

# **The Impact of Natural Disasters on Development**

**An Assessment of the Role and Functions of the National Disaster  
Management Organization (NADMO): A Case Study of the Nawuni  
and Buipe Communities, Northern Region of Ghana.**

By

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*This Master's Thesis is carried out as a part of the education at the  
University of Agder and is therefore approved as a part of this  
education. However, this does not imply that the University answers  
for the methods that are used or the conclusions that are drawn.*

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## ***Abstract***

*The objective of this thesis is to examine the impact of natural disasters on development through a study of the role and functions of the National Disaster Management Organisation (NADMO) in Ghana. Such a study has become necessary because currently natural disasters have gained international attention due to its impact on economic development. A key reflection on the causes, effects and vulnerability of individuals to natural disasters shows an interesting linkage between environmental, developmental and managerial failures. For instance, it has been continually emphasised that natural disasters are failures of development because economic development policies have not fully given consideration to disaster possibilities. A key argument of this study is that an over emphasis on the traditional methods of disaster management, namely relief and rescue responses, by NADMO reduces local capacities to manage effectively the challenge that current disasters such as floods present to local communities. The contention of this study is that there is a need for a paradigm shift from relief responses to disaster risk reduction through Community Based Disaster Management (CBDM) which seeks to build local capacities and disaster resilient communities for development.*

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## **Dedication**

*I dedicate this work to the memory of my father, Mr. Ransford Adjei Bempah.*

## Declaration by Candidate

I, Sherry Adomah Bempah, hereby declare that the thesis *“The Impact of Natural Disasters on Development: An Assessment of the Role and Functions of National Disaster Management Organisation (NADMO): A Case Study of the Nawuni and Buipe Communities, Northern Region of Ghana”* has not been submitted to any other Universities than University of Agder, Norway for any type of academic degree.

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Place

Sherry Adomah Bempah

Date

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## **Abbreviations and Acronyms**

BSA: British Sociological Association

CBDM: Community Based Disaster Management

CPP: Cyclone Preparedness Programme

CRED: Centre for Research on Epidemiology of Disasters

DCE: District Chief Executive

DFID: Danish Federation for International Development

DRU: Disaster Response Unit

DVG: District Volunteer Group

ESRC: Economic and Social Research Commission

FGD: Focus Group Discussion

GDP: Gross Domestic Product

GHG: Green House Gases

GIMPA: Ghana Institute of Management and Public Administration

GNA: Ghana News Agency

GSS: Ghana Statistical Service

HFA: Hyogo Framework for Action

IDP: Internal Displaced Persons

IPCC: Inter-governmental Panel on Climate Change

KNUST: Kwame Nkrumah University of Science and Technology

NADMO: National Disaster Management Organisation

RRT: Rapid Response Team

SADA: Savannah Accelerated Development Authority

SRA: Social Research Association

UNDP: United Nations Development Programme

UNEP: United Nations Environmental Programme

UNHCR: United Nations High Commissioner for Refugees

UNICEF: United Nations Children's Fund

UNISDR: United Nations International Strategy for Disaster Risk Reduction

UN-IOM: United Nations International Organisation for Migration

UN-OCHA: United Nations Office for Co-ordination of Humanitarian Affairs

VRA: Volta River Authority

WFP: World Food Programme

# **CHAPTER ONE: Introduction**

## **1. Introduction**

The term “natural disaster” is used in reference to an event or situation that overwhelms people and local capacities to cope and even deal with them (Anderson, 2000). Some of these include floods, droughts, wild fires, pests and pestilences, epidemics, earthquakes, and hurricanes. Whilst few are attributed to natural variations, many of these are human induced (UNEP, 2007). This study looks predominantly at floods.

There is no doubt that globally natural disasters are on the ascendency. Over the past two or three decades, the economic losses and the number of people who have been affected by natural disasters have increased more rapidly (UNEP, 2007). Globally, about 200 million people were affected by natural disasters in the 1990s with about USD 63 billion lost in terms of market value of damaged properties (World Disaster Report, 2002). In terms of human life loss, between 1980 and 2000, natural disasters caused about 180 deaths a day worldwide (Ruiz and Peduzzi, 2005). Currently, about 75% of the world’s population live in areas at least once affected by these disasters (Ruiz and Peduzzi, 2005).

The physical, social and economic losses caused by these disasters are particularly harsh for developing countries since they have a long range effect on their development process (UNEP, 2007). Sustainable development and disaster reduction and prevention are therefore essential preconditions for each other. Pandey and Okazaki (2005) indicate that effective disaster management can fully benefit humanity because it will impact on the environment, serve as a human intervention for sustainable development and improve food security. Furthermore, current development studies prove that assistance in times of a disaster can serve as a tool for national development. This is exemplified in countries such as Botswana and Zambia in which emergency relief interventions became stepping stones for long term development projects (Buchanan-Smith and Maxwell, 1994).

Ghana is not immune to the socio-economic and the negative developmental impacts of natural disasters. In 2009, floods in the Northern sector of Ghana claimed eight (8) lives and displaced 121,000 people. A total of about 30,000 hectares of farmland was destroyed (Kunateh, 2009).

The National Disaster Management Organization (NADMO) has received severe media criticism over its ad hoc and poor response to disaster situations. This study therefore undertakes an organisational study of NADMO to examine its role and functions in disaster management in Ghana. Additionally, it examines the impact of natural disaster on development in selected communities of the Northern region of Ghana. The research question is:

*The Impact of Natural Disasters on Development: An Assessment of the Role and Functions of the National Disaster Management Organisation (NADMO): A Case Study of the Nawuni and Buipe communities, Northern Region of Ghana.*

Qualitative research strategy will be the methodological approach that will help in finding answers to this research question. These will include the use of semi-structured interviews, Focus Group Discussions (FGDs), participant observation and text and document analysis.

## **1.1 Main Objective**

The main objective of the study is to examine the impact of natural disasters on development and assess the role and functions of NADMO in disaster management in Ghana.

### **1.1.1 Specific Objectives**

- To identify the perceived causes of the perennial floods and its effect on livelihood in the Northern Region of Ghana.
- To find local perceptions of flood management as applied by NADMO in the Northern Region of Ghana.
- To determine the degree to which frequent flooding contribute to rural-urban migration, prevalent, in the Northern Region of Ghana.
- To find the extent to which indigenous knowledge is incorporated into the disaster management programmes of NADMO.

## **1.2 Research Questions**

These research questions are a follow up on the objectives and identify the subject or unit under perspective for each of the specific objectives.

1. What are the main causes and effects of persistent flooding as perceived by flood victims and NADMO?
2. What are the mitigation and preventive responses to floods as applied by NADMO?

3. What perceptions are held by victims of flood with regard to NADMO's operations in flood situations?
4. To what extent do the perennial floods in the Northern region contribute to rural urban migration (as perceived by flood victims, NADMO and migrants)?
5. To what extent does the disaster management strategy of NADMO make use of indigenous knowledge and already existing local social structures like women groups, local NGOs and religious groups?

### **1.3 Problem Statement**

The rationale for choosing these objectives and research questions is because of an “attention-grabbing” phenomenon that occurs during the raining season in the Northern region of Ghana. It is a common occurrence to see communities such as Buipe, Kubori, Nawuni and Yagaba (all in the Northern Region) almost submerged in flood waters but with flood victims still living close or even within the vulnerable areas. This seemingly irrational behaviour raises questions on the mind of the researcher. How do flood victims interpret their vulnerabilities with regard to the causes and effects of flood and why do they still live close to the vulnerable areas? Below is a picture of a flooded community in Buipe.

**Figure 1: A Picture of a Flooded Community in Buipe But with People Still Living Close or Within the Vulnerable Areas.**



Source: Author (fieldwork, January 2011)

In 2007, a relief agency (media reports indicate that this relief agency was Red Cross Society of Ghana, however both the national and regional offices of Red Cross Society of Ghana denied ever engaging in this project) built 300 houses for flood affected victims in Nawuni a community in the Tolon\Kumbungu district of the Northern region of Ghana but the beneficiaries of the building project refused to move in (Kunateh, 2009). The most obvious question is why did affected residents not use the new housing facility? According to Berker, Kartez and Dennis Wenger (1993) current disaster relief packages sometimes fail to take into account internal conflict of interest inherent in social structures which could include inequality and conflict over land and property rights. This sometimes leads to post disaster conflict, rural urban migration and feelings of discontentment (Berker, Kartez and Dennis Wenger, 1993). Did the disaster relief packages of this relief agency fail to take into consideration internal conflicts of interest in this particular situation? What perceptions are held by flood victims with regard to NADMO's operation in flood situations?

The Northern region of Ghana, like most southern regions of the country, suffers from the development problem, rural - urban migration. Rural- urban migration is a problem because it undermines the development of the northern region by taking away its economically active youth. These youth mostly travel to some southern areas like the Ashanti region and are usually in search for non-existing jobs. Moreover, it adds to the host regions (Ashanti region, Greater Accra region, or Western region) already existing development challenges and environmental degradation problems because of lack of infrastructure and adequate planning to absorb the increasing number of people. Currently, about 60% of migrants in southern parts of Ghana ( I mean Accra and Kumasi) who engage in the head portorage business locally called "Kaya yoo" or "Paa oo Paa" come from the Northern region of Ghana (Kwankye et al, 2007).

The study will therefore attempt an analytical comparison between the perennial flood situation and rural-urban drift which are prevalent in the Northern region. Such analysis may prove to be a worthwhile study for rural development. Below is a picture of some migrants in the "paa oo paa" business at the Kejetia market, Kumasi.



**Figure 2: A Picture of the Migrants in the “Paa Oo Paa” Business in the Kejetia Market, Kumasi**



Source: Author (fieldwork, January 2011)

## **1.4 Study Area**

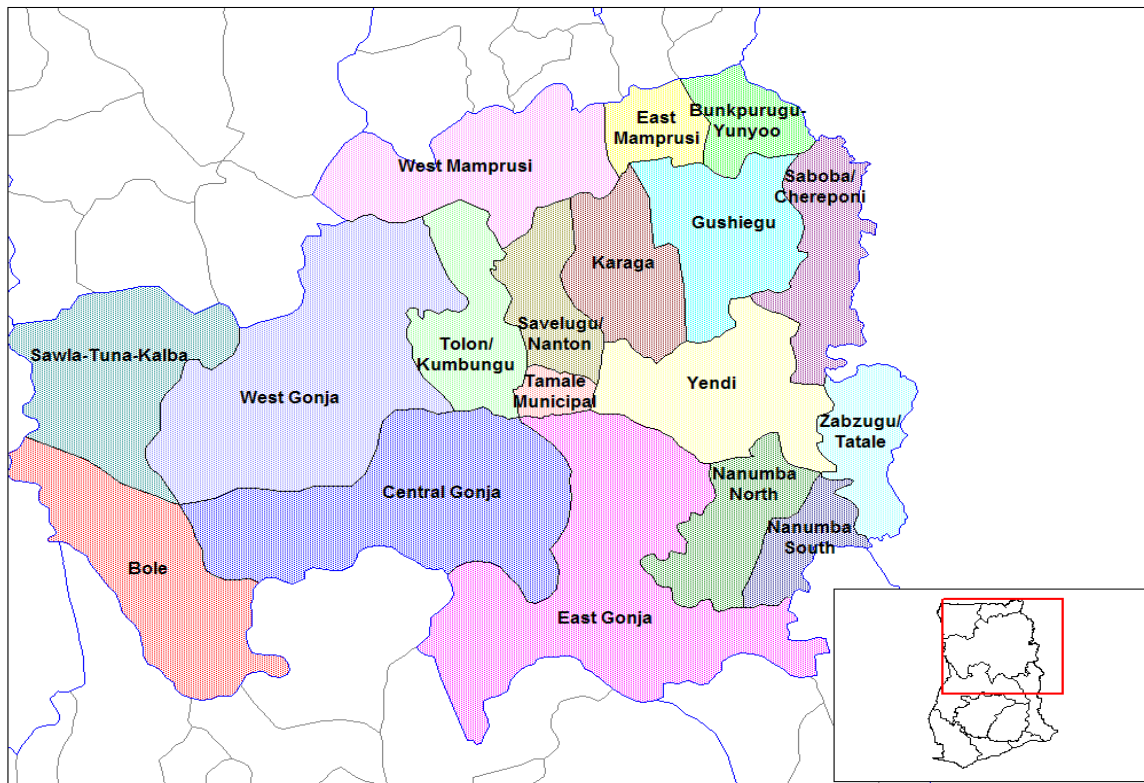
The Northern region is Ghana’s largest region in terms of landmass. It occupies about 70,384 square kilometers (Km<sup>2</sup>) of land and accounts for 29.5% of the total land area of the country. Its current population is 1,820,806 and Tamale is the region’s capital (Ghana Statistical Service, 2005).

Geographically, the region is much drier than southern parts of the country because of its proximity to the Sahel and Sahara. It shares boundaries with Upper East and Upper West to the North and the Brong Ahafo and Volta regions to the south (Ghana Statistical Service, 2005). The vegetation consists predominantly of grassland, especially savannah with clusters of drought-resistant trees such as dawadawa, mango, shea and baobabs or acacias (Ghana districts. com, 2006).

Politically, the region is divided into thirteen (13) districts. A Municipal/District Assembly is headed by a District Chief Executive (DCE) who is usually appointed by the government of

Ghana. The four (4) traditional paramount chiefs of the Northern region still have considerable influence over the people because chiefs in Ghana are recognized as legal custodians of the land and people (Ghana Statistical Service, 2005). Below is a map of the northern region showing its districts.

**Figure 3: A Map Showing the Northern Region of Ghana with its Districts. Included are the Tolon\Kumbungu and Central Gonja Districts.**



Source: Wikipedia (2006)

Climatically, the raining season is between May and October with an average annual rainfall of 750 to 1050 mm (30 to 40 inches) and the dry season is usually between November and April (Ghana districts.com, 2006). The harmattan<sup>1</sup> winds mostly occur during the months of December and February and may vary between 14°C at night and 40°C during the day.

1. The harmattan is a season that occurs as a result of hot dry winds that blows from the northeast or east of the western Sahara and is strongest in late fall and winter (late November to mid-March). It usually carries large amount of dust, which it transports hundreds of kilometres out over the Atlantic Ocean. The dust often interferes with aircraft operations and settles on the decks of ships. (Encyclopaedia Britannica, 2011)

The harsh climatic conditions during the harmattan usually have considerable effect on temperatures and make the area mostly endemic to cerebrospinal meningitis (Ghana Statistical Service, 2005).

Economically, agriculture accounts for the employment of 71.2 percent of the economically active population with a few engaged in other industrial activities (Ghana Statistical Service, 2005). The socio-economic status of the region is currently below average compared to other parts of the country (Ghana Statistical Service, 2005). For instance, majority of the people in the region, with the exception of Tamale which is the regional capital, have to walk long distances to reach services such as post offices, schools, clinics and hospitals. In most districts, 50 percent of communities live more than 10 kilometers away from a hospital (Ghana Statistical Service, 2005). Other facilities such as schools and clinics are also generally lacking. For instance, only 12.0 per cent of communities have local hospital (Ghana Statistical Service, 2005).

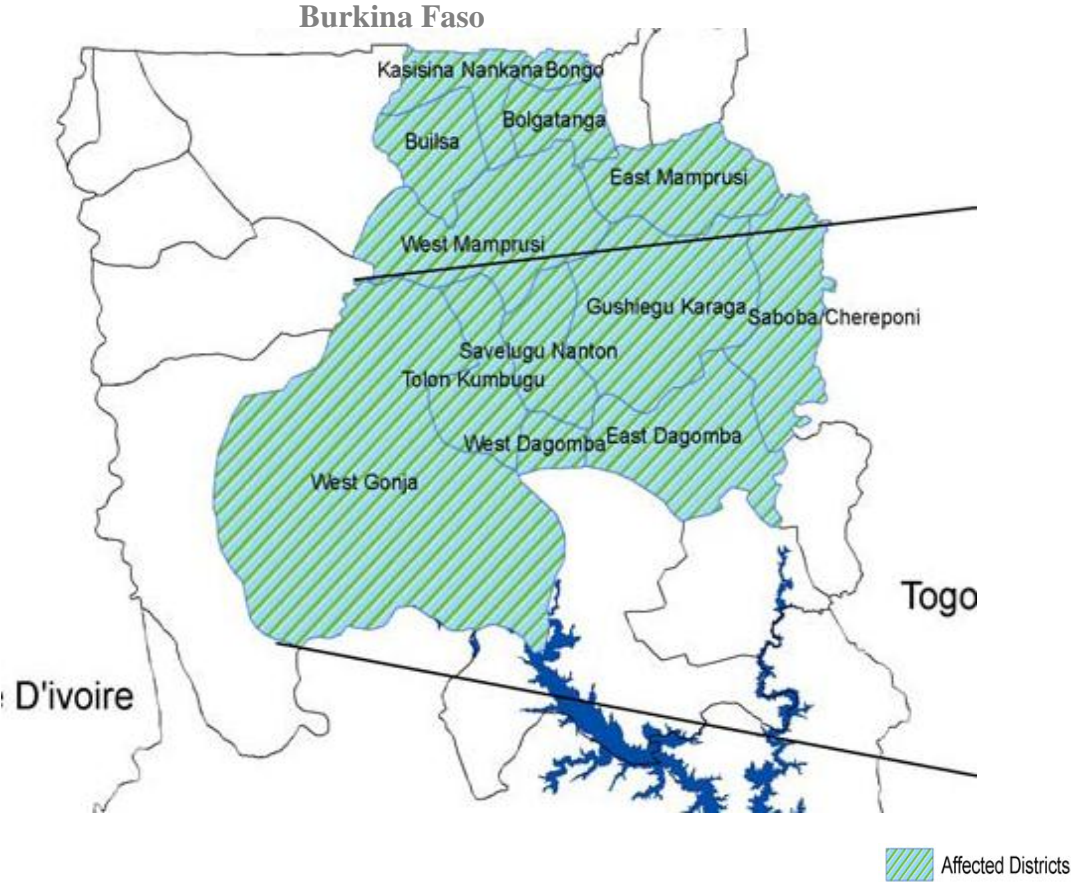
The 2000 Population and Housing Census data analysis on the Northern region raised serious concerns about the general housing quality in the face of its environmental problems. About 82.6 percent of the houses with the exception of Tamale are built with mud and 60.3 percent has thatch or palm leaves as the roofing material (Ghana Statistical Service, 2005).

Furthermore, the region's low population density in the 2000 Population and Housing Census report was attributed to the combined effect of decreasing fertility rate, decreasing but still high mortality rate and increased *migration* to the south of the country (Ghana Statistical Service, 2005: 10).

In 2007, the region and other northern regions witnessed prolonged dry spells followed by intense rainfall. The rainfall level in August, 2007 was more than 300 millimetres (WFP, 2010). This led to 56 deaths, over 54,000 homes destroyed and 325,000 people affected. In 2009, floods displaced over 121,000 people, destroyed about 5,104 houses, 13 schools collapsed and 30,000 acres of farm lands destroyed (Kunateh, 2009). In 2010, there were media reports about destroyed lives and properties in floods. For instance, Monday, 13 September, 2010 issue of the Daily Graphic reports of 17 deaths which were the result of the opening of the Bagri and Kampainga spillway and torrential rains in the northern regions of Ghana (Amenuveve, 2010, Indepth Africa, 2010).

Nawuni and Buipe are two communities within the Tolon\Kumbungu and the central Gonja districts of the Northern region respectively. Each of these communities shares almost the same socio-economic, political and climatic characteristics of the region as a whole. Nawuni has a total citizen population size of 529(male: 264, female: 265), 80 houses, 71 household and an average household size of 7.5 whilst Buipe (otherwise also known as Buipe-Bridge) has a total citizen population of 5692 (male: 2734, female: 2958), 742 houses, 971 household and an average household size of 5.9 (Ghana Statistical Service, 2005).

**Figure 4: A Map Showing The Most Flood Affected Districts In Northern Ghana. Included Are Tolon\Kumbungu And West Gonja<sup>2</sup> Districts.**



Source: Armah *et al* (2010)

Nawuni and Buipe are constant flood areas as the map above indicates and are located near the Black and White Volta respectively. In the central Gonja district where Buipe is located about two (2) people died, a child and a pregnant woman from the floods of 2010.

<sup>2</sup>History indicates that the central Gonja district was carved out of West Gonja in 2004; hence the shaded portion indicating West Gonja also includes central Gonja.

Additionally, 25,112 people were displaced, 55 communities were affected and 3,234 houses collapsed at a cost of 206, 780.00 (Gh) cedis<sup>3</sup> (Indepth Africa, 2010). Furthermore, about 1,109 ruminants together with some farming tools were all washed away by the floods of 2010. (Indepth Africa, 2010).

According to the district NADMO disaster co-ordinator of the central Gonja district; “65 schools are down and the number of boreholes affected is about fifteen. Three public toilets have been destroyed at the middle of the river and this is terrible. A looming epidemic is staring at us” (Indepth Africa, 2010). Official statistics from NADMO shows specifically the following number of people, crops, houses and livestock that were affected by floods in 2009 in Nawuni and 2010 in Buipe only.

**Table 1: Flood Affected Victims and Livelihood in Nawuni and Buipe.**

District	Name of Community	Affected Population				Livelihood Affected		Others (Houses)
		M	F	Children	Total	Crops (acres)	livestock	
Tolon\Kumbungu ■ 2009	Nawuni	154	106	156	416	40	21	10
Central Gonja ■ 2009	Buipe	1211	1742	3411	6364	175	132	259

Source: Author (Adopted from NADMO 2009 compilation).

<sup>3</sup>At the current inter-bank exchange rate 1(Gh) cedis is equivalent to 1.45 USD. Hence, 206,780 (Gh) cedis is about 142,606.90 USD.

## **1.5 Methodology in Brief**

This study uses a qualitative research strategy as the methodological approach to find answers to the research questions raised. This choice is influenced by the researcher's quest to "see through the eyes of the people being studied" and assess their local knowledge on the causes, effects, vulnerability and mitigation response to natural disasters in Ghana (Bryman 2008:285). Both primary and secondary data sources were collected over a two-month period, December 2010 to February 2011, from four key areas namely Accra, Kumasi, Nawuni and Buipe (Accra and Kumasi are in southern Ghana whilst Nawuni and Buipe are in northern Ghana). Semi-structured interviews, Focus Group Discussions (FGDs), participant observations and text and document analysis were used as qualitative tools to collect the data.

## **1.6 Thesis Outline**

This study is presented in six (6) chapters. Chapter One presents an introduction that sets out the main purpose and focus of the study, thus to examine the impact of natural disasters on development. It outlines the research questions and objectives and clarifies the terms and concepts as applied in the study. More especially, it presents the study area and social problem that have necessitated this research work. The Chapter Two, the literature review, discusses in detail international and national data on natural disasters which are of relevance to the study. The diagrammatical illustrations presented in the theoretical framework serves as a structural "skeleton" for the entire work by providing a guide in the presentation and analysis of the research findings. The Chapter Three, methodology, explains and justifies the choice of research strategy. This is discussed against the outstanding debate between qualitative and quantitative research methods. The sampling techniques, tools for data collection, ethical issues and the challenges encountered during the fieldwork are also discussed in this chapter. The Chapter Four discusses findings from the field work in the light of the theoretical framework presented in the literature review and the Chapter Five presents a summary of the key research findings in view of the study's objectives. It also discusses the implication of the key research findings to disaster management in Ghana. The Chapter Six concludes the study's report by showing how the research findings relate to some pertinent issues raised in the introduction of Chapter One.



# CHAPTER TWO: Literature Review and Theoretical Framework

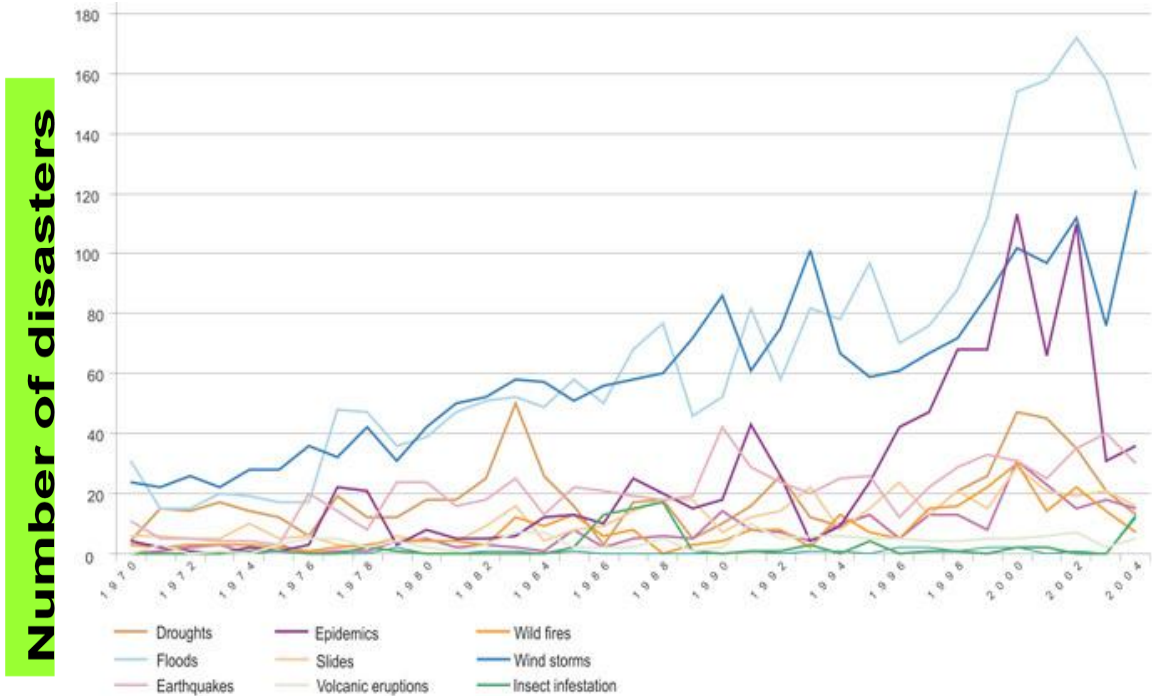
## 2. Introduction

This section reviews existing literature relevant to disaster management, vulnerability, mitigation, adaptation and prevention. It looks briefly into the scientifically admitted and known causes of natural disasters and discusses this against the background of international and national data of relevance to the study. These are divided into sub-headings to aid organization of the material presented.

### 2.1 Natural Disasters: Causes and Economic Implications

Based on empirical research presented by EM-DAT<sup>4</sup>, globally natural disasters seem to be on the ascendency due to climate uncertainties and human induced vulnerabilities (UN\ISDR and World Bank (WB), 2003). For instance, between 1970 and 2004 natural disasters such as floods increased more than 500% (I made this calculation based on EM-DAT statistics) as shown in the figure below.

**Figure 5: A Graph Showing the Increasing Trend of Natural Disasters Due To Climate Uncertainties and Human Induced Vulnerabilities. Included Is Flood in the Light Blue Colour**



Source: EM-DAT(1970 - 2004)

<sup>4</sup>EM-DAT is a global database on natural and technological disasters and contains core data on the occurrence and effects of more than 17,000 disasters in the world. It is currently managed by the Centre for Research on Epidemiology of Disasters (CRED). (CRED, 2004)

A key cause of natural disasters, like floods and droughts, is anthropogenic climate change. Climate change is caused by increased levels of Green House Gases (GHG), chief of which is CO<sub>2</sub>. Currently, there is a broad agreement within the scientific community that human activity has amplified earth's natural greenhouse effect by the introduction of large amounts of GHGs into the atmosphere (IPCC, 1996). Carbon emissions from burning of fossil fuel, deforestation and use of inefficient technologies have contributed to dramatic changes in global temperatures which cause uncertainties and extreme weather conditions. The graph in Figure 5, clearly illustrates how climate change, as a co-factor, contributes to the increasing number of floods in the world.

A critical look at international conferences such as the UN's International Strategy for Disaster Risk Reduction (UN\ISDR) in 1999, the World Conference on Disaster Reduction in 2005 and the 2009 Copenhagen Climate Change Summit (COP-15) show that these conferences are examples of international efforts to combat the troubling costs and effects of natural disasters due to climate change. For instance, the message of the about 1600 scientists who met together at the conference "Climate Change-Global Risks, Challenges and Decisions" at Copenhagen in 2009 was that climate change will lead to frequent and extreme weather conditions and natural disasters, hence, risk reduction in disaster management needs to be given a top most priority. (Pileberg, 2009).

It is interesting to note that whilst such attempts by the international community have led to many developments, such as the UN Yokohama Strategy in 1994 and the Hyogo Framework for Action (HFA) in 2005, little results have been achieved in concrete terms to solve the overwhelming cost and effect of climate change. According to the UN\ISDR (2007), the challenges that climate change presents to the international community can further be compounded by economic and political systems that fails to take pragmatic steps to solve the situation.

The international community is beset with the challenge to reduce current CO<sub>2</sub> levels. The problem of burden sharing between some developed and developing nations has in many instances hindered attempts particularly by the United Nation to meet this challenge (UNEP, 2007). This is so, partly, because ratification of international treaties on carbon emission reduction is not *compulsory* and second, there exist an assumption that a decrease in CO<sub>2</sub> could "stifle economic growth" (UNEP, 2007:66).



However, according to Stern (2006), climate change constitutes the greatest market failure the world has ever known. It could cost the world 20% of global annual growth as the cost for inaction. As an example, in USA, hurricane Katrina cost the country 1.10% of its GDP (CNN, 2005). Worse yet, for developing countries, the cost of large scale natural disasters in the 1990's averaged 5% of their GDP (DFID, 2005). On the other hand, the cost of taking action would only be 1% of global GDP per year. Taking preventive action would therefore enable the world to avoid entering critical threshold of average temperature increase of 2 °C higher than preindustrial levels (Stern, 2006).

Additionally, settlements along waterways are among some of the common causes of natural disasters in many third world countries. Currently, about 96% of death related to natural disasters in the world are from developing countries and according to Deyle (1998) in El Masari and Tipple (2002: 157), the vulnerability of developing countries is “the result of an increase in human settlement along vulnerable areas, rather than a rise in the number of geophysical events such as...floods”. There is an element of truth in this argument because in Acapulco in Mexico, many of the poorest human settlements have expanded into gullies that drain seasonal heavy rains. This contributed in making the area susceptible to hurricane Pauline and the rainfall which caused the worst natural disaster in Acapulco's history (Meli, 1998 in El Masari and Tipple, 2002). In a similar situation, floods and landslides in Venezuela in 1999 caused much havoc because most victims lived in shanty towns that were located along mountain ravines and rivers (Sancio, 2000 in El Masari and Tipple, 2002).

Corruption and ineffective government building policies further aggravate the situation by directly or indirectly exposing people to the threats of natural disasters. In Ghana, the most common cause of flood is settlement and building along waterways. However, the unscrupulous sale of lands which are vulnerable to floods by some chieftains and family heads has led to the destruction of lives and properties worth thousands of Ghana (Gh) cedis in the event of flood. In some instances too, there exist building polices and regulation but its enforcement is rather puny. Below is an extract of a journalist's report of Tamale (in Northern Ghana) that highlights some of the issues discussed above.

## TAMALE NADMO COMMITTEE PREPARES FOR THE SEASON

By Vida Dzakla

Northern Regional NADMO Coordinator, Alhaji Abdulai Silimbom has noted that most of the disaster situations in the region are manmade. Citing examples he added that NADMO cannot continue to support victims of manmade disasters at the expense of its limited resources. He said this during a committee meeting to deliberate on preventive measures to disasters as the rains are approaching. He noted that building on waterways and the presence of choked gutters are some contributing factors to flooding. Mr. Silimbom expressed the need for public education on the cause and effects of flooding within the Metropolis. The Metropolitan NADMO Coordinator, Hajia Abiba Kassim reiterated that most of the disasters are due to poor housing structures, establishment of kiosks and containers along drains.

*Date: Tuesday, 25 May, 2010*

It is interesting to note that the foregoing discussion perceives the causes of natural disasters as “human-related” or better yet an “act of man”. However, to some factions, the causes of natural disasters are more of a divine origin or an “act of god”. For instance, among the people of Mfangano Island in Kenya, local communities believe that disasters occur only when people were not at peace with God or with the spirit. Hence, disaster cannot be stopped but rather its effects minimised (UNEP, 2008). Additionally, among some communities in South Africa, there exists the perception that hydrological hazards are released by specific deities in response to human behaviour (UNEP, 2008). In Haiti, disasters are perceived as events that God is fully aware of; hence a mitigation strategy is to get down on ones knees and pray (Mooney, 2009). In any case, these scenarios seem to suggest that disasters are divine oriented and that mitigation is possible only when there is “repentance” in behaviour or attitude either towards one another or the environment.

Currently, there exists the propensity for the poor and socially disadvantaged people in many third world countries to think of natural disasters as “acts of god” than for the rich and those in western advanced nations (Baumann and Sims, 1974 in Alexander 1995). This is because the poor may lack adequate information that helps to explain the occurrences in a different

way (WDR, 2009). The danger this perception presents is that people may think of disaster management as either impossible or a luxury for the rich. This, notwithstanding, all scientific evidences, as discussed earlier, proves that current natural disasters are man-made and that mitigation is possible through adequate human efforts.

The economic impact of disasters usually consists of direct damage to infrastructure, lives, properties, crops, livestock and housing. For instance, climate –related hazards associated with natural disasters such as floods have caused many deaths which have increased over the past decades. There has been 24% increment in the number of people killed between 1974-1988 and 1989-2003 as shown in the table below. For windstorm, there has been over 200% increase in the proportion of people killed within the same time period.

**Table 2: A Table Showing How Climate-Related Hazards Affects People**

<b>Disaster</b>	<b>Mean number of persons affected for one killed (1974- 1988)</b>	<b>Mean number of persons affected for one killed (1989- 2003)</b>	<b>Proportion of change between the two periods</b>
Windstorm	5,997	21,225	+225%
Flood	9,503	11,763	+ 24

Source: EM-DAT(1974 - 2003)

Whilst the statistics above reflect global effects, projections about Africa estimates that the average number of people affected by flood annually could increase from one (1) million in 1990 to 70 million by 2080 (Jallow *et al*, 1999 in Obasi, 2002).

For indirect damage, mention can be made of unemployment, market destabilization and post disaster trauma. Globally, about 200 million people were affected by natural disasters in 1990s with about USD 63 billion lost in terms of market value of damaged properties (World Disaster Report, 2002). Agriculture, the backbone of many developing economies, is usually severely impacted as employment opportunities related to this sector is greatly reduced. A decline in employment opportunities means a fall in a family’s budget support system and survival needs. The hardships that result in a situation such as this, is what is referred to as “post disaster trauma” in this study.

Yet another indirect damage is the effect of flood situations on the food security of many developing economies. In Africa, current food consumption rates exceed domestic production by 50% (Obasi, 2002). Floods will most likely exacerbate this food crisis situation by increasing the continent's malnutrition rates (Obasi, 2002). Furthermore, most African states are less adaptable to the increasing trend of natural disasters. It has been said that poverty and the poor are the worse culprits of natural disasters (Taft, 2004).

## **2.2 Natural Disasters: Vulnerability**

Vulnerability to natural disasters can be linked to economic, political and social factors. The economic situation of individuals, communities or even nations can greatly influence their vulnerability to natural disasters. For individuals, vulnerability may be driven by preference to stay in hazardous sites because of its low *economic price* and the less probability of eviction (El- Masari and Tipple, 2002).

Also, for economic reasons, most of the world's poor nations or communities lack the means for effective early warning signals, institutional and human resource capacities to adapt and even prepare for natural disasters. Empirical research by Pablo Ruiz, a disaster programme specialist in United Nations Development Programme (UNDP) concluded that "the level of human development matters and explains why natural disasters are not so natural" (Peduzzi and Ruiz, 2005: 66). Natural disasters are measured by their degree of impact and it has been statistically proven that developed countries accounted for less than 2% of the death toll recorded between 1980 and 2000 whilst less developed countries accounted for 53% of the death toll that hit the world during that same period (Peduzzi and Ruiz, 2005). For most developed nations, there is the means to prepare and even insure their lives after disaster situations. Insurance is a mechanism for disaster preparedness as it leads to transferring risk to financial companies that mostly have the means to help one recover from post-disaster situations. Unfortunately, many socially disadvantage people are unable to do this.

Currently, many of the world's poor live in vulnerable areas because of political factors. There is proven relationship between political actions and the vulnerability of residents to natural disasters. Haiti's vulnerability to disasters is linked to its degraded small economy, environmental degradation and *weak institutions of governance*. This fact was empirically

established by a study into the May-October floods which claimed a total of about 4000 lives in Haiti (Peduzzi and Ruiz, 2005).

A government’s reactive rather than proactive attitude towards the enforcement of building policies and regulations make many, particularly the poor, live in areas vulnerable to hazards associated with floods. Additionally, corruption either within higher institutions of government or traditional authorities deprives the poor of their resources because of the perceived notion that they are the “most polluters” (Adams, 2009: 61). This makes the poor to over exploit the limited resources at their disposal which has tendencies to cause environmental degradation. The degraded environment subsequently makes the poor more prone or vulnerable to the hazards associated with a natural disaster (Adams, 2009).

Furthermore, the rich by means of his wealth may have access to the “better areas” of society either through direct sale of land by the poor owner or by means of his political affiliation. This sometimes leaves the poor with no choice than to stay in vulnerable areas. It is however important to note that some poor communities may decide to stay in vulnerable areas because those areas are their sources of livelihood as it is the case with the Buipe and Nawuni communities in Ghana (El Masari and Tipple 2002). Below is a picture of a family in the Buipe community. They live close to the river and fish within it for survival.

**Figure 6: A Picture of a Family Fishing in the Nearby River in the Buipe Community**



Source: Author (fieldwork, January 2011)

Also, a key political factor to increasing vulnerability to natural disasters is over emphasis on the traditional methods of disaster management in many developing countries without a corresponding effort to integrate policies on disaster risk reduction and prevention in economic development policies (CRED, 2004). The traditional methods of disaster management have continued to focus more on reactive responses such as relief and rescue, followed by rehabilitation and reconstruction (CRED, 2004). A reactive response to disaster management suggests that a life threatening event such as flood is only given attention by the national government “as and when it occurs”. This implies that effort to reduce human vulnerability to disasters is less prioritized. Munslow and Brown (1999) also give a fair description of what reactive response to disasters are when they remarked that “a fairly narrow focus on the delivery of basic materials and services to guarantee human survival (in disaster situations) is simply not adequate” given the magnitude of current global disasters.

There is therefore the need for a paradigm shift from reactive responses to disaster risk reduction that incorporates hazard mitigation and vulnerability reduction in development policies (Singh, 2010). The UN Yokohama Strategy of 1994, for instance, realized the importance of the latter argument and therefore stated that disaster prevention, mitigation and preparedness are better than disaster response in achieving the goals and objectives of the UN International Decade for Natural Disaster Reduction (IDNDR) which was launched by the General Assembly of the UN in 1989 (UN\ISDR, 1994). Currently, the disaster management framework in vogue is the Hyogo Framework for Action (HFA), which is a ten (10) year action plan (2005-2015), meant to make the world safer from natural hazards (UN\ISDR, 2011). The HFA outlines five priority areas for action and offers guiding principles and practical means for achieving disaster resilience and sustainably reduce disaster losses. These priority areas are;

1. Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.
2. Identify, assess and monitor disaster risks and enhance early warning.
3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels.
4. Reduce the underlying risk factors.
5. Strengthen disaster preparedness for effective response at all levels.

(UN\ISDR, 2011)

It can be realized that the UN Yokohama Strategy and the Hyogo Framework for Action are both proactive measures to manage current disasters as they seek to build local capacities for disaster risk reduction and development. Unfortunately, reactive response reduces local capacities and increases human vulnerability to natural disasters.

Ironically, decision makers agree that long term disaster prevention and reduction is better than short term emergency or relief responses but currently on the funding list of donor agencies and national governments, emergency aid and not disaster prevention and reduction aid, tops the list (CRED, 2004). Relief aid tops the list of donor and national government funds because emergencies are media friendly, funds are easy to obtain and morally justified (I think it is “morally justified” because it is humanitarian to help those in need) ( CRED, 2004). As an example, millions of US dollars were spent by donor agencies on famine relief in Niger during a drought situation in 2005 but there was limited interest among donors on Senegal’s proposal to build a “green wall” against the encroaching desert which could also lead to a drought situation (O’ Brien *et al*, 2006: 74).

In addition, most public sector agencies have not seriously committed themselves to disaster prevention and reduction as usually attention has been skewed towards gaining relief funds for immediate reconstruction and recovery (CRED, 2004). Whilst this management practice has its positive elements such as helping people in their immediate unfortunate situation, it does not get to the root causes of social problems and neither an adequate preventive measure. In the Northern region of Ghana, this increases human vulnerability to an annual flood situation and its resultant effects. A media report by the Ghana News Agency (GNA) on 4<sup>th</sup> August, 2009 highlights some of the issues discussed above.

### **GHANA: NADMO SHIFTS FOCUS TO DISASTER RISK REDUCTION**

By GNA

The National Disaster Management Organization, NADMO says it has shifted its focus from disaster management to disaster risk reduction in order to minimize man-made disasters. ...

Major Mensah was reacting to media reports that blamed NADMO for focusing on management of disaster instead of prevention mechanisms....

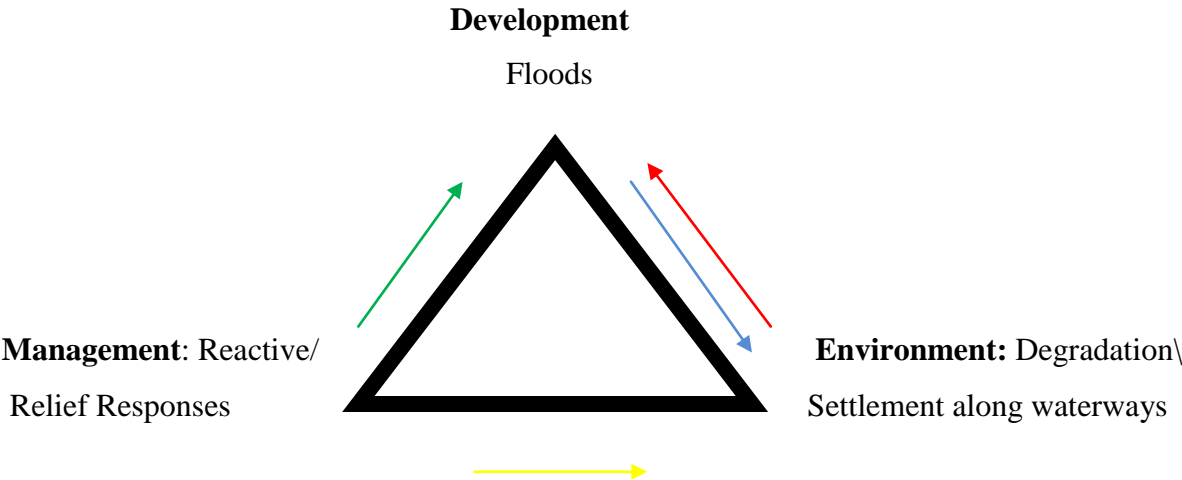
*Date: 4<sup>th</sup> August*

There are also social factors which contribute to the vulnerability of people to natural disasters. Closely linked to this are women, children and the elderly. In the Northern Region of Ghana, women and children have to spend productive hours in search of water during prolong dry spells. More so, El Masari and Tipple (2002) seem to suggest that housing and living conditions (with regard to social amenities provision) are among some social factors that affect vulnerability. Many poor communities live in housing structures that are best described as “life threatening” and less adaptable to the changing climate. The reason for this is the high cost of building materials in many developing nations which results in shanty buildings that are less able to withstand heavy rainfall and flood (El-Masari and Tipple, 2002). Moreover, in 2007, the collapse of the limited hospital facilities in the Northern region by floods prevented many particularly pregnant women and lactating mothers from access to adequate health care (WFP, 2010).

**2.3 Natural Disasters: A linkage between Development, Management and Environment.**

The purpose of this section is to draw out the complex and iterative connection between development, management and environment with due regard to natural disasters. From earlier discussions, it could be realised that the causes and vulnerability to natural disasters is a culmination of socioeconomic and political factors. This can also be illustrated in the figure below.

**Figure 7: Theoretical Application: Flood as a Development Issue**



Source: Author



Flood is a development issue because development funds are usually diverted for post disaster reconstruction and recovery (CRED, 2004). More importantly, it leads development in backward direction as in Mozambique the cost of damage due to flooding in 2000 averaged 11.6% of its Gross National Product (GNP). Worst yet, one-fifth (1\5) of the country's only highway and the large sections of railway linking Mozambique to Zimbabwe were destroyed by the floods (Obasi, 2002). This implies that trans-boundary trade between the two countries will be severely affected.

More critically, El-Masari and Tipple (2002:162) sees disasters as “failures of development” as decision makers have failed to effectively integrate development priorities with environmental concerns. This argument is valid because failure on the part of government to enforce building and regulation policies, as discussed earlier, has increased human vulnerabilities in many third world countries.

Environmental degradation, as discussed in the example of anthropogenic climate change and settlement along waterways increases human vulnerability to disasters such as floods (as shown by the red arrow in Figure 7). On the other hand, a perennial flood situation can lead to further environmental degradation such as soil erosion and lose of plant nutrients (as shown by the blue arrow in Figure 7). This situation could affect the food security of a community or even a nation as it has been projected by United Nation Environmental Programme (UNEP) that climate change in West Africa could lead to flooding and a loss of agricultural GDP from 2-4 percent (UNEP, 2007).

More so, over emphasis on reactive response to flood management, as discussed under the concept of vulnerability on page 18, is not an adequate preventive measure to address the troubling costs of flood in many developing countries and therefore has the potential of increasing human vulnerability to the perennial flooding and further environmental degradation (as shown by the green and yellow arrows in Figure 7).

Hence, an approach to solve this “development problem” will also require an inter-related framework that acknowledges that sustainable mitigation of natural hazards is possible through adequate linkages between development, environment and management. In accordance with this the UN\ISDR (2011) states that “Sustainable development, poverty reduction, good governance and disaster risk reduction are mutually supportive objectives and

in order to meet the challenges ahead, accelerated efforts must be made to build the necessary capacities at the community and national levels to manage and reduce risk". The next section discusses the latter argument in much detail.

## **2.4 Disaster Management: Mitigation, Adaptation and Prevention**

Community Based Disaster Management (CBDM) has been proposed by several researchers as the most effective adaption, mitigation and preventive response to natural disasters (Pandey and Okazaki, 2005). This strategy takes into consideration indigenous knowledge and local participation in the management of the problem. It has often been argued that it usually yields long term sustainable effects as there is community support for the structures meant to solve the situation. The United Nations Development Programme (UNDP) mainstreams this into its overseas disaster risk reduction programme and has been evaluated as the most effective in disaster management. In Bangladesh, through government and UNDP support, natives within their limited resources planted trees to serve as wind breaks in the event of storm (UNDP, 2002).

Synergetic effects are also said to be observed if local efforts are incorporated into national policies and programmes in disaster management. This will help the most vulnerable communities to take control of their destinies as if it were in adapting to natural disasters. The government's role as synergy requires is to provide both material goods and services in the management of disasters (Evans, 1996). These include the development of the institutional and human capacities, early warning signals, technical expertise, enforcement of law on building policies, afforestation and education of the citizens on disaster mitigation and prevention. This could serve as an adequate long term preventive measure in adapting and coping with natural disasters.

Adaptation measures also refer to actions to help communities and ecosystems to deal with the changing climatic conditions (Wuester, 2005). Adaptation is essential if vulnerability to natural disaster can be reduced and future resilience built. This strategy is very important for developing countries as they are most vulnerable to the effects of natural disasters. According to Wuester (2005), adaptation and risk reduction strategies must include capacity-building, publicizing traditional coping mechanisms such as disaster - resistant housing and crops and enhancing private sector financial risk - sharing mechanisms such as micro-finance and

insurance. When these are mainstreamed into local, regional and national development and disaster management policies, natural disasters could be sustainably mitigated.

Cuba despite its relatively poor economy had low death rate compared to USA when Hurricane Ivan struck in 2004 (Taft, 2004). Hurricane Ivan claimed almost 100 lives in USA with a total of 14 billion dollars lost to damages whilst the entire Caribbean islands including Cuba recorded only 70 deaths (Reeves, 2009). This was attributed to Cuba's disaster preparedness and prevention which is part of the civil educational programme of the country. The country's dynamic leadership and effective early warning system prompts citizens of an impending danger of which immediate responses are undertaken both by the populace and those in authority (Bauer, 2004). This helps one to realize that poor nations and the international community can really work to reduce and prevent the effect of these occurrences because Cuba's preventive mechanisms are what most poor nations can afford.

## **2.5 Disaster Management: Indigenous Knowledge**

Indigenous Knowledge is the "body of knowledge built up by a group of people through generations of living in close contact with nature" (UNEP, 2008: 21). It is usually born from experience, observation and then learnt and handed down from generation to generation. Many communities identify themselves with indigenous knowledge systems which help them to live in harmony with their environment and nature. This is particularly vital because knowledge is a key asset in securing control over one's circumstances (Marsden, 1991). Currently, indigenous knowledge is recognised as an important tool in environmental conservation and disaster management (UNEP, 2008).

With regard to disaster management, indigenous knowledge has proved to be effective for disaster prediction, preparedness, mitigation and recovery. For instance in Kenya, in the Mukueni district, the baobab tree is one of the most important plants used as an indigenous early warning sign for rainfall and drought (UNEP, 2008). The fruiting pattern of the tree is used by the community elders to divine rainfall failure and drought. A prolific fruiting seems to indicate a likely poor season ahead whilst the shedding of the tree's leaves shows a prolonged rainfall (UNEP, 2008). In South Africa, in the Limpopo province, the appearance of a "red" moon in the skies or the cries of the vlera birds are all indicators of an impending flood (UNEP, 2008: 67).

A follow up on disaster prediction is disaster preparedness. The Budalang'i community in Kenya prepare for floods by undertaking these activities;

- Each homestead has to have a dugout canoe for transport in case of heavy flooding.
- Elders dig trenches to control the water around the homestead and around farmlands.
- No ploughing is permitted along the shores when heavy flooding is predicted.

(UNEP, 2008: 74).

The above activities are also in fact mitigation strategies to forestall any adverse impacts of floods. These activities build the resilience of communities whilst lessening their vulnerability to natural hazards. Above all, they serve as traditional coping mechanisms to the periodic floods that occur within the community. Appreciating this knowledge and integrating it into modern scientific methods of disaster management is a very important way to ensure that there is local participation in national disaster management efforts.

It is however important to note that indigenous knowledge differ from community to community and may not always prove to be reliable especially in other communities (Briggs, 2005). It is therefore important to identify the indigenous knowledge prevailing in the communities under study and assess its reliability as an adequate mitigation and preventive measure for flood.

## **2.6 Disaster Management: Community Response to Flood Situations**

It is a common phenomenon in many communities to see flood victims located near or living even within flooded areas according to Quarantelli (1989). This is in direct contrast to the popularly held assumption that panic, shock and self centeredness will make victims leave their impacted communities for the purposes of survival elsewhere. To stay near or even within an impacted area is a seemingly irrational behavior. However, according to Quarantelli (1989) flood victims are rational and not devoid of initiatives to take care of their own needs. They know their priorities and do not passively expect others to help them.

Kinship and friendship ties within a community have proved to be an important source for post -disaster recovery which seeks to bring the community back to its “feet” (even before relief agencies troop in). In many cases, local community networks have helped in

reconstruction efforts because such situations are usually interpreted as “collective” and not an “individual” problem. In the Budalang’i community, a local recovery strategy is for “people in higher ground areas to accommodate the people from flood prone areas” (UNEP, 2008: 74).

However, Quarantelli (1989) seem to argue that problems associated with relief responses is not with the flood victims but rather with the organizations that attempt to help them. A typical case scenario is when flood victims refuse to use new housing structures provided by relief agencies. Perhaps, there was little or no consultation with the affected communities over reconstruction efforts. Also, in instances where local participation was encouraged, this might have been limited only to information sharing without any sense of active engagement and strengthening of local capacities. As an example, in West Virginian, relief efforts was a disaster in itself as the mobile houses provided by government through the Department of Housing and Urban Development (HUD) proved to be less adequate. Flood victims were not involved in the policy process on the housing facility; basic utilities in the houses were “missing” whilst terms of payment was too high for the victims who have already lost their means of livelihood through the flood (Wise, 1977). Given such situations, it will not be uncommon to see flood victims refuse external aid by relief agencies.

To solve this situation, Quarantelli (1989) proposes a good strategic planning and managing process that rests on the assumption that flood victims are rational and active initiators of disaster management efforts. Hence, an integrated community effort that rests on a “bottom up” participation approach will help to minimize problems associated with relief delivery.

## **2.7 Disaster Management in Ghana**

The National Disaster Management Organization (NADMO) was established by Act 517 of Parliament in 1996 with the responsibility to manage disasters and similar emergencies in Ghana. Its mandate includes the drawing of plans to prevent disasters or mitigate their effects on residents in Ghana, to coordinate activities before and during emergencies as well as ensuring post - disaster rehabilitation, reconstruction and resettlement (NADMO, 2005). It uses a decentralized system in the discharge of its duties. Structurally, there is the national, regional, metropolitan, municipal and district risk reduction platforms (NADMO, 2005).

Among the many identifiable causes of disasters in Ghana according to NADMO is the throwing of garbage into water bodies and buildings along water ways. This has the potential of choking drains and preventing the flow of rain water. For the particular case of the Northern Region, usually the opening of the spillway of the Bagri Dam in Burkina Faso results in flooding in valleys and low lying areas. Natives close to the Black and White Volta River are those mostly affected by the spillage (WFP, 2010).

It is also known that climate change would impact negatively on the country. Using scenarios and projections, it is expected that West African countries including Ghana, will experience flooding, droughts, rise in sea levels, agricultural GDP loss ranging from 2-4 percent, loss of biodiversity and potential negative impact on tourism (UNEP, 2007). The prolonged dry spells and severe rainfall that hit parts of Ghana, particularly in the Northern provinces, in 2007 are all indications of the impact of climate change on the country (NADMO, 2005).

The effect of natural disasters on the economic development of Ghana is enormous. In 2007, the Government provided USD 5.4 million as emergency response fund. This amount could otherwise have been used for infrastructural development. Additionally, the estimated crop losses of about 151,470 metric tons in 2007 represented approximately 20 percent of the annual food requirements of the affected regions in Ghana (WFP, 2010).

NADMO is not the only actor in disaster management in Ghana. The World Food Organization (WFP), the Red Cross Society of Ghana, the United Nations Development Programme (UNDP), churches, philanthropist and other civil society groups assist in disaster relief packages in the country. For instance, the WFP in 2007 launched an emergency relief package to assist affected areas in the northern region with food supplies.

NADMO takes into recognition the importance of community participation in disaster management. For instance it established Disaster Volunteer Groups (DVGs) as front line operators in communities to assist in the event of floods. Currently, official reports indicate that there are about 690 active DVGs operating in the country (NADMO, 2005). These are trained to help in emergency relief response in their respective communities.

However, the extent to which these DVGs are operational in the study areas are yet to be discovered by this study. Whilst much has been said in relation to relief responses, little is known of disaster prevention and preparedness in Ghana. Therefore, using primary source of

data, the study will explore the preventive measures taken by the country in disaster management. Again, the degree to which indigenous knowledge is incorporated in disaster management efforts in the country is an issue yet to be discovered by this study.

## **2.8 Migration: Environmental Push and Pull Factors**

Environment-Migration linkages are issues of public concern and gradually gaining attention on the public agenda setting. Currently, there is a growing perception among academicians, scientists and politicians that environmentally induced migration flows will affect urban population growth and its subsequent development challenges. Natural disaster, as an environmental push factor, is expected to play a significant role in out-migration flows (Geest *et al*, 2010). However, environmental pull factors is less significant now, as what “attracts” migrants to cities is more of concern over job opportunities related to trade and commerce than farming opportunities or natural resources endowment (Geest *et al*, 2010).

Concerns over environmentally-induced migration flows may not be a misguided assumption as Internal Displaced Persons (IDPs) due to natural disasters keep increasing. Global figures indicate that in the past twenty (20) years, more than a billion people were displaced by natural disasters (Obasi, 2002). This statistics according to CRED (2004) may even be underestimates of the harsh realities behind the figures. In 2009, floods in northern Ghana displaced 121, 000 people whilst in 2010, 12,222 people were rendered homeless by flash floods in the southern regions of Ghana (Kunateh, 2009; OCHA, 2010). This figures show that many people in northern Ghana are more vulnerable to the effects of seasonal rains than those in the southern sectors of the country. This situation can be attributed to many factors; key to this is poverty which is very predominant in northern Ghana.

According to Geest *et al* (2010), it is difficult to establish causal relationship between environment –migration linkages because of the influence of other intervening variables such as socioeconomic and proximity factors. But, no matter how complex such an analysis may be, empirical studies within this area are necessary to prepare for future disaster management programmes.

Using quantitative data techniques and secondary data sources, Geest *et al* (2010: 116) conducted a study on how environmental push factors such as annual rainfall pattern influence

migration patterns from northern to southern Ghana (Ashanti and Brong Ahafo regions). The study concluded that “environmental push factors seem to play an important role as a driver in migration system in northern Ghana”. Out-migration in northern Ghana was found out to be high and the relationship between average annual rainfall and net migration was found out to be strong ( $R = 0.686$ ). A point of interest to this study is that Geest *et al* (2010) study seems to suggest that there is a strong relationship between environmental push factors (i.e. average annual rainfall pattern) in the north –south migration patterns in Ghana<sup>5</sup>. Hence a study into a different migration pattern such as migrants from the northern region and in the “Kaya Yoo” or “Paa oo Paa” business in the south (i.e. Kumasi) will add to existing body of knowledge in this area.

## **2.9 Internal Migration in Ghana:” Kaya Yoo” Or “Paa oo Paa”**

Official statistics from the 2000 Population and Housing census data shows that currently about 80% of Ghanaian migrants stay in the country and 70% stay in urban centres (Ghana Statistical Service, 2005). The Greater Accra region (Capital: Accra) and Ashanti region (Capital: Kumasi) attract more than half of all internal migrants. Currently, southern regions of Ghana attract 88% of all internal migrants whilst the northern regions attract only 5% (Ackah and Medvedev, 2010). However, contrarily to the popular opinion that migration is predominantly a northern phenomenon, current survey reveal that it is more of a southern phenomenon. This is because only 10% of all internal migrants are from the three northern regions Of Ghana (Upper East region, Upper West region and Northern region) whilst Ashanti region alone account for 34 %. For the particular case of the Northern region, only 0.03% of its population are internal migrants (Ackah and Medvedev, 2010).

This notwithstanding, “Kaya Yoo” or “Paa oo Paa” is a predominantly northern region migration phenomenon. They are Ghanaian terms for the self employed business of head portorage or head carriers who are mainly young girls. Their cities of destination are usually Accra and Kumasi. The business is carried out in the big market centres of these cities. Such markets include the “Agbogbloshi” and “Malata” markets in Accra and the “Kejetia” market in Kumasi. One does not lose sight of them on every visit to the market place.

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<sup>5</sup> I limit “south” to the Ashanti and Brong Ahafo regions only, as the Geest *et al’s* study showed a different result for Accra, which is also in the southern sector of Ghana.



They carry anything that a potential customer considers too heavy to handle by him or herself. These include foodstuffs such as yams, plantain, cassava and other household wares.

A study by Kwankye *et al* (2007) reveal that about 60% of these “Kaya Yei (plural)” or “Paa oo Paa” girls are from the Northern region of Ghana whilst the Upper East and Upper West regions account for 29.3 % and 10. 7% respectively. This study is organised primarily around this migration phenomenon. Below is a picture of a “paa oo paa” girl carrying the load of a customer at the Kejetia market in Kumasi.

**Figure 8: A Picture of a Migrant in the “paa oo paa” business Carrying the Load of a Customer at the Kejetia Market, Kumasi**



Source: Author (fieldwork, January)

## **2.10 Theoretical Framework**

This section discusses the most important theoretical findings in relation to some assumptions and issues raised in this study. First, it is theorized that perception influences behaviour and attitudes and local perception about the causes of floods will perhaps explain local attitudes

towards disaster preparedness and prevention (Kassim and Brehm, 1993). Within international and national literature, the known causes of floods are climate change, deforestation, throwing of refuse in water bodies, building along water ways and short term disaster response strategies. These known causes will be used to identify local understanding and perception about the causes of flood in the Northern region. The theory will also help determine the extent to which perceived causes translate into attitudes towards disaster prevention and mitigation in the communities under review.

The effects of natural disaster on livelihood are linked to loss of lives, properties and displacement. Loss of lives will be determined by the total number of deaths as related by flood victims and as recorded by NADMO in 2010, loss of properties will be determined by total hectares of productive farms and livestock lost in 2010 and displacement will be measured by the total number of houses rendered uninhabitable by the flood of 2010. Displacement will also be measured by the total number of people rendered homeless by the floods of 2010. In the particular case of the Buipe and Nawuni communities, this will be examined individually and communally through interviews and available official data.

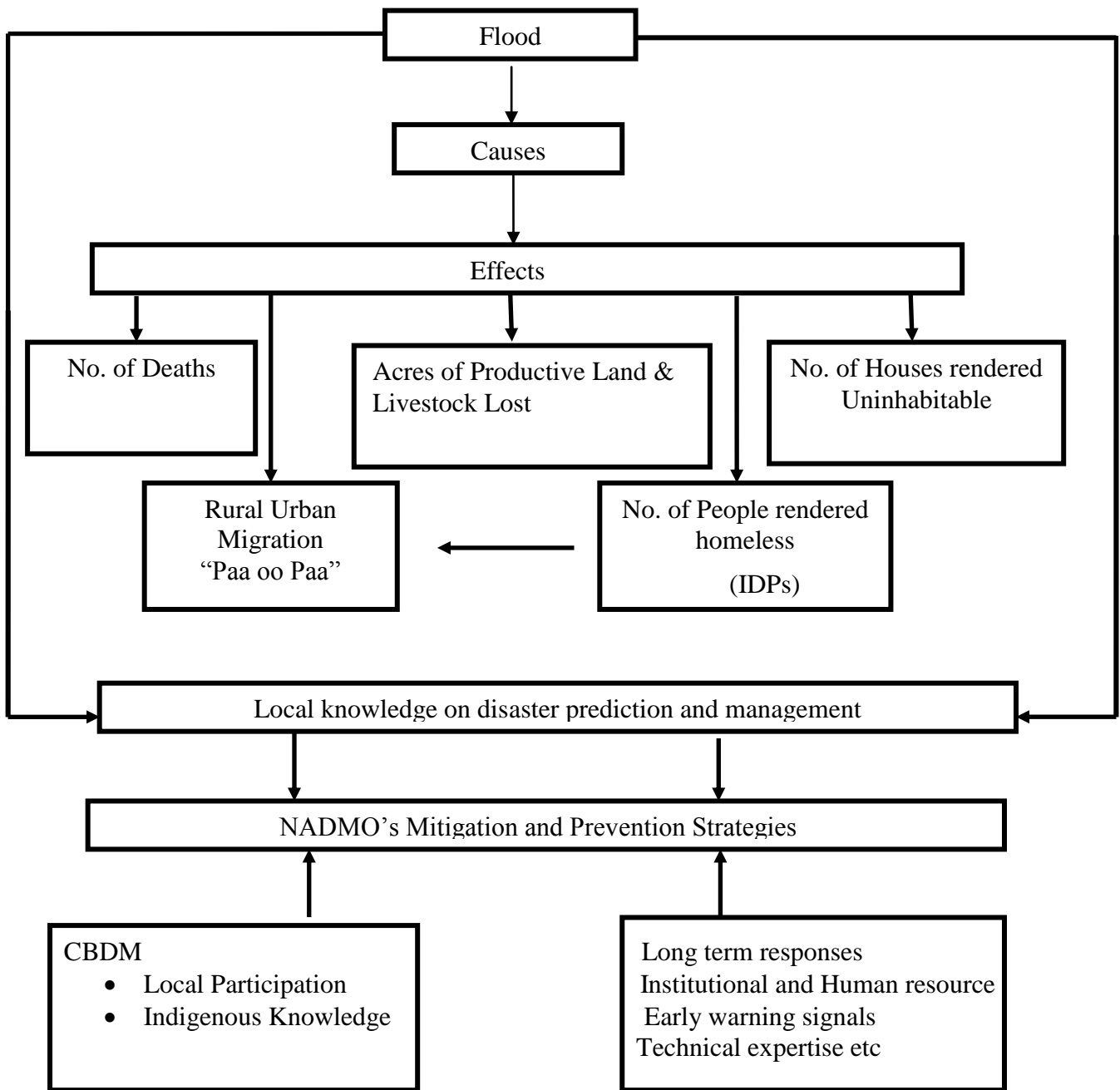
An assessment of NADMO will be done within the UNDP disaster risk reduction programme and the Hyogo Framework for Action (HFA). These support Community Based Disaster Management (CBDM); an approach that places emphasis on local participation and indigenous knowledge in disaster management. This approach has been acclaimed as the most effective and sustainable in environmental and developmental management. NADMO will therefore be evaluated to identify the extent to which communities are involved in the five phases of disaster management namely prevention, mitigation, preparedness, response and recovery.

Long-term preventive responses to natural disaster are considered as more sustainable than short term relief packages. Such preventive measures were discussed in the literature review as the development of the institutional and human resource capacities, early warning signals, availability of technical expertise, citizen education on disaster prevention and enforcement of building polices and afforestation. NADMO will therefore be examined to ascertain the extent to which it meets these indicators.

This study attempts a descriptive comparison between natural disasters and rural urban migration. A similar study was conducted by Hermann and David Savrin (2009) in Bangladesh concerning the reoccurrence of natural disasters and its effect on rural urban drift. In 1998, Bangladesh suffered from one of its worst floods ever in the country's history. Although flooding is quite common during the months of July and August, this particular incidence continued till September. The floods covered a total of 68 percent of the total land area, affecting about one fifth of the country's population and displacing over a million people (Del Ninno *et al*, 2001).

Hermann and David Savrin (2009) assessed the effect of flood on rural urban migration, agricultural development and food crises using text and document analysis. They found that “the principle factor that encourages people to leave their homes in the countryside is the frequent recurrence of natural disaster which undermines agricultural development and cause food crises” (Hermann and David Savrin, 2009: 1). This study will serve as the backbone in determining a similar relationship in the particular case of the Northern region of Ghana. This will be determined through a survey of migrants, mostly called “kaya yoo” or “paa oo paa” from the north now in the south (Kumasi) to explore their views or reasons for leaving their communities of origin.

**Figure 9: Theoretical Framework**



Source: Author

The figure above is a flow chart that illustrates the theoretical framework adopted from the reviewed literature. It also gives a visual impression of how the study will be organised and the data analysed.

## **2.11 Summary of Literature Review**

From the reviewed literature, it is quite clear from the numerous cited studies, articles and peer reviewed journals that natural disasters are really issues of public concern. The literature identified among many other things, the causes, effects, vulnerability, mitigation and preventive responses to natural disasters such as floods. This study will be of relevance to national and international discourse on disaster management as findings on the causes of flood in the study areas will help reinforce what is already known or yet to be known. The identified impact of flood disasters on the livelihood of the people is necessary to formulate pragmatic policies to help the most vulnerable and socially disadvantaged individuals to adapt to the situation. This is because they are at the centre of discourses on sustainable development. Doing this will not only require adaptation but also long term mitigation and preventive responses to flood. This means a seasonal and ad hoc response to flood management may not be an adequate preventive measure. Local participation in disaster management is an acclaim strategy in current development discourse. NADMO's performance in this regard will help determine the extent to which the country is well prepared for natural disasters. An analytical comparison between natural disasters and rural urban migration will assist development actors to take a second look at the environmental implications of natural disasters.

## **CHAPTER THREE: Methodology**

### **3. Introduction**

This chapter presents the strategies, methods and techniques used in the collection and analysis of the data from the field of study. It presents a brief argument on the study of social reality which is rooted in epistemological and ontological considerations. It further discusses and justifies the choice of research strategy in the light of the outstanding debate between quantitative and qualitative studies. The choice of research design is also discussed together with the challenges encountered during the field work.

#### **3. 1 Epistemological and Ontological Considerations**

Knowledge in the social world is constituted within two main paradigms namely epistemology and ontology. Epistemological consideration “concerns itself with what should be regarded as acceptable knowledge” whilst ontological consideration concerns itself with the “nature of social entities” thus to what extent should social entities be considered external or a part of social realities (Bryman, 2008:13, 19). The quest to find answers to social events and an understanding into interaction among social units is motivated by these concerns.

Positivism is an epistemological orientation that holds the view that acceptable knowledge is that which applies a natural science model in the study of social events (Bryman, 2008). Thus for knowledge to be worth its name occurrences must be independent from prejudices and biases based on emotions, social influences and interest. A key point of attention is its frequent emphasis on objectivity which is an ontological consideration and rests on the principle that the study of social entities should be external to social actors including the researcher. This means that the researcher should approach social problems without influencing its outcome in anyway. A quantitative research strategy falls within this paradigm.

The data collection tools for this paradigm (i.e. quantitative research strategy) usually involves some form of structured investigation through the use of questionnaires, surveys, structured interviews and observations. This draws out information from a sample to a bigger population, usually termed as generalization (D’Cruz and Jones, 2004:60). The data produced through this strategy is one that can be quantified and classified using complex mathematical rules and calculation. The researcher, then, gives explanations to the implications of the

numbers generated in relation to the research questions at hand. Based on the foregoing discussion, the data collected from this model is normally said to be “fixed and hard data” (D’Cruz and Jones, 2004:60).

Interpretivism, on the other hand, is an epistemological orientation that holds the view that the subject matter of the natural sciences is fundamentally different from that of the social sciences (Bryman, 2008). Hence, the principles and processes for the study of atoms and molecules in natural sciences when imported into the field of social sciences might cause a major setback. For instance, the main purpose of this study is to understand and offer an explanation to a social phenomenon. This social phenomenon is the research problem (which I presented in the Chapter one as the Problem Statement) that sets out the underlying reasons for the conduct of this study. “Human behaviour” is the subject matter of this research work whilst atoms, molecules and electrons are fundamentally the object of study in the natural sciences. This means that the object of interest (i.e. human beings) in this study is fundamentally different from the objects of interest in the natural sciences. In the light of this outstanding differences between the social and natural sciences, social researchers such as Øyhus (2004) and many other researchers share with me the similar reflection that:

“Within the social sciences human beings are the objects of study. What typifies these objects is that they are simultaneously thinking subjects with their own ideas, beliefs and behaviours. That man is thus both an object of knowledge and a subject that knows<sup>6</sup> have a particular implication for performing social studies in the sense that the researcher directly or indirectly, consciously or unconsciously, communicates with his/her research object.” (Øyhus, 2004)

The above statement seems to say that “atoms” are devoid of emotions but “human behaviour” is “value-laden” (by this I mean humans attach meanings to their actions and those of others). This implies that methodologically, Interpretivism which attempts to understand human experiences, values and action is the best choice for the kind of study I have undertaken. This is because Interpretivism (as against positivism), takes into consideration the very nature of human beings and their behaviour (Bryman 2008, 16).

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<sup>6</sup> Foucault, M., 1973: *The Order of Things*, New York, Pantheon

The ontological position to this paradigm (i.e. Interpretivism,) is Constructionism. It states that humans are the most “variable of all variables”; meaning their behaviour at a particular point in time may not be consistent given other time period. According to Bryman (2008: 19) “constructivism asserts that social phenomenon and their meanings are continually being accomplished by social actors”. This implies that knowledge is in a constant *state of revision* and can be produced through *social interaction*. Hence, the definitive principles that Positivism tries to produce in the case of the natural sciences may not be applicable in this study whose main focus is to offer an explanation to human behaviour at a particular point in time.

A point of interest is that the researcher has the opportunity to present her own version of social reality (this is because knowledge under this paradigm is indeterminate) in addition to the subjective interpretation of the social phenomenon as explained by the respondents (Bryman, 2008). In support of this, Habermas (1972) states that;

“The practical knowledge-constitutive interest is a human cognitive interest in understanding social phenomena through interaction based upon a consensual interpretation of meaning. The underlying goal of the practical interest is to understand the environment, not to formulate rules for controlling and manipulating it, but “so that one is able to interact with it”

The “consensual interpretation of meaning”, “understanding of the environment” and “ability to interact with it” that Habermas (1972) states all specifically refers to the fact that the researcher and the respondent have the opportunity to “present a specific version of social reality, rather than one that could be definitive” of it (Bryman 2008: 19). The version of reality that the researcher presents is one which helps to gain access into “people’s common-sense thinking” and interpret their actions from their point of view (Bryman 2008: 16).

This research work chose Constructionism (as against objectivity), as the way to study social realities and contribute to knowledge. This is because features of Constructionism best suit the social problem being studied in this research work. For instance, since knowledge is indeterminate and there are no definitive rules that govern social behaviour, I have the opportunity to discuss what I gathered from the field of study in accordance with what I saw and heard (i.e. told by the respondents). What I present as my explanation and understanding of the social phenomenon is that which was created together with the eighty (80) respondents



from Buipe, Nawuni, Kumasi and Accra. This means that the findings I present is an interpretation of social events from the point of view of the respondents and may not be definitive of similar situations in other places. Above all, since human behaviour is variable, given other time periods, the explanations given to this social phenomenon might not be applicable. This then indicates that, this study has no interest in generalisation across time and place but rather has the fundamental mission to present a discussion on a particular situation within a particular time and place.

A qualitative research strategy falls within this paradigm. Hence, this field work used key informants, in-depth interviews, participant observation and Focus Group Discussions. This helped the researcher to gain insight into the social interaction of the sample units under study in this research work. By contrast, a quantitative research strategy may, otherwise, not be able to give the needed empathetic understanding into the social interaction under consideration because social reality in quantitative studies is considered external to the researcher and the social actors. However, does this indicate that qualitative research strategies are superior to quantitative studies in the social sciences? The next section explains the latter argument.

### **3.2 Quantitative Vs Qualitative Research Strategy: Can One Claim Superiority Over Another?**

Superiority of any of these research strategies over the other is an ancient and outstanding debate among researchers. August Comte, Emile Durkheim and Max Weber are some early sociological thinkers that have constantly argued over these issues. For instance, Max Weber (1864-1920) coined the term *Verstehen*, meaning the interpretative understanding of social action in order to arrive at a causal explanation of its cause and effects (Bryman 2008:15). According to Weber, this approach to the study of human behaviour in the social sciences would be an added advantage of qualitative studies over quantitative studies.

As earlier on discussed, quantitative studies are said to be more *objective* because social entities are external to the actors. It is against this background that qualitative research strategies have also been discredited as less scientific. However, Emile Durkheim (1858-1917) in his analysis for the study of social facts (i.e. culture, economy, families, suicide etc) said social facts were to be treated as “things”; meaning all “preoccupations were to be

eradicated” (Durkheim 1938:31). This implies that in order to improve the quality of the data collected, I must relegate my bias and prejudices to the background.

The superior method between these two research strategies according to Silverman (2001) cannot be true or false. This implies that what can be deemed as an appropriate research strategy would depend much on the research problem. In a simply parlance, “research problems define the pathway for each research project”. Superiority can, as a result of this, only be determined by looking at each specific case and the most suitable way depends therefore on what you are trying to find out and how you want to approach the problem (Silverman, 2001:4).

A key research question for this study is to identify “why flood victims still live in vulnerable areas during the raining season”. A viable information to explain this social behaviour requires that the researcher learn the personal reasons or motives that shaped this social behaviour through interpretative social science (Bond, 2006). This means that given my research question, there could be no other better option than a qualitative research methodology.

However, it is important to bring to note the shortcomings of this paradigm and its implication on the research findings. According to Anne Ryen (2004),

“We never go to the field with a total open mind as we all are informed (whether we like or not) by what we have learned, seen or done earlier in our lives and also by what we have read. In this way we see through lenses. As researchers then, it is our responsibility to be aware of the lenses we bring to the field, and in our reports we should discuss the implications of this matter to our data and our analysis.....”

The “lenses” that the researcher saw through stemmed from the fact that she was part of the social reality (because I lived among the people for a while and has herself being a flood victim in 1995 in Accra) and findings given may include her own subjective understanding of the situation which is acknowledged not as a limitation but rather a fact that readers should be made aware of.

First, my interaction with flood victims, most of whom were women and subsequent observation of their plight, given their vulnerability, to the flood situation consciously or

unconsciously made them win my empathy. Whilst gender issues are not the centre of attention in this study, it should come as no surprise if more women are presented on the sample list than men.

Additionally, there are personal values which may affect my reportage and presentation of the situation. These were values I learnt throughout my studies in development management key of which is public participation and active citizen engagement in issues that affects them. Given my strong support for these values, any trace of it being sidelined could affect the “word or words” I may use in its description. However, these values can be translated into theories. According to Silverman (2001:3), “without theories framing our understanding there is nothing to do research on”. Hence these “values/theories” were basic to necessitate my quest to investigate into an issue on “why flood victims refused to move into a new housing facility built for it by a local NGO” in Nawuni in the Tolon\Kumbungu district of the Northern region of Ghana.

Finally, neutrality as a principle in Positivism cannot be applied to this study as the findings given are the views and opinions of the eighty (80) respondents and hence may include to some extent a subjective interpretation of the situation.

### **3.3 A Case Study Research Design**

This study used a qualitative research strategy to find answers to the research questions raised. This choice was influenced by the researcher’s quest to “see through the eyes of the people being studied” and access their local knowledge on the causes, effects, vulnerability and mitigation response to natural disasters in Ghana (Bryman 2008:285).

A case study is particularly good for examining the “why” “how” and “what” questions which are particularly typical of this study (Yin, 2003). Case studies offer an opportunity to understand the attitudes, behaviour and experiences of the people within their local setting. Merriam (1988) sees case study as being essentially qualitative, but others such as Yin (2003) support the use of both qualitative and quantitative methods in a case research study if these will enhance it.

### **3. 4 Data Collection Methods**

#### **3.4.1 Semi -Structured Interviews**

Semi - structured interviews were used for flood victims, NADMO officials and migrants now in Kumasi from the two study areas. According to Bryman (2008: 436) “interview is probably the most widely used method in qualitative research”. The use of the semi- structured interview in this study was guided by an *interview guide* that covered fairly the topics that the researcher wanted to study. Additionally, semi-structured interviews were mostly flexible and this gave “the interviewee a great deal of leeway in how to reply” (Bryman, 2008, 438). More importantly, the researcher had the opportunity to pick up and probe further on things said by the interviewees and which were of relevance to the study.

Eighty (80) respondents voluntarily responded to an interview guide that was made up of both open and close ended questions. Sixty (60) of these were flood victims, eight (8) were officials from NADMO, five (5) of them were migrants, four (4) were from relief agencies, a local community chief, an assembly man and the District Chief Executive (DCE) of the central Gonja district.

#### **3.4.2 Focus Group Discussion**

Focus Group Discussion (FGD) was used to identify the perception, attitudes and experiences of the flood victims with regard to the causes and the socio-economic impacts of floods on their lives. The purpose of the Focus Group Discussion was to interact within groups and identify the joint construction of meaning made by the flood victims in reference to the concepts under investigation.

The key informants were very instrumental in gathering the people for the discussions that were held in groups. In Nawuni, a key informant used his role to explain to the people the purpose of the researcher’s visit and some of the questions that I would be asking them. However, in Buipe, the flood victims on their own initiative grouped themselves ready to talk to the researcher. The readiness of the flood victims to talk to the researcher was particularly interesting and this would probably be attributed to the fact that the researcher was perceived by the local people as an “outsider” with social network to help them.

In other to validate the information given by the flood victims, FGDs served as a back up to the personal interviews that were conducted in the course of the study. For this reason it helped the researcher to examine the “collective conscience” or the opinion of a group with regard to their experiences on the effects of the floods, their perception about NADMO as an emergency organisation in their local community and the indigenous knowledge that have proved helpful over the years.

For the purposes of information control, tape recorders and an initial number of eight (8) subjects were engaged in a discussion at a time. Four (4) FGDs were held with two groups of men and two groups of women. Male subjects were grouped separately from female subjects. This was because of cultural factors that support male domination over women and might have prevented the women from been as interactive and expressive as possible.

### **3.4.3 Participant Observation**

Participant observation or ethnography is an important data collection technique used in most qualitative studies. It draws a close relationship between the researcher and the subjects under investigation. According to Bryman (2008: 402), the participant observer or ethnographer, “immerses him or herself in a group for an extended period of time, observing behaviour, listening to what is said in conversations both between others and with the fieldworkers and asking questions”. In this study, the researcher assumed the role of an “observer-as-participant” in which she was mainly an interviewer (Bryman, 2008: 410). There was some observation but very little of it involved participation. This role was very useful in having a firsthand impression of the damage done to houses, livestock and farms due to floods. For NADMO, it was used to find their long term mitigation projects in the selected communities.

### **3.4.4 Text and Document Analysis**

Text and document analysis was a secondary source of data meant to complement primary data gathered through FGDs, semi-structured interviews and participant observation. This was used basically in the literature review and helped to form the theoretical background of the study. This was also particularly helpful in finding, quantitatively, the total number of people rendered homeless by floods in the study areas. Also, text and document analysis helped

explain the relief, mitigation and preventive efforts of other relief agencies involved in disaster management in the study areas.

### **3.5 Sampling Techniques**

For most qualitative studies, purposive sampling technique is used in which subjects are selected based on their relationship with the research question (Bryman, 2008). This study was no exception in this regard. Purposive sampling technique was used to sample some staff of NADMO and flood victims. An initial contact with some staff of NADMO also led to contact with other individuals whose views and opinions were of interest to the study. This latter technique is called Snow ball sampling.

According to Bryman (2008: 185) there is a much better “fit” between snowball sampling and qualitative research strategy because it generates a non-probability and non-representative sample of the general population under perspective. Snow ball sampling is particularly a convenient sampling method when “no one knows the nature of the universe from which the sample would be drawn” (Becker 1963: 46).

The migrants from Nawuni and Buipe who are engaged in the “paa oo paa” business in Kumasi were sampled using snow ball sampling technique. Snowball sampling technique was used because the true nature of the general population of migrants in Kumasi and who are from Buipe and Nawuni specifically is unknown. In Buipe, the contact information of flood victims who have left home were taken and subsequently contacted for further information on this subject. In Kumasi, a contact with a migrant led to yet another migrant who was interested in taking part in the study.

#### **3.5.1 Sampling frame**

This is a summary list of the respondents who were engaged in discussion during the field work.

- NADMO officials
- Red Cross Society of Ghana
- United Nations Organization for the Co-ordination of Humanitarian Affairs-OCHA
- United Nations International Organization for Migration-IOM
- Local Community Chief (from Nawuni)

- An Assemblyman (from Buipe)
- The District Chief Executive (from Central Gonja)
- Flood victims
- Migrants

### 3.6 Data Analysis

Many qualitative studies are said to generate theories that explains a particular social phenomenon. This is the *Inductive Approach*. Quantitative studies, on the other hand, are said to test theories which is called the *Deductive Approach* (Bryman, 2008). However, current studies indicate that there exists possibility for contemporary qualitative studies to test rather than to deduce theories (Bryman, 2008). According to Silverman (1993:24), a depiction of qualitative research strategy as one which only produces theory is “out of tune with the greater sophistication of contemporary field research design ...born out of greater concern with issues of reliability and validity”. Therefore the data analysis of this study explains social happenings in the light of the theories raised in the literature review and theoretical framework of findings.

Bryman (2008) proposes two steps in data processing and analysis. They are indexing or coding the data and reflecting and interpreting the data. A similar but more detailed approach for analysing qualitative data is provided by Bond (2006). He proposes three iterative stages namely; data description, classification and connection.

*Description* simply involves the portrayal of data in the form that can be analysed, usually in a raw textual format (Bond, 2006). In order to do this, interviews were transcribed verbatim into English. In addition, observational notes were written in the form of a research diary.

*Classification* entails “sifting and sorting” data into meaningful set (Bond, 2006:43). The researcher developed a coding system for the data. The use of coding helped to classify or organize data into thematic labels that helped me appreciate the relationship among concepts under consideration (Bryman, 2008). *Connection* “involves analysing the interconnections between different types of data” (Bond, 2006:43). By contemplating on what was revealed in the data, a plausible set of explanations and meanings were made.

### 3.7 Ethical Considerations

Ethical principles, from a common sense definition of the term, are norms of conducts that distinguish between acceptable and unacceptable behaviour. The “acceptable behaviour” is the written or unwritten standards that govern any discipline or working profession. Social research, both as a discipline and as a working profession, has its own distinguished standards of behaviour that governs its conduct. These standards include harm to participants, confidentiality, anonymity, voluntary participation and informed consent (Bryman, 2008).

A consideration of these ethical issues in this social research work is important because it ensures the integrity of the researcher and the quality of the data collected. For this fact, the Economic and Social Research Committee (ESRC) *Research Ethics Framework* states that social research must be “designed, reviewed and undertaken in a way that ensures its integrity and quality”. The criteria for assessing the quality and integrity of qualitative research studies must include “evidence of consideration of ethical issues” and this is what this study have tried to do in this section (Spencer et al, 2003 in Bryman 2008: 125).

A key ethical issue that this study was beset with (and which the researcher anticipated) was the possibility of an emotional harm to the participants. The British Sociological Association (BSA) *Statement of Ethical Practice* requires researchers to “anticipate, and to guard against, consequences for research participants which can be predicted to be harmful and to consider the possibility that research experience may be a disturbing one”. Some of the questions asked from the interview guide were rather sensitive, personal and elicited an emotional response. Typical of this was “Did anyone die in the family due to the flood situation”, “Did the flood render your house uninhabitable” and “How did the flood affect your personal belonging”. Some of the flood victims answered these questions almost in tears as they recounted how the floods have affected their livelihood. In order to manage this issue, the researcher gave the needed counselling or discontinued the discussion.

The second ethical dilemma that confronted this study was voluntary participation based on adequate information supplied by the researcher and an understanding of the ethical issues by the prospective respondent. The Social Research Association (SRA) states that “Sociologists have a responsibility to duly inform their subject of their entitlement to refuse at any stage for whatever reason and to withdraw data supplied” (Bryman 2008: 121). In other words, the participation of potential subjects in any given study is strictly voluntary and their refusal to



participate must not affect them in anyway. Accordingly, an informed consent form, which explained the objectives, the research intervention and voluntarism among others, was drafted by the researcher and given to many (with the exception of five (5) respondents which was due to time limit) prospective participants of the study.

The informed consent form was also thoroughly read to those who could not read and in some instances; the researcher had to translate it into a local dialect. Each of the prospective participants was to either sign or thumbprint the document<sup>7</sup>, which indicated that their participation was informed and voluntary. However, in many instances, verbal consent was rather granted by most of the respondents.

The key ethical issue herein is that most of the flood victims agreed to participate in this study without really understanding the ethical issues involved or the information given by the researcher. For some, their participation was motivated by the fact that they saw a neighbour, friend or relative being interviewed. Others were also willing to be interviewed because they thought it was a government or an agency's registration exercise to bring them relief items. The latter was very predominate because many of the rural folks perceive themselves as poor people, sidelined developmentally and whose unfortunate circumstances have been further worsened by the flood situation. It is common to hear a dialogue such as this between some of the local people and the researcher;

**A:** where did u say you come from?

**Researcher:** I am from Kumasi and a student of Agder University of Norway.

**A:** so how is Ghana?

**Researcher:** Why? Is this community not part of Ghana?

**A (laughs):** It is but you people come from the cities where there are bright lights, job opportunities, good schools, good roads, hospitals and others. We are far away from you.

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<sup>7</sup>Check the Appendix 1 for the Informed Consent form.

The above responses from some of the respondents betrayed the perception they held about the researcher as a Ghanaian student in Norway and from the south (Kumasi). My role as the researcher was thus overshadowed by the fact that I was a southerner; whom many of the local people linked with affluence and opportunities. Given this apparent developmental differences between the southern and northern Ghana, many of the respondents perceived that any association with the researcher would lead to returns in terms of reconstruction of their collapsed structures and other privileges. By implication, most of the local people did not really understand the purpose of my study or my role as a researcher. They (i.e. the local people) had their own expectations which the researcher really had little or no capacity to fulfil. This latter ethical issue led to yet another ethical dilemma that challenged this field work; deception and uneven distribution of research benefits between the researcher and the researched.

To recall, the expectations of the respondents were that which the researcher is unable to fulfil and can be counted as deception on the part of the researcher by the respondents (even though the researcher explained from the onset that this study does not promise gifts in return for the information given). Similarly, the benefits of a research work to the researcher can be easily calculated. In my case, when successfully completed, I would be awarded a MSc. in Development Management from University of Agder. However, whether or not the government or the international community would respond to the findings of this report and help the flood victims is an uncertain hope. This means that the benefits of this research work to the flood victims either in the short or long-run cannot easily be calculated. This is an ethical issue because research benefits must be shared equally with the people to whom the information belongs. Although, the local people are partners in the development of this report, the benefit thereof becomes asymmetrical.

The final ethical issue that this research work had to manage was the confidentiality and anonymity of the research respondents. A concern over ethical principles on privacy and confidentiality was necessitated by the fact that ethical challenges arises more in qualitative studies such as this than in quantitative research. This is because in quantitative studies it is relatively easy to make records anonymous and to report findings in ways that may not allow the respondents to be identified. Whilst in qualitative studies, interview transcripts and voice

recordings makes it relatively easier to identify the respondents and the places from which they speak.

The BSA maintains the need to respect the privacy of respondents by keeping as confidential and anonymous information given by respondents irrespective of the methodological approach used by a researcher. In accordance with this, interviews in this research work were identified by codes and not by the personal names of the respondents. However, in this field report, consciously or unconsciously, it may be easy for one to identify some of the respondents and the places from which they speak. This is in breach of the ethical principle on confidentiality and anonymity of respondents.

### **3.8 Challenges in the Field**

The challenges encountered in the field are organised around the four key areas in which both primary and secondary sources of data were collected.

*Nawuni and Buipe:* a key challenge faced by the researcher was language barrier. In some instances the respondents spoke the Gonja language which the researcher did not understand. Although the researcher used local personnel to help in translation, it cannot be denied that misinterpretation of views occurred in some instances.

Additionally, some respondents exaggerated the problems they were going through due to the floods. Perhaps, they mistook the researcher as a relief agent who is assessing damage and subsequent release of relief items. Furthermore, the researcher, occasionally, received calls from individuals requesting for assistance. In order to help solve the problem of misrepresentation of the researcher, time was taken to explain to the flood victims that the researcher was just a student and had no contact with any humanitarian aid organisation.

Some NADMO officials at a particular point in time were less willing to give me information for the fear that I was a journalist who was seeking vital information to implicate them (that they were not doing their job properly) and the ruling government. In order to win the trust

and confidence of these officials, the researcher reminded them that the study was for academic purposes only and has no intention of implicating neither NADMO officials nor the ruling government.

Budgetary constraints arose in that data was collected in areas which required much investment in transportation, time and accommodation. For this reason, one of the initial study areas (i.e. Yagaba) had to be changed in order to make room for budgetary allocation.

In Buipe, there was an outstanding chieftaincy dispute at the time of the field work. This made it a challenge to engage the local community chief in an interaction concerning the perennial flood situation. This meant substituting the local chief with the Assembly man, who is the local political authority in the area.

*Kumasi:* Many of the migrants were less willing to talk to me and would even run away from me because of fear of exposing them to the media or a possible exploitation of them (in some occasions individuals whom these “paa or paa” girls have granted interview have used their situation to seek external aid but the benefits thereof are never been realised by the them). Some of the migrants were also less willing to lead me to other friends who come from the two study areas. In some instances, the telephone numbers given me of some migrants were not useful as I could not contact those whom I wanted to speak to.

In Buipe, Nawuni and Kumasi the questions on the interview guide had to be translated into Twi. There exist some words in English whose equivalent is difficult to express in Twi unless explained (e.g. “Do you think NADMO’s response to flood has in any way contributed to the annual flooding situation of this community”). An attempt by the researcher to explain these in the local dialect had the tendency of displaying the researcher’s own biases which may have influence the outcome of the information given by the respondents. Hence, bias and personal introspection could influence the objectivity of this research’s findings.

*Accra:* Most of the high ranking relief agencies operating in the north have their head offices located in this city. Frequent postponement of interview dates made it quit troubling and frustrating to collect data from particularly UNDP officials.

## **CHAPTER FOUR: Presentation and Discussion of Findings**

### **4. Introduction**

The main purpose of this chapter is to present and discuss findings from the fieldwork. The discussion of the research findings is done in the light of the literature review presented on disaster management and its inter-related issues. These findings are based on what was gathered from the eighty (80) interviewees of which include flood victims, key informants, migrants, officials from relief agencies (i.e. OCHA, IOM and Red Cross Society of Ghana), NADMO, community chief, local assembly man and the District Chief Executive (DCE).

First, this chapter presents the demographic characteristics of the flood victims and the migrants. Given that most of the variables in this study are categorical or nominal variables, frequency tables are used as diagrammatical aids to present and analyze the data. Statistical Package for Social Sciences (SPSS) was useful in generating the frequencies needed to analyze the demographic characteristics of the respondents.

Secondly, the findings and analyses are presented in relation to the research questions and objectives which were illustrated in the flowchart in the theoretical framework of Chapter Two. Where necessary, sub-sections are created to aid organisation of the material presented. To recall, the research questions were;

1. What are the main causes and effects of persistent flooding as perceived by flood victims and NADMO?
2. What are the mitigation and preventive responses to floods as applied by NADMO?
3. What perceptions are held by victims of flood with regard to NADMO's operations in flood situations?
4. To what extent do the perennial floods in the Northern region contribute to rural urban migration?
5. To what extent does the disaster management strategy of NADMO make use of indigenous knowledge and already existing local social structures like women groups, local NGOs and religious groups?

## **4.1 Demographic Characteristics of the Respondents**

In any research work, sufficient personal information of respondents is necessary to inform readers of the sort of people from whom primary data was collected. These include the age, sex, education, occupation, marital status, the number of dependents, the years of residence in the communities under study and the religious affiliation.

## **4.2 Flood Victims**

The total number of flood victims from the two communities (Buipe and Nawuni) engaged in the study was sixty (60). With no particular sampling formulae, fifty-three (53) were from Buipe whilst seven (7) were from Nawuni. The disparity in the sampling distribution was necessitated by the fact that in Buipe, flood victims, at the time of the study, were still at displacement camps whilst in Nawuni they were scattered across the community (most of whom have either gone farming or fishing)

### **4.2.1 Flood Victims: Sex**

A total number of eighteen (18) males and (42) females respondents were involved in the study. The male respondents formed 30% of the total number of flood victims whilst the female formed 70%. This gender disparity is in no way based on any biased assumptions about gender equalities or inequalities. Buipe and the Nawuni communities are male dominated households, but, at the time of the interview more females were present at either the camps or homes. Most of the men were out fishing or farming whilst the women were at home taking care of the children and other household chores. It is, however, interesting to note that some family heads invited their wives to be present at the interview. This information is presented in the Table 3, below.

The above information on the sex composition of the flood victims correspondingly reflects the sex composition of the general population in Nawuni and Buipe. According to the Ghana Statistical Service (2005) Nawuni has a total citizen population size of 529 with 264 males and 265 females whilst Buipe has a total citizen population size of 5692 with 2734 males and 2958 females. This means that even in the general population of the two communities there are more females than males.

**Table 3: Flood Victims: Sex**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	18	30.0	30.0	30.0
Female	42	70.0	70.0	100.0
Total	60	100.0	100.0	

Source: Author (fieldwork, January 2011)

**4.2.2 Flood Victims: Age**

The research findings indicate that majority of the flood victims were above 56 years whilst the least age among the flood victims was between (16-25) years. For no special reason, no one below 15 years of age was interviewed. The age bracket, (36-45), was the second highest category of victims represented on this sample with a total number of fifteen (15) people whilst eleven (11) of these flood victims were between the ages of (46-55) years. This indicates that most of the respondents were adults (i.e. matured ones) who have gained considerable experience over time and are fully aware of their environment and the social interactions within it. This information is presented in the Table 4.

Interestingly, the age composition of the sample of flood victims does not reflect the age composition of the general population in the northern region of Ghana (where Buipe and Nawuni are located). This could be due to differences in sampling procedure. This study used a non-representative and non-probability sampling method (i.e. purposive sampling technique) to arrive at the sample of flood victims. This means that it could not generate a truly representative sample of the general population in terms of its age composition. For instance, the statistics given below indicates that a higher percentage of the flood victims are above 56 years (i.e. 30%), however, official statistics reveal that only 4.5 % of the population is above 65 years (ghananation.com, 2011). More importantly, official statistics also indicates that a higher percentage of the age composition of the districts in the northern region (with the exception of the Tamale municipality) are below 15 years, (i.e. 46.2%), and 8% -10.5% are within the ages brackets of (15-19) years (ghananation.com, 2011). This means that the

general population is quite a young one. This is in direct contrast to the information presented in Table 4 below in which quite a higher number of the flood victims are adults and just a few are young ones. Nevertheless, information from both the sample and the general population could help in drawing out the implication of the perennial flood situation on both the young and adult population groups.

**Table 4: Flood Victims: Age Composition**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 16-25	7	11.7	11.7	11.7
26-35	9	15.0	15.0	26.7
36-45	15	25.0	25.0	51.7
46-55	11	18.3	18.3	70.0
56-above	18	30.0	30.0	100.0
Total	60	100.0	100.0	

Source: Author (fieldwork, January 2011)

#### **4.2.3 Flood Victims: Duration of Stay in the Community**

The available information from the fieldwork indicates that fifteen (15) of the flood victims representing 25% of the total number of flood victims have since birth stayed in the Buipe and Nawuni communities. This is particularly helpful to the researcher and the research findings because many of them can relate experiences over time with respect to the frequent flood situation. Seven (7) of the flood victims, representing 11.7%, have lived in Buipe and Nawuni for about (1-5) years, whilst eleven (11) of them, representing 18.3%, have lived in these communities for about (6 -10) years. Eight (8) of the flood victims, representing 13.3%, have lived in the communities for the past (11-15) years whilst six (6) of the flood victims, representing 10%, have lived in the communities for (16 -20) years. Nine (9) of the flood victims, representing 15%, have lived there for about (21-25) years and four (4) of the flood victims, representing 6.7% , have lived in these communities for about 26 years and above. This information indicates that none of the flood victims (as far as this study and the sample concerned) is a “stranger” or “novice” in these communities. For the purposes of visual comprehension, this information is presented in the Table 5 below.



**Table 5: Flood Victims: Duration of Stay in the Communities**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Since birth	15	25.0	25.0	25.0
1-5	7	11.7	11.7	36.7
6-10	11	18.3	18.3	55.0
11-15	8	13.3	13.3	68.3
16-20	6	10.0	10.0	78.3
21-25	9	15.0	15.0	93.3
26- above	4	6.7	6.7	100.0
Total	60	100.0	100.0	

Source: Author (fieldwork, January 2011)

**4.2.4 Flood Victims: Occupation**

In order to determine the effect of the frequent flood situation on the livelihood of the affected communities, the occupational background of the flood victims was assessed. The most common forms of occupation were farming, fishing, trading and cattle rearing. However, their representation was not even. The highest occupational category was traders who were twenty-seven (27) and accounted for 45% of the total number of flood victims whilst eighteen (18) of them were farmers, accounting for 30%. Six (6) were fishermen and this represented 10% and three (3) were students and this accounted for 5% of the total number of flood victims. Only one (1) respondent was a herdsman and this accounted for 1.7%. This information is presented in the Table 6 below.

The information above suggests that the agricultural sector employs a greater proportion of the flood victims engaged in this study. For instance, twenty – five (25) of them were either farmers, fishermen or herdsman whilst some of the traders involved in this study were sellers of agricultural products such as yam, maize and smoked fish. According to report from the Ghana Statistical Service (2005), agriculture accounts for the employment of 71.2% of the economically active population of the northern region (check the geographical map on Page 6 of this report). This implies that the dominant occupation of the sample of flood victims is reflective of the general occupation in the Buipe and Nawuni communities of the northern region of Ghana.

**Table 6: Flood Victims: Occupation**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Farmer	18	30.0	30.0	30.0
Fisherman	6	10.0	10.0	40.0
Trader	27	45.0	45.0	85.0
Herdsman	1	1.7	1.7	86.7
Students	3	5.0	5.0	91.7
Any other	5	8.3	8.3	100.0
Total	60	100.0	100.0	

Source: Author (fieldwork, January, 2011)

From the table above it can be realized that most of the sample of flood victims are traders. Perhaps, this could be a function of the sex composition of the respondents represented in this study. To recall, females formed about 70% of the respondents in the study and in the Buipe and Nawuni communities most women are into petty trading of farm produce such as maize. Given the differences in occupation, some of the respondents understanding of the impact of the frequent flood situation may be different from others. The portion designated as “any other” was made up of “a head teacher”, “mallam” (i.e. the traditional term for a man knowledgeable about the teachings of Islam), seamstress (i.e. dressmaker) and the “not employed”.

#### **4.2.5 Flood Victims: Education**

Assessing the educational background of the flood victims was necessary to determine the kind of interpretation the flood victims could give to the social phenomenon under consideration. It is interesting to note that fifty-seven (57) of the flood victims have never been to school and this represents 95% of the total number of flood victims. Whilst just three (3) of them, representing 5% were within the category of a junior high school student, an undergraduate and a graduate. The low level of education among the flood victims is not surprising as in the general population quite a greater proportion of the people in the northern region also have low educational levels. For instance, in the northern region, 72.3% of people six (6) years and above have never been to school (ghananation.com, 2011).

**Table 7: Flood Victims: Education**

	Frequency	Percent	Valid Percent	Cumulative Percent
Never been to School	57	95	95	95
Junior High School	1	1.66	1.66	96.66
Undergraduate	1	1.66	1.66	98.32
Graduate	1	1.66	1.66	100
Total	60	100	100	

Source: Author (fieldwork, January 2011)

**4.2.6 Flood Victims: Marital Status and Number of Dependents**

The institution of marriage is an old one that in many respects determines a person’s status in society, the societal expectations and family obligations. For instance, it is expected that married couples together with their children (within some African traditional context) must live in the same household. The husband is primarily the care provider of the family. A man who is unable to provide shelter for his family is considered a failure and less of a man. Hence, a consideration of the marital status of the flood victims is particularly important as it gives the researcher the opportunity to know the people’s interpretation of their experiences in relation to the effect of the frequent flood situation on their families and marriages.

In accordance with this, 47 of the respondents, representing 78.3%, were married (6 of the flood victims were husbands whilst 41 of them were wives). Three (3) of the flood victims were single, who have never married, whilst another three (3) were divorced. Each of these represents 5% of the total number of flood victims. Those with either partner dead were 7, representing 11.7% of the total number of flood victims. This in effect means that the married were 78.3% whilst the unmarried were 21.7 % ( I combined the percentages for single, divorced and widow(er)). This information is presented in the frequency table below.

**Table 8: Marital Status**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Married	47	78.3	78.3	78.3
Single	3	5.0	5.0	83.3
Divorce	3	5.0	5.0	88.3
Widow(er)	7	11.7	11.7	100.0
Total	60	100.0	100.0	

Source: Author (fieldwork, January, 2011)

However, majority of the respondents had dependents, representing 96.7% of the total number of flood victims (Check Table 9 below). Some of the dependents of the flood victims were either their biological children or distant relatives, nieces and nephews that are currently living with them. Below is an experience of a seamstress in the Buipe community who lives with the children of her death sister;

“I live with my kids and the children of my dead sister. I am physically challenged and survive on making dresses for people. The floods destroyed the cloths and materials of my clients. I had to replace them and this has virtually left me with nothing to care for these children who are much dependent on me...” (Personal Interview 13.01.11)

The above research finding could be incomplete without presenting the corresponding number of dependents living with the flood victims. This information is important as it could help determine how the frequent flood situation has directly or indirectly affected others such as children and other distant relatives. This information is also presented in Table 10 below.

**Table 9: The Number of Flood Victims with Dependents**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid None	2	3.3	3.3	3.3
Yes	58	96.7	96.7	100.0
Total	60	100.0	100.0	

Source: Author (fieldwork, January, 2011)

From Table 10 below it can be realized that a greater proportion of the flood victims, thus 50% of them, have between (6-10) dependents, 45% of them have between (1-5) dependents and 1.7% have between (11-15) dependents. This information reflects the nature of the general population in these communities as the northern region has a young population with about 46.2% under 15 years of age and 8%-10.5% between (15-19) years (ghananation.com, 2011). This means that greater proportions of the population are children and teenagers and as such are much dependent on their families for survival.

**Table 10: The Number of Dependents Living with the Flood Victims**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 5 and below	27	45.0	46.6	46.6
6-10	30	50.0	51.7	98.3
11-15	1	1.7	1.7	100.0
Total	58	96.7	100.0	
Missing System	2	3.3		
Total	60	100.0		

Source: Author, (fieldwork, January, 2011)

#### **4.2.7 Flood Victims: Proximity of Buildings to the Black\White Volta**

The communities under study are located near the White or Black Volta. For instance, Buipe in the central Gonja district is located between the Black and White Volta whilst Nawuni is near the Black Volta. Three categories of possible responses from the flood victims were created in order to identify the proximity of their buildings to the water bodies. These are;

- Close distance to the White\Black Volta (less than 5 minutes walk from the river)
- Medium distance from the White\Black Volta (i.e. about 5-30 minutes walk from the river)
- Longer distance from the White\Black Volta ( between 30 minutes and an hour walk from the river )

The responses show that forty (40) of the flood victims, representing 66.7%, live within medium distance (5-30 minutes walk) from the river, whilst eleven (11) of the flood victims, representing 18.3%, live at close distance to the White or Black Volta. Nine (9) of the flood victims, representing 15%, had their houses located within 30 minutes and an hour walk from the Black or White Volta<sup>8</sup>. This information is presented in the table below.

**Table 11: Flood Victims: Proximity of Building from the Black\White Volta**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Close distance to the White\Black volta	11	18.3	18.3	18.3
Meduim distance from the White\Black Volta	40	66.7	66.7	85.0
Longer distance from the White\Black Volta	9	15.0	15.0	100.0
Total	60	100.0	100.0	

Source: Author (fieldwork, January 2011)

#### 4.2.8 Flood Victims: Type of Building

The local housing structures in these communities were also found out to be in four main categories. They are;

- Mud house with thatch or palm as roof
- Mud house with aluminum (i.e. corrugated roofing sheets ) as roof
- Cement house with thatch or palm as roof
- Cement house with aluminum (i.e. corrugated roofing sheets )as roof

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<sup>8</sup> Distance in this study was measured in time because most Ghanaians are more conversant with measurement of distance in time than in space.

Flood victims living in mud houses with thatch or palm as roof were the most common, representing 48.3%, whilst those who live in mud houses with aluminum roofs represented 38.3% of the total number of flood victims. Only 5% of the flood victims lived in houses built with cement with thatch or palm as roof, whilst 8.3% lived in cement houses with aluminum as roof. This information is presented in the table below.

**Table 12: Flood Victims: Type of Building**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Mud house thatch\palm roof	29	48.3	48.3	48.3
Mud house\aluminium roof	23	38.3	38.3	86.7
Cement house thatch\palm roof	3	5.0	5.0	91.7
Cement house\aluminium roof	5	8.3	8.3	100.0
Total	60	100.0	100.0	

Source: Author (fieldwork, January 2011)

By implication, this statistics indicates that 86.6% (this calculation was derived from the sum of flood victims who lived in mud houses i.e. 48.3% and 38.3%) of the flood victims live in mud houses which are usually less able to withstand the frequent flood situation whilst 13.3% live in cement houses which in most cases do not collapse due to the flood waters but are rather rendered uninhabitable because of stagnant waters or ripped roof. More so, the statistics above also indicates that 53.3% (i.e. the sum 48.3% and 5%) of the flood victims lived in houses with thatch or palm leaves as roof whilst 46.6% (i.e. the sum of 38.3% and 8.3%) live in houses with corrugated aluminum roofing sheets as roof.

The information above is reflective of the general housing type of communities in the northern region (with the exception of Tamale). For instance, according to the 2000 Population and Housing Census report, 82.6% of the houses in rural communities of the northern region are built with mud whilst 60.3% of these houses have thatch or palm leaves as roof (Ghana Statistical Service, 2005). This means that generally the predominant housing

types in the northern region of Ghana are vulnerable to the changing weather conditions been observed globally. Below is a picture of the key housing structures in the Buipe and Nawuni communities.

**Figure 10: A Picture of A Mud House with Thatch Roof (x) and A Cement House with Aluminium Roof (y)**



Photo: Author (fieldwork, January 2011)

#### **4.2.9 Flood Victims: Religion**

Religion is a set of “beliefs concerning the cause, nature and purpose of the universe...usually involving devotional and ritual observances and often containing a moral code governing the conduct of human affairs” (dictionary. com, 2011). According to information from the ghananation.com (2011), the most predominant religion practiced in the northern region is Islam which constitutes 56.2%. The traditional religion constitutes 21.3% of the total population whilst 19.3% practice the Christian faith. An assessment of the religious belief system of the flood victims is necessary to gain an insight into how a person’s religious beliefs can influence his\her understanding of the causes of the perennial flood situation. By observation, I saw most of the flood victims in Buipe and Nawuni with religious regalia that suggested that they were Muslims. Also there were others whose occupation revealed the kind



of religion they practice. For instance, an individual who is a “mallam” is likely to be a Muslim (Check the section under occupation: pg 54).

### **4.3 Migrants**

Migration within a common sense understanding of the term is the movement of people from one geographical area to another. Rural –urban migration then is the movement of individuals from one community to destinations that are thought of as having both social and economic prospects. In the past, rural-urban migration from the north to southern Ghana was a seasonal migration phenomenon in which mostly male adults moved together with their dependents to take advantage of the opportunities that existed in the mining and cocoa-growing south (Kwankye *et al*, 2007). However, evidences from a study by Riisøen, Hatløy and Bjerkan (2004) shows that in contemporary times migration from the north to southern Ghana is no longer seasonal but rather all year round and mostly involves young girls who have *independently* decided to leave home for job opportunities in the south. The use of the word “independently” by Riisøen, Hatløy and Bjerkan (2004) connotes the idea that most of these young girls may have left home (for the south) without parental consent.

This study considers a migration phenomenon that involves the movement of mostly young girls from the northern regions of Ghana to the southern regions in search of greener pastures in the head portering business (popularly called “paa oo paa” in Kumasi and “kaya yoo” in Accra). According to the study by Kwankye *et al* (2007) the movement of these “paa oo paa” or “kaya yoo” girls to the south is usually in response to the developmental differences that exist between southern and northern Ghana (Kwankye *et al*, 2007).

An inference from the foregoing discussion indicates that this study considers a migration phenomenon that is internal (that is why I call them migrants), occurs all year round and involves mostly young girls, who may have *independently* decided to leave home. Some of these migrants are permanent residents of their current destinations either in Accra, Kumasi or Takoradi whilst others leave for their communities of origin after they have achieved their stated purposes in the southern cities. The southern city that this study limited itself to was Kumasi in the Ashanti region of Ghana. In this city, most of these “paa oo paa” girls can be found in the Kejetia market at Adum, Kumasi.

Five (5) of the migrants were involved in this study, all of which were females. As shown by previous studies, most of the migrants in the “paa oo paa” business are females and based on convenient sampling methods, the females were those I readily came into contact with. Four (4) of them were between the ages of (16-25) years whilst one (1) was between the ages of (26-35) years. Two (2) of them were married with a child each whilst the remaining three (3) were singles who have never been married. This information is presented in the tables below.

**Table 13: Migrants: Age**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
16-25	4	80	80	80
26-35	1	20	20	100
Total	5	100	100	100.0

Source (Author, fieldwork, January 2011)

**Table 14: Migrants: Marital Status**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Married	2	40	40	40
Single	3	60	60	60
Total	5	100	100	100.0

Source (Author, fieldwork, January 2011)

With regard to their educational background, four (4) of them have never been to school whilst one (1) is a primary school leaver. Before leaving their communities of origin, three (3) of them were unemployed whilst one (1) was engaged in farming and the other in trading.

Four (4) of them said they came to Kumasi during the raining season whilst one (1) said she came during the dry season. The number of years spent in the “paa oo paa” business among the five (5) migrants was within the range of (1-4) years with an average of a year and 8 months each. The tables below illustrate the socio-economic characteristics of the migrants given above.

**Table 15: Migrants: Level of Education**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Never been to school	4	80	80	80
Primary school leaver	1	20	20	20
Total	5	100	100	100.0

Source: Author (fieldwork, January 2011)

**Table 16: Migrants: Occupation before leaving their Communities of Origin**

	Frequency	Percent	Valid Percent	Cumulative Percent
Not employed	3	60	60	60
Farmer	1	20	20	80
Trader	1	20	20	100
Total	5	100	100	100

Source: Author (fieldwork, January 2011)

**Table 17: Migrants: Season in which they left their Communities of Origin**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Raining Season	4	80	80	80
Dry Season	1	20	20	20
Total	5	100	100	100.0

Source: Author (fieldwork, January 2011)

**4.4 Causes of the Frequent Flood Situation**

The causes of the frequent flood situation in the Buipe and Nawuni communities are complex and involve an interaction of other related factors. This section discusses the identified causes of the frequent flood situation and tries to examine the relationship that exists among them. The responses from the fieldwork indicate that the causes of the frequent flood situation can be categorised into eight (8) main factors. These are:

- The topography of the area
- Excess water from the seasonal rainfall pattern
- The silted nature of the river bed
- Opening of the Bagre and the Kampainga Dams in Burkina Faso
- Proximity to the White and Black Volta
- Sand winning
- Population growth
- Building along water ways
- Climate change
- God

**4.4.1 Topography**

According to the head of the Humanitarian Support Unit of UN-OCHA in Ghana, the low lying nature of some areas in the Northern region makes them more susceptible to flooding. She further explained, given that these communities are located almost within valleys, it

would not be uncommon to have excess water that usually stagnate (or stand still) in homes, farms and other places. UN- OCHA has been in operation in Ghana for just some few years, but she reported that cases of flooded areas either in northern or southern parts of Ghana are normally related to communities located within low-lying areas. “The communities located upland are never really affected”, she said (Personal interview: 16.12.11). The Nawuni chief (or Nawuni-Na) reiterated this fact when he said that the “Battu” men (a fishing community) in Nawuni are most affected by the seasonal rain waters because they live in low lying areas (Personal interview: 07.01.11).

#### **4.4.2 Silted Nature of the River**

The Deputy Chief Disaster Officer of the Tamale regional office of NADMO is, however, of the view that the frequent flood situation in these communities is the result of the silted nature of the river bed. He said that Nawuni and Buipe are located near the White and the Black Volta which has high volumes of sand in them. This makes the river bed shallow and unable to hold the increasing water volume from excess water due to the seasonal rainfall. The sand, he said, comes from the running waters from high lands such as neighboring country, Burkina Faso (Personal Interview: 13.01.11). In Nawuni, the topography of the area and the silted nature of the river bed are the two most identified factors that make it relatively easy for the community to become inundated by rain water, he said (Persona Interview: 07.01.11).

#### **4.4.3 Sand Winning Activities**

The Nawuni-Na, on the other hand, believes that sand winning activities along the river banks is the major cause of the frequent flood situation in the Nawuni community. Nawuni is noted for its fine sand which is used in the construction of concrete houses. A tipper truck full of sand, I was told, ranges from 100-150 (Gh) cedis<sup>8</sup>. According to the Nawuni-Na, sand winning activities along the Black Volta causes canals and erosion to develop. The created canals make it relatively easy for excess water from the seasonal rainfall to spill over into the nearby communities. He further stated that trees that are to serve as wind breakages have been uprooted by these sand winners in the course of their work (Personal Interview: 07.01.11).

#### **4.4.4 Population growth, Building Along Water Ways and Climate Change**

In Buipe, the district NADMO coordinator thinks population growth is the key cause of the increasing flooding situation in the community. He said central Gonja is a new district which

was created in 2004. Buipe was made the district capital and has since then attracted a lot of people from the whole country, mainly for commercial purposes. The influx of people into the community have resulted in the construction of buildings in areas that were otherwise not meant for human settlement such as building along water ways and drains. In addition to this, he echoed the fact that globally climate change has caused changes in weather patterns, thereby leading to prolonged rainfall.

In the past 20 years, the kind of rainfall that was experienced is different from what is currently being experienced, he said (Personal Interview 20.01.11). The normal rainfall season usually ends in October, but, in 2010 the rains continued till December. This presents a sharp difference with regard to what was known before. In December, the usual observable weather pattern was the harmattan which started in December and ended mostly in February or mid- March (Compare page 6, footnote). However, with this new weather pattern, it cannot be expected that the rains would end in October or sometime later.

The disaster management coordinator of the Red Cross Society of Ghana in Tamale, reaffirm that the current weather situation can indeed be attributed to climate change. He said the rains which normally started around May, came a bit earlier than it should in 2010. This means that, the seasonal rains now start early and ends late. Most of the flood victims in these communities were indirectly referring to climate change when they said that “we have never seen this kind of weather before” (Personal Interview 17.01.11). A flood victim who is above 56 years and has resided in the Buipe community for over 25 years said:

“I was young when I came to this community. I married and had my children here in this Buipe Township. My children are all currently young adults, but, never have I seen these rains before!” (Personal Interview: 13.01.11).

During the Focus Group Discussion (FGD), the above reflection was commonly expressed by the older people in Buipe.

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<sup>8</sup> At the current interbank exchange rate 1 dollar is equivalent to 1.45 (Ghana) cedis. This means that a truck full of sand is between 68 -103 USD.

#### **4.4.5 Opening of the Dams and Proximity to the Black and White Volta.**

In Nawuni, almost all the flood victims said that the frequent flooding was caused by seasonal rains which are worsened by the opening of the Bagre and Kampainga dams in Burkina Faso. Others said that (sometimes) the seasonal rains in themselves had little capacity to cause flooding in their communities but rather the opening of the Bagre and Kampainga spill ways was the cause of the problem.

According to the Chief Disaster Control Officer, Relief and Reconstruction of NADMO in Accra, Ghana share a similar weather pattern with Burkina Faso, especially the raining season. This means that co-currently each country experiences increasing water volume in her dams and rivers. The Bagre and Kampainga dams are opened during this period to avoid a possible collapse of the dam. The water spillage then causes some communities within the Northern region to become inundated because they are located near the White or Black Volta.

To recall, the demographic characteristics of the flood victims indicated that about 66.7% of them live within medium distance (i.e. 5-30 minutes walk) from the river and 18.3%, live at close distance (i.e. less than 5 minutes walk) to the river. This means that majority of them had their houses flooded when the dams in Burkina Faso was opened.

#### **4.4.6 Acts of God**

According to Baumann and Sims (1974 in Alexander, 1995) there exists the propensity for the poor and socially disadvantage people in many third world countries to think of natural disasters as “acts of god” (than for the rich and those in western advanced nations). It therefore comes as no surprise when many of the flood victims in Buipe think that the frequent flood situation has a divine origin. Interestingly, this thinking is different from what flood victims in Nawuni perceived as the cause of the frequent flood situation. For instance, an older woman from Buipe said:

“Most of us here are Muslims. And we believe that all things are from God, whether good or bad. The floods are from God and there is nothing we can do to prevent it. The best option is for the government to resettle us, because given what we have seen this year; the rains would definitely come back again” (FGD: 12.01.11)

During the Focus Group Discussion and personal interviews among the flood victims in Buipe, the above sentiment was also commonly expressed. Attributing the frequent flood situation to God by the flood victims may be a function of their religious conviction.

Almost all of the respondents indicated that the frequent flooding situation is now becoming a frequent affair even a “ritual”. In Buipe some of the flood victims indicated that since 2007, floods have become a yearly event, but that the floods of 2010 were the worse they have ever experienced. For instance in Nawuni, many of the respondents were of the opinion that the frequent flood situation would continue to be an annual event if the water spillway from Burkina Faso is not controlled. Whilst in Buipe many of the respondents thought that resettlement of the people from vulnerable areas is the only solution to control the annual flooding event.

It could be realized from the foregoing discussion that none of the flood victims attributed the causes of the frequent flood situation to their own actions or attitudes. However, there is convincing evidence from many research studies that human action and government responses contribute immensely to a frequent flood situation. The purpose of the next sub-heading is to explore the role local attitudes and government’s intervention strategies play in this situation.

#### **4.5 The Role of Local Attitude in the Frequent Flood Situation**

According to the Chief Disaster Control Officer, Relief and Reconstruction of NADMO, the district NADMO coordinators of the central Gonja and Tolon\Kumbungu and the Disaster Control Officers of the Red Cross Society of Ghana, the attitude of the local people really play a significant role in the frequent flood situation in Buipe and Nawuni. They said this in response to the question on whether or not local attitude positively or negatively contribute to the frequent flood situation. The responses from these officers indicate that some of the flood victims turn deaf ears to early warning messages to move away from vulnerable areas, especially during the raining season. However, reactions from some of the flood victims indicate that they failed to listen to some of these early warning messages because usually the water does not come as was announced on the radio or television. For instance, in Buipe, many of the flood victims were affected because they were caught unaware by the flood waters at night. One woman in Buipe said;



“We were asleep in the night when my husband kept calling that we should get up because the water is coming. I later heard from the megaphone located at the local mosque that we should leave our houses because the water is coming. NADMO have earlier on warned us about this situation through the radio but we never really thought the water would come that much into our homes”. (Personal Interview: 12.01.11)

Furthermore, officers from the Red Cross Society of Ghana and UN-IOM were of the view that in most cases flood victims are unwilling to move away from their vulnerable areas because such areas are their sources of livelihood. Many of these flood victims are fishermen and think that they should not live far away from their boats. A fisherman from the Battu community in Nawuni told the researcher that there are some kinds of fishes that could best be caught very early in the morning or late in the evening. He asked rhetorically; “how can I catch such fishes if I live far away from my boats, madam!” (Personal Interview: 07.01.11). This view reflects what El-Masari and Tipple (2002) said that some poor communities may decide to stay in vulnerable areas because those areas are their sources of livelihood.

The alluvial soil along the river banks is also said to be very fertile. One Red Cross official said that given the fertility of the soil, many of the farmers prefer to farm within such areas. However, he was of the view that farming along the river banks is not a safe farming method because the perennial floods usually wash away the crops of the farmers whose livelihood and survival is much dependent on their farming activities. According to the Nawuni-Na, attempts to get the local people to farm upland in most cases have failed because they feel the soil is most fertile along the river banks (Personal Interview: 07.01.11).

It is necessary to point out that a natural phenomenon becomes a disaster only when it overwhelms the ability of local capacities to cope and deal with them (Anderson, 2000). This means that there is no disaster if there is no impact on human wellbeing. The destruction of crops by the floods is an impact of the perennial flood situation on human livelihood and this situation arises because of farming along the river banks. If this farming method is not controlled then there could always be disasters said one NADMO official (Personal Interview: 20.01.11). .

However, the Head of the Humanitarian Support Unit of UN-OCHA thinks that cultural factors account for the flood victims’ unwillingness to move away from vulnerable areas.

Flood victims have stayed in these communities for years and as such they have developed a bond to what they call their “ancestral home”. The frequent flood situation has then become a normal event. One NADMO official from Tolon\Kumbungu district narrated this experience;

“I visited one of the communities under my supervision and it was during the raining season. The flood water was at my knee level yet the people were still living within the water. I asked why they would not move to safer areas. They told me that it is a normal situation and that the water would soon recede. I felt uncomfortable with the situation, but they appeared very comfortable with it, even laughing at me. ....” (Personal Interview: 07.01.11)

The responses from Nawuni indicate that the frequent flood situation is a normal event to some of the people (i.e. they are used to it). Often I was told by the people that the “water comes and goes” (this was said amidst giggling). Hence the flood victims have developed a local coping mechanism to deal with the annual flood situation. Houses located at very vulnerable areas are constructed with concrete blocks at the base and mud at the upper heights of the building. They believe that this gives the houses a strong foundation and prevents it from a possible collapse. However, by observation, I saw some of these housing types collapsed to the ground.

**Figure 11: A Picture Showing a Collapse Structure made of Cement and Clay**



Photo: Author (fieldwork, January 2011)

On the contrary, most of the flood victims could not agree that their actions contribute to the frequent flood situation in any way. One fisherman said, “how can my attitude contribute to the frequent flood situation, the waters are rather to my advantage because during this period one gets a very good catch and I must stay close to my boats in order to get this good catches” (Personal Interview: 12.01.11). Others were of the view that they stay close to vulnerable areas because they simply have no place to go.

One of the NADMO officials complained that the construction of structures at waterways and at unauthorized places is a key local attitude that contributes to the annual flooding situation. He said that NADMO does not have the power to enforce appropriate building policies and that this is a major setback to the achievement of the organization’s goals and objectives. Currently, according to the district NADMO coordinator for central Gonja, a bill is presented before parliament to empower NADMO to demolish unauthorized structures located along water ways.

Some of the flood victims think otherwise on the issue of the construction of their houses in water ways. A 56 year old herdsman in Buipe said that the piece of land on which he and his family stays was never a waterway when he first bought it. “The flood situation is a recent phenomenon for which we cannot be blamed!” he said (Personal Interview: 12.01.11). Others were also particularly ignorant of the fact that their houses are located in waterways. According to one NADMO official, the chiefs are to be blamed for selling such lands to the local people, but a member of the District Volunteer Group (DVG) in Buipe said the chiefs cannot be blamed because some of the local people insisted on buying such lands because they were cheap. Amidst these differing opinions, a key outstanding fact is that human actions in no small way contribute to the frequent flood situation.

Deyle (1998) in El- Masari and Tipple (2002: 157) stated that the vulnerability of developing countries to flood situation is “the result of an increase in human settlement along vulnerable areas, rather than a rise in the number of geophysical events such as...floods”. This statement in the Chapter Two of this report was argued as partly true. However, it is also important to add that vulnerability, as far as findings from this study is concerned, can also be attributed to increase in floods due to climate change, not heeding to early warning signals, selling of vulnerable land whether intentional or unintentionally, “normalisation” of the frequent flooding event and poverty (i.e. buying a vulnerable land because it is cheap).

#### **4.6 The Role of NADMO in the Frequent Flood Situation**

In order to identify NADMO's contribution to the frequent flood situation, an assembly man (i.e. a local government representative of an electoral area) said that NADMO's response to the frequent flood situation can potentially contribute to the perennial flood situation in the Buipe community. This was said in response to the question on whether or not NADMO's response to flood in any way contributes to the annual flooding situation of his community. The research findings on this issue indicates that in many instances NADMO is only seen in the communities after a flood situation and it is usually for the purposes of distributing relief items. The assembly man thinks that this is a reactive response to the perennial flood situation, hence, not an adequate preventive measure to curb the problem.

An official from a relief agency in Accra shared a similar opinion that in some instances NADMO can be blamed for the frequent flood situation in the country because its response to these situations does not take into consideration the root causes of the problem. He further added that what is termed as a disaster is the impact on human wellbeing; hence if NADMO could be more proactive to minimize the impact of floods, then there could be no disasters. He was also of the opinion that giving relief items is just a fraction of the complex task involved in disaster management (Personal Interview: 20.01.11). Annual donation of food and non-food items can lead to "relief syndrome" in which perennial flood victims expect nothing but relief items

One NADMO official told me that sometimes some of the flood victims could call out and say "why, this year no relief items!" Overemphasis on relief items as a mechanism to help flood victims without a corresponding system to prevent the situation can lead to "donor fatigue" in which donors may become potentially fed up with the perennial flood situation in these communities. A perennial flood situation is no longer a problem but an *attitude* that needs to be stopped.

In order to minimize the impact of the perennial flood situation on human lives, some of the relief agencies were of the view that public education, enforcement of laws on building plans, collaboration between the government of Ghana and Burkina Faso to manage the spillway, desilting of the river bed, management of sand winning activities, constructions of dams to harvest excess water from the seasonal rains for dry season farming, encouragement of upland

farming through microfinance and subsidies on agricultural inputs and resettlement of flood victims away from vulnerable areas could prove beneficial to stop the frequent flood crisis.

However, the Head of Humanitarian Affairs Unit of UN-OCHA said that in many ways NADMO cannot be blamed for its reactive response to the frequent flood situation in these communities. This is because the organization lacks the necessary logistics and the financial resources to carry out effectively their role in preventing the floods. NADMO is a state agency that relies mainly on the government coffers for its budgetary finance. Although, the organization enjoys some level of support from some multilateral organizations such as UNDP, UN-OCHA, WFP and the Red Cross Society of Ghana these are limited and purely voluntary. Hence, what NADMO is able to afford depends much on what the government of Ghana allocates, financially and resource wise, to it. One NADMO official explained that since the government is interested mostly in giving out relief items, there is little that the organization can do to carry out its preventive role effectively. The foregoing finding is directly in support of the statement that decision makers agree that long term disaster prevention and reduction is better than short term emergency or relief responses. But currently on the funding list of donor agencies and national governments, emergency aid and not disaster prevention and reduction aid, tops the list (CRED, 2004)

The Chief Disaster Control Officer, Relief and Reconstruction of NADMO said that NADMO cannot be blamed for the frequent flood situation in these communities because the media's attention is usually drawn to when NADMO is distributing relief items and not when they are educating the people on flood prevention. By implication, NADMO is carrying out its mandate to prevent and manage disasters in the country, but it is the media whose attention is not drawn to them. This finding could be partly true *because* from the study by CRED (2004), relief aid tops the list of donor and national government funds as emergencies are *media friendly*, funds are easy to obtain and morally justified. The moral justification in giving out relief items is perhaps the fundamental reason that attracts the media and government's attention. However, should the media and the government's attention be drawn only to emergency relief? The Chapter Five of this report will present a detailed discussion on this issue.

This, notwithstanding, in many of the personal interviews and the Focus Group Discussions held in these communities, most of the flood victims said they see NADMO in their

communities only when there is a major disaster such as the recent floods of 2010. Some also indicated that they have never seen or heard about NADMO. Flood victims and migrants who have ever heard of NADMO could not identify NADMO by its name but rather by what they normally see NADMO do when they visit their local communities. Many of the flood victims in Buipe call NADMO “*rubber foō*”, meaning the “*rubber people*”. They told me NADMO usually gives them rubber buckets, blankets, maize, mosquito nets and cloths. Hence the name “*rubber foō*” was coined out of the things NADMO gives them when they see NADMO in their community. Based on this, almost all the flood victims said that *the role of NADMO is to help people in need*. But is this really the sole mandate of NADMO that the people need to know? The Chapter Five of this report will also further elaborate on this.

#### **4.7 Effects of the Frequent Flood Situation**

From the theoretical framework, the effects of the frequent flood situation were to be determined individually and communally through interviews and available official data. This was to be presented in the light of the following;

- Number of deaths
- Acres of productive land and livestock lost
- Number of houses rendered uninhabitable
- Number of people rendered homeless (displacement)
- Environment –Migration Nexus

##### **4.7.1 Number of Deaths and Acres of Productive Land and Livestock Lost**

None of the respondents had a relative, friend or neighbors who died due to the flood or from its accruing effects. Official statistics from the regional office in NADMO also confirmed that in Buipe, no one died as a result of the flood. Rather in one of the neighboring towns, a pregnant woman and a lad lost their lives because the boat in which they were travelling to a nearby hospital (I was told she had to use this means because the roads had been rendered unmotorable by the flood waters) capsized when the river became flooded.

This, notwithstanding, most of the flood victims lost their very means of livelihood which was their farms, fishing boats, nets and other household items. According to the northern regional coordinator of the Red Cross Society of Ghana;

“The main livelihood of the people in these communities is agriculture and since there is only one farming season, the local people utilize the rain to grow their crops. Due to the change in climate, the floods come when their crops are still maturing leaving them with nothing to live on, this seriously affects their very survival and development” (Personal interview: 06.01.11)

Some farmers said they lost acres of maize, rice, groundnuts, pepper and okra. For instance, a woman between the ages of 36-45 and with 5 dependents said she lost 3 acres of yams. A trader who sells yams said that she kept her tubers on sheds. The floods submerged the entire shed and destroyed all the yams. Narrating an experience, one of the flood victims said that the rains came very early as such he did not get the opportunity to harvest his crops (Personal Interview: 07.01.11). Below is a picture of a submerged shed and a maize farm.

**Figure 12: A Picture of a Submerged Shed and Maize Farm.**



Photo: Author (fieldwork, January 2011)

Photo: Mohammed (NADMO official)

A Fulani herdsman in Buipe who is also a farmer and a father of twelve (12) children said the flood waters destroyed 3 acres of his groundnut farm, 4 acres of rice farm and 3 acres of maize farm. He further narrates that;



“My cattle died of diseases from the water and the cold weather conditions. There were no veterinary officers to help me and the other Fulani herdsmen.... 25 cattle, excluding calves, died with each valued between 500 -1000 (Gh) cedis. 30 birds and 40 sheep and goats were all destroyed...” (FGD: 12.01.11)

The fishing community was not spared the daunting effects of the flood situation. One of the flood victims, who is also a fishmonger said;

“I sell the fish my husband brings from the river by smoking it for sale during market days. The flood washed away his boat and nets. My husband is currently out of job and I am also left with nothing to sell for the family’s upkeep. The little savings I made over the years have all gone...” (Personal Interview; 11.01.11)

#### **4.7.2 Number of Houses Rendered Uninhabitable and Displacement**

Almost all the flood victims had their houses rendered uninhabitable by the flood waters of 2010. The most affected were houses built with mud popularly called “*Atakwame Den*”. The traditional building materials are clay, fiber, sticks and palm leaves as roof. The water easily dissolves the clay because of its loose texture. By observation, most houses in Nawuni and Buipe were rendered uninhabitable by stagnant waters which either collapsed parts of the building or simply made them inappropriate to stay in them.

**Figure 13: A Picture Showing Collapsed Buildings Due to Flood Waters**



Photo: Author (fieldwork, January 2011)



In Buipe, at the time this study was been conducted, displaced flood victims have lived in camps and temporary structures provided by UNHCR through NADMO for four (4) months. These camps, labeled *Camp 1* and *Camp 2*, is the local Roman Catholic Primary and Junior High school which has been turned into shelters for the flood victims. This means that pupils of these schools no longer have their classroom to themselves. It is a common sight to see some of the school children lurking around in the open compound. An official of NADMO, who is also a displaced flood victim, said some of the school children of the Roman Catholic school have been asked to join the Seventh Day Adventist (SDA) School in Buipe whilst others are accommodated in the unoccupied classrooms of their current school. A head teacher of a local primary school said that given the increased number of pupils in the local SDA School, a shift system have to be run. This is when some school children go to school in the morning at 8 am and close at 12 noon. Whilst a second batch of pupils go to school in the afternoon at 1 pm and close at 5 pm. He further stated that this has the tendency of negatively affecting the education of the school children because they can no longer enjoy the normal class hours (thus from 8 am – 3 pm). One of the displaced flood victims said;

“We are worried about the current situation of our children; they can’t go to school because we are occupying their classrooms. Some of our own kids are here with us in the camps because we have no money to pay for their upkeep in the school....all that we need is for the government to resettle us...”(Personal Interview: 13.01.11)

At the time when this study was being conducted, there were no displaced flood victims in Nawuni. However, individuals recalled that during the floods of 2010, some of them had to live with their friends and relatives for about a week. Perhaps, the central Gonja district in which Buipe is located was most affected because it is located between the Black and White Volta, as the district NADMO coordinator said .Official statistics from NADMO indicate that the following number of people, crops, houses and livestock were affected by the floods of 2010 in Nawuni and Buipe only.

**Table 18: Flood Affected Victims and Livelihood in Nawuni.**

District	Name of Community	Affected Population				Livelihood Affected Crops			Others (Houses)
		M	F	Children	Total	(acres)	live Stock	Displacement	
Tolon\Kumbungu ■ 2010	Nawuni	66	28	24	118	1080	118	-	12

Source: Author (Adopted from NADMO 2010 compilation)

**Table 19: Flood Affected Victims and Livelihood in Buipe.**

District	Name of Community	Affected Population				Livelihood Affected Crops			Others (Houses)
		M	F	Children	Total	(acres)	live Stock	Displacement	
Central Gonja ■ 2010	Buipe	1211	1742	3411	6364	175	132	6364	259

Source: Author (Adopted from NADMO 2010 compilation)

From the above tables it can be realized that the number of people affected in Buipe is much higher than those affected in Nawuni. This can also be attributed to the fact that Buipe is a commercial town, a district capital and has a population density that is higher than that of Nawuni.

#### **4.8 The Environment – Migration Nexus**

According to the Senior Operations Officer of UN-IOM for West and Central Africa, natural disasters have the potential of causing migration as annually many people are displaced due to environmental factors such as flood (Personal Interview: 20.01.11) This was said in response to the question on whether or not the perennial flood situation in some communities in the Northern region can contribute to rural-urban migration.

A typical case in point is the Pakistan floods of 2010. According to statistics from the Pakistani National Disaster Management Authority (NDMA), 20 million people were affected by the floods in 2010, 12 million people were displaced and 1.2 million homes were either damaged or destroyed (Migration, 2010). Undeniably, situations such as this would definitely have an impact on migration figures now and in the future.

Many of the interviewees from the relief agencies admitted that migration is a complex phenomenon because it cannot be linked to one causal factor or agent. For instance, the Head of the Humanitarian Support Unit of UN-OCHA in Ghana and the Senior Operation Officer of UN-IOM were both of the opinion that the migration phenomenon under consideration in this study is the result of developmental disparity between the northern and southern sectors of the country. They said;

“The northern region, as we are all aware of, is one of Ghana’s poorest regions. When compared to southern cities like Accra and Kumasi, infrastructural development, job opportunities, good hospitals and schools are generally lacking. Hence, most of these young girls usually come to the cities in search for jobs which usually do not exist. Disappointed, many of them join the “paa oo paa” or “kaya yoo” business.....”(Personal Interview: 20.12.10)

According to the officials interviewed from NADMO and the Red Cross Society of Ghana, migrants in the “paa oo paa” business left their communities of origin to join this business not for environmental reasons but rather for economic motives. Some of the officers explained that marriage is an esteemed institution in northern Ghana and Africa as a whole. Many of the girls joined the “paa oo paa” business with the hope of getting money to buy the necessary personal effects such as utensils, cloths and sewing machine so that, hopefully, they can be supportive of their husbands when they get married.

More so, a key informant also told me that it is generally a sign of “good luck” if a young lady who is due for marriage prepares meal on a large scale and distributes among kids in her neighborhood. To be able to do this, some of the girls join the “paa oo paa” business so that they can raise the necessary funds for this custom, although not mandatory. This means that to some of the migrants getting the blessings of their society is very important to them and

hence, the need to seek for greener pastures in areas that holds more economic prospects for them than their communities of origin.

Generally, the above stated reasons for the north-south migration pattern can be classified as economic, social and cultural. Economically, some of the young ladies join the “paa oo paa” business with the hope of getting money for the necessary personal effects. Socially, some of these young girls come to the south in response to the developmental disparity that exists between the northern and southern Ghana and culturally, some of them join the business with the hope of raising funds for the necessary customary rites.

The migrants told me that they specifically left their communities of origin because of poverty, limited job opportunities and family responsibilities. None of the female migrants said they left home to Kumasi because of the perennial flood situation in their communities. Nevertheless, a careful look at the demographic characteristics of the migrants show that four (4) out of the five (5) migrants came to Kumasi during the raining season. This implies that there is the tendency for the seasonal floods to cause migration to the “paa oo paa” business. This tendency may or may not be statistically significant depending on the research design been adopted. This research work used a qualitative research design and discusses just the views and opinions of what the research participants said. Perhaps, future studies can seek to identify the relationship between the perennial flood situation and the migration phenomenon under consideration in this study using quantitative research methods.

A NADMO official reiterated this tendency (i.e. the probability that the perennial flood situation can cause migration from northern to southern Ghana ) when he said that during the raining season, most farms in these communities become inundated leaving families and young ones with nothing to live on or even work for. Additionally, given that some farming communities such as Buipe practice seasonal farming, it stands out as a possibility that some of these young girls could migrate down south to search for jobs during the raining season. This is because they (i.e. the young girls) are unable to work on their farms for the fact that the floods have destroyed their land and the crops.

In Nawuni, there were no experiences from the flood victims that showed that a relative, friend or neighbor has left home because of the frequent flood situation. But in Buipe, some

of the flood victims spoke to me about how the floods have separated them from their families. A woman who is between the ages of 36-45 said;

“My son has left home because he can no longer take care of his wife and kids. The floods destroyed his farm which is his main source of livelihood. At my age, I must take care of his wife by daily giving her 1 (Gh) cedis<sup>9</sup> for the upkeep of herself and the children”(FGD: 12.01.11)

A young woman between the ages of (16-25) also said;

“I gave birth to my twins in this camp. My husband has left me and is currently in Kumasi. He can’t stay with me here in this camp because it is full of women. Moreover, if he stays there is nothing for him to do....” (Personal Interview: 12.01.11)

To recall Riisøen, Hatløy and Bjerkan (2004) said that the young girls who migrated down south may have done so *independently*. This, notwithstanding, experiences from the field also shows that some of the flood victims in the Buipe community gave consent to their relative’s decision to leave home. One young woman explained that

“My kid sister left home and is currently working in Kumasi as a “paa oo paa” girl. I gave her mine full support when she was leaving home because there was apparently nothing for her to do if she stays with me in this community. More so, she cannot stay with me in the depraving condition that exists here in the Camp” (Personal Interview: 12.01.11)

The experiences above show that it is a possibility for the frequent flood situation to motivate one to migrate down south. Interestingly, the case study below also shows the possible linkage between the frequent flood situation and the “paa oo paa” business. Although economic factors are the most predominant factors, environmental factors cannot also be denied.

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<sup>9</sup>At the current interbank exchange rate, 1 (Gh) cedi is less than 1 USD dollar. Living on this amount for a day is below the poverty line and re-emphasizes the poor living condition that the people have to endure.

## CASE STUDY 1

My name is Yusuf Fatal<sup>10</sup>, I am 20 years old and a final year student of the Seventh Day Adventist (SDA) School. I am currently preparing to write my final exams that would qualify me into a Senior High school. I was staying at the town (i.e. Zongo community in Buipe). The distance from my house to the White Volta is about 20 minutes walk. My house is the traditional one made of thatch and mud. I know flooding is caused by excess rain water which makes the river to over-flow its banks. I have stayed in this community for about 16 years now. People live in vulnerable areas because they have no place to go. I am a candidate and about to write my exam but because of this situation I have no place to sleep. In this camp, I can't wake up and study because there is no light and the people are many. My mother who used to take care of me and my sister has left to Kumasi and is currently engaged in the "Paa oo paa" business. She left because her means of livelihood collapsed due to the flood situation. My sister is also currently nowhere to be found, she said she could not cope with the congestion at the camp. There is no one to provide food for me. I have to do petty trading in order to survive on "gari". All my academic books are destroyed and currently those I was able to recover are of no use. My father died some years ago and his relatives also complain that they have enough dependents to take care of. Although I have heard of NADMO, they refused to assist me or even register me under their relief item distribution list because they said I was a small boy...

(Personal Interview: 13.01.11)

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<sup>10</sup>At the time when this report was compiled, Yusuf Fatal got a benefactor who assisted him with the necessary financial support to help him finish his junior high school examination.

## **4.9 NADMO's Mitigation and Preventive Response to the Perennial Flood Situation.**

The response gathered from officials of NADMO indicates that the current key mitigation and preventive response to the frequent flood situation is citizenry education. This education is usually given prior to the onset of the rains. Part of the citizenry education is also geared towards preparing the local communities for the rains by encouraging them to plant early yielding crops, harvest their crops early and avoid fishing when the river is flooded. The latter advice is important because most of the people who died during the flooding period are usually as a result of a capsized boat, said one NADMO official<sup>11</sup> (Personal Interview 12.01.11).

According to the NADMO coordinator for the central Gonja district, early warning signals are also used by NADMO to mitigate and prevent the overwhelming effects of the frequent flood situation. He said that before the Bagre dam is opened in Burkina Faso, authorities of the Burkina Faso Electricity Co-operation communicate it to the Volta River Authority (VRA) in Ghana. The Volta River Authority (VRA), then, communicates it to the NADMO head office in Accra. The NADMO head office in Accra later disseminates this information to NADMO's regional and district secretariats<sup>12</sup>.

It is the responsibility of VRA and NADMO to inform the general public through the mass and print media that communities located around the Black Volta, White Volta and the Akosombo dam must relocate. In Nawuni, some of the flood victims confirmed that they have indeed heard on the radio that the Bagre dam in Burkina Faso could be opened. Usually, the district NADMO offices use information vans to further disseminate these messages to communities located within its jurisdiction. However, the central Gonja NADMO coordinator admitted that sometimes they are unable to send these early warning messages to *all* the communities, especially, those located across the river because they lack canoes to help them travel across board. Currently, the only emergency equipment available at the central Gonja district of NADMO is live jackets. This is woefully inadequate to help NADMO carry out its mandate as an emergency organization.

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<sup>11</sup>See the Appendix II for an itinerary for public sensitization towards disaster preparedness in the central Gonja district.

<sup>12</sup>See the Appendix III for a letter showing an early warning message from

Most of the emergency equipment is located in Accra and this has the capability to impede the effectiveness of NADMO's operation at the grassroots. Tree planting exercise in the central Gonja is in the pipeline and is yet to be implemented by NADMO. In Nawuni, there were no tree planting projects to serve as wind breakages in the case of a storm.

According to the Chief Disaster Control Officer, Relief and Reconstruction, NADMO is well-equipped with the necessary human resources and technical expertise to carry out its mandate. I was told that UNDP often organizes workshops and seminars for some NADMO officers with the view of building their capacity for the complex task of disaster management. Documents from NADMO also reveal that some of its staff have received various training from the state's institutions and universities. Some of these institutions include the Ghana Institute of Management and Public Administration (GIMPA), Kwame Nkrumah University of Science and Technology (KNUST) and the Ghana Armed Forces Command and the Staff College (GAFSC). The training involved subjects related to security and governance, social mobilization and maritime issues (Nadmo News, 2009).

The Rapid Response Team (RPT) is part of NADMO's drive to help respond to the impact of disasters and other emergencies in the country. The mandate of the Rapid Response Team is to serve as the first line of response to flood disasters (Nadmo News, 2009). This team operates within the Disaster Response Unit (DRU) and is to be located in all the regional and district offices of NADMO. However, at the time of this study, most of these human resources were, again, centralized in Accra. In Tamale (the regional capital of the northern region of Ghana), the Rapid Response Team was available but was woefully ill-equipped with the necessary response equipment to carry out its job even in the Tamale metropolis.

According to a NADMO official in Tamale, "the regional office of NADMO in Tamale can't boast of even a canoe's paddle" (Personal Interview: 12.01.11). In the Tolon\Kumbungu district, there was only one motor bike that served the entire staff. In the central Gonja district, there were no motor bikes and the staff strength was very low. The staff consisted of the district NADMO coordinator, a secretary and two national service personnel (who would be with the agency for only 12 months). These personnel are to serve the 265 communities located in the central Gonja district said the district's NADMO coordinator and about half of these communities are flood prone areas, according to one NADMO official (Personal



Interview 12.01.11). Below is the only emergency equipment available at the central Gonja district.

**Figure 14: A Picture Showing the Only Emergency Equipment (i.e. live jackets) at the District Secretariat of NADMO in the Central Gonja District.**



Photo: Author (fieldwork, January 2011)

The District Chief Executive (DCE) of central Gonja revealed that the government has plans of resettling the local people away from the vulnerable areas in Buipe. This vision is captured in the Savanna Accelerated Development Authority, popularly called SADA<sup>13</sup>. However, this is a long-term project that needs donor support for implementation.

Currently, disaster risk reduction policy is reflected in SADA's medium term plans. The DCE said that alternative livelihood approaches would be encouraged to serve as a mitigation response to the frequent flood situation. The alternative livelihood approach includes encouraging and supporting the local people to go into high-value-demand drive agriculture crop production, tree planting to protect the river banks and dams for irrigation farming during the dry season.

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<sup>13</sup>SADA is an intervention strategy by the government of Ghana to bridge the “developmental gap” between the northern and southern sectors of Ghana.

He further explained that the purpose of these is to build local resilience and adaptation to the frequent flood situation. It can be realized (from the foregoing revelation from the DCE) that the government's intervention strategies to mitigate the perennial flood situation are *plans yet to be implemented*.

#### **4.10 Local Participation in Disaster Management.**

The responses from NADMO's officials indicate that local participation in disaster management is an essential element for the organization's operation. In order to reflect this basic tenet, the organization has District Volunteer Groups (DVGs), zonal and district coordinators. These are made up of mostly the local people in the communities. According to an official document from NADMO, the notion of DVG's reflects the organization's commitment to the concept of integrated community response in disaster management (Nadmo News, 2009). Local communities are encouraged to voluntarily take actions to prevent and manage disasters in their respective communities. The concept of DVG comes along with building local capacities through training on issues relating to disaster information collation and dissemination, relief and first aid administration and rural development through poverty reduction programme (e.g. rural enterprises, agro-business etc.) (Nadmo News, 2009).

In Buipe, at the time of this study, the DVGs were active. The district NADMO coordinator explained that the members of the volunteer groups were very useful in the distribution of the relief items and assessing damage caused due to the flood in the communities. Unfortunately, in Nawuni, there were no active DVGs because of political reasons. One NADMO official explained that changes in political dispensation in some instances have affected the organization's operation at the grass root level in Nawuni. Cronies of the current political regime think that they should rather be the volunteers on the DVG. An issue such as this has the capability of thwarting the intended purpose of local participation in disaster management efforts.

The NADMO coordinator of the central Gonja district also explained that active stakeholder participation is encouraged by NADMO through its District Disaster Management committees. The committee includes the District Chief Executive, the district commander in charge of the Ghana Fire Service, the district commander in Charge of the Ghana Police Service, the local chief and the zonal coordinators. World Food Programme, World Vision,

UNICEF, UNHCR and the Red Cross Society of Ghana are some of the humanitarian agencies that NADMO involves in its disaster management operations in these communities.

In 2007, a relief agency (media reports indicate that this relief agency was Red Cross Society of Ghana, however both the national and regional offices of Red Cross denied ever engaging in this project). However, some of the respondents identified this relief agency as SOS Village) built some 300 housing units for flood victims in Nawuni. Media report indicates that the victims refused to occupy in them (Kunateh, 2009). At the time of this study some of the flood victims were occupying these houses, whilst majority of them were yet to move into them. The flood victims explained that they did not move into these houses because they were uncompleted.

The relief agency gave them 30 bags of cement, packs of nails and aluminum zinc as roofing sheets for a three-housing unit for each affected household. The other necessary building materials such as sand, cost of labor, stones and doors were costs that the flood victims had to bear themselves in the resettlement efforts. Some of the beneficiaries of these relief items said that given their current poor economic state, it could be difficult for them to build and complete these houses on their own. This in part explains the reason why flood victims are still living in the vulnerable areas. Moreover, others were of the view that the relief items were inadequate but they had to accept them because “half a loaf was better than none”. (Personal Interview: 7.01.11)

One of the flood victims in Nawuni told the researcher that he was involved in the resettlement efforts by the relief agency. He was part of the delegation that sought permission from the Dalun-Na (Dalun Chief) to acquire the land for the resettlement plans. But, thereafter, major decisions and consultation were at the discretion of the donor agency (i.e. the NGO which provided the relief items for the resettlement of the affected flood victims in Nawuni). Most of the other beneficiaries said they were not consulted; neither did they participate in any way in the resettlement plans. They were just called to receive the relief items and the place they were to put up their buildings. Although, some said that they were very grateful for the gesture, in reality, it did not provide a complete solution to their problems. For instance, one of the flood victims said proverbially “when you bury a corpse, you don’t bury it half way” (Personal Interview: 07.01.11). This in effect implies that efforts to help them relocate did not take into consideration their inability to provide the other

building materials. However, one NADMO official was of the opinion that the flood victims were being unrealistic in their demand for completed structures before they relocate from their present vulnerable areas. He also said proverbially: “when you are given the cloth to bury a corpse use it effectively and don’t give out some for the living.” (Personal Interview: 07.01.11) This was said against the suspicion that some of the beneficiaries of the relief items have sold them for their own personal reasons. This counter proverb also indicates that NADMO expected the flood victims to make an effective use of the limited relief items at their disposal.

But could this situation have been avoided if existing local knowledge in building was incorporated into modern building technologies through active citizen participation? Perhaps, the answer is yes. The designated land for the resettlement efforts was an upland and less likely to be inundated by the seasonal floods. This means that the local building technology in which the base of the house is built with cement blocks and the rest with clay could have been a viable option. This is because the building materials could be obtained locally and at a relatively cheaper price. According to the Tamale regional Red Cross official, the Red Cross Society of Ghana used the system of combining local building technology with modern methods in Dalun, also in the Tolon\Kumbungu district of the northern region. This proved to be very successful because Red Cross provided part of the building materials that were relatively expensive like cement and the local people provided the clay and the thatch leaves for the roofing.

It is a common sight in Nawuni to see packed blocks and uncompleted structures at the designated area for the resettlement of flood victims. The Tamale regional Red Cross official said that situation such as the above mentioned scenario cannot be avoided if there is lack of effective communication among donors and beneficiaries. Below is a picture of uncompleted structures in Nawuni.

**Figure 15: A Picture Showing Uncompleted Structures in Nawuni.**



Photo: Author (field work, January 2011)

To recall, it was argued in the Chapter Two of this report that flood victims do not passively expect others to help them but are active initiators of strategies to solve their own problem (Quarantelli, 1989). This means that active citizen engagement goes beyond information sharing and mere consultation (for the sake of formality) to strengthening local capacities to handle their own problem. This requires the involvement of flood victims in all stages of disaster response and recovery efforts in order to assess and determine the role that they can play in the recovery efforts. Although, it is unrealistic to expect total relief for all the flood victims, active citizen engagement would help determine what flood victims can or cannot afford in post disaster recovery efforts. Based on this, it can be argued that if proper consultation was undertaken by the said relief agency, the current situation in Nawuni would have been avoided.

Additionally, the use of local structures such as women and religious groups is widely gaining acceptance in international discourse on disaster management. This is important because it provides local support for disaster management efforts. In Nawuni, one NADMO official admitted that local structures are less utilized in disaster management efforts in the community. Each of the NADMO coordinators in the Tolon\Kumbungu and Central Gonja



district indicated that the local structures that NADMO makes use of at the community level are more of multilateral organizations and international NGOs that have local branches in the communities. Examples of these include World Vision and World Food Programme (WFP). Although this may not be bad in itself, it has the propensity to further alien disaster management efforts from the local people as there is the likelihood that employees of these international NGO's may not be natives of the local communities.

**4.11 The Use of Indigenous Knowledge in Disaster Management.**

In Nawuni, the most frequently used item of indigenous knowledge to predict an impending flood situation is increasing water volume of the Black Volta, calculation based on the months of the year, and a change in color of the Black Volta given specific time periods.

The local people by discretion and observation know when the water volume increases or decreases. When the water volume is high, then they know that this year there would be flood and vice versa. The Ghana Water Company at Nawuni has a measurement line in the Volta river that measures more accurately the volume of the river periodically. The information from the measurement line is communicated to the chief, who then informs the local people of an impending flood.

**Figure 16: A Picture of the Measuring Line that Communicates to the People of Nawuni and other communities, the Volume of the Black Volta.**



Photo: Author (fieldwork, January 2011)

The chief of Nawuni also explained that from April when the volume of the Black Volta is increasing very fast, it serves as a signal that there would be flooding in June that year. Yet, another important local knowledge item that helps to predict flood is a change in the color of the Black Volta. The deputy chief disaster control officer, at the regional office of NADMO in Tamale said that a change in the color of the river informs the local people that a “foreign” water body has joined their river, hence the possibility of an impending flood situation. It is likely that the “foreign” water made mention here is the water spillway from dams in Burkina Faso.

However, there exist other “uncommon” local knowledge items such as a said special grass found at the banks of the Black Volta. According to the NADMO coordinator for the Tolon\Kumbungu district, these special grasses bend in a certain direction when there is an impending flood situation. This local knowledge item is said to be “uncommon” because currently it has lost its appeal in helping people to predict an impending flood situation and only a few people are even aware of it. This implies that local knowledge in disaster prediction and management might lose its value or appeal now and in the future if it is not protected.

In Buipe, most of the flood victims were not aware of any indigenous knowledge that helps in the prediction of an impending flood. This was because they attributed the situation to God who, to them, causes all things. However, a flood victim in Buipe told me that in the past there used to be some birds. When these birds fly in a particular direction then they know that there would be an impending flood situation. Another flood victim said that *severe* flood situations occur every twenty-five (25) years and the severe flooding situation that occurred in 2010 is a repeat of what happened some twenty-five (25) years ago. It is important to point out that some of this indigenous knowledge items are mystic and currently irrelevant in a modern scientific world in which things are explained more methodologically.

The Chief Disaster Control Officer, Relief and Reconstruction, said that NADMO only employs those indigenous knowledge items that are reliable and effective. For instance, NADMO uses information from Nawuni on the increases in water volume to warn all communities located along the Black and White Volta to move upland. Additionally, the seasonal rainfall pattern which is calculated based on the months of the years is also used to warn the people of an impending flood situation.

With regard to the role of indigenous knowledge in disaster preparedness and mitigation, the chief of Nawuni explained that those in low lying areas usually move to join their friends and relatives in the high lying areas. Some families in Nawuni also have temporal structures located upland in which they move to when news of an impending flood situation is heard. For the local fishermen in Nawuni and Buipe, fishing in deep areas is usually avoided.

#### **4.12 Emerging Issue: Is NADMO A Political Organization?**

The above question is asked in relation to some of the emerging issues that this study found out. Some of the responses given to the question; How do you perceive NADMO as an emergency organization?; reveals that some of the interviewees see the organization as a political one due to political interference in the organization's operation over the past years. For instance, an official from one of the relief agencies stated that changes in political leadership in the country in a number of occasions also affect the leadership of NADMO and its institutional structure and operation. Political interference is a potential threat to NADMO's performance because "when a new government takes power experienced ones are replaced with people with little or no experience," he said (Personal Interview 20.12.10).

However, some NADMO officials were of the view that the organization is perceived as a political organisation because it relies on the government for its budgetary allocation and financial support. "NADMO is not a political organisation, although that is the general perception!" said one officer from NADMO (Personal Interview 7.01.11).

Interestingly, none of the flood victims viewed NADMO as a political organisation. The predominant perception among the flood victims was that NADMO is an organisation that helps people in need. In fact, sixty (60) flood victims were engaged in the study and almost all of them attributed relief item distribution to NADMO. These, notwithstanding, some members of the Fulani tribe were bitter of the fact that they were sidelined in the distribution of relief items. For instance, one of them said;

"We didn't benefit from the help NADMO gave this community because we are Fulani men. Check the camps, madam, and you would not find any Fulani man. We were exempted from any help while the other tribes got some relief items. We are not being tribalistic but we speak for ourselves..." (FGD: 12.01.11).



What are the implications of these findings to NADMO's operation and disaster management in the Buipe and Nawuni communities? The next chapter presents a summary of the research findings and discusses these in relation to how they answer the research objectives.

## **CHAPTER FIVE: The Implication of the Key Research Findings to Disaster Management in Ghana.**

### **5. Introduction**

The purpose of this chapter is to present a summary of the research findings and discuss how they answer the study's objectives. It raises many thought-provoking questions with the aim of drawing out the complex issues that relate to natural disasters and disaster management in the communities under review: Buipe and Nawuni. This discussion is presented in the light of the study's objectives and existing literature on theories of human behavior and disaster management earlier on raised in the theoretical framework. It is important to point out that the material presented in this Chapter is not in a chronological order but rather is presented in a way that would help the reader get a clearer picture and a much better appreciation of the implication of the research findings to NADMO and disaster management in Ghana.

### **5.1 Perception and Disaster Management: Can Perceived Causes of Flood Affect Local Responses to the Frequent Flood Situation?**

According to Social Psychologists', Kassim and Brehm (1993), there is the tendency for a person's perception about an object to influence his/her attitude towards that object. This implies that local perception about the causes of flood will perhaps explain local attitude towards disaster preparedness and prevention. In Nawuni, the research findings revealed that most of the flood victims perceive the cause of the frequent flood situation to the opening of the Bagre dam in Burkina Faso. Hence, the suggested solution to this problem, according to the flood victims in Nawuni, is for the government to collaborate with the government of Burkina Faso so that the water spillage from the dam could be managed properly. Also, the research findings showed that in Buipe, the perceived cause of the frequent flood situation is God. This perception is a function of their religious belief in which all things, whether good or bad, is attributed to God. For this reason, most of the flood victims think that there is little that they as individuals can do to prevent the situation.

It can be realised, from the foregoing discussion, that most of the flood victims in Nawuni and Buipe did not attribute the frequent flood situation to their own actions. This means that their perception about the causes of the perennial flooding event is something "external" to them. This presents a potential threat to disaster management in these communities because the local

people do not see their actions (such as sand wining, building along waterways, farming along river banks, failure to adhere to early warning messages and others) as co-factors to the perennial flooding situation. Also, this situation presents a potential barrier to disaster risk reduction efforts in these communities as their local knowledge on the causes of the frequent flood situation does not factor in the role their own actions play in this instance. Perhaps, this erroneous perception can be attributed to the fact that the flood victims lack the necessary information to explain the causes of the frequent flooding situation in a more appropriate way or it is due to the low level of education common among them or it is a function of their religious beliefs. This may lead the people to think that disaster management is the exclusive responsibility of the government and other donor agencies. No wonder, in both Buipe and Nawuni, most of the flood victims think that the only solution to this menace lies in the hands of “outsiders” such as the government. This research finding re-affirms existing knowledge within the international community that many people in third world countries think that disaster management is a “luxury” that only the rich or the government can afford (Alexander, 1995).

However, there is enough empirical evidence from this study and other related studies to prove that current disasters are the result of human actions. As an example UN\ISDR (2004) defines disasters as the “the interaction between extreme physical or natural phenomena and a *vulnerable human group*”. As discussed in the theoretical framework of this study, there are social, economic and political factors that increase human vulnerability to natural disasters. In relation to this, the research findings revealed that the vulnerability of the respondents was the result of social factors such as the type of building which, usually, is less able to withstand the changing weather conditions. The economic factors to vulnerability include some of the respondents’ decision to live close to the vulnerable areas because such areas are their sources of livelihood and political factors which can be attributed to NADMO’s overemphasis on reactive responses to the perennial floods. Hence, adequate human efforts in these areas can help reduce vulnerability to floods and create more robust and resilient societies needed to adapt to current natural disasters.

Also, changing the erroneous perception earlier on discussed would require that additional efforts are put in place by NADMO to educate the people on subjects relating to the role local attitudes play in the frequent flood situation. Such an education could probably transcend into appropriate attitudes that can help prevent disasters.

## **5.2 Perception and Disaster Management: Is Helping People in Need the Sole Mandate of NADMO?**

The answer to the above question is, no. NADMO's main role is to prevent natural disasters and manage similar emergencies in the country. This is even reflected in the slogan of the organisation; "*Prevention Pays*". However, the research findings indicated that many of the flood victims perceived NADMO as an organisation that only helps people in need. No wonder experiences from the fieldwork showed that the flood victims usually associate NADMO with the distribution of relief items. As earlier on discussed in the Chapter Four of this report, this could lead to "relief syndrome" and other inter-related issues.

However, the flood victims, to some extent, cannot be blamed for having such a narrow view of NADMO. This is because they only see NADMO in their communities after a major disaster and it is usually for the purposes of distributing relief items. This presents a potential threat to disaster management in these communities because this perception can over cloud the preventive responsibility of NADMO. This research finding is much in line with what has been realised within the international community that many emergency agencies and donors are less committed to disaster prevention but are more into relief which is just a fraction of the complex task related to disaster management. For instance, in the Chapter Two of this report, mention was made of how millions of US dollars were spent by donor agencies on famine relief in Niger during a drought situation in 2005 but there was limited interest among donors on Senegal's proposal to build a "green wall" against the encroaching desert which could also lead to a drought situation (O' Brien *et al*, 2006: 74).

Given the increasing rate of disasters in the world, paying more attention to disaster prevention is a wise approach to minimise its impact on human livelihood. The latter argument is in fact the main preoccupation of the Hyogo Framework of Action (HFA) earlier on discussed in the literature review of this report. In this framework, attention is given to five (5) priority areas key of which include ensuring that disaster risk reduction is a national and local priority with a strong institutional basis for implementation (UNISDR, 2011). Hence, a more proactive attitude from NADMO, the government and donors can help to minimise human impact and help change this narrow view of NADMO (i.e. as an organisation that only helps people in need). Since the government of Ghana is the main financier of NADMO, it would also be appropriate for the government to be more committed, in words and deeds, to disaster risk reduction than in relief items distribution.

### 5.3 The Politics of Disaster Management

To recall, the research findings showed that in Nawuni the District Volunteer Groups (DVGs) were less active because it was alleged that cronies of the current political regime think they should rather be made volunteers of the DVG. More so, NADMO was perceived as a political organisation because changes in the country's political dispensation have in some instances also affected the organisation's leadership and human resource capacities at the national, regional, and district levels. How can this affect the effectiveness of the organisation?

The intended purpose behind the concept of DVG, as discussed in the literature review, is to encourage local participation in disaster management efforts and build local capacities for disaster risk reduction (NADMO, 2005, Nadmo News, 2009). Political interference in the operation of DVG has the potential of depriving local communities of their right to participate in issues of concern to them. Moreover, disaster management, either as a working profession or an academic discipline, is much dependent on field experience, which is built with time. Experience in addition to academic knowledge helps to strengthen the human resource capacities needed to effectively and efficiently handle the complex issues related to disaster management. However, political interference in NADMO's leadership threatens the organisation's effectiveness as its most experience human resource are replaced with new personnel who may have little or no experience in disaster management efforts. This situation is not an isolated case. In Kenya, political interference in disaster management efforts resulted in an exaggeration of figures related to the impact of a drought situation between 1992 -1994. The government subsequently diverted relief supplies from the international community to areas that it was not popular so as to win the confidence of the people (Munslow and Brown, 2006). Neither of the above stated examples of political interference in disaster management efforts is appropriate.

According to Berker, Kartez and Dennis Wenger (1993) current disaster relief packages sometimes fail to take into account internal conflict of interest inherent in social structures which could include *inequality*. This sometimes leads to post disaster conflict, rural urban migration and *feelings of discontentment*. In relative terms, the Fulani tribe in northern Ghana is a minority ethnic group<sup>14</sup>.

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<sup>14</sup>The natives of the Fulani tribe are from Burkina Faso, Mali and Niger, which are Ghana's neighbors to the North.

Some individuals of this nomadic tribe (i.e. the Fulani ethnic group) have lived in Buipe since birth and may find it difficult to trace their ancestral lineage to their countries of origin. The research findings revealed that in Buipe some sections of the Fulani tribe were bitter of the fact that they were sidelined in the distribution of the relief items by NADMO. This “feelings of discontentment” among some of the Fulani people has the potential of breeding resentment and ill-feeling against NADMO and others believed to have been favoured by NADMO in its relief items distribution. In the worst case scenario, this resentment could lead to post disaster conflict. The fact that the central Gonja district is a conflict sensitive area<sup>15</sup> makes post disaster conflict a real possibility.

CRED (2004) stated that most public sector agencies (e.g. the government) have not seriously committed themselves to disaster prevention and reduction. This is true in the case of the government (whom NADMO mainly depends for its budgetary finance). As an organization, the research findings showed that the district and regional offices lack the most basic emergency equipments such as speed boats, life jackets, vans, motor bikes and the necessary logistics to carry out its most basic functions. This is much in line with what is being observed globally that many third world nations lack the necessary financial, administrative, organization and political capacity to effectively cope with disasters (UNDP, 2004).

#### **5.4 The Concept of Vulnerability: Normalization of the Frequent Flooding Event**

The concept of vulnerability connotes the idea of been liable or susceptible to the harmful effects of an occurrence or event. Vulnerability to floods implies that individuals, particularly the poor and the marginalized, are most liable to the daunting effects of the frequent flood situation. The Chapter Four of this report discussed in much detail the social, economic and political factors that contribute to the vulnerability of individuals to the frequent flood situation in the Buipe and Nawuni communities.

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<sup>15</sup>The central Gonja district is considered a conflict sensitive area because it has a past record of tribal conflict and chieftaincy dispute.

However, the research findings also revealed that the concept of vulnerability to the flood victims may be something “external” to them and for which they do not see themselves or their actions as being involved in anyway. This report brought to light that some of the flood victims, particularly in Nawuni, were unwilling to move away from the vulnerable areas because they were used to the frequent flood situation. This may create a situation in which the frequent flood situation may seem a problem to “outsiders” like the researcher but not so much of a problem to some of the flood victims.

Secondly, the research findings showed that some of the flood victims were unwilling to move away from the vulnerable areas because of attachment to their ancestral home. This is a cultural factor to vulnerability. “Normalization” of the frequent flood situation by the flood victims and “attachment to ancestral home” are local attitudes and beliefs that may require re-orientation of the mindset of the people through appropriate education. This is a critical issue that NADMO or any agency involved in disaster management in these communities must take into consideration when preparing disaster management policies and plans for these communities.

## **5.5 Disaster Management: A Development Issue**

To recall, the Chapter Two of this report presented a triangular illustration of the iterative connection between development, management and environment with due regard to natural disasters such as floods. This linkage was discussed in relation to how institutional failures such as ineffective building policies, overemphasis on relief responses without a corresponding attention to disaster risk reduction and environmental degradation contribute to the perennial flood situation. However in this section, this report discusses the nexus between development, environment and management in relation to the research findings.

### **5.5.1 Development**

Globally, empirical evidences suggest that flood disaster is a development issue (CRED, 2004). This is because the effects of a flood disaster can lead the development of a community in a reverse direction and also exacerbate the poor living condition of a community. The findings from the research work indicate that the agricultural sector was hard hit by the perennial flood situation. This sector employs quite a greater number of the population in the

Nawuni and Buipe communities and provides material sustenance (i.e. food and financial support) for the inhabitants. The government through the district assemblies collects both direct and indirect tax from the goods and services produced by the farmers in these communities. Such funds contribute significantly to the infrastructural development of the communities and Ghana as a whole. For instance, the agricultural sector contributes to about one third (1/3) of the country's GDP (World Fact Book, 2011).

However, the perennial flood situation reduces the potential benefits that can be realised from the agricultural sector and impacts negatively on other social services such as education. For example, in Buipe, it was mentioned that flood victims had to share classrooms with pupils whilst pupils who could not be accommodated within the limited number of classrooms available joined other pupils from the nearby school. This can put pressure on existing social amenities and services. Similarly, this situation can compromise the quality of education given to the school children, who are always referred to as the future leaders of the nation.

### **5.5.2 Environment**

According to Ahrens and Rudolf (2006), the susceptibility of poor communities to hazards associated to floods can be attributed to underdevelopment which is caused by institutional failures. The research findings showed that settlement along water ways is one of the causes of the perennial flood situation in the communities. This situation can be attributed to failure on the part of the appropriate state institutions to enforce building regulation policies.

Settlement along water ways is also an environmental factor to the increasing levels of vulnerability in many poor communities because it is a sign of disregard for environmental factors in a community's development efforts. Moreover, in Nawuni, the research findings also indicated that land degradation through sand winning activities and tree cutting leads to soil erosion which aggravates the perennial flood situation.

### **5.5.3 Management**

Previous sections of this report have discussed in much detail the potential disadvantages associated with overemphasis on relief responses as a disaster management strategy in the Buipe and Nawuni communities or even Ghana as a whole. Findings from other research work reveal that there is an upward trend in relief funding among international NGOs as



against long-term development support (Munslow and Brown, 1999). The irony of this situation lies in the fact that relief which is a reactive response to disaster management is given much attention whilst disaster risk reduction is rather under emphasised. Unfortunately, this “institutional impasse” is a problem to both national and international humanitarian agencies as such a management strategy could lead to the reoccurrence of flood situations and further environmental degradation (Munslow and Brown, 1999). The next sub-heading presents an argument on how national governments can make a transition from the traditional modes of disaster response to long term risk reduction.

## **Chapter Six: Conclusion**

### **6. Introduction**

In the introductory Chapter of this report, I raised a key argument that given the long range effect of flood disasters on development, particularly for developing economics, overemphasis on relief response is woefully inadequate to solve the frequent flood situation. In this section, I discuss how a transition can be made from over emphasis on relief responses to disaster risk reduction through long term preventive measures such as Community Based Disaster Management (CBDM); which is supported by the Hyogo Framework for Action (HFA), UN Yokohama Strategy of 1994 and UNDP disaster risk reduction programmes.

#### **6.1 A Paradigm Shift: Bridging the Gap between Relief and Development**

According to Singh (2010), there is currently a paradigm shift from relief responses to disaster risk reduction that incorporates hazard mitigation and vulnerability reduction in development policies. This is because it has been observed globally that the traditional methods of disaster response, rescue and relief, is not proving helpful for long term disaster risk reduction. As earlier on discussed in the literature review of Chapter Two, Munslow and Brown (1999) remarked that “a fairly narrow focus on the delivery of basic materials and services to guarantee human survival is simply not adequate” for disaster management and it is quite unfortunate that NADMO’s attention is rather centred on this.

However, it is a challenge in the real world situation to link relief to development as donor agencies dealing with national organisations such as NADMO also focus narrowly on relief work rather than seeing it as stepping stones to development. But no matter how challenging this situation may be developing local capacities to be self resilient is the preoccupation of sustainable development and disaster risk reduction and prevention. Pandey and Okazaki (2005) indicate that effective disaster management can fully benefit humanity because it will impact on the environment, serve as a human intervention for sustainable development and improve food security. Based on the foregoing, this essay argues that the key tool to help bridge the gap between relief and development is through Community Based Disaster Management (CBDM).

The preceding chapter on the implication of the key research findings to disaster management in Ghana showed the linkage between development, environment and management when reflecting on the causes, effects and vulnerability of individuals to natural disasters. This implies that a similar framework that reflects the linkages between them is needed to sustainably mitigate the overwhelming problems associated with the frequent flood situation. According to Ahrens and Rudolf (2006: 2), “an integrated approach to disaster management and development planning is required to minimise the impacts of flood disaster. This means that disaster management must not only be understood as relief work but rather as a combination of emergency response and measures taken to reduce risk”. This underlines the bases for the CBDM approach which rests on the premises that building the capacities of local communities to manage emergency situations and reduce risk is the most appropriate management strategy to control flood disasters (Pandey and Okazaki, 2005). This strategy takes into consideration indigenous knowledge and local participation in the management of the problem. It has often been argued that it usually yields long term sustainable effects as there is community support for the structures meant to solve their problem. Failure to heed to the concept of CBDM can lead to the setback that was observed in Nawuni in which floods victims refused to move into the new housing structures provided for them by the relief agency. A noticeable reason was that the participation of the flood victims was limited only to information sharing without any active sense to engage them or use their local building techniques in the resettlement plans.

The Cyclone Preparedness Programme (CPP) in Bangladesh presents a lot of lessons to NADMO, the government of Ghana and the international community on the importance of community participation in disaster management efforts for development. Singh (2010) relates experiences of how the national government actively engaged the services and the traditional knowledge of the local people in high risk cyclone areas. This was done through village volunteer groups organised across risk areas in the country. The national government played an effective leadership role by co-ordinating the activities of other agencies such as the meteorological services department and the telecommunication network. Such coordination by the national government made it possible for the village volunteer groups to access national data on an impending disaster situation for the benefit of the local people. Moreover, the village volunteer groups were also trained and equipped with the necessary emergency equipments such as sirens, touch lights and Very High Frequency (VHF) radios for quick evacuation of the local people during cyclone and flood. There was also a systematic effort by

the local people to build cyclone and flood resistant shelters. The evidence suggests that this led to a remarkable decrease in casualties related to people, cattle and infrastructure during a recent cyclone situation.

A key thing that can be observed from the Bangladesh experience with the CBDM (through the Cyclone Preparedness Programme (CPP)) is that it integrated the principles of synergy by incorporating local efforts into national policies and programmes in disaster management. There was also a strong institutional base for the implementation of the CPP as there was government support for the programme. This is much in line with the UN Yokohama Strategy of 1994 which requested for community participation and involvement in development policies and acknowledged by national governments in disaster management efforts (Singh, 2010). Also among one of the five (5) priority areas emphasised by the Hyogo Framework for Action (HFA) is the need to ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation (UN\ISDR, 2011). Most importantly, the CPP reflected this concern of HFA.

Also, the government of Bangladesh played a specific role in the Cyclone Preparedness Programme by coordinating the activities of other agencies. This helps to prevent duplication of efforts by other relief agencies and help make accessible national data to the local people. Additionally, the government provided the high risk areas with all the necessary emergency equipments for their smooth evacuation in the case of an impending disaster situation. This is also in line with the principles of synergy which requires the government to provide both material goods and services for development efforts (Evans, 1996).

For a fact, the Cyclone Preparedness Programme in Bangladesh presents lessons to NADMO and the government of Ghana. An effective coordinating role by NADMO and government's commitment to equip the organisation at the grass root level with the necessary support tools can help boost local capacities to handle the perennial flood situation. After all, local communities are the first line of response to any disaster situation and limiting their participation to only a selected few (i.e. DVG), whose participation is also sometimes undermined by political interference, cannot be considered appropriate.

Experiences from this research work have showed how overemphasis on the traditional methods of disaster management can lead to relief syndrome, donor fatigue, dependency and

reduce local capacities for development. CBDM has also been discussed as the most appropriate tool to bridge the gap between relief and development as it builds the needed self-resilience and local capacities for disaster risk reduction and development. It now lies in the hands of the government and the international community to choose which pathway it wants to tread. CBDM could definitely be a wise choice as it will benefit humanity, impact positively on the environment and serve as a human intervention strategy for sustainable development (Pandey and Okazaki, 2005).

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## Appendix I: Informed Consent Form



In



K W A M E N K R U M A H  
UNIVERSITY OF SCIENCE AND TECHNOLOGY

Partnership with

Ethical Consideration

Informed Consent Form For:.....

### **Introduction**

I am Sherry Adomah Bempah, a student of University of Agder, Norway and pursuing a programme in Development Management. I am the researcher for the study the impact of Natural disasters on development with particular focus on flood which is quite predominant in this area. I invite you to voluntarily participate in this study. Please feel free to draw my attention to any concept or word in this form that you think needs further explanation.

### **Purpose of Research**

This study seeks to identify the impact of floods on the development of communities in the Northern region specifically Nawuni and Buipe. It asks local experiences\knowledge on the causes and effects of flood on livelihood. It also asks your perception about NADMO, the government agency for disaster management in this community. It seeks to find why flood victims still live close to vulnerable areas during the raining season and finally the implications of frequent flood situation on rural urban migration.

### **Research Intervention**

The main tool for this conversation is an interview guide which contains a series of questions that cover fairly the main issues that we will be talking about.

### **Participatant Selection**

You were particularly invited for this study because your experience as an individual\agency can provide rich insight into flood, its effect and its management strategies in this community\country.

### **Voluntary Participation**

Participation in this study is strictly *voluntary* and may not affect your personal evaluation either in this community\agency. A decision not to participate will also not affect you in any way. You may change your decision to engage in this study even as the discussion is on-going.

### **Procedure**

For FGD and personal interviews that are in a local language which I am unable to speak, a moderator who speaks your local language will be here to assist. For the purposes of information control, the researcher might deem it necessary to record conversation for later transcription and data analysis. Please note that this may also be rejected by the respondent, if he\she is not comfortable with it. However, all interviews are given codes and not personal names.

**Duration**

It is expected that an average interview takes between 45-80 minutes.

**Risks**

This study has little or no effect on your health and psychological well being as no chemicals will be administered as experiments. Rather some questions asked may be sensitive, personal and might elicit emotional response. Whilst this is not intentional, when such situations arise the participant is under no obligation to continue with the discussion. Appropriate counselling, if it is necessary will also be provided by the researcher.

**Benefits**

The study does not promise payment or “gifts” in return for being a participant. It is strictly voluntary and for academic purposes ONLY. However, your decision to partake in this study will potentially help in designing appropriate disaster response strategies that will help in the management of floods in this community\Ghana. It may also confirm what is known and may help identify the unknown in disaster management.

**Confidentiality**

This study will maintain strict *confidentiality* with the information provided either on personal details or what is said. In no way will personal names be linked to what was said (where it is necessary, permission will be sought accordingly). All interviews are strictly identified by codes. *Anonymity* may also be pleaded by a respondent.

**Right to Refuse or Withdraw**

This is to reconfirm that the study is voluntary and you may withdraw at anytime without any cost to you or the research.

**Who to contact**

If you have any questions, you can ask me now or contact the address below for further explanation: [sherrb09@student.uia.no](mailto:sherrb09@student.uia.no) or [sherrybempah@yahoo.com](mailto:sherrybempah@yahoo.com), [sherrybempah@gmail.com](mailto:sherrybempah@gmail.com) or [arne.o.oyhus@uia.no](mailto:arne.o.oyhus@uia.no) or [aikins1968@yahoo.com](mailto:aikins1968@yahoo.com)

**Certificate of Consent**

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study

Name of Participant.....

Signature.....

Date.....

(Day\Month\Year)



**Thumbprint  
(For illiterates only)**




**Appendix II: A Letter Showing an Itinerary for Public Education towards Disaster Preparedness**

(63)

**NATIONAL DISASTER MANAGEMENT ORGANIZATION**  
**CENTRAL GONJA DISTRICT ASSEMBLY**

In case of Reply the Number and date of this Letter should be quoted

  
Republic of Ghana

Office of the Central  
Gonja District Assembly  
P. O. Box TL. 2455  
Tamale – Buipe.  
Tel: 0716-22059/60

Our Ref: *NA/CS/DM/63*

Your Ref: .....

4<sup>TH</sup> AUGUST, 2010

**ITINERARY ON PUBLIC EDUCATION TOWARDS DISASTER PREPAREDNESS**

Following the setting in of the rains, coupled with the spilling of excess water from the Bagre Dam in Burikina Faso next week, it has become necessary for this outfit to embark on an emergency outreach programme in all Electoral Centres in this District to acquaint the people on this subject matter.

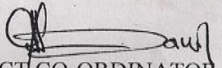
For this purpose, these outfit wish to request for the following listed items for a smooth and effective take off.

1. One (1) strong motor-bike and adequate fuel
2. Public address systems (Buipe, Bridge, Yapei only)
3. First Aid Box for trekking team.

By copy of this letter, Honourable Assembly members for the various Electoral Area are expected to take note and to ensure that the ground is adequately prepared for the meetings as portrayed in the programme attached.

It is my hope that, this letter will be given the attention it deserves so that the set goals and objectives of NADMO can be achieved.

Regards.

  
DISTRICT CO-ORDINATOR  
(HON. ABUDU BAWAH)

THE DISTRICT CO-ORDINATING DIRECTOR,  
CENTRAL GONJA DISTRICT,  
BUIPE.

Cc: Hon, Assembly Members  
Central Gonja District,  
Buipe.  
The Presiding Member,  
Central Gonja District,  
Buipe.  
The Regional NADMO Co-ordinator,  
Tamale.

Credit: NADMO Coordinator, Central Gonja District.



**Appendix III: A Letter Showing an Early Warning Message from NADMO**

CALL SIGN		PRIORITY	GROUP	MESSAGE INSTRUCTION	TRANSMISSION INSTRUCTIONS
		OP-m	108	u/c	
FROM	Regional Coordinator, NADMO, Tamale				DATE TIME OF ORIGIN
TO	All MM/District Coordinators, NADMO, N/R				
INFORMATION	Hon. RM, all MM/DCEs, N/R, National Coordinator, NADMO				
ORIGINATOR'S	NII				

② AA - NADMO  
 PG take note  
 Clul  
 4/08/10

③ Hon A - members  
 Please take note and disseminate info accordingly  
 4/8/10

**SUBJECT: Spillage** - from the Burkina Faso information received from the management of the Burkina Faso electricity co-operation son through VRA, Tamale office has indicated the following recent heavy rains in that country there is the high possibility of the Bagre dam getting full beyond its capacity. There therefore the likelihood of spilling excess water from the dam in the next few days. All Districts are by this message informed to alert residents of communities along the Volta basin by any means possible to move upland and take note of rising water level in the rivers. NADMO and RCO are standing for your feedback. Regards.

ORIGINATOR'S SIGNATURE	DEGREE OF PRIORITY	TIME HANDED IN
	BELOW THIS LINE IS FOR SIGNAL USE ONLY	1640/03
THIS MESSAGE IS TO BE SENT AS WRITTEN	SIGNAL DATE STAMP	THIS MESSAGE IS TO BE SENT IN CODE
TOR/0931/04/08/2010/	<i>[Signature]</i>	Myinawu Md

Credit: NADMO, Central Gonja District

## Appendix IV: Interview Guide: Flood Victims

**Target:** Victims of Flood

**Data Collection Technique:** Semi-Structure Interview

**Sampling:** Purposive

---

**Name of**

**Interviewer:**.....

*(Compulsory)*

**Name of**

**Interviewee:**.....

*(Optional)*

**Date:** .....

**Interview Code:**.....

**Name of Community:**.....

---

### *Demographics*

1. Sex

- Male  
 Female

2. Age

- Below 15 years  
 16-25  
 26-35  
 36-45  
 46-55  
 56-Above

3. Marital status

- Married  
 Single  
 Divorce  
 Separated

4a. Dependents

- None  
 Yes, there are

4b. If yes, please specify the number of dependents .....

5. Level of educational attainment

- Never went to school  
 Senior High School leaver  
 Primary school leaver

Any other, please specify,.....



6. Duration of Stay in the community

- Since Birth
- 1-5
- 6-10
- 11-15
- 16 -20
- 25 and–Above

Any other(s), please specify.....

7. Occupation

- Farmer
- Fishermen
- Trader
- Not Employed
- Any other(s), please specify.....

8. Location of building

- Very close to the White\ Black Volta (less than 5 minutes walk from the river)
- A Little Far from the White\Black Volta (About 5-30 minutes' walk from the river)
- Far from the White\Black Volta (between 30 and an hour walk from the river)

Any other, please specify.....

9. Which type of building material is used in the construction of your house?

- Mud house with thatch or palm leaves as roof
- Mud house with Aluminum Zinc as the roof
- Cement house with thatch or palm leaves as the roof
- Cement house with Aluminum Zinc as the roof
- Wood frame houses with thatch or palm as roof
- Wood frame houses with Aluminum Zinc as roof

Any other(s), please specify.....

*Objective 1:*

- *Perceive Causes of Flood and its Effects on Livelihood*
- 

10. In your opinion what are the causes of flood in your community?

11a. How often does flooding occur in this community?

- Rare
- Often (monthly)
- Annually (seasonal)

Any other, please specify.....

11b. (If the second and third option is chosen in question 11a) In your view, what are the main factors contributing to the frequent flooding in this community?

12a. Why do you or other people in this community still live close to vulnerable areas during the raining season?

12b. Did anyone die in your household as a result of the flood or from it accruing effects?

- Yes
- No

12c. If yes, how did it happen.....

13a. How has flood affected your farm, livestock and any other local business that you might be engaged in?

13b. If a farmer, how many acres of productive land was lost?

13c. If a farmer (livestock owner), how many livestock died as a result of the flood?

13d. If a fisherman, how did flood affect the business?

13e. If a trader, how did flood affect your local business?

Any other, please specify.....

14a. How has flood affected your personal belonging?

14b. Did it render your house uninhabitable?

15a. Did the flood render you, your family or anyone in your household homeless?

- Yes
- No

15b. If yes, how did it happen.....

15c. For how long did you have to sleep outside your house?

15d. Has any of your family member(s) left home because of the flood?

- Yes
- No

15 e. If yes, how did it happen.....

16a . Is any of your family member(s) engaged in the “paa oo paa” business in Kumasi?

- Yes
- No

16 b. If yes, what are the reasons that motivated him\her to leave home for the “paa oo paa” business?

17a. Did he\she have your consent before leaving home for the “paa oo paa” business?

Yes

No

17b. If yes, what factors motivated you to give him\her your consent to leave home?

18. Do you consider the frequent flood situation in this community as a factor that could motivate one to migrate down south?

*Objective 2:*

- *Knowledge about NADMO and its activities.*
- 

19a. Have you ever heard of NADMO?

Yes

No

19b. What do you think are its core role and functions?

20a. At what time period do you normally see NADMO in this community; before or after flood situations?

20b. What is NADMO usually seen doing when they visit this community?

20c. Have you ever heard of an early warning message\signal from NADMO over an impending flood?’

Yes

No

20d. What medium was used in the message delivery?

20e. Do you consider it reliable?

Yes

No

21. If yes, how did you respond?

22. Why would you heed or **NOT** heed to NADMO’s warning of an impending flood?

23a. Why would you fail to move into the new housing structure provided by Red Cross during the 2007 floods?

23b. Were you involved in the design and allocation of the newly constructed housing facility

in 2007?

- Yes
- No

23c. If yes, why were you involved and how was your participation acknowledged by the Red Cross?

23d. If no, why were you NOT involved and how do you interpret this?

24a. Have you ever received relief items from NADMO? (Please specify the kind of items received)

24b. What criteria do you think was used by NADMO in the distribution of the relief items?

24c. In your own judgment is this criteria appropriate?

24 d. If yes, why.....

24e. If no, why .....

25a. Do you think NADMO's response to flood has in any way contributed to the annual flooding situation of this community?

25b. If yes, why.....

25c. If no, why .....

26a. Do you think local attitude to flood response has in any way contributed to the annual flooding situation of this community?

26b. If yes, why.....

26c. If no, why .....

*Objective 3:*

*Indigenous knowledge in flood prediction and management*

---

27a. Do you or other people in this community have any experience\knowledge that can help predict flood in this community?

27b. Do you consider it reliable?

27c..How has it helped you and others to mitigate or prepare for flood situations?

28a. Has there ever been a situation when a flood situation did not **destroy** any live, farm, livestock and property in your family?

28b. If yes, what do you think contributed to the above?

28c. What was NADMO's role in this situation (where a flood did not destroy any farm etc)?

28d. What role did local experience\knowledge and local attitude on flood prediction and management play in this situation (where a flood did not destroy a farm, livestock etc).

29. What long term preventive measures do you think should be introduced by NADMO to solve the frequent flood situation of this community?

## Appendix V: Interview Guide: NADMO

**Target:** NADMO

**Data Collection Technique:** Semi-Structure Interview

**Sampling:** Purposive

---

**Name of**

**Interviewer:**.....

*(Compulsory)*

**Name of**

**Interviewee:**.....

*(Optional)*

**Managerial Level of**

**Interviewee**.....

**Date:** .....

**Interview Code**.....

---

*Objective 1:*

- *Perceived Causes of Flood and its Effects on Livelihood*
- 

1. In your opinion what are the causes of flood in Nawuni and Buipe communities?

2a. How often does flooding occur in these communities?

Rare

Often (monthly)

Annually (seasonal)

Any other, please specify.....

2b. (If the second and third option is chosen in question 2a) In your view, what factors contribute to this frequent flooding in these communities?

2c What is NADMO's strategy to prevent (manage) the negative effects of the frequent floods?

2d. To what degree is NADMO's disaster management strategy successful in combating the flooding situation and its negative effects in these communities?

2e. Do attitudes of the local people contribute negatively or positively to the frequent flood situation in these communities?

3. Do people in these communities utilize their knowledge and local structures to manage the frequent flooding?

4. Why would people in these communities still live close to vulnerable areas during the raining season?

5. What official statistics exist to highlight the effect of flood on the livelihood of the people of Nawuni and Yagaba in 2010?

Name of Community	No of Deaths per household	Affected Acres of Productive land	Affected No. of Livestock	Affected No. Houses	Affected No. of people rendered Homeless (Displacement)	No. of People Affected		
						M	F	Chd
Nawuni								
Buipe								
Total								

6. What environmental push factors contribute to rural-urban migration in these communities?

7a. Does the perennial flood situation in these communities contribute to rural –urban migration in these communities?

7 b. If yes, why.....

7c. If no, why .....

7d. If yes, how would NADMO’s long-term disaster preventive measures forestall this migration phenomenon?

Objective 2 and 3

- *Mitigation and Preventive Response to Flood by NADMO*
  - *Indigenous Knowledge and Local Participation in Disaster Management*
- 

(You may tick more than once)

8a. What disaster management strategy is *often* used by NADMO in these communities?

- Relief or Reactive Response
- Preventive or Proactive Response
- Integrated Community Response
- All

Any other, please specify.....

8b. How effective is this response strategy to disaster management in these communities?

9a. What local experience\knowledge exists for disaster prediction and management in these communities?

9b. How effective have this local knowledge been in disaster prediction and management in these communities?

10a. What elements of this local experience\ knowledge is or are employed by NADMO in its disaster management strategies?

10b. How effective have the inclusion of this experience\knowledge in NADMO's disaster management strategies proved to be in these communities?

10c. How are the local people involved in the five stages of disaster management in these communities?

- a. Prevention
- b. Mitigation
- c. Preparedness
- d. Response
- e. Recovery

11. What structures have been put in place by NADMO to ensure local participation in disaster management in these communities?

12a. How does NADMO use existing local social structures (women group, religious group, local NGO) in its disaster management strategies in these communities?

12b. How effective have these proved to be?



13. What long term preventive measures have been instituted by NADMO with regard to the following factors to manage disasters in these communities?

- a. Institutional and human capacities
- b. early warning signals
- c. technical expertise
- d. citizen education
- e. enforcement of building polices
- f. afforestation

Any other, please specify and explain .....

14a. Why did flood victims in the Nawuni community fail to use the new housing structure in provided by Red Cross in 2007?

14b. How did internal conflict of interest such as gender and class inequalities, conflict over land and property rights contribute to this problem?

15. What can be done by NADMO and other relief agencies to forestall such occurrences in the future?

16. Based on your experiences, how do you consider NADMO as an emergency organization?

## Appendix VI: Interview Guide: Relief Agencies

**Target:** Red Cross Society of Ghana  
Organization for the Co-coordinating of Humanitarian Affairs (OCHA)

**Sampling:** Purposive and Snowball Sampling

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**Name of**

**Interviewer:**.....  
(Compulsory)

**Name of**

**Interviewee:**.....  
(Optional)

**Managerial Level of**

**Interviewee**.....

**Date:** .....

**Interview Code**.....

---

1. How long have your agency worked in managing flood situations in Ghana?
- 2a. What are the general causes and effects of flood in Ghana, particularly, the Northern Region?
- 2b. How does this affect the development of communities in the Northern Region?
3. In your experiences with the Ghanaian situation, how are floods usually interpreted by the people and how does it affect their responses to flood situations?
- 4a. What factors contribute to the perennial flood situations in the Northern region of Ghana?
- 4b. To what degree does NADMO's (government) response to disasters contribute positively or negatively to the perennial flood situations in the Northern region?
- 4c. To what degree does local attitudes towards disaster response contribute negatively or positively to the perennial flood situations in the Northern region?
- 5a. What environmental push factors do you think contribute to rural urban migration in the Northern region of Ghana?
- 5b. Does the perennial flood situation in communities in Northern region contribute to rural –urban migrants in the “paa oo paa” business in Kumasi?
- 5c. If yes, how.....
- 5d. If no, why .....

- 5e. If yes, how could NADMO and other relief agencies long-term disaster preventive measures forestall this migration phenomenon?
6. Do you think the government's response to flood management through NADMO is an adequate preventive measure to disaster management in the Northern Region of Ghana?
7. What disaster management strategy (i.e. relief, preventive mitigation or integrated community response (use of indigenous knowledge, local participation and local community structures) would you recommend for disaster management in the Northern region and why?
- 8a. In 2007, flood victims refused to occupy a new housing facility provided by the Red Cross Society of Ghana. What factors do you think contributed to this?
- 8b. What do you think can be done to forestall such occurrences in the future?
- 8c. How has your agency incorporated issues of local participation and indigenous knowledge into its disaster management strategies in the Northern region of Ghana and with what results?
- 9a. How do you think flood victims interpret their vulnerabilities with regard to the effects of floods on their livelihood?
- 9b. Why would flood victims still stay near or within vulnerable areas during flood situations in communities in the Northern region?
- 9c. To what degree should this behavioral pattern be taken into consideration in the design and implementation of disaster management programmes.
10. Based on experiences, how do you consider NADMO as a relief organization?

## Appendix VII: Interview Guide: Local Community Chief

**Target:** Local Community Chief (or Leader)

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**Name of**

**Interviewer:** .....

*(Compulsory)*

**Name of Interviewee:** .....

*(Optional)*

**Date:** ..... **Interview Code...** **Name of Community:** .....

---

*Objective 1:*

- *Perceived Causes of Flood and its Effects on Livelihood*
- 

1. Based on your experiences what are the common causes of flood in this community?
2. How often does this flooding situation occur in this community?
3. Can this be mitigated and even be prevented? How?
4. How does the perennial flooding affect the (development) livelihood of the community?
5. What role do the local authorities play in disaster mitigation and prevention in this community?
6. To what degree does NADMO's (government) response to disaster contribute positively or negatively to the perennial flood situation of this community?
7. To what degree do local attitudes towards disaster response contribute positively or negatively to the perennial flood situation in this community?
8. What environmental push factors do you think contribute to rural urban migration in this community?
9. Do you think the frequent flooding of this community contributes to the movement of migrants down south (Kumasi) to join the "paa oo paa" business?
10. What long term preventive measures do you think should be introduced by the community and the government to prevent migrants from moving down south?

*Objective 2*

- Vulnerability to Flood
  - Indigenous Knowledge for Flood Prediction and Mitigation
- 

11. Why do flood victims still live close or even within flooded areas during the raining season?
12. Why is this community particularly hard hit by the floods with regard to its effects on your livelihood?
13. What role do these factors have in contributing to the adverse effects of flood in this community
  - a. Housing structure
  - b. Proximity to the White\Black Volta
  - c. Local attitude toward disaster response
14. As a traditional leader, does this community have any experience\knowledge that can help predict flood?
15. Do you consider this reliable?
16. How has this helped to mitigate or prepare for flood situations?
17. Do you think the government's response to flood management through NADMO is an adequate preventive measure to disaster management in this community?
18. If no, what long term preventive measure do you think should be implemented by NADMO to forestall future occurrences of flood situations in this community?
19. In 2007, flood victims refused to occupy a new housing facility provided by the Red Cross Society of Ghana at Nawuni. What factors do you think contributed to this?
20. What do you think can be done to forestall such occurrences in the future?

## Appendix VIII: Interview Guide: Migrant

Target: Migrants.

Data Collection Technique: Semi-Structure Interview

Sampling: Snowball

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### Name of

**Interviewer:**.....

*(Compulsory)*

### Name of

**Interviewee:**.....

*(Optional)*

**Date:** ..... **Interview Code:**..... **Community of Origin:**.....

---

### *Demographics*

#### 1. Sex

- Male
- Female

#### 2. Age

- Below 15 years
- 16-25
- 26 -35
- 36-45
- 46-55
- 56 –Above

Any other (please, specify).....

#### 3. Marital status

- Married
- Single
- Divorce
- Separated

#### 4. Dependents

- None
- Yes, there are

5. If yes, please specify the number of dependents .....

#### 6. Level of educational attainment

- Primary school leaver
- Never went to school

Senior High School leaver

*Objective 1:*

- *Degree To Which Floods Contribute To Rural Urban Migration*
  - *Knowledge about NADMO and Its Activities*
- 

7. What was your main occupation before leaving your community of origin to Kumasi?

- Student  
 Farmer  
 Fisherman\woman  
 Trader  
 Unemployed

Any other, please specify.....

8. Which season and month and year did you leave home?

- Dry season: November – April                      Year.....  
 Raining season May - October  
 Harmattan : December – February

9. Why did you leave your community of origin for the “paa oo paa” business here in Kumasi?.....  
.....  
.....  
.....  
.....

10. How many years have you being in the “kaya yoo or paa oo paa” business in Kumasi?

11a. How often did flood occur in your community of origin?

- Rare  
 Often (monthly)  
 Annually (seasonal)  
Any other(s), please specify.....

11b. (If monthly and seasonally are chosen in 11a),  
According to your experience, what is the main causes of the frequent flooding situation?.....  
.....  
.....

.....  
.....  
.....

12a. How did this (i.e. monthly or seasonal) affect your occupation (livelihood?) (or education if a student) whilst you were in your community of origin?.....  
.....  
.....

12b. Is the effect of the flood on your occupation (livelihood) the main reason why you moved to join the “paa oo paa” business in Kumasi?

12c. If Yes, in what ways?.....  
.....  
.....

12d. If No, please explain?.....  
.....  
.....

13a. Whilst in your community of origin, did you ever hear of NADMO?

- Yes
- No

13b. If yes, how did you understand NADMO’s role and functions?.....  
.....  
.....  
.....

*(You may tick more than once)*

14a. within what periods did you normally see NADMO’s activities in your community of origin?

- Only when there is a major disaster like bush fire
- When there is an excepted flood situation
- Later when damage as a result of a flood has already occurred
- Earlier when floods have not yet occurred

14b. What did you see NADMO normally do during their visit to your community?.....  
.....  
.....

14c. Did you ever experience or hear of a community education on how to manage flood by NADMO or any other relief agency?



14d. If yes, how did this help or not help you in the management of flood situations in your community?.....

.....

15. Based on your experiences, how do you consider NADMO as an emergency organization?

.....  
.....  
.....  
.....  
.....