as cited in Ogboshi (2006) recommends 20% of the total population as sample size when the population is small. As such, 20% of 2912 is 582

This also corresponds with Taro Yamane sample size formula (Ogboshi, 2006).

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

n= Desired sample size

N= Population under study

e= level of significance 5% or 0.05

1= Unity (constant). Sample size = 582 for content analysis.

The sampling technique applied for this study is the probability sampling method. "Probability sampling methods are those methods in which the probability of an element's being selected is known in advance. It has no systematic bias but the elements to be included are determined by chance" Barbie (2010:156). For the content analysis, the systematic random probability sampling method was used. Systematic random sampling is where the 1st

element is picked at random and then every nth element is selected. This is convenient for picking samples when elements are arranged sequentially. For this study, n=5. In choosing the nth number, the calendar system was used. After picking the 1st edition, every 5th edition was selected.

3.7 Measurement:

Measurement according to Ary, Jacobs and Sorensen (2010), is a fundamental step in the conduct of quantitative research as it is a process through which observations are translated into numbers. There are various levels of measurement namely; nominal, ordinal, interval and ratio. To determine the level of coverage of climate change in newspapers, articles were counted to attain frequency and percentage.

The secondary data which formed most part of the literature review was gotten from sources such as; text books, journals, newspapers, online publications, research projects, thesis and dissertations containing relevant materials relating to this work.

3.8 Method of data analysis:

Data analysis is the process a researcher undertakes in interpreting and presenting his data in such a way that it would be understandable. The data obtained from this study is presented in tables and charts. Simple percentage was used to determine frequency of reports. Data was interpreted and analyzed quantitatively and qualitatively based on the research objectives.

3.9 Operational definition:

The following terms in this study are used as;

Climate change: A change in the global or regional weather pattern that is largely attributed to the increased levels of green-house gases by human activities.

Causes of climate change: Anthropogenic factors that increase global warming. E.g. Fossil fuel combustion, tree felling and gas flaring.

Climate change adaptation: The ability of a system to adjust to climate change in order to reduce its vulnerability and enhance the resilience to observed and anticipated impacts of climate change.

Climate change mitigation: Any strategy or action taken to remove or reduce the green-house gas released into the atmosphere. For example: planting of trees, use of clean and renewable energy instead of fossil fuel, use of Genetic Modified Organisms (GMO's) to produce climate resistant crops.

Effects of climate change: Activities that occur as a result of climate change. This could be in form of flood, desertification, earth quakes, hurricanes, health issues caused by ozone layer depletion…

Framing: To select certain aspects of a situation and highlight them in the media in a way that promotes a specific definition, interpretation or evaluation of recommendation". In this context, the information and advocacy is used.

Genre: this is the type/category of newspaper stories which include; news, features, editorials, opinions and interviews.

Green-house effect: The ability of the atmosphere to capture and recycle energy emitted by the earth surface. This is a natural process, but human activities have altered the process through the release of green-house gases like carbon-di-oxide, water vapour, methane and chlorofluorocarbons (CFC's). This makes the atmosphere trap more heat.

Global warming: This is a gradual increase in the average temperature of the earth's atmosphere. It is caused by the intensification of green-house effect by human activities like burning of fossil fuel by automobiles and industries and clearing of forests.

CHAPTER FOUR
DATA PRESENTATION INTERPRETATION AND ANALYSIS

4.1 Introduction

Articles on climate change published between January 2013 to December 2014 in *Daily Trust, Leadership, The Nation* and *This Day* newspapers were analysed. The papers were selected based on popularity, geographical location, ownership and circulation. A total of 528 editions of the daily publications were studied out of which 114 articles were specific on climate change.

4.2 Prominence in climate change reportage

The data presented in table 4.1 and figures 4.1-4.3 below are in relation to the research objective 1 that tends to assess the prominence given to climate change in the selected newspapers. In writing newspaper articles, prominence is determined by certain issues like; page placement, size of the headline and length of the story among others. In this study, the variables used in determining prominence include; frequency, story length, keyword (climate change, global warming, green-house) appearance and page placement.

Table 4.1 Frequency of reports on climate change

Newspapers	Frequency	Percentage
Daily Trust	36	31.6
Leadership	30	26.3
The Nation	19	16.7
This Day	29	25.4
Total	114	100

Table 4.1 shows the frequency distribution of climate change articles as found in the four selected newspapers between January 2013 and December 2014. Results from the figure above shows that 114 articles were reported on climate change in the four newspapers analysed. *Daily Trust* gave more attention to climate change issues with 31.6% (36 out of 114 articles). This could be due to the dedication of pages relating to environmental issues in the paper and climate change being a frontier environmental issue. The absence of such a column in *The Nation* with 16.7% representation (19 out of 114) has affected the number of climate change articles in the paper, making it the least paper to carry reports on climate change. *Leadership* with 26.3% (30 out of 114) and *This Day* with 25.4% (29 out of 114) also have environmental column and therefore have significant representation of climate change. The threat and advancement of desert encroachment which is so obvious in the far northern states of Nigeria has led to a fight to reduce this encroachment through the great green wall programme and it is frequent in *Daily Trust and Leadership* newspapers.

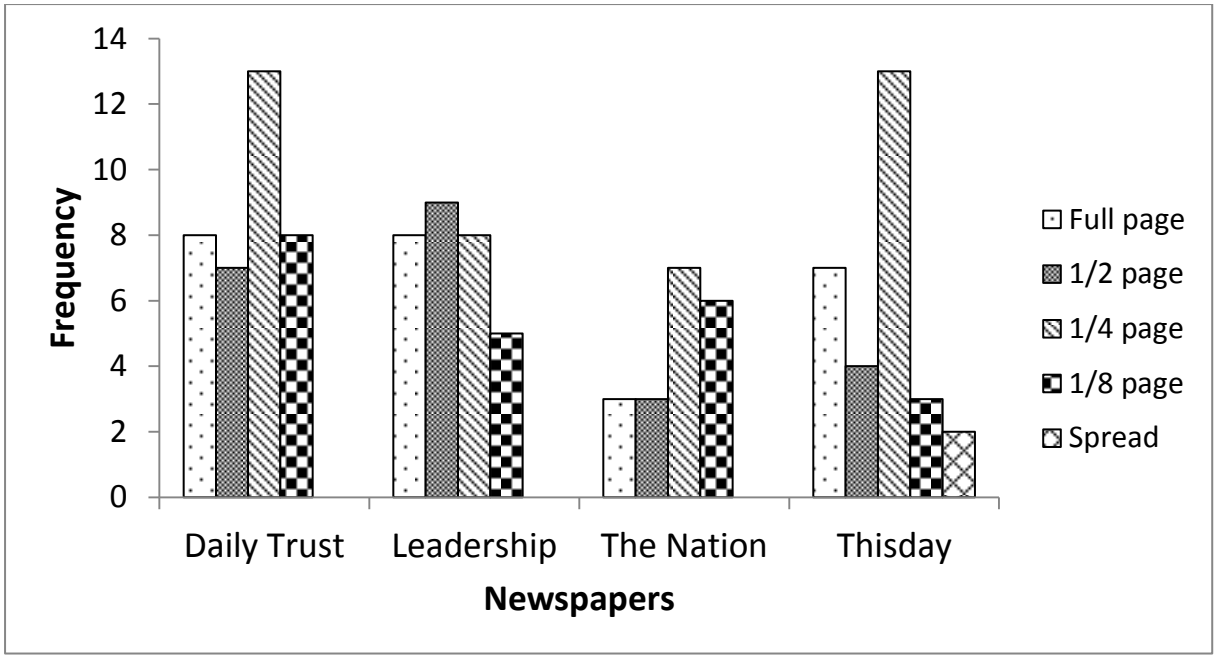


Figure 4.1: Length of stories on climate change

In Figure 4.1 above, 36% (41) of the articles covered ¼ of the newspaper page across the papers. 23% (26) of the total articles had full page coverage while 20% (23) covered half page. And 19% (22) articles covered 1/8 of the newspaper page. Only *This Day* newspaper had 2 (2%) articles covering two pages. *Daily Trust* had the majority of its articles (36.1%) covering a quarter page, like -wise *The Nation* with 37% and *This Day* with 45%. However, *Leadership* had more articles covering half page with 30% representation, followed by *Daily Trust* with 19.4% then *The Nation* with 16% and finally This Day with 14%. It is evident that *Leadership* had more articles covering full newspaper page with 27% (8 out of 30), followed by *This Day* with 24% (7 out of 29) then *Daily Trust* with 22% (8 out of 36) and lastly *The Nation* with 16% (3 out of 19) of its articles.

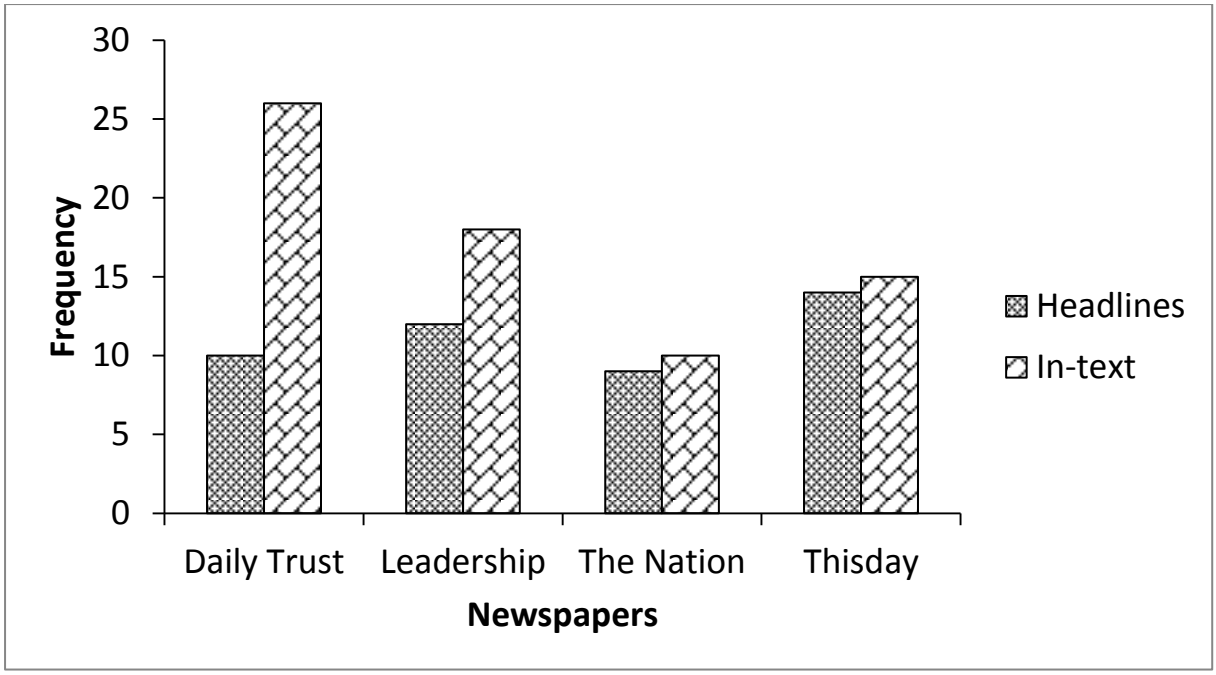


Figure 4.2: Headline or In-text appearance of keyword

In Figure 4.2, it is evident that all the keywords in the newspapers appeared more in the text than in the headline. 45 articles (39%) with the key words (climate change, global warming or green-house effect) appeared as headline, while 69 articles (61%) were found within the text. *Daily Trust* had 10 (28%) headline and 26 (72%) articles in-text. *Leadership* had 12 (40%) articles as headlines and 18 (60%) within the body of the story, while *The Nation* and *This Day* had almost equal number of articles as headline and in-text 9 (47%) and 10 (53%) and 14 (48%) and 15 (52%) respectively. Writing keywords as headlines encourages readers to buy and read newspapers. Nowadays, newspaper headlines are read on radio programmes to prompt the readers on the issues discussed in newspapers.

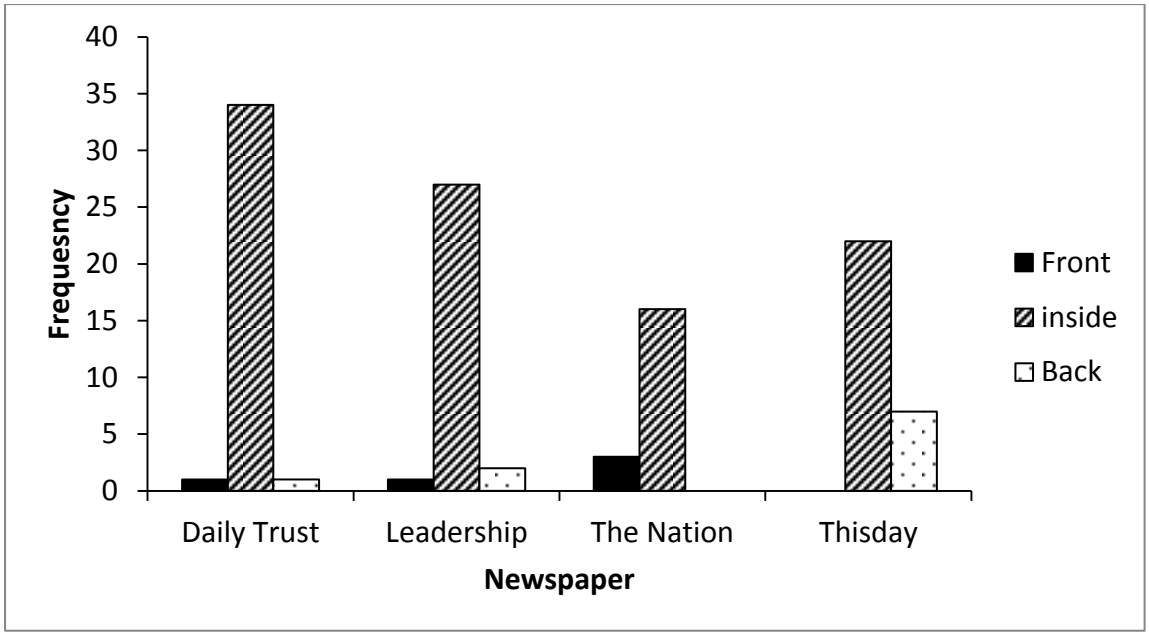


Figure 4.3: Page placement of stories on climate change

Figure 4.3 above shows where climate change stories were placed in the four newspapers analysed. Stories placed in the front pages of newspapers are regarded as most important. With regards to climate change stories, only 4% (5 out of the 114) of the articles found in the four papers analysed were presented in the first pages of the newspapers with 4% (3 out of 114) of the articles from *The Nation* newspaper. *This Day* newspaper had no front page representation. 87% (99 out of 114) of the articles were found in the inside pages while 9% (10 out of 114) were found in the back pages. *The Nation* newspaper had no article in the back page. *Daily Trust* had 94% (34 out of 36) of its articles in inside pages with 3% (1 out of 36) each in the front and back pages. *Leadership* newspaper also had 3% (1 out of 30) of its articles covering front page, 90% (27 out of 30) in inside pages and 7% (2 out of 30) in the back page. *The Nation* newspaper had 16% (3 out of 19) of its papers in the front page and 84% (16 out 0f 19) in inside pages. And *This Day* had 76% (22 out of 29) of its articles inside and 24% (7 out of 29) in the back page.

Table 4.2 Genre of reportage on climate change

Newspaper	News	Features	Editorial	Interview	Opinion	Total
Daily Trust	7	15	14	–	–	36
Leadership	11	13	5	–	1	30
The Nation	9	6	4	–	–	19
Thisday	8	11	10	–	–	29
Total	35	45	33	0	1	114

Results from Table 4.2 above shows that the dominant genre used in covering climate change stories by all papers is features with 39.4% (45 articles) representation followed by news with 30.7% (35 articles). Features give the writers more space in analysing an issue. No article is evident in the interview column while only 1 (0.9%) article is seen as opinion in *Leadership* newspaper. Climate change stories were also covered considerably as editorials with 33 articles (29%). For individual paper presentation, majority of the stories covered by *Daily Trust* were features with 42% (15 out of 36), followed by editorials with 39% (14 out of 36) then news with 19% (7 out of 36). For *Leadership*, 43% (13 out of 30) of its articles were feature stories while 37% (11 out of 30) were straight news stories, editorials had 17% (5 out of 30) representation.

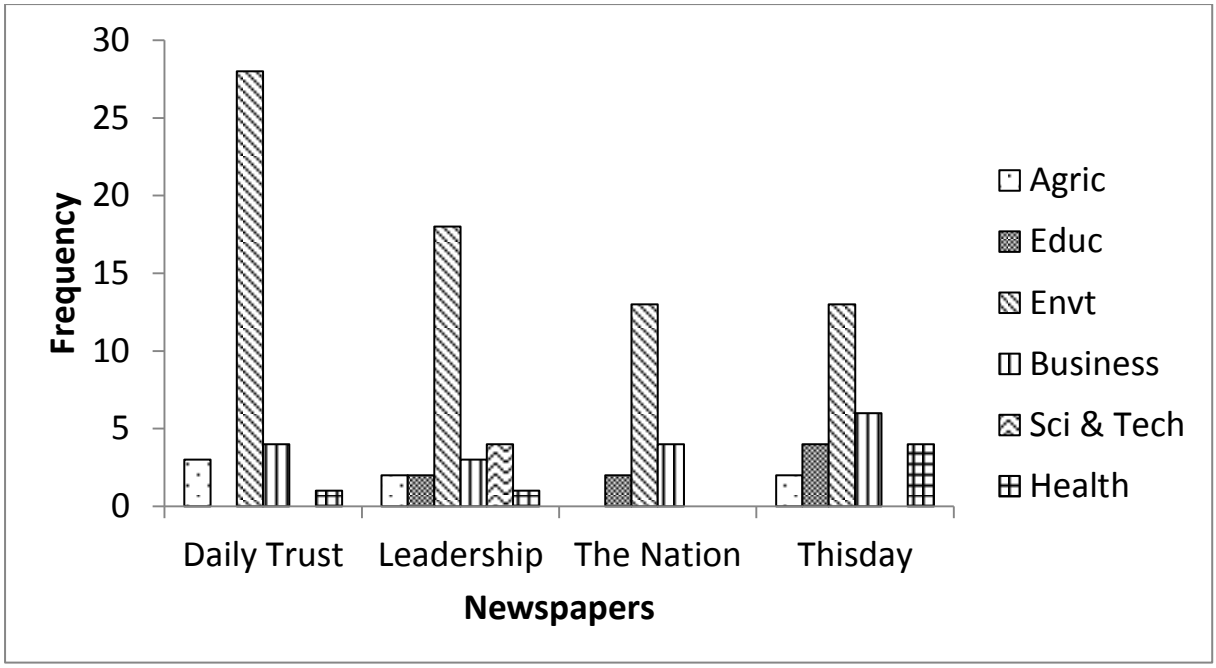


Figure 4.4 Sections of newspapers' on climate change

Results from the analysis of Figure 4.4 above shows that majority of the stories are reported in the environmental column representing 63% (72 out of 114) of the articles found. Next to environment is the business column with 15% (17 out of 114 articles). Educational column carried 8 stories (7%), Agriculture is represented by 6% (7 stories) followed by health with 5% then Science and technology with 4%. With the effect climate change has on African agricultural system, it is surprising to see that there were very little reports on climate change in the agriculture column/page.

4.3 Frames used in reporting climate change

Climate change stories are mostly situated within the causes, effects, mitigation and adaptation frames. The tables below give us a view on how different media organizations frame climate change stories thus addressing research objective 2.

Table 4.3: Frame on Causes of Climate Change

Newspaper	Green-house gases	Deforestation	Agricultural activities	Mining/Exploitation	Total
Daily Trust	1	1	–	–	2
Leadership	3	–	1	1	5
The Nation	1	–	–	–	1
Thisday	–	4	–	1	5
Total	5	5	1	2	13

Table 4.3 above shows that 13 (12%) out of 114 articles analysed reported on the causes of climate change. Green-house gas emission and deforestation are seen as the most prominent causes of climate change. *Daily Trust* reported one article on Green-house gas (carbon dioxide) as a cause of climate change. *This day* had no article. *Leadership* newspaper had 3 articles while *The Nation* reported one article. *This Day* newspaper had 4 articles reporting deforestation as the main cause of climate change *Daily Trust* reported one article while *Leadership* and *The Nation* had no article.

Table 4.4: Frame on Effects of Climate Change

Newspaper	Erosion	Flood	Drought	Desertification	Food Security	Health issues	Total
Daily Trust	1	3	2	–	–	-	6
Leadership	–	4	1	1	–	–	6
The Nation	–	1	1	–	2	–	4
This day	–	3	–	–	–	–	3
Total	1	11	4	1	2	2	19

In Table 4.4 above, it is evident that the total number of articles reported on the effects of climate change by all papers is 19 (17%). Flood is reported as the dominant effect of climate change in all papers except *The Nation* with 1 article. *Leadership* reported flood most with 4 articles followed by *Daily Trust* and *This Day*. Drought was also reported in 4 out of the 21 articles with 2 from *Daily Trust*, 1 from *The Nation* and *Leadership* and none from *This Day*. Erosion which is very prominent in the south was reported by *Daily Trust* once, and desertification which poses serious threat in the north was reported once by *Leadership* newspaper. Food security was reported as an effect of climate change twice by *The Nation* newspaper. This shows that little attention is given to the effects of climate change which is seen as a global threat.

Table 4.5: Frame on Climate Change Adaptation

Newspaper	Waste recycling	Biomass Energy	GMO	Others	All	Total
Daily Trust	7	2	1	2	1	13
Leadership	3	–	–	2	1	6
The Nation	3	1	3	3	1	11
Thisday	5	–	–	–	4	9
Total	18	3	4	7	7	39

In Table 4.5 above, climate change adaptation was covered by 39 (34%) articles across the four selected newspapers. It is evident that recycling of waste is given more attention than other methods of climate change adaptation with a total of 18 out of 37 (32%) articles. 7 (39%) articles were presented by *Daily Trust*, 5 (28%) by *This Day* and 3 (16.5%) each by *The Nation* and *Leadership*. Out of the 39 articles, 7 articles covered general knowledge on climate change adaptation while another 7 suggested other ways of adapting to climate change. The nation gave more attention to genetically modified food (GMO) with 3 out of the 4 articles presented while *Daily Trust* had 1 article. The use of bio-mass energy had 2 reports by *Daily Trust* and 1 from *The Nation.*

Table 4.6: Frame on Climate Change Mitigation

Newspaper	Forest Conservation	Carbon reduction	Clean & Renew Energy	Biodiversity conservation	All	Total
Daily Trust	3	3	4	2	1	13
Leadership	1	3	4	1	4	13
The Nation	1	–	2	–	3	6
Thisday	–	–	6	3	2	11
Total	5	6	16	6	10	43

Table 4.6 shows that articles on climate change mitigation appeared most with 43 (38%) out of 114 articles. Majority of the articles reported on mitigation were tilted towards the use of clean and renewable energy with 37% (16 out of 43) representation. Carbon reduction and biodiversity conservation had 6 (14%) articles each while forest conservation had 5 (12%) articles. *This Day* reported more on clean and renewable energy with 6 (37.5%) out of the 16 articles followed by *Daily Trust* and *Leadership* with 4 (25%) articles each, while *The Nation* had just 2 (12.5%) articles. A total of 10 (23%) other articles were not keen on a particular method of climate change mitigation and were therefore labelled as others majority of which were found in the *Leadership* newspaper with 4 out of 10 articles

4.4 Discussion of findings

In line with the objectives of this study, data obtained from the content analysis was used to answer the research questions.

Research question 1 addresses the issue of the level of attention given to the coverage of climate change issues by Nigerian newspapers. The question have been answered by table 4.1, figure 4.1, 4.2 and 4.3. Table 4.1 showed the frequency of reportage of climate change stories. Out of 528 sampled newspaper editions, a total of 114 articles on climate change were published. The articles were found to be reported in all the papers considerably with the exception of *The Nation* newspaper. This could be because *Daily Trust, Leadership* and *This day* have pages devoted to environmental stories/issues that appear on weekly basis which is absent in *The Nation* which has business and political elite, the affluent, the educated and the upwardly mobile as its target audience.

Findings from this study confirm findings from other studies on the volume of climate change reportage. Batta et al (2013), Nwabueze et al (2015) and Agwu and Amu 2012 also found low volume of reports on climate change. However, Tagbo (2010) found a rise in newspaper reportage of climate change even though politics and economics are the driving force of newspapers.

Figure 4.1 describes the length of climate change stories as they appear in newspaper pages. Although 23% of the stories covered full page, it is evident that climate change stories are not given enough space as majority (36%) of the stories covered a quarter of a page. Popoola (2014) also found 6-10 paragraphs (approximately ¼ page) as the major length of stories on climate change. *This Day* newspaper exceptionally dedicated the middle spread sheet on two occasions to climate change stories. It is evident that *Leadership* devoted more space to the issues of climate change. Luganda, (2008) found that media owners/editors have little

appreciation for climate change, and do not view climate as worth prime space in newspapers. Most stories with full page are either dedicated to politics, adverts, birthdays and felicitations.

In figure 4.2, keywords (climate change, global warming or green-house effect) appearance either as headline or within the text was analysed. *This Day* newspaper had the majority of stories with headline appearance. *Daily Trust* had the majority of stories with in-text appearance with 26 out of 69. People with little or no knowledge on climate will find it difficult identifying such stories. Besides, headlines in newspapers are what captures reader's attention and prompts the reader. Shanahan (2009) also states that climate change is given less attention all through the African continent.

Figure 4.3 describes where climate change stories were placed. This could be in front, back or inside pages. 87% (99) of the stories were found in inside pages of the newspapers where most features and editorials are located. Popoola (2014) also found the majority of articles in inside pages. Front and back pages had 5 and 10 articles respectively. Majority of newspaper buyers/readers are more interested in the front pages of a newspaper, placing climate change articles in inside pages will not attract enough attention.

Generally, climate change stories were not given enough prominence by all the newspapers studied. This is because the volume of reportage was generally low, majority of the climate change stories were found in the inside pages and the stories covered a quarter of the newspaper. Key-words which attract readers also had the majority appearing within the `text.

A reason for low representation of climate change by newspapers as asserted by Gans (1979) is that; "there is repetition taboo whereby journalists reject stories that have already been reported in favour of news that is fresh, this translates into the preference for coverage of crises rather than chronic social problems that have already been discussed on the main

terrain". Since climate change take place gradually and is rarely noticeable by the public, the journalist do not necessarily find new things to report on the issues regularly.

Tables 4.3, 4.4, 4.5 and 4.6 answer's research question 2 on the different frames used in reporting climate change by the newspapers. Agwu and Amu (2013) believe that knowledge of how climate issues have been understood and framed by the journalist is of vital importance to how the general public and policy makers will be able to respond to lifestyle changes that will aid climate protection.

Results from the analysis of these tables show that climate change articles were covered by all papers using the causes and effects and mitigation and adaptation frames. Articles on bush burning, mining, deforestation, gas flaring etc. relating to climate change were analysed on the causes of climate change. Burning of fire wood for cooking is considered a major source of green- house gas by the papers. Cutting of trees for either domestic or commercial use is also considered a major cause of global warming.

Example of such articles could be seen in leadership newspaper, March 7, 2014 with the caption " How much does human breathing contribute to climate change?" the story talks about how an average person breathes out 500 litres of green-house gas which amounts to about 1kg in mass. Collectively, the world's population is around 6.8 billion collectively breathing out around 2500 metric tonnes of C_{02} each year which is around 7% of the animal C_{02} tonnage churned out by the burning of fossil fuel around the world. This denotes how humans are significant contributors to global warming.

Another example from *Daily Trust* on Wednesday 19/03/2013 "Industrialized nations polluting the world-Fashola", The Governor in the sixth Lagos State summit on climate change and economic development accused the West, East and Asia as the greatest polluters

of the earth. The industrialized nature of those regions has given rise to adverse effects on the worlds' at large thereby affecting the under-developed and developing countries. While people in the third world countries are dealing with hard striking hunger and poverty, climate change cannot be recognized as a major problem.

Deforestation which is keen to the northern part of the country was not well represented by the papers. Gas flaring which is evident in the south-south part of Nigeria and is the major contributor of green- house gas was reported by *Leadership* newspaper once calling for the gas being flared to be recycled and used as other petroleum by products. Even though *The Nation* newspaper has a column for reporting south-south stories, no story could be seen on gas flaring. This contributes to 30% of the total carbon emitted into Nigeria's atmosphere. Even with the gravity of the situation, gas flaring was completely downplayed by all the papers. This shows how less attention is given to the causes of climate change in all the papers. Green-house gas emission and deforestation were considered the major causes of climate change in the newspapers.

With regards to the effects of climate change issues discussed, desertification and flood are the frequently occurring issues. As the desert is encroaching through the north, tree felling is on the rise, this destabilizes the carbon cycle. Increase in the amount of rainfall with poor drainage system across the country increases the risk of flood which affects food security, lives and property. Flood was the major issue of climate change discussed by the four newspapers. This is in line with findings from Okoro et al (2015), the researchers described flood as the major issue that had serious public and environmental significance in the year 2012. Popoola (2014) also found flood as the major effect of climate change in Nigeria.

Other issues like earthquakes and hurricanes are rarely discussed. They trip in as news reports with the occurrence of such events and are not related to climate change. Examples of

articles on the effects of climate change include; 'How climate change threatens food security' The Nation, April 1, 2013, parts of the story reads; Policies on food security do not focus enough on ensuring how poor people can access and afford food, especially in urban areas, said a report published by the International Institute for Environment and Development. The report warned that climate change would only make the policy gap worse, because its impacts will affect not only harvests, but also the systems that people use to transport, store, buy and sell food.

Another example is seen in This Day newspaper of September 24, 2014 with the caption "Climate change threatens world peace-UN". The UN Sec Gen Ban Ki Moon has said that the dreams of many people through-out the world hangs in the balance of climate change threats. He also noted that hard-won peace, prosperity, and opportunity for billions of people. Human, environmental and financial cost of climate change was fast becoming unbearable. The effects of climate change on both human and animals cannot be overstretched as it is having adverse effects on lives and property.

The mitigation and adaptation frames are higher in all papers with a total of 43 and 37 articles respectively. This conforms with the findings of Batta et al. (2013) who also found mitigation frame dominant in Nigerian newspapers. In adaptation, some articles focused on sensitizing farmers on how to insulate their farms from the effect of climate change. Some of the papers advised farmers on the use of genetically modified organisms to produce pest resistant crops that emanate as a result of either poor agricultural practices or extreme weather condition. The production of bio-fuels (ethanol, bio-diesel, bio-butanol, bio-oil and bio-gas) gotten from bio mass energy is also one of the adaptive measures to be taken as reported by the papers. Also, recycling of waste and production of bio-degradable plastic which is environmentally friendly are methods of adapting to climate change.

Other adaptive solutions involve relocating from riverine (flood prone) areas to safer places, limiting mining and agricultural practices to avoid erosion. Example of such stories includes; Leadership: Tuesday 09/08/2013 "Nasarawa Endorses Project To Check Climate change "A technological innovation that would convert wastes to produce green energy for power supply, environmental hazards otherwise called renewable energy is to kick start soon in parts of Nasarawa State near Abuja. This was triggered by the grave loss of property caused by flood which occurred as a result of the blockage of water ways through refuse dumps around the state.

Another example from *Daily Trust* of Monday, 07/07/2014 on "Why ABU is supporting researches against flood, others-VC" has its theme on encouraging researches on how to curb flood and other environmental challenges because of the danger they pose on the survival and livelihood of Northerners, the Vice-Chancellor said at the weekend. Professor Abdullahi Mustapha spoke at this year's Tree Planting Campaign of the university as part of World Environment Day celebration. ―I am privileged to inform you that as a strategy to educate the public on the vulnerability of climate change on people's survival and livelihoods in Northern Nigeria, Ahmadu Bello University has supported several researches on adaptations to vulnerability on food security, health, water and energy thresholds, weather exposures and bio-sensitivities. In addition, academic experts provide advice on the risks of species destruction, species invasion and maintain the breeding of unique plants to enrich the gene pool.

On climate change mitigation, the call for the use of clean and renewable energy is evident in all papers as the use of fossil fuel which is one of the major contributors to Global Warming is in the increase. 16 articles were published on clean and renewable energy. This might be because climate change mitigation is the driving theme of global climate talks. Examples of

such articles are seen in *This Day:* Thursday, Dec 12/2013 "Renewable energy village reaches 80% completion".

The Nation, Dec 12, 2013, Wednesday, Nov, 20/2013 "Experts move to curb climate change". Officials of the Open Society Foundation (OSF) from the United States have visited the University of Nigeria, Nsukka (UNN) to sensitise farmers on how to insulate their farms from the effects of climate change. How to stop flooding on farms to boost food production dominated discussion when delegates of the Open Society Foundation (OSF) in New York, United States, visited the University of Nigeria, Nsukka (UNN). Solutions like the use of solar and hydro energy for electric energy, planting of more trees leading to forest conservation and reduction of desert encroachment are also areas of interest in all papers.
Only *Daily Trust* and *Leadership* had articles on reducing the amount of carbon released into the atmosphere. With examples like; "Engineers to tackle environmental waste and climate change" in *Daily Trust* of June 18, 2014. The story centred on how engineers meet annually to sensitise engineers who are environmentally biased and others on the need to begin to apply ideas into their operations and projects. Another example could be seen in *Leadership* newspaper of Nov 27/2014 where "Total initiates measures to combat climate change and gas flare" by supporting three international initiatives backed by the global compact, world bank and the climate and clean air coalition (CCAC) to reduce the emission of carbon into the atmosphere.

People are advised to use cars less as fuel combusted into the atmosphere increases climate change risk. In countries like India and China, the atmosphere is always hazy due to smoke from industries and vehicles. The use of mitigation frame in climate change reporting might be because climate change mitigation is the driving theme of global climate talks as even in the last meeting of the Conference of Parties (2015) it is recognized that climate change

represents an urgent and potentially irreversible threat to human societies and the planet and thus requires the widest possible cooperation by all countries, and their participation in an effective and appropriate international response, in order to accelerate the reduction of global green-house gas emissions thereby achieving the aim of addressing climate change.

Table 4.2 provides the answer for research question three on the dominant genre of climate change reporting.

Results from the analysis of table 4.2 shows that feature was the dominant genre of climate change reportage in all selected papers with the exception of *The Nation*. Features are considered the most suitable genre of climate change reportage as the complexity of the issue makes it difficult to convey its messages in news formats. This confirms findings from Popoola (2014) and Nwabueze et al (2015). Cramer (2008) as cited in Agwu and Amu (2013) observed that journalists do not report climate change risk as major challenges, but they report it as news. News reports are usually short and straight to the point as such climate change stories cannot be reported justly via news. However, in this study, news was found to be the second major genre of reportage by the four newspapers. Onyekachi et al (2012) in contrast to findings from this study found news items as the dominant genre of reportage in the newspapers they studied. Editorial was the next genre followed by opinion. Letters and interviews were not used by all the papers.

4.5 Similarities and differences of climate change reports

To answer research question four on similarities and differences in climate change coverage by the newspapers, results from the analysis of research questions one, two and three are compared.

In comparing results from the analysis of research question one on the prominence of climate change reports in the four selected newspapers. It is evident that *Daily Trust* had the highest

volume in terms of percentage with 31.6% followed by *Leadership* with 26.3%, *This Day* with 25.4% then *The Nation* with 16.7%. *This Day* had the highest representation of headline stories with 53% followed by *The Nation* with 47%, then *Leadership* with 40% and lastly *Daily Trust* with 28%. On the length of stories reported on climate change, *This Day* had the highest percentage of stories covering full page with 34% representation, this is followed by *Leadership* with 27%, then *Daily Trust* with 22% and lastly *The Nation* with 16%. It is clear that 24% of stories from *This Day* were reported in the prime pages (front and back). *The Nation* had 16%, *Leadership* 10% and *Daily Trust* 6%.

From the analysis above, it could be seen that *This Day* newspaper gave more prominence to climate change articles as the newspaper had the highest number of stories reported in the prime pages of newspapers i.e front and back. The paper also had the highest representation of stories covering full page and reported more climate change stories as headlines. It is also evident that *The Nation* newspaper gave the least attention to climate change stories, this is evident in the fact that the paper had the least volume of reports on climate change and in the number of articles covering full page. Although *Daily Trust* had the highest volume of reports, it can be said that the paper did not give much prominence to the issue when compared to *This Day*.

In comparing results for the dominant genre, features which is regarded as the most suitable form of climate change reportage by researchers (Nwabueze et al, 2015) was reported more by *Leadership* newspaper with 43%, this was followed closely by *Daily Trust* with 42% then *This Day* with 38% and finally *The Nation* with 32%. News formats seen as the most unsuitable genre was reported more by *The Nation* newspaper with 47%, followed by *Leadership*, *This Day* then *Daily Trust*. For editorials, *Daily Trust* reported more articles

followed by *This Day*, *The Nation* and *Leadership*. Only one article was reported in the opinion genre and none in interview and letters to the editors.

From the analysis above, it is evident that *Daily Trust* covered more articles using the feature and editorial genre with 42% and 39% respectively. This is followed by *This Day* with 38% and 34%, then *Leadership* with 43% and 17% and finally *The Nation* with 32% and 21%. Batta et al (2013) are also of the opinion that climate change being more scientific is not suitable for straight news report, they rather suggested that editorials and discourses would better explain the science of climate change to the lay man.

The causes, effects, adaptation and mitigation frames were used in reporting climate change in all papers. The dominant frame of reportage was the mitigation frame with 38% of the total articles analysed. Individually, *Daily Trust* and *Leadership* newspapers had the highest representation of articles on mitigation frame. This was followed by *This Day* and lastly *The Nation* newspaper. The use of clean and renewable energy was the dominant mitigation frame. *This Day* newspaper had more articles on clean and renewable energy.

The next dominant frame to mitigation is the adaptation frame with 34% representation. *Daily Trust* reported more articles on the mitigation frame followed by *The Nation*, and *This Day*. *Leadership* had the least number of articles covering the adaptation frame. Out of the 39 articles on climate change adaptation, recycling of waste was mostly reported with 46% (18 out of 39). *Daily Trust* had more articles on waste recycling, followed by *This Day* and both *Leadership* and *The Nation*.

Followed by the adaptation frame was the effects frame with 17% representation. It is evident that *Daily Trust* and *Leadership* with the highest representation (31.5%) had the same number of articles on the effects of climate change. This was followed by *The Nation* with 21% then

This Day with 16%. Flood which affects all parts of the country was the major effect of climate change being reported.

Causes of climate change were the least issues reported by all the newspapers with 11% (13 out of 114) representation. While green-house gas emission and deforestation were considered the major causes of climate change, agricultural activities, mining and exploration were least presented. Mining and exploration which leads to bush burning and gas flaring was not given much attention by all the newspapers. *Leadership* had more articles on green-house gas emission followed by *Daily Trust* and *The Nation*. *This Day* had no article on green-house gas emission but had the highest number of articles on deforestation. While *Leadership* and *The Nation* had no articles on deforestation, *Daily Trust* had only 1 article.

CHAPTER FIVE
SUMMARY CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Findings from this study in line with the set objectives are summarized in this chapter. This brings forth the conclusion of the study, contribution to knowledge and recommendations from the findings.

5.2 Summary

This study "A comparative analysis of newspapers' coverage of climate change in Nigeria between January 2013- December 2014" set out to examine the level of attention given to climate change in Nigerian newspapers namely*; Daily Trust, Leadership, The Nation* and *This Day*, how they frame climate change issues, find out the dominant genre of reportage and compare the results between the newspapers.

Summary of findings from the data analysed shows that out of the 528 sampled editions of newspapers between January 2013 and December 2014, 114 articles on climate change were found. From the findings, it is evident that *This Day* newspaper gave more attention to climate change when compared with the remaining three papers. *Daily Trust,* had more volume of reports with 32.6% (36 out of 114), followed by *Leadership* with 26.3% (30 out of 114) then *This Day* with 25.4% (29 out of 114) and *The Nation* with the least at 16.7% (19 out of 114).

In determining the prominence of climate change reports, frequency aside, page placement of stories was checked. Stories placed in the front and back pages of the newspapers were considered more important than those reported in inside pages. Majority of the articles (87%) were reported in the inside pages of the newspapers which are not prime pages. *This Day* had the highest percentage of front/back page representation with 24% of its articles reported in the back pages.

Another parameter used in measuring prominence of newspaper reports on climate change was the length of stories. Results indicate that majority (36%) of the stories were covered using ¼ page space. Another 25% of the stories covered full page. Stories with full page coverage give more information to the public as the writer has enough space to analyse the issue. *This Day* newspaper had more articles covering full page.

Further findings on the prominence show that the key words (climate change, global warming or green-house) used in reporting the stories appeared mostly (60.5%) within the body of the story which makes it difficult for interested readers to link the story with climate change. Also, *This Day* had the highest number of articles with keyword appearing in headlines, this was closely followed by *The Nation* newspaper.

Framing of climate change stories was analysed to determine the information and advocacy presented by the papers. Findings from the analysis indicate that frames used in reporting climate change were tilted more to advocacy (mitigation and adaptation). The information on climate change was not well represented by all papers as majority of the papers reported on climate change mitigation with 43 out of 113 articles (38%). *Daily Trust* and *Leadership* had equal representation of climate change mitigation at 30%.

Framing further suggests the type of genre to be used in reporting newspaper stories, as such the dominant genre of reportage was analysed. Result from the analysis show that feature was the dominant genre of reportage with a total number of 45 articles amounting to 39.4% followed by news with 35 articles representing 30.7% . Next was editorial with 33 articles amounting to 29%, then opinion which was only reported by *Leadership* with 1 article representing 0.9%. Climate change was not seen to be reported in the interview column.

A comparative analysis between the four selected newspapers shows a slight disparity in the pattern of climate change report. While *Daily Trust* had the highest number of articles (36 out

of 114) representing 31.6%, *This Day* newspaper gave more attention to climate change stories as it had the highest number of articles presented in the prime pages of the newspaper with 24% representation, it further has the highest number of stories with keywords appearing as headlines with 53% representation and more stories covering full page space with 34% representation. So also *The Nation* newspaper gave the least attention to climate change as it had the lowest volume of reports at 19 out of 114 stories representing 16.7%, least number of stories with full page coverage at 16% and the least number of stories in prime pages with 3%.

On the genre of reportage, *Daily Trust* had more features (42%) and editorials (39%), then *This Day* with 38% features and 34% editorials. Features and editorials are regarded the best genre of climate change reportage as they give the writer more space and time.

The newspapers had more similarities on framing of climate change stories as majority of the articles were on climate change mitigation. *Daily Trust* and *Leadership* had more articles on mitigation with 30% each, followed by *This Day* with 26% then *The Nation* with 14%. On adaptation frame, *Daily Trust* had more articles with 33.3% followed by *The Nation* with 28.2%. *Daily Trust* and *Leadership* also had the same representation of articles on the effects frame with 31.5% each followed by The Nation with 21%. For the causes frame, *Leadership* and *This Day* had equal representation at 38.5% followed by *Daily Trust* with 15% then *The Nation* with 8%.

5.3 Conclusion

Evidence from the findings of this study makes it possible to conclude that the difference in frequency of climate change reports between the selected papers was generally low, only *The Nation* newspaper gave little attention when compared to the frequency of reports from the other three papers.

However, *This Day* newspaper gave more prominence to the issue of climate change other variables abound. It is evident that climate change articles were not given much prominence by all newspapers analysed. The space given was not enough for in-depth analysis by the journalists, keywords were mostly fished out within the body of the story and most of the stories were found in the inside pages of these newspapers.

Even though feature is the dominant genre of reportage, news was also a major genre. News articles do not give the writer much freedom and the space and deadline (time) allocated for news is rather small. *Daily Trust* gave more attention on genre of reportage as it had more articles on features and editorials.

In an attempt to create climate change advocacy, all four papers gave more attention to climate change mitigation which is the driving force in the global climate debate. Meanwhile, the information (causes and effects) on climate change was poorly managed by all the papers. Wilson (2000) notes that climate scientists believe that climate change has reached a stage where information on causes and effects is no longer necessary but action on how to reduce/mitigate activities that contribute to global warming. On the contrary, in a country like Nigeria, people would not just act or accept without prior knowledge of the issue. Adequate information on the causes and effects of climate change will help convince the public on the need to take certain measures to mitigate or adapt to the issue.

Climate change is the context in which all of our lives will be lived; physically, socially, economically and politically. Its scale and impact over the coming decades will depend on the decisions we make in the next few years. Information will be critical. As Sri Lankan journalist Nalaka Gunawardene has said: “Good communication is essential for the success of both climate mitigation and adaptation. It’s like the lubricant that helps the whole engine of climate response to turn and keep running.” (Policy Brief, 2011:4)

Since climate change stories are scientific stories that need expert analysis and interpretation to the lay man, reporting of climate change stories using different frames will be relevant in helping the readers understand the issue more. Presenting climate change stories within a certain frame suggests the attention given to the stories by different media organizations. Kleinschmit and Sjostedt (2014:1) states that "the mass media has the power to attach a specific meaning to an issue that an audience may subsequently use as a frame to discuss and interpret this issue". This applies to specific issues (like climate change) that cannot be experienced or known by mere knowledge but only be explained by scientists who carry out various researches. Media frames according to Tuchman (1978) as cited in Scheufele (1999) serve as working routine for journalists that allow them to quickly identify, classify and package information for efficient relay to their audiences. Journalists are expected to frame climate change stories in a way that would convince the readers of the importance of the situation and how they can tackle it.

5.4 Contribution to knowledge

This study will serve as a guide to other researchers with interest in climate change reportage as it has analysed existing literature and content analysed newspaper articles on climate change issues. This has filled the existing gap on climate change reportage in Nigerian newspapers. The study also contributed to knowledge by confirming or disputing the results of the past findings on press coverage of climate change in Nigeria. Further research into the impact of climate change stories on newspaper readers would be necessary to know if journalists are able to create enough awareness on climate change issues thus leading to attitudinal change toward being climate friendly.

5.5 Recommendations

With the findings and conclusion from this study, it is obvious that: High-quality media coverage of climate change can inform vulnerable communities of potential impacts and how they can adapt to them, and can promote mitigation activities that limit the amount of warming the Earth experiences. This would go a long way in fostering sustainable development in the country. Policymakers in newspaper organizations can and should communicate with journalists to support a better class of climate change journalism that is relevant to local audiences, build public awareness of the issues and contribute to improved policymaking.

Finally, it is recommended that:

1. The newspapers should increase the volume of reports on climate change by having more educative editorials and feature articles on climate change.
2. Newspapers should give more attention/prominence to climate change stories by allocating more space to the reporting of climate issues, writing more headline stories and placing the stories in prime pages. Interviews should be granted with our own scientists to tell us the Nigerian side of the story. People's opinion should be sought, this could be through letters.
3. Journalists should report more on the causes and effects of climate change than on mitigation and adaptation. This will help educate the public more on the reality of climate change which might in-turn guide their actions towards becoming climate friendly.

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Appendix I

Content Analysis code sheet

	Placement			Keyword appearance		Story Length			
Category	Front	Inside	Back	Headline	Intext	Full	½	¼	1/8
News									
Feature									
Opinion									
Editorial									
Interview									
Total									

Appendix II

Content analysis code sheet II

Newspapers	Causes				Effects					Mitigation			Adaptation			
	Green-house gas	deforestation	mining	Agric. Activities	erosion	Flood	desertification	Food security	Health issues	Afforestation	Clean and renewable energy	recycling	G.M.O	New tech	Risk reduction	
Daily trust																
Leadership																
The nation																
This day																