

**DISASTER MANAGEMENT AND PERSISTENT FLOODING DISASTER IN
DAR ES SALAAM**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTERS OF SOCIAL WORK
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CERTIFICATION

The undersigned certifies that she has read and hereby recommends for the acceptance by the Open University of Tanzania a dissertation titled: “**DISASTER MANAGEMENT AND PERSISTENT FLOODING DISASTER IN DAR ES SALAAM .**” In partial fulfillment of the requirements for the degree of Master of Social Work of the Open University of Tanzania.

.....
Dr. M. S. Bushesha

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Date

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DEDICATION

This work is dedicated to my husband Mr. Johannes and my daughter Irene and my son Geoffrey, for their patience, and moral love during my study period. I am also glad to take this opportunity to dedicating this work to the Almighty God for his glory.

ABSTRACT

The study overall objective was to examine the disaster management in Tanzania. Specifically the study intended to; identify and discuss reasons why flood related disasters are persistent in Dar es Salaam, examine the effects of floods and disasters on the real income of the victims and the economy of the country, assess the social hazards emanating from floods turning into disasters in Dar es Salaam particularly on infrastructure. The research used descriptive research design where data was collected using questionnaire administration and interview for primary data, reference from library literatures on issues related to the study findings, readings, difference journals and published articles and reports that related to the study finding. The findings revealed that, there is an absence of skilled personnel in disaster management structure, lack of accountability of government officials, poor coordination among the stakeholders at different levels, and weak technical capacity to address disaster risk reduction. The study concluded that, lack of accountability national wide and preparedness by the government officials, especially disaster management department, poor coordination between inter-ministry levels and Tanzanian Meteorological Agency are among the factors that contribute to floods turning into disaster in Dar es Salaam. The study recommends that, the department of disaster management and government in the lower rank should be trained to mitigate disaster soon before they turn into disasters. Those livings in a more risk areas have to be given early warning and be evacuated. Nevertheless, the central government has to improve inter-ministerial coordination in mitigating floods and disasters before they occur.

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LIST OF ABBREVIATION

BBC	British Broad Casting
CBO's	Community Based Organizations
CMCs	Community Management Committees
CPP	Cyclone Preparedness Program
CSOs	Civil Society Organizations
DMD	Disaster Management Programme
DMT	District Management Team
DOPC	Disaster Operation and Preparedness Committees
EIA	Environmental Impact Assessment
ENSO	El Nino Southern Oscillation
FFWS	Flood Forecasting and Warning System
FESC	Food Emergency Sub-Committee
GDP	Gross Domestic Product
IFRCCS	International Federation of Red Cross and Red Crescent Societies
IGAs	Income Generation Activities
IPCC	Intergovernmental Panel on Climate Change
ISDR	International Strategy for Disaster Reduction
KIKAMP	Kinondoni Integrated Coastal Area Management Project
MDG	Millennium Development Goals
MoHSW	Ministry of Health and Social Welfare
NAPA	National Adaptation Programme of Action
NBS	National Bureau of Statistics
NDMC	National Disaster Management Centre

NGOs	Non-Governmental Organizations
NMSPT	National Multi-sectoral Social Protection Framework
PMO	Prime Minister Office
RAS	Regional Administrative Secretary
RC	Regional Commissioner
SPSS	Statistical Package for Social Sciences
TANDREC	Tanzania Disaster Relief Committee
TMA	Tanzania Metrological Agency
UK	United Kingdom
UN	United Nations
UNFCCC	United Nations Framework Convention Climate Change
VEO	Village Executive Officer
WEO	Ward Executive Officer
WHO	World Health Organization
WFP	World Food Programme

CHAPTER ONE

1.0 INTRODUCTION

1.1 Introduction

A disaster is a serious disruption of the functioning of a society causing wide spread human, material and environmental losses, which exceed the ability of the affected society to cope with impacts of disruptions, using its own resources (Olivia, 2011). The occurrence of disasters can be termed as rapid or slow onset depending on the speed and span of time of origination and impact, both natural and human made disasters can be slow or rapid (Olivia, 2011).

Disaster management is a strategy that is implemented when any type of catastrophic event takes place. The process may be initiated when anything threatens to disrupt normal operations or puts the lives of human beings at risk. Governments at all levels do create disaster plan that make it possible to overcome the catastrophe and return to normal function as quickly as possible. The disaster management plan tend to address important matters such as evacuating people from an impacted area, arranging temporary housing, food, and medical care for the affected population (Fred Cuny, 1983).

According to the European Union, the term flood is defined as a covering by water of land not normally covered by water (Kebede and Nicholls, 2010). In the sense of 'flowing water', the word may also be applied to the inflow of the tide. Flooding may result from the volume of water within a body of water, such as a river or lake, which overflows or breaks levees, with the result that some of the water escapes its usual

boundaries (IFRC, 2008). Floods can also occur in rivers, when flow exceeds the capacity of the river channel, particularly at bends or meanders. Floods only become significant, when the escapes of water endanger land areas used by man like a village, city or other inhabited area.

Floods often cause damage to homes and businesses. While flood damage can be virtually eliminated by moving people away from rivers and other bodies of water, people have lived and worked by the water to seek sustenance and capitalize on the gains of cheap and easy travel and commerce by being near water (Kerbed and Nicholls, 2010). That humans continue to inhabit areas threatened by flood damage is evidence that the perceived value of living near the water exceeds the cost of repeated periodic flooding (IFRC, 2008).

Floods are amongst the common disasters in Tanzania, a striking feature of the 2011 disaster was its intensity, duration and scale (Red Cross, December, 2011). Many sources claimed that its magnitude was unprecedented and the effects were the worst in many years. Recently Red Cross did a cross assessment of four regions of Tanzania; Dar es Salaam (Jangwani and Msimbazi), Dodoma (Bahi, Chalinze and Mahomanyika), Tabora (Igunga and Ganyawa), and Mwanza (Magu, Nyakahoja, Kabita and Lugeye). The report found that 14,000 people were in dire need of humanitarian assistance. The persistent heavy rains that battered the country during December 2006, to February 2007, triggered devastating floods across large areas, driving many people out of their homes, destroying their livelihoods and leaving many without means to recover from the effects of the disaster. about by floods, which encouraged the researcher to develop interest in this study.

Dar es Salaam city is topographically made up of lowlands that lie below the sea level, along the Coastal plain. This topographic feature makes it very vulnerable to floods and coastal erosion (Earhart, and Twena, 2006). The high vulnerability is largely attributed to poor planning, poverty, and poor infrastructure which are exacerbated by poor infiltration and un-functioning storm water drainage (Earhart, and Twena, 2006). The number of floods incidences in Dar es Salaam city has continued to rise due to unplanned settlements and on time missing metrological warning (UN-HABITAT, 2011). The literature is very limited concerning the availability of information on the vulnerability of population and their assets in low-lying areas, which are susceptible to floods hazards. The areas prone to floods in Dar es salaam include; *Msasanibonde la mpunga* (about 60ha mixed residential, commercial and institutional settlements; and is one of the fastest growing settlements in Kinondoni municipal despite being flood prone), Msimbazi valley, Jangwani around the slum area characterized by floods during rainy season almost every year, Mikoncheni where the problem is exacerbated by diversion of natural storm water drainage, and the city centre (Kerbed and Nicholls, 2010).

Moreover, the affected population now lives in appalling sanitary conditions with lack of access to safe water accompanied by intolerably hot climate that encourages the spread of communicable diseases. Therefore, it was the realization of the above devastation which is brought.

1.2 Statement of the Problem

According to Fred, (1983) Tanzanian Government has identified floods as potential hazards that if not well managed can turn into disasters. So, in order to ensure that

Tanzania is not subjected to disasters caused by the floods, several measures have been taken by the government, including encouraging and sponsoring Tanzanian scholars training in the fields of disaster mitigation and management; establishment of Disaster Management Department under the Prime Minister's Office at National level, also Disaster Management Committees at regional, district, ward and village levels under their respective leaders.

Notwithstanding the measures taken so far, the problem of floods has alarmingly persisted in Dar es Salaam and other parts of the country, for reasons which are still unknown. It is for this reason, therefore, the researcher found it is important to conduct a study in order to uncover or reveal the reason for persistence of the floods turning into disaster and the position of disaster management department in Tanzania.

1.3 General Objective

The purpose of this study was to establish the reasons for the persistence of flooding disaster and the position of disaster management department in Dar es Salaam in trying to minimize it.

1.4 Specific Objectives

- i. To identify reasons for persistence of floods related disasters in Dar es Salaam.
- ii. To examine the effects of floods related disasters economically and socially to the victims in the study in the area.
- iii. To establish the contribution of the department of disaster management under PMO in reducing flood related disaster in Dar es Salaam.

1.5 Research Questions

- i. What are the reasons for the persistency of floods and related disaster in Dar es Salaam?
- ii. What are the economic impacts of floods turning into disasters for victims and to the Dar es Salaam regions?
- iii. What are the social hazards emanating from floods related disasters in Dar es Salaam particularly on infrastructure such as roadway system and communication network, schools, business premises and health services?

1.6 Significance of the Study

The study is significant due to its endeavor to identify and suggest ways in which floods can be mitigated before transforming into disasters. The findings of this study are expected to provide useful information about magnitude of the problem of floods and their subsequent result and to establish/suggest ways of dealing with such problem. It will also help in promoting awareness. It is also expected that it will help both the local community in the study area and the department of disasters to conduct and monitor the efficiency of the department of disaster management in managing floods. Moreover, this study will be not only a useful reference for future studies, but also will significantly boost the growth of research on disaster management in the country.

1.7 Definitions of Key Terms

These sections give important definition of key terms associated with floods and disasters.

1.7.1 Floods

Many scholars have defined the term floods. The definition by UNCCC (2007), states that floods is a covering by water of land not normally covered by water, and it is said to be an overflow of an expanse of water that submerges land.

1.7.2 Hazards

A hazard is a situation that poses a level of threat to life, health, property, or environment. Most hazards are dormant or potential, with only a theoretical risk of harm; however, once a hazard becomes 'active', it can create an emergency situation (McCollum, 2006).

1.7.3 Disasters

McCollum (2006) asserts that, disaster is a natural or man-made hazard that has come to fruition, resulting in an event of substantial extent causing significant physical damage or destruction, loss of life, or drastic change to the environment. It is a phenomenon that disasters can cause damage to life, property and destroys the economic, social and cultural life of people. It can lead to financial, environmental or human losses.

1.7.4 Disaster Management

Disaster management is a complex series of activities which includes the risk assessment, prevention measures, and preparedness to cope with future disasters and emergency response to a disaster, recovery and reconstruction (Nicholls *et al.*, 2008)

1.7.5 Emergency Response

Emergency response is the rapid response tailored to save lives (humanitarian action), each disaster creates unique circumstances and quick response is needed to meet the specifics of the situation (UN-HABITAT, 2008).

1.7.6 Disaster Recovery

Disaster recovery is a response which is followed once the immediate danger is over, people may need assistance to rebuild their lives and their livelihoods (UNFCCC, 2007).

1.7.7 Disaster Preparedness

Disaster preparedness is done to prepare for future disasters by modifying or removing the causes of any likely hazard for example by building houses away from hazard prone areas, building levy banks in flood prone areas (UN-HABITAT, 2008). The mitigation efforts are attempts to prevent hazards from developing into disasters altogether or to reduce the effects of disasters (UNFCCC, 2007)

1.7.8 Pre- School Education

This refer to earlier education obtained from standard one up to standard seven as it is in the research

1.7.9 School Education

This refers to education obtained from form one up to form six as it is used

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter has presented various insights about what has been said on flooding disasters globally and locally, theories that influence floods turning into disaster and the role of disaster management department in preventing flood turning into disaster in order to raise the understanding of the research problem.

2.2 The Global Context of Floods

Flooding events are common around the world. The literature shows that governments have struggled to address disasters related to flooding in many ways. In Paris, for example the misery and destruction caused by the 1910 Great Flood of Paris, made the French government build a series of reservoirs called Les GrandsLacs de Seine (or Great Lakes) which helps remove pressure from the Seine during floods, especially the regular winter flooding.

In the U.S., the New Orleans Metropolitan Area, 35% of which sits below sea level, is protected by hundreds of miles of levees and flood gates. This system failed catastrophically, in numerous sections, during Hurricane Katrina, in the city proper and in eastern sections of the Metro Area, resulting in the inundation of approximately 50% of the metropolitan area, ranging from a few centimeters to 8.2 meters (a few inches to 27 feet) in coastal communities. In an act of successful flood prevention, the Federal Government of the United States offered to buy out flood-prone properties in the United States in order to prevent repeated disasters after the 1993 flood across the Midwest. Several communities accepted and the government,

in partnership with the state, bought 25,000 properties which they converted into wetlands. These wetlands act as a sponge in storms and in 1995, when the floods returned, the government did not have to expend resources in those areas.

The Adige in Northern Italy was provided with an underground canal that allows to drain part of its flow into the Garda Lake (in the Podrainage basin), thus lessening the risk of estuarine floods. The underground canal has been used twice, in 1966 and 2000. The largest and most elaborate flood defences can be found in the Netherlands, where they are referred to as Delta Works with the Oosterschelde dam as its crowning achievement. These works were built in response to the North Sea flood of 1953 of the southwestern part of the Netherlands. The Dutch had already built one of the world's largest dams in the north of the country (closing occurred in 1932).

Devastating flooding occurred in Winnipeg during the spring of 1950. To protect the city from future floods, the Manitoba government undertook the construction of a massive system of diversions, dikes, and floodways (including the Red River Floodway and the Portage Diversion). The system kept Winnipeg safe during the 1997 flood that devastated many communities upriver from Winnipeg, including Grand Forks, North Dakota and Ste Agate, Manitoba. It also kept Winnipeg safe during the 2009 flood.

The Saint Petersburg Flood Prevention Facility Complex was finished by 2008, in Russia, to protect Saint Petersburg from storm surges. It also has a main traffic function, as it completes a ring road around Saint Petersburg. Eleven dams extend for 25.4 kilometers and stand eight meters above water level. In Austria, flooding for over 150 years, has been controlled by various actions of the Vienna Danube

regulation, with dredging of the main Danube during 1870–75, and creation of the New Danube from 1972–1988. In Northern Ireland flood risk management is provided by Rivers Agency.

2.3 Floods in Africa

Floods have severe impact on food and water security in Africa. Floods related to ENSO have had major human and economic costs in east and southern Africa. The ENSO floods in 1998 in East Africa resulted in human suffering and deaths, as well as extensive damage to infrastructure and crops in Kenya (Magadza, 2000). Floods in Mozambique in 2000 and in Kenya in 1997-1998 sparked major emergency relief as hundreds of people lost their lives and thousands were displaced from their homes (Brockett et al., 1999; Ngecu and Mathu, 1999; The cost in Kenya alone was estimated at US\$1 billion (Ngecu and Mathu, 1999). Because of their combination of several natural resources, such as fisheries and fertile alluvial soils, wetlands and floodplains areas such as N'Djamena near Lake Chad and coastal areas of central and southern Mozambique are also severely affected; these are often sites of dense rural settlements as well as urban settlements. The East African floods of 1998 and the Mozambique floods in early 2000 and 2001 caused considerable damage to property and infrastructure. The major infrastructure damage was road and rail network damage. Communications among human settlements in Kenya, Uganda, Rwanda, and Tanzania were seriously disrupted, impeding movement of goods and persons in the region (Magadza, 2000).

The UK-based Tyndall Centre for Climate Change Research asserts that floods cause more damage than any other natural disaster. Huge annual losses result from the

disruption to economic livelihoods, businesses, infrastructure, services and public health. In developing countries where infrastructure is often weak, the impact of flooding can cause particular difficulties.

In Uganda, an officer in charge of Early Warning and Food Security in the Ministry of Agriculture states that although early warning systems exist, these are not yet strongly developed and the Bill for disaster management remains in draft format. Yet, with the Department of Meteorology warning that widespread flood will continue being a threat to the people's livelihood.

According to the International Federation of Red Cross and Red Crescent Societies, between 1993 and 2002, flood disasters "affected more people across the globe - 140 million per year on average - than all the other natural or technological disasters put together". Specialists from the Ugandan Department of Meteorology warned that the heavy rainfall, which began in the northeast in April, 2002 spread across the whole country, sweeping through the more central regions of Uganda, inundating agricultural land and communities. As the relentless rain and related humanitarian concerns increase, as the death toll kept on raising President Yoweri Museveni declared a state of emergency in northern and eastern parts of the country - the first in his 20-year reign. UN agencies sought more than US\$50 million to feed the 1.7 million Ugandans that were facing food shortages because of the April 2002, flooding. TesemeNegash, the World Food Programme (WFP) country director for Uganda, told local press that "they were struggling to meet both existing and new, growing needs". Access presents a particular challenge to aid workers, with roads and bridges destroyed by the rains having isolated 25 of Uganda's 80 districts.

The Tyndall Centre's Strategic Review on Floods, Health and Climate Change http://www.tyndall.ac.uk/publications/working_papers/wp63.pdf states that beyond the immediate physical flood water threats lay numerous longer-term health risks. For example, according to the World Health Organization (WHO), flooding can increase exposure to toxins and pathogens, may have implications for mental health, and can disrupt the capacity of healthcare systems to respond to health crises. Furthermore, the Intergovernmental Panel on Climate Change (IPCC <http://www.ipcc.ch/>) predicts that climate change is likely to intensify flooding hazards in many areas of the world.

Although models cannot definitively determine where, when, or by how much flood hazards will change, specialists suggest that existing flood-prone locations and some coastal and river-basin areas will become more vulnerable to severe flooding. In 2006, Salvador Briceño, director of the International Strategy for Disaster Reduction (ISDR <http://www.unisdr.org/>) secretariat, called for "more concerted action to better prepare populations for the negative impact of climate changes. The world is facing a new responsibility to protect the most vulnerable populations from floods and other weather-related disasters." As the Tyndall Centre's report summarized, "Flooding risks are shaped as much by social as by natural forces." Poor communities may therefore be particularly vulnerable, especially when concentrated in high-risk and often environmentally degraded areas. The UK Environment Agency and the UK-based Tyndall Centre for Climate Change Research recognize that floods cause more damage than any other natural disaster with recent floods in Somalia affecting more than 1 million people. Kenya is heavily affected by floods. For example, in some cases floods have occurred in the river basins even with normal rains because of

excess surface water runoff occasioned by deforestation, land degradation upstream. These force thousands of people living in the lowlands to move to higher grounds. Slum dwellers in towns like Nairobi who have erected informal structures near rivers are not spared. Either In Western Province River Nyando notoriously bursting its banks during the rainy season.

Kenya's record of flood disasters indicates the worst floods recorded in 1961-62 and 1997-98, the latter ones being the most intense, most widespread and the most severe. During this season the flooding was associated with the El Nino phenomenon, a weather pattern that affects most parts of the world. El Niño is a disruption of the ocean-atmosphere system in the tropical Pacific having important consequences for weather around the globe. It may cause increased rainfall in some areas and drought in others thus changing the normal weather pattern. The problem has been perennial each time taking back years of development and costing the government millions of shillings in reconstruction and recovery. Each year several people are reported dead or injured necessitating action to curb the hazards. Most parts of the nation experience river floods which are slow onset and mostly predictable. However some parts experience more severe floods than others including most parts of Kano plains (Nyando district) and Nyatike (Migori district) in Nyanza province, the Budalangi in Western province resulting from river Nzoia and the lower parts of Tanariver. The specific areas that experience floods almost annually include:- Nyanza Province(Kano plains, Nyakach area, Rachuonyo and Migori),Western Province (Budalangi), the Coast Province(Killifish, Kwale and the Tana River Basin)

2.4 Factors Contributing to Vulnerability to Floods in East Africa

The following are the factors contributing to vulnerability to floods; location of settlements in the flood plains, cultivation of crops along slopes adjacent to the floodplains causing massive erosion and destruction of trees in the catchments, lack of awareness of the flood hazard by the local communities where the capacity of the soil to absorb water is reduced due to erosion or existence of concrete, and poor building materials leading to non-resistant structures and foundations that cannot withstand the running waters and high risk infrastructure.

2.5 Measures to Address Floods

In the absence of effective adaptation measures, flood risks are exacerbated. Reports suggest this is particularly the case in developing countries; however, the devastation brought by Hurricane Katrina in 2005 suggests that even the most developed nations must take further steps to adequately protect against natural disasters. Experts have for years recommended that disaster risk reduction must be successfully incorporated into broader sustainable development goals to foster more resilient communities. There are signs that governments worldwide, such as Uganda, faced with increasing natural disasters, are beginning to take action individually and regionally. In November 2006, government representatives and experts met in Nairobi to design a five-year disaster reduction programme. The ISDR and the UN Framework Convention on Climate Change have partnered in this initiative to help reduce future flood losses. Other governments committed to the implementation of the Hyogo Framework for Action (2005-2015) <http://www.unisdr.org/eng/hfa/international/Provention-contribution-HF.pdf> are also adopting measures to reduce the

impacts of floods. For example, the Ugandan government's multi-sectoral Department of Disaster Management and Refugees have created, with support from the ISDR, a National Platform to plan and implement coordinated mitigation and response initiatives in line with the Millennium development goals.

Precautionary approaches such as those introduced in Bangladesh develop adaptive strategies to improve coping capacities against flood risks. They may provide immediate benefits for population suffering, or at risk from floods. In Uganda and some other countries, the approaching rainy season, confirmed by meteorological reports and climate change predictions, presents a huge challenge to already stretched organizations and communities. Lessons learned from each crisis must be analyzed and acted upon if the inevitable future floods are to remain a natural event and not result in human disaster

2.7 Floods in Dar es Salaam and Associated Risks

Dar es Salaam region is located in shanties low-lying areas, which are often highly prone to flooding from a variety of mechanisms especially intense precipitation. The coastal erosion problems have also been reported along virtually the whole stretch of the mainland coast of the country and around the islands (Nyandwi, 2001; Makota *et al.*, 2004). Areas that are known to be severely affected include the Kunduchi (north of Dar es Salaam) and Bahari beaches (Griffiths and Lwiza, 1988; Masalu, 2002). At the Kunduchi beach area, the coastline has retreated for about 200m over the last 50 Years, destroying residential houses, public services (*e.g.*, a mosque) and other tourism facilities (*e.g.*, hotels), as well as the historic fish market (constructed in 1970s) and a seawall constructed to protect the Ocean road (as cited in Casmir,

2008). The average rate of erosion for the city area has been estimated at about 3 – 5 m/year (Fay, 1992). A number of earlier studies have been carried out on various aspects of coastal erosion, and different causes have been suggested such as coastal uplift (Alexander, 1966; 1969), sea-level rise (Fay, 1992), changes in hydrodynamic conditions such as long shore drift (Arthur ton, 1992), and other human activities such as extraction of sand from rivers for construction purposes, destruction of the fringing and barrier coral reefs by dynamite fishing, and removal of vegetation from mangrove swamps (Fay and Griffith, 1987; Fay *et al.*, 1988).

Other issues include over exploitation and unsustainable use of coastal and marine resources (*e.g.*, coral reefs and mangrove forests), destructive fishing methods (*e.g.*, poisoning, beach seining), industrial and domestic pollution (*e.g.*, oil spills, effluents, and wastes), coral bleaching, and unregulated tourism activities. Climate change and sea-level rise could only exacerbate these issues in the future, and are more likely to lead to significant loss of low-lying areas of the coastal zone with potential impacts on urban areas, tourism industry, agricultural lands, important infrastructure (*e.g.*, ports) and other socio-economic activities located within the vulnerable coastal zone. For instance, tourist facilities such as hotels and road infrastructures in Dar es Salaam are only partly protected from erosion by grayness and a seawall. According to Mwaipopo (2000), it is predicted that on average about 400m of landward retreat would occur due to erosion in Dar es Salaam under a 1m sea-level rise. A total land loss estimated at 247 km² and 494 km² is expected for a 0.5 and 1 meter rise of sea level, respectively (Initial National Communication of Tanzania, 2003).

Tanzania is party to the UNFCCC and the Kyoto Protocol and has prepared a National Adaptation Programmer of Action (NAPA, 2007). The capacity for

investing in adaptation activities (protecting vulnerable populations, infrastructure, and economies) is still low due to financial constraints (NAPA, 2007). However, the NAPA will help in the integration of adaptation issues in the development process, guiding development to address urgent and immediate needs for adapting to adverse impacts of climate change. Among other objectives, the NAPA aims at improving public awareness on the impacts of climate change and on potential adaptation measures that can be adopted. In Dar es Salaam, activities have included planting trees along the beach, roadsides, near houses and in open spaces.

Coastal management projects involve beach conservation, including conservation of mangroves and coral reefs, as well as Marine Park protection. Poverty alleviation components, such as facilitation of seaweed farming, are also often included. Some of the city's coastal management projects are noted below. In particular, the Kinondoni Integrated Coastal Area Management Project (KICAMP) aims to formulate a comprehensive plan focused on the use of land and water resources in coastal areas. The project has banned the excavation of sands in Kunduchi, Mtongani as a way to prevent further beach erosion from occurring along the coastal area. Households are being made aware of the value of mangroves and involved in their protection, and, combined with heavy protection from KICAMP; this has led to an increase in mangroves. Other civil society organizations involved in conservation, awareness rising, and environmental management included Roots and Shoots, World Vision, Maps Drawings and Arts Association against HIV-Aids, and the International Organization on Migration, which helped the formation of environmental management societies in schools, markets and dispensaries. Schools had already planted trees and botanical gardens in their compounds. Msasani Bonde

la Mpunga is also involved in coastal conservation measures through a partnership with WWF, Wildlife Society for Nature Conservation, the private sector (running tourist hotels and sea boats), and IUCN and Tanzania Marine Park authorities.

The country has strengthened multilateral relations at the international level in order to enhance the ability to cope with climate change and variability for sustainable livelihoods. For example, Tanzania and the Kingdom of Norway have agreed to partner to combat adverse impacts of climate change. Under this program, Tanzanian scholars are trained on climate change issues (planning and forecasting), and, as short courses on climate change tend to be publicized through newspapers and on television, awareness is raised among the public on climate change impacts, adaptation measures and mitigation. Floods in December, 2011 in Dar es Salaam posed a greater impact to the livelihood of the people. The fast flowing waters destroyed people's homes, washed away their belongings, distracted livelihoods, ruined crop fields, damaged roads and bridges and forced thousands to abandon their towns and villages in search of safer grounds. According to the Guardian Newspaper of December 22, 2011, it was reported that "At least 13" people were reported dead in floods after unusually heavy rains hit Tanzania's main city of Dar es Salaam.

On December 18, 2011 the Tanzania Meteorological Agency (TMA) has warned that the downpours are set to continue and has told those living in the city's valleys to move. On December 22, 2011 the BBC's Aboubakar Famau in Dar es Salaam says the city's business activities have come to a standstill. Several main roads that link the centre are flooded and some bridges have been destroyed. According to TMA, these are the heaviest rains Tanzania has experienced since independence in 1961.

Hundreds of people living in the city's valleys have been left homeless. Taabu Kibwa said her whole house was covered by water."We have lost all our properties, in fact we are left with empty hands. Everything in the house has been lost including television sets and refrigerators," she told the BBC."I have three children, one of whom I don't even know where he is."Another resident, Shaaban Ramadhan Hussein, said he worked and lived in his home which was now under water. Everywhere is flooded, people are on top of their house roofs, no rescue has come so far. We are not happy, it is like the government doesn't care about us," he said. The government has set up Centres to temporarily accommodate people made homeless. Our correspondent says the floods seem to have caught many by surprise, yet it was only a few days ago that the Tanzania Meteorological Agency warned of possible devastation by heavy rains.

The police commander for Dar es Salaam, Suleiman Kova, has urged people to leave the valleys, but he said some residents were refusing."We went [to] rescue some and then they refused to vacate saying they are keeping eyes on their properties," he said. Our correspondent says the government has set up Centers to temporarily accommodate people displaced by the floods. There is little chance of them relocating to their home villages or regions before the festive season because the weather agency has cautioned that the rains are not going away, he says "We have been having heavy rainfall the day before yesterday, yesterday and today - we will therefore have more floods," said Agnes Kijazi, TMA's director."

Nicholls *et al.*, (2008), estimated population and asset exposure to coastal flooding by a 100-year event due to storm surges globally for 136 port cities with population

criteria over 1 million. Dar es Salaam represents one of the 19 African largest port cities included in the study, and they estimated that in 2005, the total exposure in the city is about 36,000 people (ranked 74th globally and 7th in Africa) and US\$130 million assets (ranked 127th globally and 14th in Africa). In the 2070s, this exposure grows dramatically due to a combination of urbanization, socio-economic change and sea-level rise, and over 350,000 people and infrastructure asset worth approximately US\$5.3 billion could be exposed to the 100-year coastal flood. There are many disruptive effects of flooding on human settlements and economic activities. However, floods (in particular the more frequent/smaller floods) can also bring many benefits, such as recharging ground water, making soil more fertile and providing nutrients in which it is deficient. Flood waters provide much needed water resources in particular in arid and semi-arid regions where precipitation events can be very unevenly distributed throughout the year. Freshwater floods particularly play an important role in maintaining ecosystems in river corridors and are a key factor in maintaining floodplain biodiversity.

2.13 Conceptual Frame Work

A conceptual framework is a representation, either graphically or in narrative form, of the main concepts or variables and their presumed relationship with each other. It is usually best shown as a diagram as indicated below (Saunders, 2004). The general objective of the study was to examine reasons for the persistence of flooding disasters in Dar es Salaam with a focus on examining disaster management in Tanzania. The research conceptual frame-work is based on two variables namely independent variable and dependent variable.

2.13.1 Independent Variable

It is hypothesized that if Disaster management department keeps on harmonizing pre-disaster management and monitoring team through investing in educating Dar es salaam dwellers living in floods prone or vulnerable areas, the rate of floods turning into disaster will be reduced or controlled. This can be achieved through giving advocacy to those people living in flood vulnerable areas, rehabilitation of drainage system and construction of good infrastructure including proper sewage system, DMD management reducing bureaucracy in their operation, which has to be accompanied by employing competent staff. This has to be comprehended by improving coordination between different departments of players dealing with disaster preparedness; Tanzania meteorological agency, Local government and other stakeholders; CBOs, NGOs just to mention a few.

2.13.2 Dependent Variable

The causes of floods turning into disaster in Dar es salaam (which are hypothesized as the causes for the persistence of flooding disaster in Dar es salaam) is treated as dependent variable and is the main focus of the research, and can be influenced by other factors such as poor coordination between stakeholders; Government (Disaster management Department-Prime Minister's Office), the department of climatology, local residents living in floods prone areas, the municipal authorities in Dar es salaam city and other stakeholders i.e. CBO, NGOs.

Independent-Variable/ Dependent-Variable

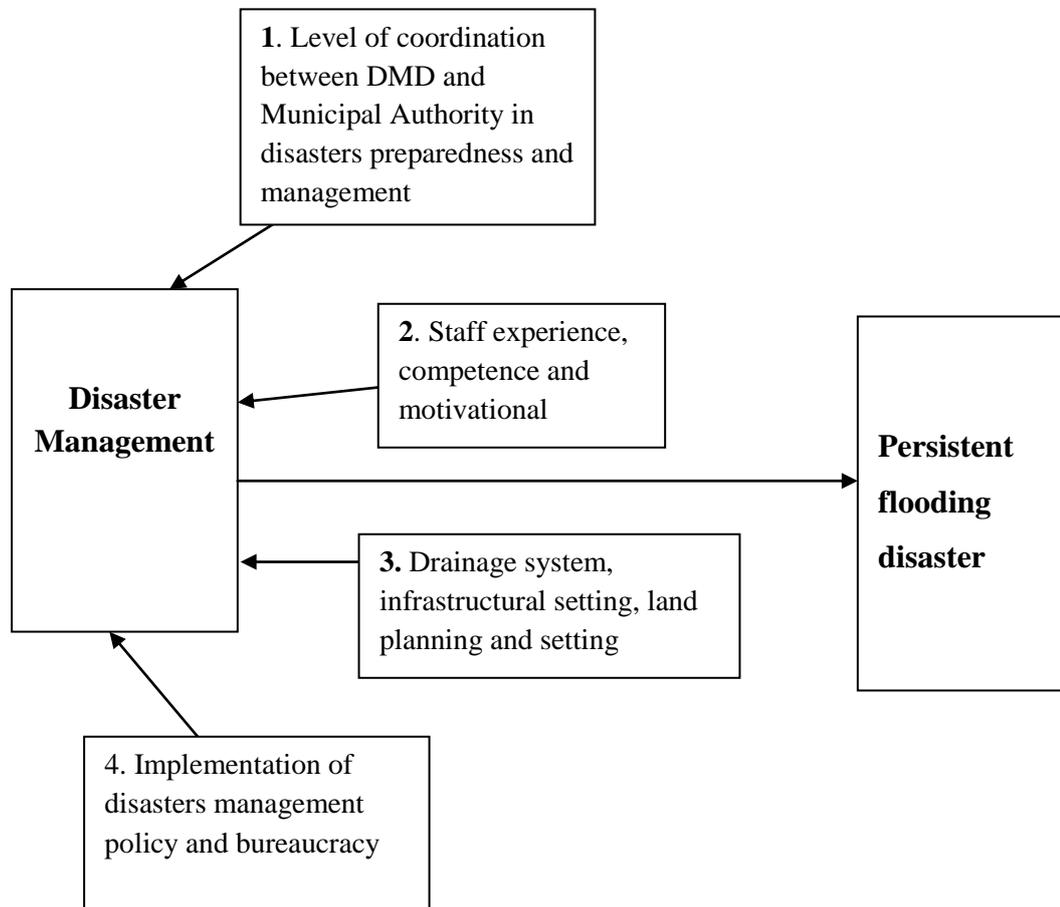


Figure 2.1: Conceptual Model

Source: Own Conceptualized Theoretical Frame Work

2.13.3 Relationship between Variables

The study describes how independent variable; that is level of coordination between disaster management department (Prime Ministers' office), Tanzania Meteorological Agency, municipal authorities and local leaders, different groups of community i.e. NGOs, CBOs facilitate in the pre-disasters monitoring and management process, and will control floods before turning disasters in the study areas.

Causes for Floods Disaster

Disaster Management Theories and Flood Disasters

The study is guided by a number of theories which explain the causes that lead to the floods turning into disasters worldwide. More thought have been put forth by various authors in relation to the causes which lead to risk turning into disaster persistently in any state. In this case the selected theories are: vulnerability theories, functionalism theories and normative theories.

Vulnerability Theories

During the 1970s and especially the 1980s the relationship between human actions and the effects of disasters – the socio-economic dimension of vulnerability – was increasingly well documented and argued. In the late 1980s and early 1990s, two important conceptual models were developed for understanding vulnerability to disasters and for reducing it:

1. Capacities and Vulnerabilities Analysis (Anderson and Woodrow 1989/1998).
2. Pressure and Release/Access models (Blaikie *et al.* 1994).

Disaster vulnerability theory seeks to explain susceptibility of individuals, groups, organizations communities and countries to losses from disaster. The basic idea of Vulnerability is practical and easily understood. For example, Oliver Smith and Burton,(2005)defined Vulnerability as a ration of risk to susceptibility. O'Keefe et.al also noticed that, disaster of the same magnitude produce dramatically different conceguences,such as the 73,338 lives lost in the 2005Pakstan,7.5earthquaker versus 68 lives lost in the 1989 Loma Pieta California,7.5 earthquake(<http://www.emdat.be>).This scholars reasoned that since the number of

disaster was constant while the losses and cost were rising and the same magnitude disaster in different regions had dramatically different consequences, the causes had to be rooted in Social System.

Capacities and Vulnerabilities Analysis (CVA)

It was designed to make relief interventions more developmental but has been used more widely in disaster preparedness and mitigation. It is above all a practical and diagnostic tool. The basis of the Capacities and Vulnerability Analysis is for viewing people's vulnerabilities and capacities in three broad interrelated areas: physical(material), social(organizational) and motivational(attitudinal).

How does the community view its ability to create change?

Capacities and Vulnerability Analysis makes a distinction between 'vulnerabilities' and 'needs': vulnerabilities are long-term factors that affect a community's ability to respond to events or make it susceptible to disasters; needs (in a disaster context) are immediate requirements for survival or recovery after disaster.

Physical/material vulnerability and capacity. The most visible area of vulnerability is physical/material poverty. It includes land, climate, environment, health, skills and labor, infrastructure, housing, finance and technologies. Poor people suffer from crises more often than people who are richer because they have little or no savings, few income or production options, and limited resources. They are more vulnerable and recover more slowly. To understand physical/material vulnerabilities, one has to ask what made the people affected by disaster physically vulnerable: was it their economic activities (e.g. farmers cannot plant because of floods), geographic location (e.g. homes built in cyclone-prone areas) or poverty/lack of resources?

Social/ organizational vulnerability and capacity. How society is organized, its internal conflicts and how it manages them are just as important as the physical/material dimension of vulnerability, but less visible and less well understood. This aspect includes formal political structures and the informal systems through which people get things done. Poor societies that are well organized and cohesive can withstand or recover from disasters better than those where there is little or no organization and communities are divided (e.g. by race, religion, class or caste). To explore this aspect, one has to ask what the social structure was before the disaster and how well it served the people when disaster struck; one can also ask what impact disasters have on social organization.

Motivational/ attitudinal vulnerability and capacity This area includes how people in society view themselves and their ability to affect their environment. Groups that share strong ideologies or belief systems, or have experience of cooperating successfully, may be better able to help each other at times of disaster than groups without such shared beliefs or those who feel fatalistic or dependent. Crises can stimulate communities to make extraordinary efforts.

Organizational dealing with disaster management in Dar es salaam normally not concentrate on three phases of disaster management. In order to prevent flood disaster problem in community all parties within the societies should work together, with cooperatives and unit to attain common goal which should be accompanied with reinforced government laws.

Functionalist Theory

The idea of functionalist developed by Emile Durkheim 1915, he argued that: ‘the organic unity of society, leads functionalist to speculate about needs which must be met for social system to exist, as well as the way in which social institutions satisfy those needs, such as every society will have a religion, because religious institution have certain functions which contribute to the survival of the social system as a whole. Social system work to maintain equilibrium and to return to it after external shocks disturb the balance among the social institution. ‘Social equilibrium is achieved, most importantly through socialization of members of the society into the basic values and norms of that society.

In order to control flood disaster in vulnerable areas and other party of the National, deferent parties of the society/community should work together as unit in order to attain common goals of solving social problem when arise in any community or society in general. All parties dealing with disaster management should work together in all phases to reduce the persistence of flooding disaster since some disaster are natural. According to Calhoun et al.(1994) there must be the inter dependence among parts of social system just as a human body as made up of inter related parts of which each part play a role of in maintaining a whole further argued that social system are composed of inter connected part both support and depend one another. Each part has some contributions that must make of the whole system to work well. Functions were the effects that some social groups or institutions have a system of relationship to other, if one part will not work accordingly, will affect other part within the system. As the result it reduces efficiency and development of

the society. The dysfunction of the system in the community in preventing flood disaster can cause different strategies not to be achieved. Functional theory believes that system is functionally integrated to the extent that all parts cooperate to each one with good services and support their need. Also there must be functional relationship, division of responsibilities, specific functions in terms of how and working places, so as to ensure they needs of the system as a whole. They argue that if these parties of the society cannot work properly it will cause dysfunctions of the society which may cause arise of social problems. Brinkerhoff, (1988) argue that “functionalist theory addresses the question of social organization and how it was maintained. The study of the society must begin with an identification of the parts of the society, and how the community works together as a team. That society has assumption in stability that any social patterns whether contributed to the maintenance of the society harmony. As part these should work together for the good of the whole society”.

Community member as one part of the system should work together with other part of the system like government and non government organization to prevent flood disaster in the community, each part has to stand on its position. As the community has the role on imposing some rules, values, custom to the new generation, and to prevent the occurrence of floods in their community and society in general. The persistence of disaster flooding in Dar es Salaam are caused by poor functioning of the organization dealing with flooding disaster.

Normative Theories

Normative theories were first proposed by Fred Siebert, Theodore Peterson and Wilbur Schramm in 1956 in their book called “Four Theories of the Press”. A

Normative theory describes an ideal way for a media system to be controlled and operated by the government, authority, leader and public. These theories are basically different from other communication theories because normative theories of press are not providing any scientific explanations or prediction. At the same these “four theories of the press” were came from many sources rather than a single source. Sometimes media practitioners, social critics and academics also involved to develop these normative theories which are very useful to emergency managers. In the theory it is assumed that their effectiveness will be enhanced if they abide by these *prescriptive* lessons.

Most important among these is the collection of ideas commonly referred to as “comprehensive emergency management” (National Governor’s Association 1978). Through a series of common managerial functions, i.e., mitigation, preparedness, response, and recovery, emergency managers can organize their programs for an all-hazard approach through implementing a series of broad strategies and specific tactics (Lindell and Perry 1992 and Drabek 2004). Multiyear planning can be guided by the “integrated emergency management” framework proposed by McLoughlin (1985). Specific steps in building a community risk reduction program have been formulated (American Red Cross 1992) as have tactical management models such as the incident command system (ICS) (National Interagency Fire Center 1994) and the National Incident Management System (NIMS). Components of and exercising strategies have been developed for key community structures like emergency operations centers (EOC’s). All of these “normative” theories are relevant to emergency management and provide emergency managers with important theoretical

foundations. The issue of addressing flood disaster management should be a continuous process through the media since the messages reach the community at large in short time.

Knowledge Gap

From the reviewed theory and literature review, there is evidence that all actors involvement in solving flood disaster problem is very crucial .It is observed that other actors do not play their part on flood disaster preparedness management. It needs all the system to work together in all phases of disaster management. The available study has not specifically analyzed the involvement of all actors in disaster management and persistence flooding disaster in Dar es Salaam in all phases of disaster management. That is why this study want to access the reasons of persistence of flooding disaster in Dar es salaam.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research design the researcher adopted to enable her ascertain the information for her study, it also specify the research population from which the sample size is taken, the sampling procedures that were followed during the process of determining the sample size. The chapter also shows the research instruments used in gathering information with the data gathering procedures. In the same chapter data analysis and procedures are shown. Ethical consideration and expected research limitations are shown as well as the way in which they were dealt with in the study.

3.2 Location

Dar es Salaam is located at 6, 48' South, and 39' 17' East. It is situated on a massive natural harbor on the Eastern Indian Coast of Africa. According to the national Census of 2012 the population of Dar es Salaam is about 4,364,541. The area of Dar es Salaam is about 1,590.5sq.Km. It is the largest and richest city in Tanzania, and consists of three local Government areas or districts; Kinondoni to the North, Ilala in the Central of the region and Temeke to the South. Climatically Dar es Salaam features a tropical wet and dry seasons, and in a year there are two distinct rainy season – the long rains which fall during April, and May, and the short rains which fall during October and November.

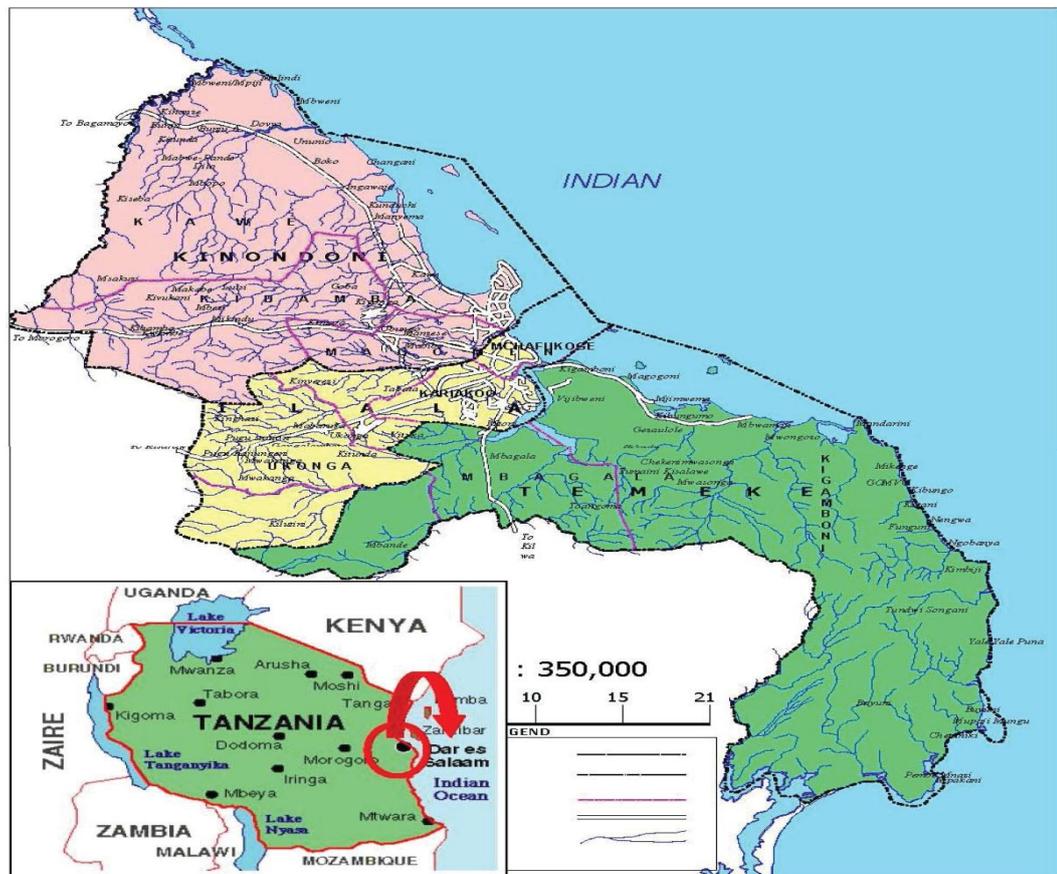


Figure 3.1: Map of Dar es Salaam Region

3.3 Social-Economic Profile

Dar es Salaam was established in 1862 as a port and trading centre to support new caravan routes opening into the interior of Africa. It became the national capital in 1891, acquired municipal status in 1949, and achieved city status in 1961. In the mid-1970s, Dar es Salaam lost its official status as the capital city to Dodoma. However, it remains the centre for the permanent central government bureaucracy and has continued to serve as the country's capital city. It is the national centre for industry, education, and culture, and is full of diversity. Hosting 8 percent of the national population and generating over 70 percent of the national gross domestic product (GDP)

3.4 Research Design

The study employed descriptive and case study research design. This research design assisted the researcher in obtaining the perceptions and opinions of respondents relating to the cases available to make a full description of the whole phenomenon at hand. Furthermore, descriptive and case study research design enabled the researcher in establishing the reasons for floods and why they turn into disasters with an indication of economic hazards as well as social hazard due to flood related disasters in Dar es salaam Tanzania.

3.5 Research Population

The target population included a total of 600 people, the victims of floods and the disaster management related personnel in Dar es Salaam. The population is categorized in table 3.1 below.

Table 3.1: Targeted population.

No	Category of Respondents	Target population	Percentages
A	Respondent in floods prone areas		
1	Msimbazi village residents	150	25
2	Jangwani valley	155	25.8
3	Msasani	45	7.5
4	Kigogo	52	8.7
5	Magomeni	48	8
B	Disaster management related personnel		
1	Dept of disaster mgt	65	10.8
2	Tanzania meteorological agency	55	9.2
3	Dar es salaam regional commissioner	30	5
	Total	600	100

Source: Field Work Data (2012)

3.6 Research Sample Size

The sample size comprised of 240 respondents as indicated in table 3.2. The researcher obtained this sample size by employing Slovene's formula stated below.

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

Where n= sample size, N= Target population and e= level of significance at 0.05 level

Table 3.2: Respondents' Sample Size

No	Category of Respondents	Target Sample	Percentages
A	Respondent from floods prone areas		
1	Msimbazi village residents	60	25.0
2	Jangwani valley residents	62	25.8
3	Msasani	18	7.6
4	Kigogo	21	8.7
5	Magomeni	19	8.0
B	Disaster Management Related Personnel		
1	Department of disaster mgt	26	10.9
2	Tanzania meteorological agency	22	9.0
3	Dar es salaam regional commissioner	12	5.0
Total		240	100

Source: Field Work Data (2012)

3.7 Sampling Procedure

Stratified and purposive sampling techniques were used in selecting suitable respondents for the study stratified random sampling technique enabled the researcher in obtaining relevant respondents from different sub groups in research

population where as purposive sampling technique helped the researcher in obtaining suitable data of the record of that disaster incidents in Dar es Salaam regional Commissioners office that had enough information about the research objective.

3.8 Research Instruments

A structured- closed ended questionnaire with 5 like scale was employed. The instrument was administrated to the selected sample. It was adopted for it is easy to analyze, interpret, compare and it is the best tool used in exploring the perception and feelings of respondents quantified from in range of 0.5 to 3.0. As a respondent choose to agree strongly the agreement on the question will be valued from 0.5 to the maximum of 1.00 where as if a respondent strongly disagree on the question asked the disagreement will be valued at 2.51 to the maximum of 3.00 and this having the low opinion to question's answer.

Also the researcher used unstructured interview schedule to fill some gaps hat were not met by the questionnaires like where exact information was required like the number of those affected and the real effect of the flood.

3.9 Validity and Reliability of the Instrument

The content validity was ensured by subjecting the instrument to experts who estimated the validity by their experience. Senior lecturers and professors placed their input to the instrument's validity. To ensure reliability of the instrument test-retest method was adopted. A pilot study was made repeatedly which helped to check the reliability of the questions in the instrument. Necessary corrections were made where the instrument proved not reliable until it become reliable.

3.10 Data Gathering Procedures

An introduction letter was obtained from the department of social work and development studies for the researcher to solicit approval to conduct the studies from the respective areas and departments that deal with disaster management with the Dar es Salaam local authority officers. After the approval, the researcher secured a list of the qualified respondents from the local authority heads of disaster prone areas and the disaster management organizations officials. The selection of the suitable respondents was made with the aid of stratified and purposive sampling technique. Then respondents were given detailed explanation about the study and requested to sign the information consent form.

The researcher reproduced more questionnaires for distribution after he appointed research assistants in the data collection process. Before real data collection, the research assistant were briefed and oriented in order to be consistent in administering the questionnaires. Respondents were requested to answer completely and not leaving any part of the questionnaires unanswered. The researcher and assistants emphasized retrieval of the questionnaires within one week from the date of distribution. On retrieval, all returned questionnaires were checked if all were answered. The gathered data were collected, encoded into the computer and statistically treated using, the statistical package for social sciences (spss)

3.11 Data Analysis

The frequencies and percentages were used in analyzing data about the respondents profile, descriptive mean were statistically computed using spss package in determining the level of selection process in flood hit areas and disaster management

offices in Dar es Salaam Tanzania. The mean value computed was interpreted with the likert scale mentioned below.

Table 3.3: Key of Interpretation

0.5 – 1.00	Strongly agree	Very Satisfactory
1.01 – 1.50	Agree	Satisfactory
1.51 – 2.00	Neutral	Fairy Satisfactory
2.01 – 2.50	Disagree	Low satisfactory
2.51 – 3.00	Strongly disagree	Very low satisfactory

Source: Field Work Data (2012)

Pearson's linear correlation coefficient (Plcc, r) was used in establishing whether there is any significant relationship between flood turning into disaster and disaster management in Tanzania.

3.12 Ethical Consideration

In order to ensure confidentiality of the information provided by the respondents and to ascertain the practice of ethics in this study, the researcher sort permission to adopt the standardized questionnaire on the victims at flood prone areas and the disaster management departments. All respondents were coded instead of reflecting the names. The researcher solicited permission through a written request to the concerned regional officials on floods prone areas and officials of disaster management offices in Dar es Salaam.

3.13 Limitations of the Study

In view of the following threats to validity, the researcher claimed allowable margin of error at 0.05 level of significance. Measures were also indicated in order to minimize if not to eradicate the threats to the validity of the findings of this study.

Extraneous variables which were beyond the researchers control such as respondents. Honesty, personal biases and uncontrolled setting of the study was a challenge to the researcher. The research instruments on respondents from flood affected and organization its performance was not properly standardized. Therefore a validity and reliability test was done to produce credible measurement of the research variables.

Testing: The use of research assistant brought about inconsistency in the administration of the questionnaires in terms for terms of time of administration, understanding of the terms in the questionnaire and explanations given to the respondents. To minimize these threats, the research assistants were oriented and brief on the procedures to be followed in data collection. Attrition/Mortality: not all questionnaires may be returned neither completely answered nor even retrieved back due to circumstances on the part of the respondents such as travels, sickness, hospitalization and refusal withdrawal to participate. In anticipation to this, the researcher reserved more respondents by exceeding the minimum sample size. The respondents were also reminded not to leave any item in the questionnaire unanswered and were closely followed up as to the date of retrieval.

CHAPTER FOUR

4.0 PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS

4.1 Introduction

This chapter presents an analysis and discussion of the research findings. The presentation is made under different sections in the context of the research questions advanced in chapter one, basing its focus on floods in Dar es Salaam region.

4.2 Description of Respondents

The study shows the respondents profile as in the table below

Table 4.1: Respondents' Profile

Categories	Frequency	Percentage
Sex		
Male	96	40
Female	144	60
Total	240	100
Age Group		
Below 30 years	65	27
30-40 years	110	46
41- 50 years	34	14
Above 50 years	31	13
Total	240	100

Source: Field Work Data (2012)

Table 4.2: Respondents' Profile

Education level	Frequency	Percentage
Pre- school education	74	31
School Education	55	23
Certificate	46	19
Diploma	41	17
Degree	24	10
Total	240	100

Source: Field work data, 2012

4.3 Background Information of the Floods Victims

Regarding the background information of the flood victims, five simple questions were presented to the respondent requiring them to show their gender, marital status, size of their families, time duration of their stay in their respective location and their level of education. The result in table 4.1 indicates that most respondents (60%) were female, while the male respondents were only 40% of the total respondents. This indicates in disaster prone area has a gender gap that male are few in these areas that are exposed to disasters.

Table 4.3: Rating Scale

Answer Range	Response Mode	Interpretation
0.50 – 1.00	Strongly Agree	Very Satisfactorily
1.01 – 1.50	Agree	Satisfactorily
1.51 – 2.00	Neutral	Fairly Satisfactory
2.01 – 2.50	Disagree	Unsatisfactory
2.51 – 3.00	Strongly Disagree	Very Unsatisfactory

Source: Field Work Data (2012)

The results were as shown in table 4.1. The table shows that there were a total of 240 respondents out of whom 96 (40%) were males while 144 (60%) were females. These resided in different places in Dar es Salaam in table 3.2 - including Jangwani (25.8%), Kigogo(8.7%), and Magomeni (8.0%), Tabata (7.6%), and Msimbazi (25%). All these places were chosen because they are frequently affected by floods. In fact Msimbazi and Jangwani are more prone to floods disaster compared to the rest. Concerning level of education of the respondents in table 4.2, 31% of the total number of the respondents indicated that they had pre education, school education had 23%, and certificate had 19% while diploma and degree had a percentage17%

and 10% respectively. It is an indisputable fact that floods disasters have grave impacts on the lives of the people residing in the flood prone areas.

According to the recorded information from the department of Disaster Management revealed that the aged ones were likely to suffer adverse physical consequences, left aside deaths whenever flood occurs. The study also revealed that women were more physically and psychologically affected than men and that isolation and lack of participation in decision making intensify their vulnerability. Another task of the study was to answer the question: What are the reasons that lead to flood turning into disaster in Dar es Salaam? This question was designed to seek the views of the respondents regarding the causes that contribute to floods turning into disasters, the results of which were as shown in table 4.4 and graph 4.1

Table 4.4: Reasons for the Persistent Floods in Dar es Salaam

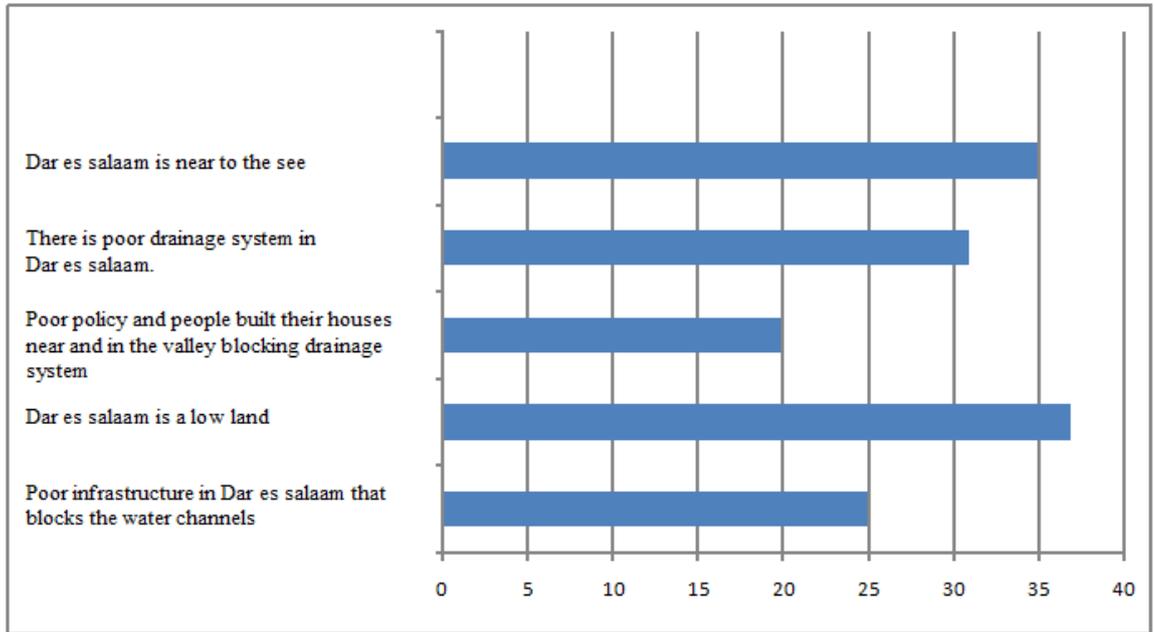
Reasons for the Persistent Floods in Dar es salaam.	Mean	Interpretation	Rank
1. Poor infrastructure in Dar es Salaam which block the water channel	1.65	fairy satisfactory	5
2. There is poor drainage system in Dar es Salaam	1.20	satisfactory	4
3. Dar es salaam is near to the sea	0.72	Very satisfactory	2
4. Dar es salaam is a low land	0.68	Very satisfactory	1
5. Poor settlement policy and people built their houses near and in the valleys blocking drainage system	0.90	Very satisfactory	3

Source: Field data, 2012

According to the table 4.4 the results of findings reveal a mean of 0.68 (Very satisfactory) that floods in Dar es Salaam is majorly caused by Dar es Salaam being a low land, while the second cause is that Dar es Salaam is near to the sea with a mean of 0.72 while other causes are, poor drainage system in city, poor infrastructure in Dar es Salaam that block the water channel and the poor settlement policy and people built their houses near and in valleys blocking drainage system with the mean respondents of 0.90, 1.20, and 1.65 respectively. Therefore from the table range is from satisfactory to very satisfactory and hence the questions that were asked were major causes of floods in Dar es Salaam.

Still according to this table 4.4 in relation to global context, some other parts of the world had almost the same causes of floods. For example in United States of America the Orleans's metropolitan area with 35 percent of which is sits below the sea level. In this nature of land below the sea level and people settling around this place in spite of constructing hundreds of miles levees, in 1993 the system failed and flood hit the land seriously. During the hurricane Katherine which hit the land causing a very bid disaster which will never be forgotten.

An effort to prevent this disaster recurring, the federal government of the United States of America offered to buy this flood prone area to shift the settlement of people along this area and the whole place was converted to wet land which solved the prone once for all. Still there is much evidence of many countries of the world with the same or lower altitude as that of Dar es Salaam they have managed to cup the flood turning into disaster in their countries. Some of these countries are Italy, Netherland, Russia and many other countries (refer chapter 2 page 8-10)



Graph 4.1: Reason of floods in Dar es Salaam

Source: Field Data, 2012



Figure 4.1: Photograph Showing Settlement blocking drainage system

Source: Field Data, 2012

Table 4.5: Reasons for floods in Dar es Salaam Turning to Disaster

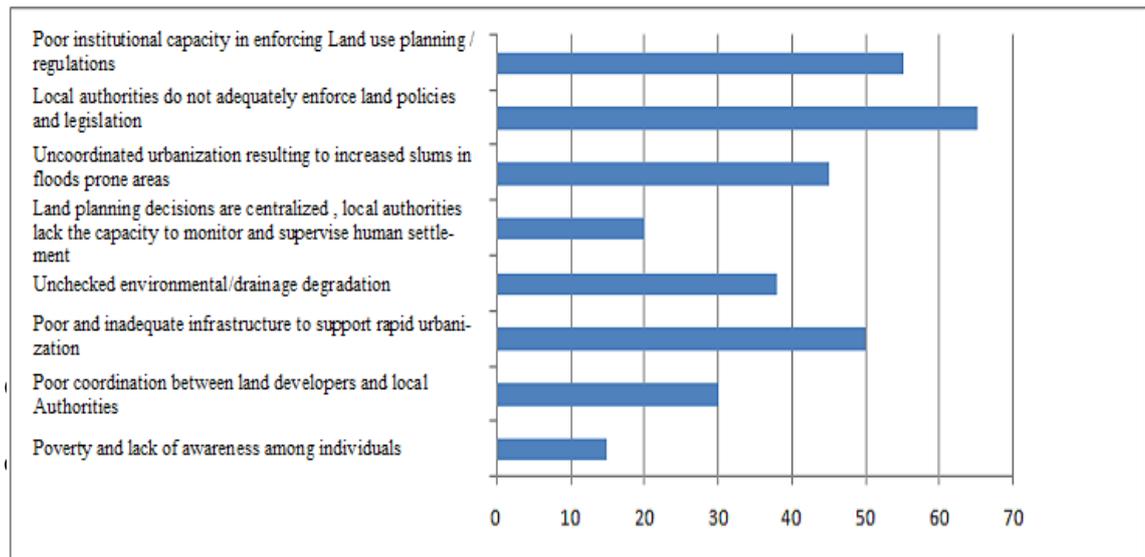
Reasons for floods in Dar es salaam turning to disaster	Mean	Interpretation	Rankings
1. Poor institutional capacity in enforcing land use planning regulations.	0.55	Very Satisfactory	2
2. Local authorities do not adequately enforce land policies and legislation	0.45	Very Satisfactory	1
3. Uncoordinated urbanization resulting to increased slums in floods prone areas.	1.225	Satisfactory	5
4. Land planning decisions are centralized, local authorities lack the capacity to monitor and supervise human settlement.	1.152	Satisfactory	7
5. Unchecked environmental drainage degradation.	1.233	Satisfactory	6
6. Poverty and lack of awareness among individual	1.061	Fairy Satisfactory	8
7. Poor and inadequate infrastructure to support rapid urbanization.	0.75	Very Satisfactory	3
8. Total mean	0.917	Very Satisfactory	4

According to table 4.5 the respondents revealed that the major reasons as to why floods turn into disaster is that the local authority do not adequately enforce land policies and legislations with a mean score of 0.45 (Very Satisfactory) followed by the poor institution capacity in enforcing land use planning legislation with a mean score of 0.55 (Very Satisfactorily). The third reason appeared to be poor and inadequate infrastructure to support rapid urbanization with a mean score of 0.75 (Very Satisfactory)

Uncoordinated urbanization which leads to slums in flood prone areas with the mean score of 1.225 (Satisfactory), Unchecked environmental drainage degradation with a mean score of 1.233 (Satisfactory) and poor coordination between land developers

and local authorities with a mean score of 1.332 (Satisfactory) are the significance reason which lead to floods turning into disaster. Land planning decision are centralized, hence local authorities lack authority and the capacity to monitor and supervise human settlements plus the poverty and lack of awareness among individuals are other reasons which lead to floods turning into disasters. Conclusively the eight identified factors are significant reason which lead to floods Dar es Salaam turning into disaster because their total mean is 0.917 which is ranked as Very Satisfactory as per the rating key. Also the graph presentations below reveal the findings from the respondents. Findings in table 4.5 the reasons for floods in Dar es Salaam turning to disaster with reference to the reviewed literature, the institutional capacity to enforce land use planning regulations.

According to the reviewed literature in page 22 the police commander an evidence that the government have no capacity to enforce the land use plans once people have settled themselves in a place that is not for settlement there is power to vacate them to other place. Hence local authority does not adequately enforce land policies and regulations. Findings showed that there is lack of awareness among the people concerning the methods and needs to prevent flood disaster, under NAPA the machinery is meant to create awareness to the people in this disaster caused by flood and the measures should be taken, such measures include planting trees that should check water runoff that may cause floods which can turn into disaster. But is diver stating that there is rapid forest exploitation evidence from the literature page 20-22. This is due to poverty, people do not have any other economic activity that can earn them a living than charcoal burning and most depend upon fire wood as their source of energy.



Graph 4.2 Other Contributory causes of Floods in Dar es Salaam were Explicitly outlined as shown in figure 4.2 above

Source Field Data (2012)

Library source have also revealed that Tanzania does not have in place pre-disaster alert mechanisms to warn people against detected danger of floods.

4.4 The Impacts of Floods/disaster on the lives of Dar es Salaam residents

The fourth task of the study was to identify the impacts of floods/disasters on the people of Dar es Salaam-in particular those residents in the flood prone areas. The probe question was; “what were the impacts of floods/disaster on the lives of Dar es Salaam residents?” It is worth noting here, however, that in order to deal with the question clearly, the researcher found it is important to look into earlier studies by other researchers like those conducted between 1981 and 2011-on the trend of floods disaster impacts in Tanzania(National Operational Guidelines for Disaster Management, first adition-2003) Accordingly, the results were that the occurrences of floods disasters throughout the period were a common phenomenon, and the

magnitude of their impacts on the lives of the people was alarmingly big (see table 4.6)

Table 4.6: Number of Fatalities due to Disaster (1983-2011)

Year	Disaster	People Killed
2011	Foods	102
2010	Epidemic	1,871
2007	Epidemic	109
1998	Epidemic	1,871
1997	Epidemic	2,025
1997	Floods	304
1991	Epidemic	290
1990	Epidemic	200
1990	Flood	183
1983	Epidemic	163

Source: Data Analysis (2012)

The information contained in table 4.6, for instance, evidently supports the foregoing observation. For example a number of people lost their lives following the outbreak of dreadful epidemics which were a result of the post –floods disasters that were caused by the el-nino of 1997/1998. For example both years 1998 and 2010 had a record of 1,871 deaths each. The other years had a record of smaller numbers of deaths as clearly seen in the table. Regarding deaths caused by floods, the table shows as follows; year 1990-183 deaths were recorded; in 1997-304 and in year 2011-102 deaths.

4.4.1 Social and Economic Effects of the People in Prone Flood Areas

The social and economic aspects of the people were not spared either, for whereas many persons were left homeless as their houses and even farm crops and stocked food were washed away by the violent floods, they were equally economically

affected as their valuable properties, and infrastructure-like roads, were badly damaged or washed away as well.

Table4.7: Effect of flood related disasters on Economy and Income of the Victims in the Affected Areas

Effect of flood related disasters on economy and income of the victims in the affected areas	Mean	Interpretation	Rankings
1. Many business have been destroyed	1.554	Fairy Satisfactory	4
2. Many houses are Swept and lot of properties have been damaged	1.249	Satisfactory	2
3. Many people have lost job due to	1.239	Satisfactory	1
4. Number of dependants has increased due to floods hitting the place.	1.252	Satisfactory	3
Average Total Mean	1.324	Satisfactory	

Source: Field Work Data (2012)

Table 4.7 results indicate that four items or the aspects on the economic effects caused by the flood related hazards from the response of the respondents it satisfactory that there has been a substantial loss economically (with means ranging from 1.554 to 1.252), all of which fall under satisfactory on the answer range. The most fairy satisfactory aspect of business premises that were destroyed due to the flood related disasters (mean =1.554). According to the finding it is quite evident that the economic losses on, loss of houses, loss of jobs and the increases of dependence among the people around the disaster prone areas is satisfactory (with means of 1.249, 1.239 and 1.252 respectively).

Economic damages caused by floods made the country to lose huge sums of money. In 1988 for instance, Tanzania lost a total of 4,200,000, 000= as an economic

damage, whereas in 1997 the loss stood at 5,265,000,000/=/. In 2011 however, the nation suffered a bigger loss of 8,796,000,000/=. The explanation above clearly answers the question that probes into the economic and social impacts of floods on the lives of the people of Dar es Salaam. The question reads as follows;“What are the economic and social impacts of floods on the lives of the people of Dar es Salaam, Kenya and in other countries over the world experiences the same similar economic impact due to flood disasters that had hit their country.

Table 4.8: Social Hazards emanating from flood related disasters in Dar es Salaam

Social Hazards emanating from flood related disasters in Dar es salaam	Mean	Interpretation	Rankings
1. The number of orphans has increased due to flood disasters	1.567	Fairy Satisfactory	4
2. Separation of families has increased due to flood related disasters.	1.232	Satisfactory	1
3. Diseases have increased due to the flood related disasters.	1.553	Fairy Satisfactory	3
4. More crimes have come up due to flood related disasters.	1.652	Fairy Satisfactory	5
5. Immorality has increased due to flood related disasters.	1.255	Satisfactory	2
Average Total Mean	1.211	Satisfactory	

Source: Field Work Data (2012)

Socially the impact of flood related disasters the findings reveal that there is an increased number of orphans, separations, diseases, crimes and general immorality

with the mean ranging from 1.567, 1.232, 1.553, 1.652 and 1.255 respectively. The total mean of the six items is 1.211 with the response of satisfactory which is so significant that due to this flood related disasters there is an effect in the social lives of the people living in these areas which are under the attack of floods. And the literatures also reveal the totals of effects that have been experienced for a span of time. Having briefly seen the impacts of floods and their ensuing disasters national wide, it is now important to respond to the question posed earlier which probes into the impact of floods/disasters on the lives of Dar es Salaam residents. According to available documentations, about four (4) people were killed in floods that occurred in Dar es Salaam following a 4-hour down-pour of rains. The rains also caused a great destruction of personal properties, public infrastructures as well as leaving hundreds of people homeless.

The findings were such that about 64.5% of the fatalities that were reported were females while 35.5% were males. This is indicative of the number of female deaths was greater than that of male deaths. The findings revealed further that, most of the female deaths were caused by drowning and trauma. All of which were a result of the female's failure to escape whenever floods occurred. Another reason could also be the number of women living in the flood prone areas is always greater than that of men. From the literature it is revealed that flood disaster have hit countries like Bangladesh, other countries and has left the countries seriously affected socially.

4.4 Impacts of Flood Disaster on Livelihood

The researcher visited some victim of floods at Mabwepande. The visit aimed at examining the impacts of post-floods disaster among the affected victims. The

evacuated residents are currently allocated at Mabwepande in the outskirts of Dar es Salaam, quoted some victims of floods who reported that, “Our houses have collapsed,” says Fatuma. Floodwaters have destroyed vital infrastructure and left more than a quarter-one million people needing emergency help. ‘We are in a real food crisis, everything is scarce,’ said Michael Juma, the secretary of Jangwani residents. Despite the devastation, the Tanzanian government has not made promising efforts in helping the needful people. For example, of the recent Dar es Salaam floods, the UN Children’s Fund (UNICEF) stated that, “the heaviest impact has been in areas where basic services had already been overstretched”.

The study interviewee reported that they are seriously affected by floods, they lost their beloved ones, moreover larger share of their properties were taken by floods, they are now very poor; no foods and shelter. The situation is alarming. They explained that they no longer wish to return to their previous residential area, because of the lessons they have experienced. To a larger extent, the only hope they have is for the government to allocate other areas or plots for them to live.

The photograph described below shows vertical display of children of the post-flood victims from Mabwepande. Majority of these children are facing treaties of malnutrition, lack of secure shelter and some are even not going to schools. Much help is still needed.



Figure 4.2: Photograph of Post-Flood Victim at Mabwepande (Research Construct, 2012)

Source: Field Work Data (2012)

4.5 Trends of the Economic Damage of Floods in Tanzania

Findings in Table 4.8 have summarized the economic damage that was caused by floods in Tanzania between 1988 to 2011, the amount of damage is presented in Tanzania shillings(x1000). Findings show that flood caused a total loss of Tshs 4,200,000,000 as an economic damage in 1988; it also revealed that Tshs 5,265,000,000 economic damage was brought about by flood in 1997. Findings further show that Tshs 8,796,000,000 were damaged in 2011 by floods.

Unfortunately, key line ministries lack the capacity to prioritize emergency and disaster strategies in their own policies and planning; the effect is that key services are not readily available when disaster strikes. Finally, according to the finding it is

quite evident that there is a significant relationship between the floods turning into disaster and the disaster management in Tanzania. From all the findings revealed that, the department that is responsible in managing disaster have acted incompetent which create a loop hole for the floods to persistently turn into disaster. Their act of not making up follow-ups to ensure that the disaster management policies have been implemented to letter is enough to conclude that, if otherwise is done the magnitude of disaster could have been reduced to some extent. Therefore the competence of the department will mean the minimal effect of floods turning into disaster.

The Theoretical Review Compared with Study Finding

Vulnerability Theories and Study Finding

The theories of vulnerability reveal that there are a set of individual and property that are vulnerable to the disaster occur in a given state. The effect occurs in a given way; physical/ material vulnerability and capacity. It is revealed that the most visible area of vulnerability is physical material poverty. These include land, climate, environment, health, skills and labour, infrastructure, housing, finance and technologies. It is also clear that poor people suffer more than the rich people. These are people without or with limited resources in terms of capital, labour and many other resources. Yet in the findings it was quite evidence that most people affected during the flood disaster are the poor people and their effect are such as land, housing, infrastructure and crops which are as well revealed in the vulnerability theories. Therefore it is clear that the theories of vulnerability support to the study findings.

Social/organizational vulnerability and capacities

This is how the society is organized, the internal conflicts and how they are managed, The aspects include the formal political structures and the informal system through which people get this done. The society which is well organized with good and stable system will work more effective jointly and will be able to curb many problems that may come on their way. “Poor societies that a well organized and are cohesive can withstand or recover from disasters better than those where there is little or no organization and communities are divided, either in form of race, religion, class or caste.”

These theories reveal that unit is strength and division is weakness. The way the society is united will lead to successful fighting against disaster (disaster management). According to the finding it was clearly noted that bodies responsible to disaster management right from the top to the bottom level there is no proper coordination, even the policy that are posed are easily implemented all is due to lack of unit which strength. Therefore the study findings are supported by the identified theory in this manner.

Motivation/ attitude Vulnerability and Capacity

The way people passive themselves are also an issue according to the theories of vulnerability. How does one group of people perceive the other in danger? The ways one perceives it determines or influences the reaction of the other to help him or to be helped from danger of disaster. It is clear that groups there are sharing some strong ideologies or strong beliefs system. Such groups are more able to help each at the time of disasters than those who do not share the ideologies as well as beliefs.

People of the religion will always work to help their fellow believers, it does not matter how far their location to problem facing them.

The research findings reveal that most affected individuals are the people with the attitude of poor and rich people and vice versa in Tanzania do not always go together. Therefore the response to disaster which always meets poor people is not always acted upon immediately.

Functionalist Theories

The theories reveal that a society is a social system with various specialists at different sectors. Therefore for the society to archive its goals of maintaining the equilibrium with maximum return with the minimal cost. The units in the whole system should have a linkage such as one part should lead to other part to work effectively. There should not be any kind of despising to any part regardless of inferior appearance otherwise each part of the entire system that will jointly bring the required result should there be coordination.

In order flood disaster vulnerable areas and other part of the nation, different parties of the society/community should work together as a unit in order to attain common goals of solving problem when it arises in any community/ society in general. The theory insists on all part of the society to work together so flood disaster in the study area need all community/society members in the country to be involved in prevention so as to achieve the intended goal for the community. The study findings have revealed more lack of unit with strength. The local authorities and central government do not work together; hence they lead the recurrent of disaster in the surveyed areas in Dar es Salaam.

CHAPTER FIVE

5.0 FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This Chapter presents the findings in brief, conclusion and the recommendations on the research “Disaster Management and Persistent Flooding Disaster in Dar es Salaam”.

5.2 Findings

The study was guided by three objectives which were translated into questions.

- i. What are the reasons for the persistence floods in Dar es Salaam?
- ii. Why floods in Dar es Salaam turn into disaster?
- iii. What are social economic effects out of the flooding in Dar es Salaam?

Reasons for the persistent floods in Dar es Salaam; The question is guided by five statements, 1) Dar es salaam is a low land, 2) Dar Es Salaam is near to the Sea,3)There is poor drainage system in Dar Es Salaam,4)Poor infrastructure in Dar Es Salaam that block the water channels, and poor Settlement policies and people build their homes near and in valleys blocking drainage system. As from table 4.4 of the reasons for the persistent flood in Dar es Salaam interpreted, reveal that there are five main reasons which lead to the persisted flooding in Dar es Salaam.

According to the table it is quite evident that the majority of respondents admitted that Dar Es Salaam is a low land and hence due to this Dar Es Salaam is subjected to flooding every now and again whenever heavy rains fall in country which is quite evidence from the reviewed literature that all over the world those countries whose lands are below the sea level are subjected to floods whenever heavy rains fall.

Example of such countries is Bangladesh, U.S.A, and Kenya and many other countries near to large bodies of water. From the table the reason received a satisfactory response of a mean of 1.65(fair satisfactory).Dar es Salaam is near to the sea as a reason for persistent flooding in the city. From the table there is a satisfactory response of a mean of 1.20,Majority of respondents acknowledge that due to the closeness of the city to the sea is one of the major reason as to why Dar Es Salaam is persistently hit by floods. Likewise from the reviewed literature, most of the land mush which is near to the sea is subjected to floods. As example in United State of America,Orkans Metropolitan Area of which more 35% of its land sits below the sea level and it is near to the sea. This land has in many a times been hit by floods. Chapter 2,page 8.

Poor Drainage system in Dar es Salaam is also another reason for Dar es Salaam to receive persistent floods. This is a reason that received a very high or a very satisfactory response. Many respondents advocated that there is a very poor drainage system in Dar es Salaam. It is Evidenced from literature that, most part in many parts of Dar es Salaam which should be left as exit of flooding water as drainage system, has been blocked by many activities which are enemies to drainage and hence leading to flooding in many part in Dar es Salaam.

Poor settlement policy and poor infrastructure are other major reasons that lead Dar es Salaam to be subjected to the persistent flooding. Respondents on these reasons ranked very satisfactory with mean of 0.90 and 0.68 respectively. From the reviewed literature it is clear that there are many countries with the same reasons that have led to the flooding in these countries to experience floods every now and again.

Examples of countries that are subjected to these reasons are India, Kenya and many other countries of the world.

Reasons for flood turning into disaster; Here eight reasons were responded to highlighting why floods turn into disaster in Dar es Salaam. According to table 4.5, the eight reasons are evidenced. Local authorities do not adequately enforce land policies and legislation, Poor institutional capacity in enforcing land use planning registration, poor and in adequate infrastructure to support rapid urbanization, uncoordinated urbanization resulting to increase slums in floods prone area .These major reasons beer mean of 0.45,0.55,0.75 and 1.225 respectively .Most respondents advocated that the local authorities in Dar-es-salaam do not adequately enforce the Land polices and legislations that should help the Countries' people make proper use of the land to settle where they should, and leave those area where they should not settle.

The local authorities are not able to enforce land polices and the registration due to the lack of institutional capacity that should deal with land use planning regulation and regulation and hence there is uncoordinated urbanization. Because of all these are poor and inadequate infrastructure which will be able to support the rapid urbanization in Dar-es-Salaam. from the literatures, countries like Uganda Kenya suffer from the same problems which leads to their countries to be subjected to floods every now and against. Other reasons for floods in Dar-es-Salaam's floods turning to disaster what were responded to were, unchecked environmental drainage degradation, land planning decision are centralized and hence local authorities lack the capacity to monitor and supervise human

settlement and pervert and lack of awareness among individuals. These reasons received responses with mean of 1.233, 1.552, and 1.561 respectively. In Dar es Salaam there is unchecked environmental drainage degradation by the countries' people for various uses and there is action of the government to stop these activities which is due the centralized land planning decisions, only few people have the knowledge about some lands' uses since the local authority do not have been involved in the land planning process, are not able to check the degradation activities along drainage system by the poor people without the awareness of the afterward impacts of the activities carried on to degrade the drainage systems. From the literature the countries like Kenya whose population is growing very fast against scarce land available to accommodate the population suffers from the same problems facing Dar es Salaam.

Socio-Economic effects floods related disasters. In general there are many Social and economic damage that is as a result of floods turning into disaster. There is loss of business, washing away of houses, and loss of employment to many people and increase rate of dependence among people. According to table 4.7 the findings reveal that many people lost their business and many houses were destroyed as there were a number of people losing their jobs due to floods. The same experienced was noted from the reviewed literature. The floods which hit Bunladesh, Sirlanka and Kenya many people lost their business, houses and employments. All these led to dependence among the people of the countries. And Socially, these increased crime among the people, separation among couples, family members and increased immorality. Finally it is quite evident that most of the reasons leading to floods and floods turning into disaster are within human control. Therefore there could be a

determined effort to cap the reasons leading to floods turning into disaster. The losses and effect which have claim the growth of the country and of the people at large could have been reduced if not controlled totally or prevented.

5.3 Conclusions

It is very clear that, Disaster management process in Dar es Salaam is very poor. Were it that there is proper disaster management mechanism in Dar es Salaam and Tanzania as a whole could have reduced the persistent flooding turning into disaster. Disaster management body could have established strong and long life institutions with authorities to monitor every act and activities that may lead to flood turning to disasters and be able to check them at the initial stage. The government has not taken proper initiative to create awareness to its people on the danger of settling near and along the valleys booking the draining system. Like the U.S.A on the New Orleans land, turning it to wet land for special purpose by the U.S.A, The Tanzania government should have moved its people from the flood prone areas and convert those areas for special uses and indicate people to areas which are safe from floods.

5.4 Recommendation

The government right from the very local to the central government should be determined to work as a team to ensure that land planning policies have been unforced to the later that will enable people to use land for the purposes in the plan and avoid people from building near and in valleys. Serious training should to be given to people over the risk of building in unwanted areas. The government has to put up good infrastructure that will enable people spread evenly to other places than being congesting themselves in small areas in search of infrastructure facilities which

could have been found in other places as well. The local authority should exercise its power properly without wavering or favouring anybody. In general education, awareness and warning appear to be a key in preventing flood mortality. For example, people should be told to avoid entering flood waters, either by vehicle or on foot.

The United Nations has to enhance the disaster management capacity of government authorities and local communities to maintain effective and coordinated emergency preparedness and response. This includes assisting the Government to establish effective communication mechanisms to enable communities to prepare for and respond to disasters timely and effectively. The goal is to improve early warning systems at the district, ward and village levels as well as to improve coordination and leadership capacity of central government. Conduct research and train council staff on the objectives of environmental resplanning and management. Establish local action plans for the environment and support efforts aimed at the integration of environmental education into school curricula, and improve water drainage and sanitation facilities in poor settlement and peri-urban neighborhoods and increase solid and liquid waste management services in each municipality.

The study has further revealed that many measures need to be implemented, including, infrastructure-upgrading projects aimed at improving facilities and services. Any approach aimed at upgrading the living and working conditions for slum dwellers must use a participatory and holistic approach. Options such as land formalization and regularization should also be explored and integrated into the management of informal land.

Permanent resettlement and reconstruction of flood resilient homes will be part of the long term recovery process. The government has indicated that the families from the worst affected areas will be provided with land for resettlement.

Establish autonomous agency or departments under Prime Minister Office dealing with disasters

REFERENCES

- Armitage, David; A. M. Moisan (2005). *Strategic Forum No. 218. Institute for National Strategic Studies*, National Defense University.
- Buchanan, Sally. "Emergency preparedness." *from Paul Banks and Roberta Pilette. Preservation Issues and Planning*. Chicago: American Library Association, 2000. 159–165.
- Damage: Perspectives of City Officials" (2009). *Applied Research Projects*. Texas State University.
- Drabek, Thomas E. (1986). *Human System Responses to Disaster*. New York: Springer-Verlag. pp. 21.
- Ehrhart, C. and Twena, M. (2006): *Climate Change and Poverty in Tanzania, Background report*, CARE International Poverty-Climate Change Initiative.
- Emergency Management Australia (2004). *Emergency Management in Australia Concepts and Principles*. Canberra: Commonwealth of Australia.
- Fred Cuny. (1983). *Disasters and Development*. Oxford: Oxford University Press.
- Wilson, James Parker, "Policy Actions of Texas Gulf Coast Cities to Mitigate Hurricane
- Haddow, George D.; Jane A Bullock (2003). *Introduction to emergency management*. Amsterdam: Butterworth-Heinemann. ISBN 0-7506-7689-2.
- IFRC (INTERNATIONAL FEDERATION OF RED CROSS AND RED CRESCENT SOCIETIES) (2008): *Standard Operating Procedures*, Geneva Switzerland

IFRC (INTERNATIONAL FEDERATION OF RED CROSS AND RED CRESCENT SOCIETIES) (2008A): Water & Sanitation (WatSan) Emergency Response Units – A Review for the Future, WatSan Unit, Health & Care Department, Geneva, Switzerland

John Harrald in *Agility and Discipline: Critical Success Factors for Disaster Response*, The ANNALS of the American Academy of Political and Social Science 2006; 604; 256

Kebede and Nicholls, (2010) Population and Assets Exposure to Coastal flooding in Dar es Salaam (Tanzania Vulnerability to Climate extremes)

LEWIS J. (1999): *Development in Disaster-prone Places Studies of Vulnerability*, London, GB OFFICIAL ONLINE GATEWAY OF THE UNITED REPUBLIC OF TANZANIA (S.A.): Country profile.

Lindell, M., Prater, C., and Perry, R. (2006). *Fundamentals of Emergency Management*. Retrieved January 9, 2009.

McCollum, (2006): Hurricane Katrina; Insurance Losses and National Capacities for Financing Disaster Risks

Nicholls et al, (2008): Population and Assets Exposure to Coastal flooding in Dar es Salaam (Tanzania Vulnerability to Climate extremes)

Olivia, (2011): www.forbes.com/.../2011

Ploughman, P. (1995): *The American Print News Media “Construction“ of Five Natural Disasters*, Blackwell Publishers Ltd., Oxford, UK

Quarantelli, E.L. “*Emergencies, Disasters, and Catastrophes are Different Phenomena*”. *Preliminary Papers*. University of Delaware Disaster Research Center. Retrieved September 26, 2011.

Quarentelli, EL. “*Emergencies, Disasters, and Catastrophes are Different Phenomena*”. *Preliminary Papers*. University of Delaware Disaster Research Center. Retrieved September 26, 2011.

Red Cross and Red crescent societies, (2011) www.wcpt.org/disaster-Management

Tanzania floods profile 1962 - 2012, PMO’S Office

Tanzania Disaster profile 2010 - 011 PMO’S Office

Tanzania floods and Landslide Dec.2011 relief web.int/disaster/fi - 2011 - 000183 - tza

Vulnerability of Dar es salaam city to impacts of climate change - By Damiani Casmin, Pub.iied.org/pdp5/G02388.pdf

UNFCCC, (2007): Population and Assets Exposure to Coastal flooding in Dar es Salaam (Tanzania Vulnerability to Climate extremes)

UN- HABITAT, (2008): Population and Assets Exposure to Coastal flooding in Dar es Salaam (Tanzania Vulnerability to Climate extremes)

Walker, Peter (1991). *International Search and Rescue Teams, A League Discussion Paper*. Geneva: League of the Red Cross and Red Crescent Societies.

APPENDICES

QUESTIONNAIRE FOR RESEARCH

The major focus of this study is the assessment of the causes and impacts of floods in Dar es Salaam city. To achieve these findings the study has categorized the respondents into two groups, namely; respondents living in flood-prone areas and the staffs working in the department of disaster management in the prime minister's office at Dar es Salaam.

Appendix 1: Questionnaire for Residents living in flood-prone areas

Section A: (Background Information) Tick the correct answer to the questions

1. Respondent gender: Male Female
2. Marital status of the respondent? Male Female
3. Respondent level of Education?
 - (a) Pre-school
 - (b) School educate
 - (c) Certificate
 - (d) Diploma
 - (e) Degree

Section B

Answer the questions provided below by ticking the correct option from options given. In order to answer us the given key based on the level of your agreement or disagreement to the statements given.

Key

Rating scale

Very satisfactory (VS)

Satisfactory	(S)
Fairly satisfactory	(FS)
Unsatisfactory	(US)
Very unsatisfactory	(VUS)

B. Reason for the persistent floods and then turning to disaster

Reasons for the persistent floods in Dar es Salaam

a) Dar es salaam is a low land

VS S FS US VUS

b) Dar es salaam is near to the sea

VS S FS US VUS

c) There is poor drainage system in dare s salaam

VS S FS US VUS

d) Poor unstructured in Dar es salaam that block the water channels

VS S FS US VUS

e) There is per settlement policy and hence built their houses war and in the valley blocking the drainage system.

VS S FS US VUS

Reason for floods in Dar es Salaam turn into disaster

a) Poor institution as capacity in enforcing land use planning regulations

VS S FS US VUS

b) Local authorities do not adequately enforce land policies and legislation

VS S FS US VUS

c) Uncoordinated urbanization resulting to increased slums in floods prone areas

VS S FS US VUS

d) Land planning decisions are centralized, local authorities lack the capacity to monitor and supervise human settlement.

VS S FS US VUS

e) Unchecked environmental drainage degradation

VS S FS US VUS

f) Poverty and lack of awareness among individuals

VS S FS US VUS

g) Poor and inadequate infrastructure to support rapid urbanization

VS S FS US VUS

Effects of flood related Disaster on economy and income of the victim in the affected areas

a) Many business have been destroyed

VS S FS US VUS

b) Many houses are swept and lot of properties have been damaged

VS S FS US VUS

c) Many people have lost job due to floods hitting this area

VS S FS US VUS

d) Number of dependants has increased due to floods hitting the place

VS S FS US VUS

Social hazards emanating from flood related disaster in Dar es Salaam.

a) The number of orphans has increased due to flood disasters

VS S FS US VUS

b) Separation of families has increased due to flood related disasters.

VS S FS US VUS

c) Diseases have increased due to the flood related disasters

VS S FS US VUS

d) More crimes have come up due to flood related disaster

VS S FS US VUS

e) Immorality has increased due to flood relates disaster

VS S FS US VUS