

**FACTORS INFLUENCING PUPILS' ACCESS TO PRIMARY SCHOOL
EDUCATION IN FLOOD PRONE AREAS OF IJARA DISTRICT,
GARISSA COUNTY, KENYA**

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DECLARATION

This research project is my original work and has not been presented for a degree in any other university.

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DEDICATION

This research project is dedicated to my dear children: Daniel, Tim and Estar.

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ABSTRACT

The purpose of the study was to investigate the factors influencing pupils' access to primary school education in flood prone areas of Ijara district, Kenya. Three research objectives were formulated to guide the study. They were:- to establish the learner related factors that influenced pupils' access to primary school education; to examine the infrastructural related factors that influenced pupils' access to primary school education and to examine the infrastructural related factors that influenced pupils' access to primary school education. The study was conducted using descriptive survey. The target population of the study comprised of 9 headteachers, 90 teachers and 3,665 pupils. The sample for the study was 9 headteachers, 73 teachers and 347 pupils. Data was collected using questionnaires, focus group discussions and observation schedules. Descriptive statistics were used to analyse quantitative data while qualitative data was analyzed thematically according to the objectives. The findings revealed that: younger children in classes 1-4 were most challenged in accessing school during floods; and illness related to floods was a factor that influenced pupils' access to primary school education in flood prone areas of Ijara district. There were higher rates of absenteeism among girls compared to boys during floods. The infrastructural related factors that influenced pupils' access to primary school education were: damage to and flooding of classrooms; flooding and collapsing of school toilets; flooding of playgrounds; and damage of access roads. It also revealed that: settlement patterns; the flat topography of the area; and the long distances to school were the contextual related factors that influenced pupils' access to primary school education. Based on the findings of the study, it was concluded that health, age and gender were the learner related factors that influenced pupils' access to primary school education. It was also concluded that: damage to and flooding of classrooms; damage and flooding of toilets; flooding of playgrounds; and damage of access roads were the infrastructural related factors that influenced pupils' access to primary school education. The study also concluded that: settlement patterns; the flat topography of the area; and the long distances to school were the contextual related factors that influenced pupils' access to primary school education. The recommendations made were: school management committees should engage qualified professionals to assess the structural safety of damaged school buildings; building codes and standards for schools should be applied in designing construction and maintenance of classrooms and toilets to ensure their resilience in the face of known disasters; schools should develop and implement disaster management plans; the community leaders should mobilise their members to participate in construction and maintenance of roads; the Ministry of Special Programmes should sensitize the communities in the area of disaster risk reduction through activities such as digging of trenches around the school compounds to minimize flooding. Suggestions for further studies are:-to investigate the factors influencing access to secondary school education; to investigate flood disaster risk reduction and to establish the influence of floods on academic performance in primary schools in flood prone areas of Ijara district.

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LIST OF ABBREVIATIONS AND ACRONYMS

| | |
|---------------|--|
| ASALs | Arid and Semi Arid Lands |
| ADPC | Asian Disaster Preparedness Centre |
| DFID | Department for International Development |
| DRR | Disaster Risk Reduction |
| EFA | Education for All |
| FPE | Free Primary Education |
| GoK | Government of Kenya |
| IFRC | International Federation of Red Cross and Red Crescent Societies |
| INEE | Inter-Agency Network for Education in Emergencies |
| IRIN | Integrated Regional Information Network |
| KIE | Kenya Institute of Education |
| MDG | Millennium Development Goals |
| MOE | Ministry of Education |
| UNCRC | United Nations Convention on the Rights of the Child |
| UNESCO | United Nations Educational, Scientific and Cultural Organisation |
| UNDP | United Nations Development Programme |
| UNEP | United Nations Environmental Programme |

| | |
|----------------|---|
| UNICEF | United Nations Children's Fund |
| UNISDR | United Nations International Strategy for Disaster Reduction |
| UN-OCHA | United Nations Office of the Coordination of Humanitarian Affairs |
| UN-WFP | United Nations-World Food Programme |
| UPE | Universal Primary Education |
| ZVAC | Zambia Vulnerability Assessment Committee |

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

The World Education Forum's Dakar Framework for Action; Education for All (EFA) and the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2000) acknowledged that natural hazards pose significant challenges to countries in meeting their EFA goals, and would require international level support (Wisner, Kelman, Monk, Bothara, Alexander, Benouar, Cardona, Kandel & Petal, 2004). According to the United Kingdom Department for International Development (DFID, 2004), International Federation of Red Cross and Red Crescent Societies (IFRC, 2003), it is estimated that during the last few decades, an average of 250 million people have been affected each year, with nearly 58,000 deaths and more than \$67 billion in losses as a result of disasters caused by natural hazards such as floods and earthquakes. In 1990 alone, 90 million people suffered the impact of natural disasters, compared to 255 million in 2003. Between 1990 and 2003, a total of 3.4 billion people worldwide suffered the consequences of natural disasters.

Zahran, Brody, Peacock, Vedlitz and Grover (2008) observed that floods are the most lethal kind of hydro-meteorological disasters in the United States. The devastating effect of floods on lives and property can be more severe than any other natural phenomena. As a result, floods are one of the greatest challenges to weather prediction (Adiat, 2012). For example, according to United Nations Development Programme (UNDP, 2000) and Asian Disaster Preparedness Centre (ADPC, 2000) Cambodia is frequently affected by floods. A total of 1866 schools

which forms 21% of the schools are located in flood prone areas. The schools normally close up to one and half months every year following floods. In the year 2000 the worst floods affected half a million of students and destroyed at least 1,000 schools.

Similarly the worst floods in fifty years hit China with more than 120 million people affected. An estimated five million people were left homeless, with more than 1,000 reported dead or missing. The continuous torrential rain led to devastating flash floods, landslides and mudflows. Flood affected areas included Guangdong, Yunnan, Guangxi, Huizhou, Sichuan, Henan, Jiangsu, Anhui, Hubei, Hunan, Inner Mongolia, Qinghai, Chongqing, Hebei, Shandong (IFRC, 2007).

Yearly, a considerable number of schools in Bangladesh have to remain closed due to natural disasters. During the major cyclone in 1970, over 4,000 educational institutions were damaged among which many were beyond repair. In 1991, cyclone destroyed 9,300 schools in the coastal belts of Bangladesh. However, floods of 1998 and 2004 were more catastrophic than the other disasters; in total over 13,718 and 17,853 schools were damaged partially or fully. Consequently, majority of the schools were closed down in the flood plain areas for more than three months in 1998 and 2007. An estimated 5,927 educational institutions were fully or partially damaged (Dipecho Action Plan for South Asia-Bangladesh, 2010).

According to the United Nations Children's Fund (UNICEF, 2002; Tinh, 2003), flooding in the Mekong Delta of Vietnam claimed hundreds of lives, the vast

majority being young children. In the year 2001, over 300 child deaths were recorded. In 2002, 99 children died out of a total of 106 in the Delta. A study coordinated by Save the Children established that most deaths were among children aged less than six years from poor families.

According to Inter-Agency Network for Education in Emergencies (INEE, 2010), in July 2010, Pakistan experienced the worst monsoon-related floods in living memory. About 5,500 schools, some of which were already in poor conditions prior to floods had been converted into shelters for the local population. Children underwent severe trauma in being displaced from their homes and witnessing loss of lives and livelihoods around them. A large number of local teachers had also been directly affected and displaced and absenteeism was a big issue.

More recently in April 2012 floods in Fiji caused damages in the education sector estimated at Fijian Dollars (FJD) 889,332. The infrastructure damaged was classrooms, teachers' quarters, boarding facilities; equipment, text and library books and furniture, United Nations Office of the Coordination of Humanitarian Affairs (UN-OCHA, 2012). Similarly when Koshi River in Nepal breached its embankments in 2008, the floods affected 67 schools of the districts. Walls of 13 schools collapsed causing damage to the school furniture and facilities. After the displacement of the flood hit people, 23,000 school going children were deprived of education (Dennison and Keim, 2009).

The African continent has not been spared by the floods. According to United Nations Environmental Programme (UNEP, 2006), the continent which is home to

approximately one billion people is more vulnerable than any other continent to climate change. Almost two billion people were affected by disasters in the last decade of the 20th century. Eighty-six percent (86%) of these were floods and drought. UNDP (2004) adds that in Africa, between the years 2000-2001, about 35 million people, which are equivalent to 13% of the total population in Africa, were affected by disasters. Whereas (UN-OCHA, 2007, 2008) revealed that in the year 2007, 379,060 people were affected by floods in West Africa, 643,767 in Central Africa, 184,103 in South Africa and 679,400 people and 962 households in East Africa. Further, according to the Integrated Regional Information Network (IRIN, 2007), flooding in Togo displaced more than 7,000 people and affected many more in the Savannas region of the north-eastern.

According to the Zambia Vulnerability Assessment Committee (ZVAC, 2007), floods in Zambia in the year 2007 disrupted learning of school children. They were unable to cross streams or rivers that had flooded and also due to collapsed culverts and bridges that had rendered routes to schools inaccessible. The toilets had collapsed making sanitation a major problem and leading to the closure of some schools. The most affected districts reported 40 to 50% reduction in attendance.

According to Lusaka's Central Statistics Office, 60% of its residents live in dense, informal, unplanned settlements. The population is particularly vulnerable to floods. Specifically, many houses have been built in areas not suitable for construction or which are highly vulnerable to flooding, particularly as drainage channels are often blocked by buildings or filled with waste. According to the

Ministry of Health (2010), in the month March year 2010, 564 cases of cholera were recorded in Zambia, with 30 deaths in Lusaka. This had much to do with poor waste-water management and portable water boreholes being inappropriately designed or built. Conclusively, Theron (2007) indicated that at least 20 countries in Africa were affected by floods in the last decade of the 20th century.

In Kenya, recurring disasters such as floods and conflicts have often disrupted learning, adversely affected schools system and substantially damaged the education infrastructure (Republic of Kenya, 2010). An estimated 723,000 people were affected by devastating floods in Kenya in November 2006, according to reports from the Relief Web Organization. The United Nations World Food Program (UN-WFP) estimates that emergency workers had been unable to reach as many as 150,000 affected people due to impassable roads (UN-WFP, 2006). The effects of El Nino floods of 1998 hit most parts of the country.

Data from the Emergency Events Database, EM-DAT: The Office of United States Foreign Disaster Assistance, OFDA/Centre for Research on the Epidemiology of Disasters, CRED, International Disaster Database reveals that: between the years 1990 and 2010 there were six incidents of flash floods which claimed 100 lives and affected 48,000 people whereas the incidents of general floods were 24, claimed 579 lives and affected 1,262,457 people in Kenya. Daily Nation, 11th May 2012, reported that seven school children were among 15 people who had drowned as rains continued to wreck havoc across the country. The children were swept away by floods on their way to school. In another incident, an 11-year-old class four pupil drowned after a motorcycle taxi he was riding on was

swept away by a swollen river in Hamisi district. In May 2012 more than 10 primary and secondary schools in Narok North District delayed to open for the second term after classrooms were submerged in water. The floods had cut off schools in the swampy Suswa Area.

Ijara is one of the districts that form North Eastern Province. The District is devoid of mountains and is characterized by low undulating plains that have low-lying altitude ranging between 0 meters and 90 metres above sea level (Achoka and Maiyo, 2008). The district is thus prone to floods that affect not only infrastructure but also human life. The most common disaster according to a survey by ActionAid Kenya, (2007) was identified as floods among others. In most cases, the residents who participated in the study identified loss of life as the major impact of floods. Table 1.1 shows the trends of floods in Ijara district.

Table 1.1 Trends of floods in Ijara district

The table shows trends of floods in Ijara district in the years 1998, 2002, 2007, 2010 and 2011 and their impact.

| Year | Population affected | Impact |
|-------------|----------------------------|---|
| 1998 | 60,000 | Loss of livestock, human and damage of infrastructure |
| 2002 | 47,000 | Displacement of people and livestock |
| 2007 | 10,000 | Displacement of people and livestock |
| 2010 | 646 | Households displaced |
| 2011 | 1,579 | Households displaced |

Sources: GoK (2004); IFRC (2010); Gari (2011).

Ijara which is part of the larger Garissa district and neighbours Tana River district has not been spared by floods over years. The available data, based on the years running from 1998 to 2011 show the trends of the occurrence of floods in the district. The floods have continued to affect and displace the residents; others have been rendered homeless following destruction of their homes leading to internally displaced persons. Schools, buildings and business premises are also affected during floods.

1.2 Statement of the problem

Access to education can be an issue in flood prone areas due to damage caused by floods. For example Cambodia is frequently affected by floods. A total of 1866 schools which forms 21% of the schools normally close up to one and half months every year following floods. In the year 2000 the worst floods affected half a million of students and destroyed at least 1,000 schools (ADPC, 2000).

Similarly floods in Zambia in the year 2007 disrupted learning leading to 40% to 50% reduction in attendance as school children were unable to cross streams or rivers that had flooded and also due to collapsed culverts and bridges that had rendered routes to schools inaccessible (ZVAC, 2007). In Kenya, Daily Nation, 11th May 2012, reported that more than 10 primary and secondary schools in Narok North District delayed to open for second term after classrooms were submerged in water. Whereas according to Gari, (2011), in the year 2011 floods displaced 1,579 households, destroyed schools, buildings and business premises in Ijara district.

Ijara district has 9 public primary schools located in flood prone areas of Masalani, Hulugho and Ijara educational zones. According to (IFRC, 2012) little attention had been given to the flood situation in Ijara. There are also few humanitarian actors in the flooded areas where Kenya Red Cross Society, KRCS performs emergency response.

A study conducted by Action Aid Kenya in 2007 in schools in Ijara district focused on disaster risk reduction education and did not address the factors influencing pupils' access to primary school education in flood prone areas of Ijara. The study therefore aimed to fill the gap of the factors influencing pupils' access to primary school education in flood prone areas of Ijara district.

1.3 Purpose of the study

The purpose of the study was to investigate the factors influencing pupils' access to primary school education in flood prone areas of Ijara district.

1.4 Objectives of the study

The study was guided by the following objectives:

- (i) To establish the learner related factors that influenced pupils' access to primary school education in flood prone areas of Ijara district.
- (ii) To examine the infrastructural related factors that influenced pupils' access to primary school education in flood prone areas of Ijara district.
- (iii) To examine the contextual related factors that influenced pupils' access to primary school education.

1.5 Research questions

To achieve the above objectives the study had to answer the following research questions:

- (i) What learner related factors influence pupils' access to primary school education in flood prone areas of Ijara district?
- (ii) Which infrastructural related factors influence pupils' access to primary school education in flood prone areas of Ijara district?
- (iii) What contextual related factors influence pupils' access to primary school education in flood prone areas of Ijara district?

1.6 Significance of the study

The study sought to determine the factors influencing pupils' access to primary school education in flood prone areas of Ijara district. The results of this study might be useful to the Ministry of Education on the need to enforce building codes for schools in flood prone areas. The district education officers, headteachers and parents might also find the information useful in designing of infrastructure in

flood prone areas, construction of feeder schools to cater for younger learners and location of schools in areas less vulnerable to floods. The information might also be useful to the teachers on the need to integrate disaster risk reduction in the teaching process so as to equip the learners with knowledge and skills that will help reduce their vulnerability to floods.

1.7 Assumptions of the study

Assumptions are statements of what the researcher believed to be facts but could not verify. The following were the assumptions of the study:

- (i) The respondents cooperated and responded genuinely to the items in the questionnaires.
- (ii) There were learner related factors, infrastructural related factors and contextual related factors that influenced pupils' access to primary school education in flood prone areas of Ijara district.

1.8 Limitations of the study

These were factors beyond the researcher's control which affected the study. According to Mugenda and Mugenda, (2003) a limitation is an aspect of research that influences the results but over which the researcher has no control. It was difficult for the researcher to control the attitude of the respondents to the questionnaires. Therefore, there was need for the respondents to be assured of confidentiality before filling in the questionnaires. Secondly, the literacy levels in primary schools in Ijara district were generally low such that despite the researcher having structured simple and straight forward questions appropriate for learners in standard six, seven and eight, it was difficult for most learners to

complete the questionnaires on their own. Therefore the researcher had to work in collaboration with the teachers in interpreting the questions to the pupil respondents. Thirdly, since Ijara district is arid and had a poor road transport network which had been worsened by the March-April rains, the researcher had to take a long time to access the district. Lastly, some teachers wanted to be paid before filling in the questionnaires as they thought it was a donor funded research, however the researcher explained to them that it was self sponsored and purposively meant for academic work.

1.9 Delimitations of the study

According to Orodho, (2004), delimitations of the study are the boundary limitations. The study was carried out in 9 public primary schools in flood prone areas of Ijara district and not other flood prone areas in Kenya. It only concentrated on learner related factors, infrastructural related factors and contextual related factors. It focused on the 9 public primary schools in flood prone areas of Ijara district and sought views of headteachers, teachers and pupils from classes six, seven and eight.

1.10 Definition of significant terms

The following were the significant terms used in the study:

Access refers to an opportunity to enrol in, attend and complete a formal or non-formal education programme. In flood prone areas it entails the opportunity for learners to use school facilities such as classrooms, play grounds and toilets during floods. It also involves the learners' ability to attend school regularly during floods.

Contextual related factors refer to factors such as distance and settlement patterns that influence pupils' access to primary school education in flood prone areas.

Damage refers to the harmful effects of floods.

Disaster refers to a serious disruption of the functioning of the society causing widespread human, material or environmental damage and losses which exceed the ability of the affected community to cope using their own resources.

Flood refers to a situation in which a large amount of water temporarily covers an area of land that is usually dry.

Flood prone areas refer to areas in which a large amount of water is likely to temporarily cover an area of land that is usually dry.

Infrastructural related factors refer to factors such as: damage and flooding of classrooms; damage and flooding of toilets; damage of roads and bridges; and other school buildings that influence pupils' access to primary school education in flood prone areas.

Learner related factors refer to factors such as age, gender and health that influence pupils' access to primary school education in flood prone areas.

1.11 Organization of the study

The study is organized into five chapters. Chapter one comprises of background of the study, statement of the problem, purpose of the study, objectives of the study, research questions, significance, limitations of the study, delimitations of the study, assumptions of the study, definition of significant terms and organization of the study. Chapter two deals with literature review related to factors influencing pupils' access to primary school education under the sub-headings: learner related

factors, infrastructural factors and contextual factors. Conceptual framework, theoretical framework and summary of literature review.

Chapter three consists of research methodology focusing on research design, target population, sample size, sampling procedures, research instruments, validity and reliability of the research instruments, data collection procedures and data analysis techniques. Chapter four constitutes data analysis and results of the analyzed data. Finally Chapter five deals with the summary, conclusion, recommendation and suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed literature related to the factors influencing pupils, access to primary school education in flood prone areas of Ijara. The review focused on learner related factors, infrastructural related factors and contextual related factors that influenced pupils' access to primary education in flood prone areas. This section ended with a summary of the literature reviewed, theoretical framework and the conceptual framework of the study.

2.2 Learner related factors that influence access to education in flood prone areas

According to UNESCO (2008) 77 million children were out of school globally. Whereas, UNICEF (2009) established that a total of 45.5 million children who make 16.5% of the world population were out of school. Of these 21.8 million were boys while 23.7 million were girls (Okuom et al, 2012). For example during the Pakistan floods in the year 2010, there were 309,000 children, including 136,000 girls whose schools had been damaged. In addition, there were 306,000 children, including 135,000 girls whose schools had been converted into shelters (INEE, 2010).

Further according to the Annual Statistical Report of Government Schools in Pakistan 2009-2010, 680 boys' schools and 301 girls' schools were reported to be

damaged by the flood crises. The undamaged schools were vacated to house the displaced population and thus unless the individuals moved back to their own land, majority of the boys and girls would not have access to education.

Rashid (2000) adds that children are mainly affected by cholera as many of them swim in the dirty flood waters to fetch relief items, and some of them play in the dirty water out of boredom, even drinking and bathing in it. Achoka and Maiyo (2008) concur that children are in a greater danger in flood regions because they fall victims of drowning and disease. According to Rashid (2000), women and children are the most vulnerable during the floods. For example, during the 1998 floods in Bangladesh, the women and girls faced difficulties in gaining access to basic sanitation as most of the latrines were submerged by the floodwaters. Further disasters leave women and girls with heavier responsibilities and workloads and often poorer health (Cuny, 1983).

Ayieko (2006) reveals that after disasters, children and families may lack sufficient food, and in the process engage in activities to get food and eventually drop out of school. Poverty is exacerbated by floods making girls and their parents to be easily lured by small gifts leading to increase in teenage pregnancies and dropout. Ariyabandu and Wickramasinghe (2005) concur that some groups are more vulnerable to floods than others are. For instance, children's unique conditions of physical, cognitive and physiological immaturity mean they can be more at risk from intense drought, recurring floods, the impact of climate variability on livelihoods and other weather related disasters (UNICEF, 2008; Save the Children, 2009). Vulnerability is not just poverty, but the poor tend to be the most vulnerable due to their lack of choices (Ariyabandu & Wickramasinghe

2005; Living with Risk, 2002). For example they may lead women and girls to resort to sex work and risk HIV infection which have long-term devastating effects to the community and nation at large.

When there is flood, students always encounter difficulties to go to schools because of road damages and having to travel across rivers. Mostly, they have to catch a boat to study, which takes longer time and higher costs to reach schools. Such difficulties could in turn lead to high absenteeism rate among poor students at the beginning of each academic year. The most depressing effect of the floods is to be found in schools and the pupils who try to make their way there. Going to school is a nightmare, pupils have to either wade through flooded fields or board canoes that are dangerously rowed through the raging river (Ochola, 2009).

Friedrich (2009) observed that in Kenya the education sector consumes about 30% of public expenditure but still 1.8 million children are out of school. This is due to natural and human induced disasters such as floods, droughts, and conflicts which have had devastating impacts on formal and informal education alike. The disasters themselves have disrupted learning for days, weeks, months and in some cases years. The after effects of such occurrences, including trauma, displacement of families, health impacts, and the common decrease in food security all have contributed to negative impacts in the education sector (Republic of Kenya, 2010).

A research conducted in Nyando district established that pupils of age ranges between five and eight years, in lower primary were most affected during the floods and were not able to cope with the adverse weather conditions. They were

compelled to stay a little longer out of school because they could not wade in the flood waters (Amner, 2007).

2.3 Infrastructural related factors that influence pupils' access to primary education in flood prone areas

According to UNESCO and UNEP (2004) emphasis is laid on the importance of school safety by stating that, 'the upgrading and construction of schools that will be relatively safe during the occurrence of disasters should be part of a nation's long term planning.' United Nations International Strategy for Disaster Reduction (UNISDR, 2007), explains that this is due to the fact that occupants of schools are young and vulnerable people who need special attention and protection. In addition, schools are repository centres of important documents such as educational certificates and books. Students and teachers spend a great amount of their time in schools; the school buildings are used more than seven hours per day. Therefore care should be taken in constructing classrooms and other school buildings so that they may withstand natural disasters such as; floods, earthquakes and strong winds (Ochola, 2009).

According to (UN-OCHA, 2010), during the Pakistan floods in 2010 some 7,820 schools were reported to have been fully or partially damaged in Punjab, Sindh, Balachistan, Khyber Pakhtunkhwa, Gilgit-Baltisan and Pakistan Administered Kashmir. IRIN News (2010) adds that, all educational institutes of Sindh, except those of Karachi and Hyderabad had been disturbed due to the floods.

Floods frequently cause major infrastructure damage including damage of roads, railway lines, airports, electricity supply systems, water supply and sewage disposal systems. Bridges over rivers are particularly exposed to damage and disruption of transportation systems follows. The economic effects of flooding are: often much greater than the flood itself (Parker 2000). For example, Lome city in Togo suffered an infrastructure loss of \$ 19 million during the June 2010 floods due to destruction of main road system and rail infrastructure. Floods disturbed education mainly by cutting the access to school for young pupils. Nott (2006) further adds that physical damage to property is one of the major causes for tangible loss in floods. This includes the cost of damage to goods and possessions, loss of income or services in the floods aftermath and clean-up costs. Some impacts of floods are intangible and are hard to place a monetary figure on. In some cases, schools are used as emergency shelters during flooding time, resulting in damages of school structures, especially classroom floors (Ochola, 2009).

In the years preceding the May 2000 floods, the World Bank financed construction of 487 schools in Mozambique according to local building practice. However, during subsequent floods, 500 primary schools and seven secondary schools were damaged or destroyed, severely setting back development goals (World Bank, 2006a). Further, damage to schools in Uganda left at least 100,000 children out of school noting that the displacement of people and damage to infrastructure disrupts African societies in their development effects and impact on the achievement of almost every Millennium Development Goal. This is an indicator of lack of a culture of disaster resilience and yet Priority Action 2 of the

Hyogo Framework for Action (HFA) states that: the starting point for reducing disaster risk and for promoting a culture of disaster resilience lies in the knowledge of the hazards and the physical, social, economic and environmental vulnerabilities to disasters that most societies face, and of the ways in which hazards and vulnerabilities are changing in the short and long term, followed by action taken on the basis of that knowledge (UNISDR, 2007b).

In Kenya, flooding in Nyanza province in 2009 led to limited usable toilets and unreachable health facilities causing learners to suffer from illnesses, hence unable to attend school even after learning resumed (Kenya Red Cross Society, 2005). A research done by Ochola (2009) established that 40% of schools in Nyando district were affected by floods every year, whereby walls of some classes collapsed, toilets got destroyed, flooding the wastes on flooded areas exposing learners to high health risks. During the year 1998 floods in Nyando district the girls shared stories about the difficulties they faced in gaining access to basic sanitation as most of the latrines were submerged by the floodwaters. They resorted to a number of desperate measures to cope with the predicament. Some of the girls admitted walking long distances with female relatives or planned trips together by boat to other less flooded areas to use the latrines.

2.4 Contextual related factors that influence pupils' access to primary education in flood prone areas

World Bank, (2008), argues that the concentration of people in urban areas increases their vulnerability to natural hazards and climate change impacts. Vulnerability to flooding is particularly increased where inappropriate, or

inadequately maintained infrastructure, low-quality shelters, and lower resilience of the urban poor intertwine. The urban poor are often excluded from the formal economy; they lack access to adequate basic services and because they cannot afford housing through the market, they are located in densely populated informal slums which may be constructed with materials and techniques that cannot resist extreme weather or natural disasters (Parry et al, 2009).

Brouwer, Akter, Brander and Haque (2007) reveal that Bangladesh is a highly flood prone country. Eighty (80) percent of the country consists of floodplains and several other minor rivers. These floodplains sustain a predominantly poor rural population. Once every 10 years roughly one-third of the country gets severely affected by floods while in catastrophic years such as 1988, 1998 and 2004, more than 60% of the country was inundated. Floods caused social disruptions and resulted in scarcity of drinking water as surface water got contaminated.

Parker (2000) pointed out that floodplains are important locations for settlements almost everywhere in the world and Africa is no exception. While regional settlements may have avoided the flood prone areas, subsequent settlement growth has led to floodplain development. For example, in Egypt the River Nile floodplain is the most densely populated region of the country and by comparison the remainder of Egypt is virtually uninhabited. Elsewhere in Mozambique at least twenty urban centers are at risk of flooding including major settlements along the Zambezi and six coastal locations.

In Kenya, floods are emerging as the most prevalent climatic disaster (GoK, 2007; ISDR, 2007). Perennial floods affect low-lying regions of the country such as river valleys, swampy areas, lakeshores and the coastal strip that are unevenly distributed in the country. The Arid and Semi Arid Lands (ASAL) that comprise of 80% total landmass in Kenya are also prone to floods. This is despite the fact ASAL areas such as Tana River and Ijara record an average rainfall of only 300-500mm annually compared to the Western and Central Highlands that receive an annual rainfall of between 1600-2000mm (Ambuchi, 2011).

2.5 Summary of the literature review

This section explored literature related to influence of floods on access to primary school education. It focused on: learner related factors, infrastructural related factors and contextual related factors. From the literature it was noted that the learner related factors were age, health and gender. Children are more vulnerable to floods than others. Floods leave women and girls with heavier responsibilities and workloads and often poorer health (Cuny, 1983). Floods cause waterborne diseases such as cholera, typhoid and malaria which causes absenteeism among pupils and also teachers during and after rainy seasons.

Infrastructural related factors such as damage of schools, flooding of toilets and damage of roads and bridges influence access to education. In some cases schools are used as emergency shelters during flooding time, resulting in damage of school structures (Ochola, 2009).

Floodplains are important locations for settlements almost everywhere in the world and they sustain a predominantly poor rural population (Parker, 2000; Brouwer et al, 2007). Therefore during floods the population that has settled along the floodplains is displaced in addition to losing their livelihoods. Going to school is a nightmare for pupils who have to wade through flooded fields or board canoes that are dangerously rowed through the raging rivers (Ochola, 2009).

The most common disaster in Ijara district according to a survey by ActionAid Kenya, (2007) was identified as floods. In most cases, the residents who participated in the study identified damage to infrastructure and loss of life as the major impacts of floods. Despite floods being identified as a common disaster in Ijara, previous studies had dwelt on disaster risk reduction in primary schools without reference to access to primary school education. A recent study by Karogo (2012) focused on challenges in financing development projects in public primary schools in Ijara district. Furthermore, no study had been done to investigate the factors influencing pupils' access to primary school education in flood prone areas of Ijara district. This study investigated the factors influencing pupils' access to primary school education and made recommendations on how to alleviate the situation.

2.6 Theoretical Framework

This study was based on Emile Durkeim's Functional theory (1858-1916). Functionalism interprets each part of society in terms of how it contributes to the

stability of the whole society. The different parts are primarily the institutions of society, each of which is organized to fill different needs and each of which has particular consequences for the form and shape of society. The parts all depend on each other. It focused on how it is essential that elements of a society work together in order to function fully as a whole. It emphasized the effort to impute, as rigorously as possible, to each feature, custom, or practice, its effect on the functioning of a supposedly stable, cohesive system. It attempted to provide an explanation on how human society is organized and what each of the various institutions does in order for society to continue existing (Kombo & Tromp, 2006).

For example, the Ministry of Education has set safety standards for schools which it expects managers of schools to adopt to ensure resilience of schools to floods. The school is expected to pass knowledge and skills on disaster risk reduction to its members. The learners belong to a community that is expected to adopt building standards and economic activities that will not risk the lives and livelihoods of its members in case of floods. The community is dependent upon the school to teach learners how to reduce risks of floods. In the process, the learners access primary school education despite the floods.

2.7 Conceptual Framework

The conceptual framework in figure 2.1, illustrated how the variables under study related and influenced each other.

Figure 2.1: Factors influencing pupils' access to primary school education in flood prone areas

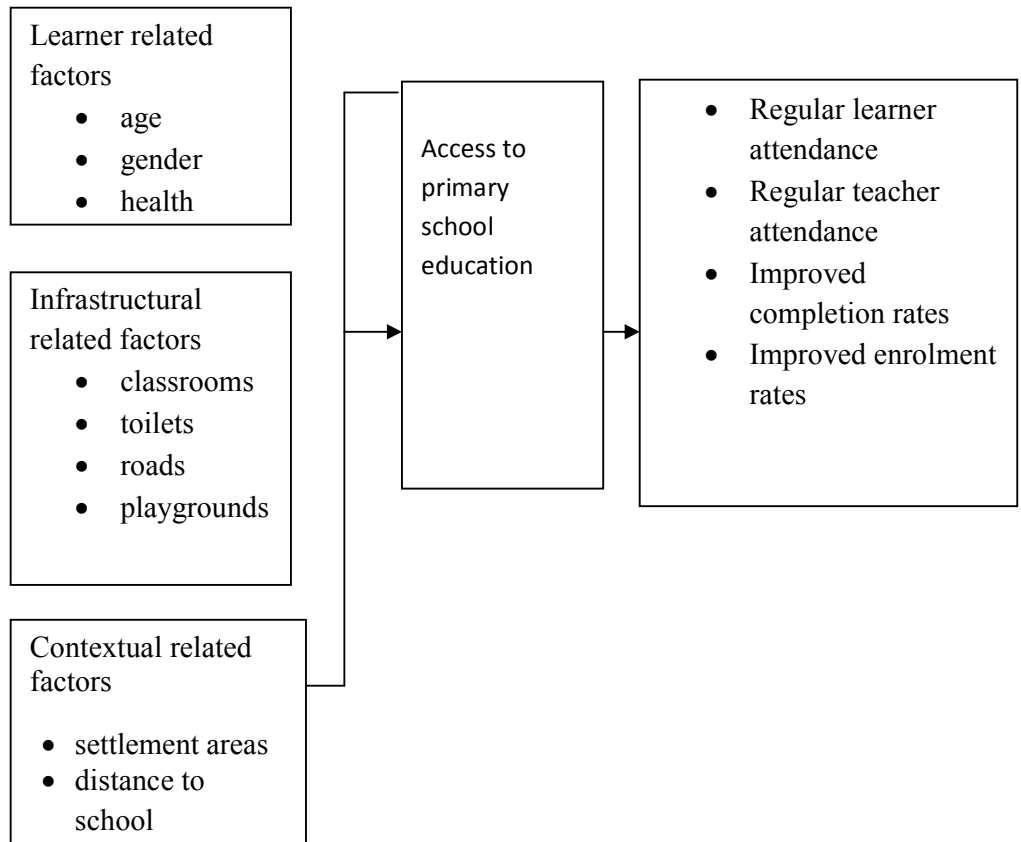


Figure 2.1 shows that access to primary school education in flood prone areas was influenced by learner related factors, infrastructural related factors and contextual related factors.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers the various methods that were used by the researcher in carrying out the study. It contains the research design, target population, sample size and sampling techniques, research instruments, instrument validity, instrument reliability, data collection procedure and data analysis techniques.

3.2 Research design

Borg and Gall (1989), point out that research design is a process of creating an empirical test to support or refute knowledge. This study was conducted using descriptive survey design. A survey is an attempt to collect data from members of a population in order to determine the current status of that population with respect to one or more variables (Mugenda & Mugenda, 2003). This used descriptive survey design as it provided insight into intensive, descriptive and holistic analysis of the data collected. The data presented the factors that influenced pupils' access to primary school education in flood prone areas of Ijara district.

3.3 Location of study

The area of study was Ijara district. This is one of the eleven districts that form the North Eastern region. It was hived out of the larger Garissa District in the year

2002. The district borders Fafi District to the North, Lamu District to the South, Tana Delta District to the South West, Tana River District to the west and the Republic of Somalia to the East.

Access to education in the district is characterized by low participation rates and locational disparities. It is beset by high non-enrolment, low completion and transition rates with the girls reporting low rates than boys at all levels. According to Arid Lands Resource Management Project II (2007/2008) the main issues affecting education in the district include: few trained teachers; few quality assurance officers; poverty; disasters; vastness of the district; poor transport and communication network and harmful cultural practices.

3.4 Target population

A population is defined as a complete set of individual, cases or objects with some common observable characteristics (Mugenda & Mugenda, 2003). The study was conducted in flood prone areas of Ijara district which was composed of three educational zones namely: Hulugho, Ijara and Masalani. The district had 23 public primary schools, 209 teachers and 8,400 pupils. This was the target population.

3.5 Sample size and sampling procedure

A sample is a subset of a particular population (Mugenda & Mugenda, 2003). Therefore a sample is used to make a generalization of the characteristics being investigated within the entire population. Purposive sampling was used as the researcher intended to study only the primary schools in flood prone areas of Ijara. Mugenda and Mugenda (2003) add that purposive sampling allows a researcher to

use cases that have the required information with respect to the objectives of his or her study.

The study used Krejcie and Morgan's table to determine the sample size for teachers and pupils. It was suitable since it gives 95% certainty (Krejcie & Morgan, 1970). Ijara district had 9 public primary schools in flood prone areas, 90 teachers and 3,665 pupils. All the headteachers of the 9 schools were sampled. Out of the 90 teachers, 73 teachers were sampled. Out of the 3,665 pupils 347 were sampled. Stratified random sampling was used to select the pupils and teachers in the 9 public primary schools. In each school a sample was drawn in proportion to its population. The sample was then be divided into various class levels and then into male and female categories. The class 6,7,8 pupils were purposively sampled as they easily filled the questionnaires with minimal guidance from the teachers.

3.6 Research instruments

Questionnaire was the main instrument for the data collection. However, observation schedules were also used. Questionnaires are commonly used to obtain important information about the population. Each item in the questionnaire was developed to address a specific issue of the objective or research question (Mugenda & Mugenda, 2003). They were designed by the researcher in accordance with the objectives of the study. Three sets of questionnaires were designed for the headteachers, teachers and pupils. The questionnaires had both closed and open ended items.

Section A of the headteachers' questionnaire sought background information on the headteacher, section B sought learner related information, section C sought infrastructural related information and section D sought contextual related information. Section A of the teachers' questionnaires sought background information on the teachers, section B sought learner related information and section C sought infrastructural related information. Section A of the pupils' questionnaire sought background information on the pupils, section B sought learner related, section C sought infrastructural related information and section D sought contextual related information.

3.6.1 Instrument validity

Validity is the degree to which results obtained from the analysis of the data actually represents the phenomena under study (Mugenda & Mugenda, 2003). It is concerned with the accuracy or truthfulness of a measurement. To ensure content validity, the researcher submitted the instruments for scrutiny and review by experts in the Department of Educational Administration and Planning, University of Nairobi. After the experts ascertaining that the instruments were valid for administration, the researcher made copies for use in piloting. The piloting process comprised of one headteacher, four teachers and fifteen pupils. This helped the researcher to identify ambiguous and unclear items. The ambiguous items were deleted and the unclear items were rephrased for clarity. After that the researcher produced copies for use in the actual data collection.

3.6.2 Instrument reliability

According to Mugenda & Mugenda (2003), reliability is a measure of the degree to which a research instrument yields consistent results of data after repeated trials. The test- retest technique was used to assess reliability. The same instrument was administered twice to the same group of subjects after two weeks then the scores were correlated to obtain a coefficient of reliability. The Pearson product – moment correlation coefficient formula was used to determine how the scores correlated. The formula is :

$$r_{xy} = \frac{\sum(x - \bar{x})(y - \bar{y})}{\sqrt{\sum(x - \bar{x})^2 \sum(y - \bar{y})^2}}$$

where \sum is the symbol of summation

- x are the scores of the first test
- y are the scores of the second test
- \bar{x} is the mean of x
- \bar{y} is the mean of y

The correlation coefficient ranged from 1 to -1, where 1 shows a perfect positive relationship and -1 shows a perfect negative relationship. All the questionnaires had a coefficient of 0.81. These results were deemed reliable for use with the population.

3.7 Data collection procedures

Data was collected from the primary schools in the flood prone areas of Ijara district after obtaining a research permit from the National Council for Science and Technology. Subsequent clearance to carry out the study was obtained from the District Education Officer Ijara district and the headteachers. Visits were made

to the schools to make appointments with the headteachers on when to administer the questionnaires and conduct focus group discussions with the pupils. The researcher then re-visited the schools as per the agreed schedules to carry out the study. Self administered questionnaires were presented to the headteachers and teachers during arranged visits.

During the visits the researcher dropped the questionnaires and requested the headteachers to facilitate their completion as she proceeded to other schools. The researcher further made personal calls and visits to remind the respondents to fill and return the questionnaires. In some cases the researcher dropped the questionnaires and waited for the respondents to fill and return due to the technicalities of accessing the schools. After the researcher had visited all the sampled schools, administered the questionnaires, carried out focus group discussions and received all the completed and incomplete questionnaires the next stage was data analysis.

3.8 Data analysis techniques

Data analysis was based on the research objectives. Data collected from the questionnaire was coded and organized to be processed using Statistical Package for Social Sciences (SPSS) (IBM Statistics Version 20) software before being analyzed. The study generated both quantitative and qualitative data. Descriptive statistics was used to analyze quantitative data derived from closed ended questions by calculating frequencies and percentages. The findings were presented using frequency tables and pie charts. The qualitative data derived from open-

ended questions, was analysed thematically based on the research objectives formulated at the beginning of the study.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter focuses on the questionnaire completion rate, demographic information of the respondents, presentations, interpretation and discussion of findings. The presentations were done based on the research questions. Items addressed in the research questions were grouped and discussed together to draw conclusions on each research question. Demographic information was discussed first and then the data analysis. Tables were used to present data while frequencies and percentages were used to interpret the findings.

4.2 Questionnaire return rates

The respondents involved in the study were headteachers, teachers and pupils. They returned the questionnaires as tabulated in Table 4.1.

Table 4.1 Questionnaire return rates

| Respondents | Target | Number of respondents | Return rate |
|--------------------|---------------|------------------------------|--------------------|
| | Sample | | |
| Headteachers | 9 | 7 | 77.7% |
| Teachers | 73 | 68 | 93.1% |
| Pupils | 347 | 301 | 86.7% |
| Total | 429 | 376 | 87.6% |

Table 4.1 shows that out of the 9 headteachers sampled, 7 (77.7%) filled and returned the questionnaires. Out of 73 teachers sampled, 68 or an equivalent of

93.1% of the questionnaires were returned and usable. Out of 347 questionnaires administered to the pupils, 301 (86.7%) were returned and usable. This was on average a return rate of 87.6%. The respective response rates for headteachers, teachers and pupils were a good representative and conformed to Mugenda and Mugenda (2003) stipulation that a response rate of 50% is adequate for analysis and reporting; whereas a rate of 60% is good and a response rate of 70% and over is excellent. Therefore the response rate was excellent for analysis.

4.3 Demographic information of respondents

This section covers the demographic information of the respondents. It focuses on the background information of the headteachers, teachers and pupils in the study.

4.3.1 Demographic information of the headteachers

The demographic data for the headteachers focused on their gender, highest level of professional training, and the duration they had served as headteachers.

4.3.2 Distribution of headteachers by gender

The headteachers were asked to indicate their gender and they responded as shown in table 4.2

Table 4.2 Distribution of headteachers by gender

| Gender | Frequency | Percent | Valid percent | Cumulative percent |
|---------------|------------------|----------------|----------------------|---------------------------|
| Male | 6 | 85.7 | 85.7 | 85.7 |
| Female | 1 | 14.3 | 14.3 | 100.0 |
| Total | 7 | 100.0 | 100.0 | |

Data on the gender of the headteachers as presented in table 4.2 showed that 6 (85.7%) were male while 1 (14.3%) was a female. The data showed that there was less representation of female headteachers in Ijara District

4.3.3 Headteachers highest level of professional training

The headteachers were also asked to indicate their highest professional training level. Their responses are presented in table 4.3

Table 4.3 Headteachers' highest level of professional training

| Level of training | Frequency | Percent | Cumulative percent |
|--------------------------|------------------|----------------|---------------------------|
| Diploma | 2 | 28.6 | 28.6 |
| B.Ed | 5 | 71.4 | 100 |
| Total | 7 | 100.0 | |

Data on the highest level of professional training of the headteachers indicated that 5 (71.4%) were holders of Bachelor of Education degrees (B.Ed), while 2 (28.6%) were diploma holders. The data shows that all the headteachers in the study had minimum qualifications enabling them to provide reliable information on the factors influencing pupils' access to primary education in flood prone areas of Ijara district.

4.3.4 Headship experience

The headteachers were further asked to indicate their years of experience in the position and they responded as shown in Table 4.4.

Table 4.4 Headship experience

| Duration as headteacher | Frequency | Percent | Cumulative percent |
|--------------------------------|------------------|----------------|---------------------------|
| 1-5 years | 1 | 14.3 | 14.3 |
| 5-10 years | 3 | 42.9 | 57.1 |
| 10-15 years | 3 | 42.9 | 100 |
| Total | 7 | 100.0 | |

The responses on the duration of headship indicated that 1 (14.3%) headteacher had served for a period less than 5 years in the position. While 3(42.9%) of the headteachers had served for a period of 5 to 10 years in the position and another 3(42.9%) had served for a period of 10 to 15 years in the position. These findings indicated that the duration was adequate for them to provide information on the factors influencing pupils' access to primary school education in flood prone areas of Ijara. This is because they had witnessed a number of flooding seasons in the area.

4.3.5 Demographic data of teachers

After addressing the demographic data of the headteachers, attention was drawn to the demographic data of the teachers. The data focused on their gender, highest level of professional training and the duration they had been teaching in the district.

4.3.6 Distribution of teachers by gender

The teacher respondents were asked to indicate their gender and they responded as shown in table 4.5

Table 4.5 Distribution of teachers by gender

| Gender | Frequency | Percent | Cumulative percent |
|---------------|------------------|----------------|---------------------------|
| Male | 46 | 67.6 | 67.6 |
| Female | 22 | 32.4 | 100.0 |
| Total | 68 | 100.0 | |

Data on the gender of teachers indicated that majority of them were male as shown by 46 (67.6%), while 22 (32.4%) were female. However this disparity did not affect the respondents' provision of information about the factors influencing pupils' access to primary school education in flood prone areas of Ijara district.

4.3.7 Teachers' professional training

The teacher respondents were asked to indicate their highest level of professional training and they responded as shown in table 4.6.

Table 4.6 Teachers' highest level of professional training

| Qualifications | Frequency | Percent | Cumulative percent |
|-----------------------|------------------|----------------|---------------------------|
| P1 | 29 | 42.6 | 42.6 |
| Diploma | 27 | 39.7 | 82.4 |
| B.Ed | 8 | 11.8 | 94.1 |
| Others | 4 | 5.9 | 100.0 |
| Total | 68 | 100.0 | |

Data on the highest level of professional training of the teachers indicated that 29 (42.6%) had P1 certificate, 27 (39.7%) were diploma holders, 8 (11.8%) were

holders of Bachelor of Education degrees (B.Ed) while the rest 4 (5.9%) had qualifications above the bachelor's degree. Therefore all the teacher respondents had the minimum P1 professional training enabling them to provide information on the factors influencing pupils' access to primary school education in flood prone areas of Ijara district.

4.3.8 Teachers' teaching experience

The teacher respondents were further asked to indicate the range of years they had been teaching in the district. They responded as shown in table 4.7

Table 4.7 Teaching Experience of the teachers in Ijara District

| Duration of teaching | Frequency | Percent | Cumulative Percent |
|-----------------------------|------------------|----------------|---------------------------|
| 1-5 years | 32 | 47.1 | 47.1 |
| 5-10 years | 21 | 30.9 | 77.9 |
| 10-15 years | 9 | 13.2 | 91.2 |
| 15-20 years | 3 | 4.4 | 95.6 |
| 21 years and above | 3 | 4.4 | 100.0 |
| Total | 68 | 100.0 | |

Data on duration the teachers had taught in the district showed that: 32 (47.1) of the teachers had taught for a period of between 1 and 5 years; 21 (30.9%) had taught for a period of 5 to 10 years; 9 (13.2%) had taught for 10 to 15 years; 3 (4.4%) had taught for 15 to 20 years and another 3 (4.4%) had taught for more than 21 years in the district. Therefore all the teachers had taught for over one

year in the district. This duration could be considered adequate for them to have had exposure of the factors influencing pupils' access to primary school education.

4.3.9 Demographic data of pupils

The researcher further sought to gather data on the background information of the pupils in the study. The demographic data of pupils focused on their gender and class.

4.3.10 Distribution of pupils by gender

The pupil respondents were asked to indicate their gender and they responded as shown in table 4.8

Table 4.8 Distribution of pupils by gender

| Gender | Frequency | Percent | Cumulative percent |
|---------------|------------------|----------------|---------------------------|
| Boy | 172 | 57.1 | 57.1 |
| Girl | 129 | 42.9 | 100.0 |
| Total | 301 | 100.0 | |

Data on the gender of the pupils indicated that 170 (56.5%) were boys while girls were 108 (35.9%). The data shows that there was gender disparity which was likely to be associated with cultural lag on girl-child education as the teacher respondents indicated it as a factor affecting pupils' access to primary school education in the area.

4.4 Findings of the learner related factors influencing pupils' access to primary school education in flood prone areas of Ijara district

The first objective of the study was to establish the learner related factors that influence pupils' access to primary school education in flood prone areas of Ijara District. The respondents were presented with statements that they were supposed to respond to. The headteachers were asked to indicate when the latest floods occurred; they all responded that the latest floods had occurred between March and April 2013. They were also asked to indicate whether floods had delayed opening of schools and for how long. According to 4 (57.1%) of the respondents, floods had delayed opening of schools for up to one week. Whereas for 3 (42.9%) opening of schools was not delayed due to flooding.

4.4.1 Influence of floods on teacher and learner attendance

Further the headteachers were asked to indicate whether floods had affected teacher and learner attendance. They responded as shown in table 4.9.

Table 4.9 Influence of floods on teacher attendance

| Response | Frequency | Percent | Cumulative Percent |
|-------------------------|------------------|----------------|-------------------------------|
| Attendance affected | 5 | 71.4 | 71.4 |
| Attendance not affected | 2 | 28.6 | 100.0 |
| Total | 7 | 100.0 | |

From table 4.9 responses on teacher attendance indicated that 5 (71.4%) of the schools were affected. Asked to give an explanation, the headteachers indicated

that the teachers were forced to report late after schools opened for second term due to lack of transport. This is because the floods had washed away parts of the roads and cut-off some bridges making road transport in the marginalized area a challenge. Since majority of the teachers come from outside North Eastern region they had travelled to their homes for the April holidays. When schools re-opened, they had to spend more than three days travelling back to school. At times they were forced to trek for kilometres or paddle canoes for long distances to connect accessible roads. Further all the headteachers agreed that learner attendance had been affected by the floods. This study was in agreement with Amner (2007) that indicated frequent absenteeism of learners from schools in disaster inflicted areas. Asked to give explanations, the headteachers responded that: the pupils were forced to use long routes to school, in order to avoid the dangers of flooding. Some suffered from water borne diseases and therefore were away from school. Others had been displaced from their homes by the floods and sought temporary shelters in safer places far away from their schools.

4.4.2 How floods affect learning

The respondents were further asked to indicate how floods affect learning. They indicated that it leads to drop in school enrolment. This was evident from the data provided which showed a general drop in enrolment during and after the floods. Further they responded that: it leads to absenteeism hence delays in syllabus coverage; causes poor attendance for pupils and teachers; leads to transmission of waterborne diseases and malaria. Further it results in loss of livelihoods fostering poverty and lack of basic needs in addition to leaving trauma and bad memories in lives of children whose families were displaced by floods. Displacement of

families causes attention deficit as the pupils get preoccupied with the hurting past experiences.

The headteachers were also asked to give opinions on how school attendance can be improved during floods. Their responses indicated that it can be done by: sensitizing the communities on flood preparedness; setting up school feeding programmes in schools in order to cater for learners whose family livelihoods have been destroyed by floods; increasing supply of food rations and other donations to families affected by floods; and building of bridges in flood plains known to turn into seasonal rivers during rainy seasons.

4.4.3 Groups of learners most challenged in attending school during floods

The teacher respondents were asked to give opinions on which groups of learners were most challenged in attending school during the floods. All the teacher respondents indicated that children in lower primary (1-4) were the most challenged in attending school during floods. The respondents were further asked to give explanations. They explained that this group was most affected as: they were unable to cross the flooded rivers; faced dangers of drowning as they were not mature enough to avoid dangerous places during floods; were highly prone to water borne diseases as they played in the water and even drank it unaware of the dangers; were pricked by thorns as they walked in the water and feared crossing the rivers using the canoes. The teachers added that girls of both lower and upper primary were most challenged in attending compared to boys of their level as they were unable to

wade in the flooded field and roads to school. This is because the area is largely Islam and Muslim girls are not allowed to fold their overflowing clothes even

when walking in mud and water. Therefore some girls choose to stay at home instead of wading in the dirty water and reaching school wet and dirty.

4.4.4 Illness during floods

The pupil respondents were asked to indicate whether they got ill during the floods. They responded as presented in table 4.10.

Table 4.10 Pupils' responses on illness during floods

| Response | Frequency | Percent | Cumulative percent |
|-----------------|------------------|----------------|---------------------------|
| Was ill | 198 | 65.8 | 65.8 |
| Not ill | 99 | 32.9 | 98.7 |
| No response | 4 | 1.3 | 100.0 |
| Total | 301 | 100.0 | |

The pupils' responses indicated that: 198 (65.8%) suffered from illness during the floods; 99 (32.9%) did not suffer from any illness and the remaining 4 (1.3%) did not respond to the item. Further they were asked to name the diseases that they suffered from. They named: cholera, bilharzias, malaria, typhoid, foot rot and skin rashes. These findings agreed with Ochola (2009) who reported that malaria and cholera were a health menace in flood zones.

4.4.5 Learner absenteeism as a result of illness related to floods

The teacher respondents were further asked to indicate whether there were learners who missed school as a result of illness related to floods. They responded as shown in table 4.11.

Table 4.11 Absenteeism as a result of illness related to floods

| Response | Frequency | Percent | Cumulative percent |
|-----------------|------------------|----------------|---------------------------|
| Absent | 55 | 80.9 | 80.9 |
| Not absent | 13 | 19.1 | 100.0 |
| Total | 68 | 100.0 | |

Responses from 55 (80.9%) of the teacher respondents indicated that there were learners who missed school as a result of illness related to floods such as cholera, typhoid and malaria while 13 (19.1%) indicated that there was no absenteeism as a result of illness related to floods. This showed that illness related to floods led to absenteeism of majority of the pupils. The pupils were asked to indicate whether floods made them to miss school or not. They responded as shown in table 4.12

Table 4.12 Pupils responses on absenteeism during floods

| Response | Frequency | Percent | Cumulative percent |
|-----------------|------------------|----------------|---------------------------|
| Absent | 208 | 69.1 | 69.1 |
| Not absent | 93 | 30.9 | 100.0 |
| Total | 301 | 100.0 | |

The table shows that majority of the respondents 208 (69.1%) missed school due to floods while 93 (30.9%) indicated that they did not miss school as a result of floods. This indicated that floods affected school attendance of learners. Further

the pupils were asked to indicate for how long they missed school. The responses are presented in table 4.13

Table 4.13 Duration of absenteeism

| Duration | Frequency | Percent | Cumulative percent |
|--------------------|------------------|----------------|---------------------------|
| Less than one week | 46 | 15.3 | 15.3 |
| One week | 77 | 25.6 | 40.9 |
| More than one week | 88 | 29.2 | 70.1 |
| Not applicable | 82 | 27.2 | 97.3 |
| No response | 8 | 2.7 | 100.0 |
| Total | 301 | 100.0 | |

Data showed that 46 (15.28%) of the pupils missed school for less than one week; 77 (25.58%) for one week; 88 (29.24%) for more than one week; 82 (27.24%) did not miss school while 8 (2.66%) did not respond to the item.

4.4.6 Safety of learners during floods

The teacher respondents were asked whether there were situations that threatened the safety of the learners during floods, they responded as shown in table 4.14.

Table 4.14 Safety of learners threatened during floods

| Safety threatened | Frequency | Percent | Cumulative percent |
|--------------------------|------------------|----------------|---------------------------|
| Yes | 68 | 100.0 | 100.0 |
| Total | 68 | 100.0 | |

The data in table 4.14 shows that 68 (100%) all the teacher respondents agreed that there were situations that threatened the safety of the learners during floods. They were further asked to state the situations and they listed: attack by crocodiles; boys rescuing animals to safer grounds by wading in deep waters; boys risk drowning as they fancy wading through water; sexual exploitation of girls by families who pose as good Samaritans for displaced families; sexual molestation in the camps; infections due to bathing with contaminated water; lack of toilet facilities and fear of sinking while in the collapsed toilets. In the focus group discussion the pupils indicated that they were worried about their safety during floods. One of the pupils had this to say: *'when there is a flood many of the pupil we missing school because they fear the lightning and the strong wind that wants to take away our school roofs.'* This showed that the impact of floods caused trauma in the learners and whenever heavy rains came they feared that the same disasters would recur. The teacher respondents were further asked to indicate how safety can be ensured in school during floods. They responded that it can be done through: improving road and bridge construction; avoiding sending pupils to fetch water and modelling clay during rainy seasons; improving the drainage system in and out of the school; building dykes; harvesting rainwater in dams or tanks; encouraging parents to let their children be boarders in schools; establishing more low cost boarding schools to reduce movement of pupils; raising floors of buildings; establishing early warning signs; creating awareness on disaster risk reduction and encouraging parents to escort their children to school during rainy seasons.

4.4.7 Damage of books by floods

The pupil respondents were also asked to indicate whether any of their books were spoilt by the floods or not. They responded as shown in table 4.15

Table 4.15 Pupils' responses on damage of books by floods

| Damage of books | Frequency | Percent | Cumulative percent |
|------------------------|------------------|----------------|---------------------------|
| Books spoilt | 169 | 56.1 | 56.1 |
| Books not spoilt | 130 | 43.2 | 99.3 |
| No response | 2 | 0.7 | 100.0 |
| Total | 301 | 100.0 | |

In this item, 169 (56.1%) of the pupils indicated that their books were spoilt by the floods while 130 (43.2%) indicated that their books were not spoilt by floods. The rest 2 (0.7%) did not respond to the item. This showed that majority of the learners had their books damaged by floods and therefore the few available textbooks had to be shared among the learners. This hindered efficiency of teaching and learning.

4.4.8 Knowledge of other schools affected by floods

The pupils were asked whether they knew of other schools that were affected by the floods. They responded as shown in table 4.16.

Table 4.16 Knowledge of other schools affected by floods

| Other schools affected by floods | Frequency | Percent | Cumulative percent |
|---|------------------|----------------|---------------------------|
| Know | 189 | 62.8 | 62.8 |
| Don't know | 98 | 32.6 | 95.3 |
| No response | 14 | 4.7 | 100.0 |
| Total | 301 | 100.0 | |

The data presented in table 4.16 shows that 189 (62.8%) knew of other schools that were affected by floods, 98 (32.6%) did not know while 14 (4.7%) did not respond to the item. From the focus group discussion the pupils responded that they had heard of schools whose: roofs were blown off by the strong winds that accompanied the rains; toilets had sunk; classrooms and playgrounds were flooded. This showed that many schools were affected by the floods as shown by the majority (62.8%) of the pupils who indicated that they knew of schools which had been affected by floods.

4.5 Findings on the infrastructural related factors that influence pupils access to primary school education in flood prone areas of Ijara district.

The second research objective of the study was to find out the infrastructural related factors that influence pupils' access to primary school education in flood prone areas of Ijara District.

4.5.1 Damage of school infrastructure

The headteachers were asked to indicate whether any infrastructure was damaged during the floods. They all agreed that infrastructure was damaged in their schools. They were asked to indicate the infrastructure damaged, they listed: classrooms' toilets, playgrounds, and staff quarters. This was in agreement with Parker (2000) who states that floods frequently cause major infrastructure damage including damage of roads, buildings, sewage disposal systems and bridges. This also concurred with a study carried out in Mozambique where infrastructure including schools was destroyed by floods (World Food Programme, 2008). Fig 4.1 shows a classroom that was damaged by floods.

Fig 4.7 A classroom damaged by floods



Source: Researcher (2013)

The photograph in Fig 4.1 shows a classroom whose roof was blown off by the strong winds that accompanied the rains during the recent floods and its earthen walls corroded by the rain waters.

The headteachers were asked to give suggestions on how the schools can avoid such damages in future. They responded that it can be done through: digging trenches around the school compound; location of schools on fairly raised grounds; installation of glass windows instead of wire meshed; contracting of qualified personnel when constructing school buildings; adherence to school building codes and improvement of the drainage system.

4.5.3 Ability to carry out lessons effectively

The teachers on the other hand were asked to indicate whether they were unable to carry out lessons effectively due to damage of school facilities. They responded as presented in table 4.17

Table 4.17 Teachers' responses on ability to carry out lessons effectively

| Lessons during floods | Frequency | Percent | Cumulative percent |
|------------------------------|------------------|----------------|---------------------------|
| Had lessons | 23 | 33.8 | 33.8 |
| No lessons | 43 | 63.2 | 97.1 |
| No response | 2 | 2.9 | 100.0 |
| Total | 68 | 100.0 | |

Data on the teachers' responses on the ability to carry out lessons effectively during floods indicated that 23 (33.8%) were able to effectively carry out lessons, 43 (63.2%) were unable to while 2 (2.9%) did not respond to the item. This showed that majority of the teachers were not able to carry out their lessons effectively during the floods. Asked to give an explanation as to why they were not able to effectively carry out their lessons, they indicated that: the classrooms were flooded; some textbooks and exercise books were spoilt; and roofs of classrooms were blown off making the existing classrooms congested as the affected pupils had to be relocated.

Further the teachers indicated that the flooded toilet wastes contaminated the air making concentration a problem while classes with earthen walls were corroded and weakened creating feelings of insecurity for its occupants. The areas outside the classrooms were flooded making it difficult for teachers to move from one

class to another and time wastage as pupils spent longer time finding their way to the flooded toilets to answer calls of nature.

4.5.3 Accessibility of roads

The teacher respondents were asked whether any of the access roads were rendered impassable by the floods, they responded as shown in table 4.18.

Table 4.18 Accessibility of roads

| Accessibility of roads | Frequency | Percent | Cumulative percent |
|-------------------------------|------------------|----------------|---------------------------|
| Not accessible | 58 | 85.3 | 85.3 |
| Accessible | 10 | 14.7 | 100.0 |
| Total | 68 | 100.0 | |

The data in table 4.18 shows that 58 (85.3%) of the roads were inaccessible during the floods while only 10 (14.7%) of the roads were accessible. Asked to indicate the nature of damage on the roads, the respondents indicated that: parts of the roads were washed away; some parts were submerged by water; whereas in other areas the culverts were carried away or blocked thus hindering drainage. In other parts of the road deep gulleys were created on the roads and deposits of mud dumped there, making them to be slippery and impassable.

The pupils they were asked to indicate whether there were roads accessing their schools that were damaged by the floods. The responses are shown in table 4.19

Table 4.19 Pupils' responses on damage of roads by floods

| Response | Frequency | Percent | Cumulative percent |
|-------------------|------------------|----------------|---------------------------|
| Roads damaged | 204 | 69.8 | 69.8 |
| Roads not damaged | 91 | 30.2 | 100.0 |
| Total | 301 | 100.0 | |

The data showed that 210 (69.8%) of the respondents had the roads accessing their school damaged by the floods while 91 (30.2%) were not affected. This shows that majority of the pupils had problems of going to school as a result roads damage caused by floods. Therefore some learners got late to school as they waded in the flooded and muddy roads or followed long safer routes. Others missed school as they had no alternative safer routes.

4.5.4 Usability of toilets

The pupils were asked to indicate whether there were toilets in their schools that they were not able to use during the floods. They responded as shown in table 4.20.

Table 4.20 Usability of toilets

| Usability of toilets | Frequency | Percent | Cumulative percent |
|-----------------------------|------------------|----------------|---------------------------|
| Unusable | 130 | 43.2 | 43.2 |
| Usable | 164 | 54.5 | 97.7 |
| No response | 7 | 2.3 | 100.0 |
| Total | 301 | 100.0 | |

The data clearly shows that 130 (43.2%) of the respondents were unable to use some of their toilets during the floods while 164 (54.5%) were able to use their toilets. The rest of the pupils 7 (2.3%) did not respond to the item. This shows that majority of the pupils were not able to use their toilets during the floods. These responses agree with studies done by Famine Early Warning Systems Network (2006) which indicated damage of classrooms and toilets by floods. The focus group discussion also agreed that many toilets were unusable during the floods. One of the respondents reported that: *‘Our toilets become a dirty because the waste comes up. Sometimes we feel bad, we can get a disease.’* This showed that the pupils feared using the flooded toilets and when they used them they were not comfortable as they were afraid of contracting diseases. In case of contraction of diseases they were forced to stay at home and thus miss classes. Fig 4.2 shows toilets that were damaged by floods in one of the schools.

Fig 4.2 School toilets damaged by floods



Source: Researcher (2013)

In Fig 4.2 the pictures show toilets that were damaged by floods. Their roofs were blown off by the strong winds that accompanied the rains. The pits were filled with flood waters making the toilet wastes to overflow. The foundations of the

toilets were also destroyed by the flood waters which remained stagnant for long due to the flat topography of the area and the sand soil which has very poor drainage. The weakening of the foundations made the toilets to collapse and therefore were not usable as indicated by 43.2% of the pupils. Given that toilets are basic facilities for schools their damage poses health and safety risks. Learners are likely to get injuries or lose their lives in case the toilets collapse while they are in. Overflowing toilet wastes pose a health menace as they lead to waterborne diseases such diarrhoea, cholera and typhoid. This in turn leads to absenteeism as learners are forced to stay away from school due to illness.

4.5.5 Flooding of playgrounds

Further on the pupil respondents were asked to indicate whether there were any playgrounds that were flooded. Their responses are as shown in table 4.21

Table 4.21 Pupils’ responses on flooding of playgrounds

| Flooding of playgrounds | Frequency | Percent | Cumulative percent |
|--------------------------------|------------------|----------------|---------------------------|
| Flooded | 168 | 55.8 | 55.8 |
| Not flooded | 132 | 43.9 | 99.7 |
| No response | 1 | 0.3 | 100.0 |
| Total | 301 | 100.0 | |

From the data shown in table 4.21, 168 (55.81%) of the respondents indicated that their playgrounds were flooded, 132 (43.85%) indicated that theirs were not whereas 1 (0.33%) did not respond to the item. A member of the focus group

discussion had this to say about the playgrounds: *‘when there is floods we have problems of not playing football on the playground because there is a lot of water.’* This shows that majority of the learners were not able to access the playground due to flooding. When pupils lack a comfortable place to play during lesson breaks they are not able to socialise well, develop peer relationships and learn from each other. Some learners are likely to absent themselves from school for no apparent reason as they find nothing interesting in school.

4.6 Findings on the contextual related factors influencing pupils’ access to primary school education in flood prone areas of Ijara district.

The third research objective was to examine the contextual related factors that influence pupils’ access to primary school education in flood prone areas of Ijara district.

4.6.1 Use of schools as emergency shelters

The headteachers were therefore asked to indicate whether their schools had been used as emergency shelters for the population displaced by floods. They responded as shown in table 4.22

Table 4.22 Use of schools as emergency shelters

| Response | Frequency | Percent | Cumulative percent |
|-----------------|------------------|----------------|---------------------------|
| Used | 4 | 57.1 | 57.1 |
| Not used | 3 | 42.9 | 100.0 |
| Total | 7 | 100.0 | |

Data showed that 4 (57.1%) of the schools had been used as emergency shelters for the affected population while 3 (42.9%) had not. This therefore showed that the school facilities were used to temporarily host the displaced families leading to interruption of the normal school routine as the displaced population spent their nights in the classrooms and moved around the school compound during the day. This limited the learners' access to learning facilities. Fig 4.3 shows a camp for families displaced by floods in Ijara district.

Fig 4.3 A camp for families displaced by floods



Source: Researcher (2013)

Fig 4.3 shows a photograph of a camp for families displaced by floods. Some of the displaced families initially got temporary shelters in schools before moving out to the camps. Such scenarios are common along the main road as the displaced families prefer settling along it for easy access to donations and relief services. The tents were donated by Kenya Red Cross Society (KRCS) which is the major humanitarian organization in the area. Most of these camps were far away from

schools and therefore majority of the learners whose families were displaced by the floods were not able to attend school. Those who made efforts to go to school had to trek for long distances.

4.6.2 Contribution of settlement patterns to floods

The teachers were asked to give opinions as to whether the settlement patterns contribute to the impact of floods in the area or not. All of the teachers agreed that settlement patterns contributed to the impact of floods. Asked to give explanations, they explained that majority of the population settle near river banks in order to carry out farming activities; others settle along the flood plains and water ways thus blocking the drainage system; and that the area is largely flat thus prone to flooding. This information was in line with Douben (2006) who stated that since ancient times people have settled in flood prone areas due to favorable geographic conditions which facilitate economic growth, such as accessibility (transportation) and food production (fertile land).

4.6.3 Distance to school

The pupil respondents were asked to tick the approximate distance from their homes to school. They responded as shown in table 4.23

Table 4.23 Pupils' responses on approximate distance to school

| Distance | Frequency | Percent | Cumulative percent |
|-----------------|------------------|----------------|---------------------------|
| 1 KM | 69 | 22.9 | 22.9 |
| Less 1 KM | 62 | 20.6 | 43.5 |
| More than 1 KM | 170 | 56.5 | 100.0 |
| Total | 301 | 100.0 | |

From the data, 170 (56.5%) of the pupils had their homes located more than one kilometre from school, 69 (22.9%) had their homes located approximately one kilometre away from the school while 62 (20.6%) had their homes located less one kilometre away from school. This showed that majority of the learners had to walk for more than one kilometre to school. The focus group discussion regarded the journeys to school as hectic especially during floods. This is what one of the respondents said: *'On my way to school I have to use a boat to cross the flooded river. Sometimes the captain of the boat when he realise that there is no other way to go through, he charges high price of money and if I didn't have I go back home'*. This showed that learners whose homes were far from school and were cut off by the flooded rivers had problems of going to school and back home especially if their parents would not afford to pay for their boat fares to and from school.

4.6.4 Effect of floods on homes

The respondents were further asked to indicate whether their homes were affected by the floods. Table 4.24 shows their responses.

Table 4.24 Pupils' responses on whether their homes were affected by floods

| Responses | Frequency | Percent | Cumulative percent |
|--------------|------------|--------------|--------------------|
| Affected | 156 | 51.8 | 51.8 |
| Not affected | 141 | 46.8 | 98.7 |
| No response | 4 | 1.3 | 100.0 |
| Total | 301 | 100.0 | |

From the data shown in table 4.24 156 (51.8%) of the respondents had their homes affected by the recent floods, 141 (46.8%) stated that their homes were not affected by the recent floods while 4 (1.3%) did not respond to the item. Finally the pupils were asked to name things that floods destroyed. They responded that: roofs of their homes were blown away by strong winds that accompanied the rains; their toilets collapsed while others had waste overflowing; their homes were flooded; their mud houses were destroyed; the farms were flooded; crops were washed away; animals drowned and others were carried away by the water as they ran for safety or from their shelters.

4.6.5 Summary

The latest floods in Ijara district had occurred between March and April 2013 and had delayed opening of schools for up to one week. Most of the learners could not access the school facilities as they had either been damaged or flooded. The floods

had affected teacher and learner attendance and led to a drop in school enrolment. Majority (198%) of the learners suffered from cholera, typhoid and malaria as a result of the floods and this led to high rates of absenteeism. Classrooms and toilets were damaged and flooded and this affected learning as learners were relocated to other classes causing congestion. Some (56.1%) learners had their books spoilt by the floods and others had their homes affected by floods leading to displacement.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings, conclusion, recommendations and suggestions for further research.

5.2 Summary of the study

The purpose of the study was to investigate the factors that influence pupils' access to primary school education in flood prone areas of Ijara district. Three research objectives were formulated to guide the study. The first research objective sought to establish the learner related factors that influence pupils' access to primary education in flood prone areas of Ijara district; the second research objective aimed at finding out the infrastructural related factors that influence pupils' access to primary school education in flood prone areas of Ijara district; while the last objective sought to examine the contextual related factors that influence pupils' access to primary school education in flood prone areas of Ijara district.

The study was conducted using descriptive survey which is a method of collecting information by interviewing or administering a questionnaire to a sample of individuals. The sample of the study comprised of 9 headteachers, 73 teachers and 347 pupils. The main instrument for data collection in the study was the questionnaire.

Findings from the study revealed; health, age and gender as the learner related factors that influenced pupils' access to primary school education. For example data indicated that majority of the teachers 55 (80.9%) had their learners missing school as a result of illness related to floods and 211 (70.1%) of the pupil respondents indicated that they had missed school due to the same reason. The other learner related factor that was established to be affecting pupils' access to primary education was age. Findings from teachers indicated that younger children (those in classes 1-4) were the most affected in attending school during floods. The researcher's observations revealed that most of the learners in the schools visited were much older than the expected average age for learners in primary school. The teachers revealed to the researcher that most of the learners join primary school at a delayed age of above ten years instead of the normal seven years since they first enrol for Madrasa (Duksi) classes before joining primary school given that the community is largely dominated by Islam religion. This delay led to low completion rates as majority of them dropped out of school to assist in household chores, take care of animals, or younger siblings as parents go for food rations especially during displacement as a result of floods. From the demographic data of the pupil respondents, the data provided by headteachers on enrolment and the researcher's observations in the classrooms there were fewer girls compared to boys in all the sampled schools. The teachers attributed this to cultural lag which did not prioritize girl-child education. They quoted a Somali saying 'A girl is like a vegetable' which had been used to support early forced marriages and female circumcision which are retrogressive cultural practices that impede girl-child education. Therefore gender was established as a factor

influencing pupils' access to primary school education in flood prone areas of Ijara.

The findings also revealed the infrastructural related factors that influence pupils' access to primary school education. The factors were: damage and flooding of classrooms; damage and flooding of toilets; flooding of playgrounds and damage of roads. Data from the sampled schools indicated that all of them had their infrastructure damaged by the floods. They mentioned classrooms, toilets, playgrounds and staff quarters. Further 43 (63.2%) of the teachers indicated that they were unable to carry out lessons effectively due to damage of school facilities. Majority of the teachers 58 (85.3%) also indicated that access roads were rendered impassable. The pupil respondents 164 (54.5%) indicated that they were not able to use their toilets during the floods. Further more than half of the pupil respondents 168 (55.8%) indicated that their playgrounds were flooded and thus were unable to use them. Majority of the pupils 204 (69.8%) also indicated that the access roads to their schools were damaged.

The study also revealed the contextual related factors that influence pupils' access to primary school education in the area. The factors were: settlement patterns; the flat topography of and distance to school. The researcher's observations revealed that the low lying nature of the area makes it more susceptible to flooding. The flat topography of the area makes flood water to remain stagnant for longer time. This leads to: damage of infrastructure; outbreak of waterborne diseases; loss of livelihoods; and displacement of families. For example pupils' responses indicated that 156 (57.8%) had their homes affected by floods. The teachers

indicated that the settlement patterns contributed to the impact of floods in the area as majority of the residents settle near river banks; others along the flood plains and waterways thus blocking the drainage system. The findings also revealed that more than half of the pupils 170 (56.5%) lived more than one kilometre away from the schools they attended. This distance affected their attendance especially during the floods.

5.3 Conclusions

Based on the findings of the study, it was concluded that the learner related factors that influence pupils' access to primary school education in flood prone areas of Ijara were: health, age and gender. Diseases that resulted from floods also led to absenteeism of learners. The younger children (classes 1-4) were most challenged in attending school during floods than the older ones. Also most children joined primary school late leading to high drop rates during floods as they were mature enough to help with domestic chores. There were fewer girls compared to boys in all the sampled schools. This was established to be as a result of cultural lag which does not prioritize girl-child education.

The study also concluded that the infrastructural related factors that influenced pupils' access to primary school education in flood prone areas of Ijara district were: damage and flooding of classrooms; collapse and flooding of toilets; flooding of playgrounds and damage of roads. Headteachers' responses indicated classrooms, toilets, playgrounds and staff quarters as the infrastructure damaged by floods. Majority of the teachers 43 (63.2%) indicated that damage of school infrastructure had hindered them from carrying out lessons effectively. A large

proportion of the teachers 58 (85.3%) also indicated that access roads to their schools had been damaged by floods. The pupils responded that there were some toilets they were not able to use during floods.

The study identified settlement patterns, long distances to school and the flat topography of the area as the contextual related factors influencing pupils' access to primary school education were. The other significant factors affecting access to primary school education that were revealed from the study were: poverty; drought; cultural lag; lack of role models; nomadism and prioritization of Madrasa (Duksi).

5.4 Recommendations

In order to improve the situation, the researcher made the following recommendations based on the research findings:

- School Management Committees should engage qualified professionals to: assess the structural safety of damaged school buildings; design, construct and maintain school facilities to be resilient in the face of known disasters such as floods and other weather vulgarities.
- The Ministry of Special Programmes should sensitize the communities in the area on Disaster Risk Reduction (DRR) through activities such as digging trenches around their compounds to minimize the flooding of classrooms and playgrounds.
- Schools should develop and implement disaster management plans such as the School Safety Manual.

5.5 Suggestions for further research

- The study focused on primary schools and therefore there is need to carry out the same study in secondary schools.
- There is need to carry out a study on flood Disaster Risk Reduction in primary schools in flood prone areas of Ijara district.
- There is need to carry out a study to establish the influence of floods on academic performance in primary schools in flood prone areas of Ijara district.

REFERENCES

- Achoka, J.S. K. and Maiyo, J. (2008). *Horrifying disasters in western Kenya; Impact on education and national development*. Thesis, Masinde Muliro University of Science and Technology, Kenya.
- ActionAid Kenya (2007). *Disaster Risk Reduction Education: A Proposal For Inclusion In The Primary School Curriculum*. http://ciagkenya.org/index.php?option=com_docman&task=doc_download&gid=25&Itemid=8
- Adiat, K.A.N (2012). *Integration of Geographic Information System; 2D Imaging to Investigate the Effects of Subsurface Conditions on Flood Occurrence: Malaysia* www.ccswnet.org/mas
- ADPC, (2000). *Mainstreaming Disaster Risk Reduction in the Education Sector in Cambodia*. Bangkok: Asian Disaster Preparedness Centre.
- Amner, A.H., (2007). *Responses to traumatized children*. Hampshire (N.Y): Palgrave Macmillan.
- Ambuchi, J.J., (2011). *Flood Disaster Preparedness and Management in Schools: A Case Study of Budalangi Area in Busia County*. University of Nairobi: Unpublished Thesis.
- Ariyanbandu, M.M. & Wackramasinghe, W.M. (2005). *Gender Dimension in Disaster Management: A guide for South Asia: Sri Lanka*.

- Ayieko, P. (2006). *Guide Book for Planning Education in Emergencies and Reconstruction*. Paris: International Institute for Education and Planning.
- Borg, W. R., & Gall, M. D. (1989). *Educational Research: An introduction*. New York: Longman.
- Brouwer, R., Akter, S., Brander, L. & Haque, E. (2007). *Socio-economic Vulnerability and Adaptation to Environmental Risk: A case study of Climate Change and Flooding in Bangladesh*. Journal, 27 (2):313.
- Dennison, L., Keim, M. (2009). *Flooding and the health consequences*
- DFID (2004a). *Partnership for Development DFID's Country plan in India. Country assistance plan, 2004-2008*. DFID, London.
- Friedrich, H. (2009). *International Education Statistics*.
<http://www.childinfo.org/statistics>
- Gari, A. (2011). *Over 1,500 Tana families displaced by flash floods*.
<http://www.the-star.co.ke/news/article-38220/over-1500-tana-families-displaced-flash-floods>.
- GoK (2004). *National Disaster Management Policy*. Nairobi: Office of the President. P.37.
- IFRC (2003). *World Disasters Report 2003: Focus on Ethics in Aid*. IFRC/RC, Geneva.
- IFRC (2010). *Kenya: Evacuation following floods in Tana Delta*.
<http://reliefweb.int/organization/ifrc>
- INEE (2010). *Minimum Standards for Education: Preparedness, Response, Recovery 2nd Ed*. Canada
- Krejcie, R. V. & Morgan, D. W. (1970). *Determining sample size for research activities*. Educational and Psychological measurement.
- Living with Risk (2002). *A global Review of Disaster Reduction Initiatives*. Geneva: Switzerland.
- Mugenda, O.M. & Mugenda, A.G. (2003). *Research Methods: Qualitative and quantitative approach*. Nairobi University Press.
- Ochola, O. S, Eltel, B. & Olago, O. (2010). *Vulnerability of schools to floods in Nyando Catchment, Kenya*. Unpublished Phd Thesis.
- Ochola, S. O. (2009). *Integrated flood hazard, Vulnerability and risk assessment in Nyando River catchment, Kenya: Options for land use planning*. Heidelberg: Deutsche Nationalbibliothek

- Okuom, H.A., Simatwa, M.W. & Olel, A.M. (2012). *Assessment of factors that contribute to repetition and dropout of pupils in primary schools in flood prone areas of Nyando District, Kenya: An analytical study*: Kenya. www.interestjournals.org/ER
- Orodho, J. A. (2004). *Techniques of writing Research proposals and reports*. Nairobi: Masola.
- Parker, J., D., (2000). *Floods*. Tangler and Francis, National Academy Press: ADPC.
- Rashid, F. S. (2000). *The Urban Poor in Dhaka City: Their Struggles and coping strategies during the floods of 1998*. Journal, 24 (3): 240-253.
- Theron, M. (2007). *Climate Change and Increasing Floods in Africa: Implication for Africa's Development*.
- UNCRC, (1989). *Convention on the Rights of the Child*: United Nations Geneva
- UNDP (2004). *Reducing disaster: A challenge for Development*: Global Report. UNDP Geneva.
- UNEP (2006). *Gathering storm: The Humanitarian Impact of Climate Change*.
- UNESCO (2000). *World education report: The right to education*. Paris: UNESCO Publishing
- UNICEF (2009). *Monitoring the situation of children and women*. <http://www.childinfo.org/education-out> of school
- UNISDR (2007b). *Towards a Culture of Prevention: Disaster Risk Reduction Begins at School. Good Practices and Lessons Learned*. Geneva: UNISDR. P.143.
- Wisner, B., Kelman, L., Monk, T., Bothara, J., Cardona, O., Kandel & Petal, M., (2004). *School Seismic Safety: Falling between the cracks?*
- World Food Programme (2008). *Fighting Hunger Worldwide*: <http://www.wfp.org/countries/Mozambique>. Retrieved on 24th May 2009 3p.m.
- Zahran, S., Brody, D.C., Peacock, G.W., Vedlitz, A. & Grover, H. (2008). *Social Vulnerability and the Natural Built Environment: A model of Flood Casualties in Texas*. Journal, 32 (4):
- Zambia Vulnerability Assessment Committee, (2007). *Rapid Flood Impact Assessment Report*: Lusaka. ZVAC

APPENDIX I

HEADTEACHERS' QUESTIONNAIRE

The purpose of this questionnaire is to investigate the factors influencing pupils' access to primary school education in flood prone areas of Ijara District. Kindly respond to the following questions. Your answers will only be used for the purpose of this study. Do not write your name anywhere in this questionnaire.

SECTION A: Background information

1. What is your gender? Male Female
2. What is your highest level of professional training? P1 Diploma
B.ED Others (Specify).....
3. How long have you been a headteacher?
1-5 years 5-10 years 10-15 years 15-20 years

SECTION B: Learner related factors

4. When did the most recent floods occur?.....
5. Did the floods delay opening of schools? Yes No
6. If Yes in (5) above please state for how long.....
7. Did the floods affect pupils' school attendance? Yes No
8. If yes in (7) above please state how.....
.....
.....
9. Did the floods affect teacher attendance? Yes No
10. If Yes in (9) above please state how.....
.....
.....

11. Please fill in the table on enrolment

| Enrolment | Boys | Girls | Total |
|------------------|-------------|--------------|--------------|
| Before floods | | | |
| After floods | | | |

12. In your opinion, how can school attendance be improved even during floods?.....

.....

SECTION C: Infrastructural related factors

13. Was any school infrastructure damaged during the floods?

Yes [] No []

14. If Yes in (13) above please indicate what was damaged and the extent

| Name of facility | No. fully damaged | No. partially damaged |
|-------------------------|--------------------------|------------------------------|
| Classrooms | | |
| Toilets | | |
| Staff quarters | | |
| Play grounds | | |
| Others | | |

15. Please give suggestions on how the school can avoid such damages in case of

future floods:.....

.....

SECTION D: Contextual related factors

16. Was your school used as a temporary shelter for the population displaced by floods? Yes [] No []

17. In your opinion what other factors do you think affect school attendance in this area?.....

.....

.....

.....

APPENDIX II

TEACHERS' QUESTIONNAIRE

The purpose of this questionnaire is to investigate the factors influencing pupils' access to primary school education in flood prone areas of Ijara District. Kindly respond to the following questions. Your answers will only be used for the purpose of this study. Do not write your name anywhere in this questionnaire.

SECTION A: Background information

1. What is your gender? Male Female
2. What is your highest level of professional training? P1 Diploma
B.ED Others (Specify).....
3. How long have you been a teacher in this district?
1-5 years 5-10 years 10-15 years 15-20 years

SECTION B: Learner related factors

4. In your opinion, which groups of children were most challenged in attending school during the floods? Lower -1-4 Upper- 5-8
5. What challenges did the groups face?.....
.....
.....
6. Were there learners who missed school in your class as a result of illness related to the floods? Yes No
7. Were there situations that threatened the safety of the learners during the floods?
Yes No
8. If Yes in (7) above please state the situations.....
.....

.....
9. In your opinion how can safety be ensured in school during
floods?.....
.....
.....
.....

SECTION C: Infrastructural related factors

10. Were you unable to effectively carry out lessons due to damage of school
facilities? Yes [] No []

11. If Yes in (10) above please briefly explain.....
.....
.....
.....

12. Were any of the roads rendered inaccessible during the floods?
Yes [] No []

13. If Yes in (12) above please state the nature of damage.....
.....
.....

SECTION D: Contextual related factors

14. Do you think the settlement pattern in this area contributes to the impact of
floods? Yes [] No []

15. Please explain your answer in (14) above.....
.....
.....

APPENDIX I11

PUPILS' QUESTIONNAIRE

The purpose of this questionnaire is to investigate the factors influencing pupils' access to primary school education in flood prone areas of Ijara District. Kindly respond to the following questions. Your answers will only be used for the purpose of this study. Do not write your name anywhere in this questionnaire.

SECTION A: Background information

- 1. What is your gender? Male Female
- 2. Which class are you?

SECTION B: Learner related factors

- 3. Did the floods make you to miss school? Yes No
- 4. If Yes in (3) above please **tick** for how long.. Less than one week
One week More than one week
- 5. Did you suffer from any illness during the floods? Yes No
- 6. If Yes in (5) above please indicate the disease you suffered from.....
- 7. Were any of your books damaged by the floods? Yes No
- 8. If Yes in (7) above please state which ones... ..
.....
- 9. Do you know of other schools that were affected by the floods?
Yes No

SECTION C: Infrastructural related factor

10. Are there toilets in your school that you were not able to use during the floods? Yes [] No []
11. Are there playgrounds in your school that were flooded during the floods? Yes [] No []
12. Are there roads accessing your school that were damaged by the recent floods? Yes [] No []

SECTION C: Contextual related factors

13. Please **tick** the approximate distance from home to school.....
- 1KM [] Less than 1KM [] More than 1KM []
14. Was your home affected by the recent floods? Yes [] No []
15. What other things did the floods destroy?.....
-
-
-

APPENDIX IV

RESEARCH AUTHORIZATION

REPUBLIC OF KENYA



NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Telephone: 254-020-2213471, 2241349, 254-020-2673890
Mobile: 0713 758 787, 0735 884 245
Fax: 254-020-2213213
When replying please send
secretary@ncst.go.ke

P.O. Box 30513-00100
NAIROBI-KENYA
Website: www.ncst.go.ke

Our Ref: NCST/RCD/14/013/522

Date: 24th April, 2013


Alice Kwamboka Monda
University of Nairobi
P.O.Box. 92-0902
Kikuyu.

RE: RESEARCH AUTHORIZATION

Following your application dated 16th April, 2013 for authority to carry out research on "*Factors influencing pupils' access to primary school education in flood prone areas of Ijara District, North Eastern Province, Kenya.*" I am pleased to inform you that you have been authorized to undertake research in Ijara District for a period ending 31st August, 2013.

You are advised to report to the District Commissioner and the District Education Officer, Ijara District before embarking on the research project.

On completion of the research, you are expected to submit two hard copies and one soft copy in pdf of the research report/thesis to our office.


DR M.K. RUGUTT, PhD, HSC.
DEPUTY COUNCIL SECRETARY

Copy to:

The District Commissioner
The District Education Officer
Ijara District.

The National Council for Science and Technology is Committed to the Promotion of Science and Technology for National Development.

APPENDIX V

RESEARCH PERMIT

PAGE 2

THIS IS TO CERTIFY THAT:
Prof./Dr./Mr./Mrs./Miss/Institution
Alice Kwamboka Monda
of (Address) University of Nairobi
P.O.Box 92-0902, Kikuyu.
has been permitted to conduct research in


| | |
|---------------|----------|
| Location | |
| Ijara | District |
| North Eastern | Province |

on the topic: Factors influencing pupils' access
to primary school education in flood prone areas
of Ijara District, North Eastern Province, Kenya.

for a period ending: 31st August, 2013.

PAGE 3

Research Permit No. NCST/RCD/14/013/522
Date of issue 24th April, 2013
Fee received KSH. 1,000



Applicant's Signature

Secretary
National Council for
Science & Technology