

Assessing disaster preparedness of learners and educators in Soshanguve North schools

By

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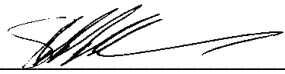
2011

Declaration

I, Mamosegare Hellen Mamogale, (Student number: 2008081644), declare that the work contained in this dissertation is my own original work, where other people's work has been used it is properly acknowledged and referenced in accordance with departmental requirements. I have not used work previously produced by me or another person for degree purposes at this university or any other university.

Signature of Student: Mamogale M.H.

Date: 21 November 2011

Signature of supervisor:  Date: 22 November 2011

Dedication

I dedicate this work to the following special people in my life:

- My son, Briam Makgoke Mamogale, and my daughter, Vanessa Serwale Mamogale, for giving me courage to work hard for a brighter future for them. I managed to complete this work through their moral support and not giving up on me as a mother who was always away concentrating on my studies, instead of taking care of them.
- My late father, Nelson Makgoke Mamogale, who always wished me to have a brighter future through education. I am here now. Your spirit of education will always inspire the coming generation. You were my inspiration!
- My mother, Sophia Serwale Mamogale, who always believed in me and encouraged me to live by my father's wishes. I thank you it was a blessing to have you both as my parents.

“Boreadi o re ke a leboga batswadi baka Mailane le Bodibadi”

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May God Bless you All!

Above all it was through God's Grace that I managed to complete my studies despite the difficulties and challenges I met. I thank you My LORD for being my pillar of strength.

Abstract

The purpose of the study was to determine the extent to which disaster preparedness was achieved by learners and educators in schools located in Soshanguve North by sourcing data from principals, educators, learners and school safety committees. The research methodology used in this study to solicit views of school principals, teachers, learners and school safety representatives was a mixed research approach where data was obtained through questionnaires and interviews. The sample of research population comprised of ten schools, five primary schools and five secondary schools around Soshanguve North, Tshwane District. Fifty participants filled out questionnaires, and ten participants responded to interviews. Data collected was computed by means of excel spreadsheet and results were presented in the form of pie and bar graphs with narrative explanations.

The study found that possible threats to schools around Soshanguve North included floods, fires and storms. It also emerged that learning areas such as Social Sciences directly cover the teaching of disaster education while Life Orientation and Natural Sciences indirectly cover disaster risk management concepts and principles. Other findings that emerged from the study showed that educators were not trained in disaster management. The surprising finding of the study was that learners tended to be the ones who were aware of disaster preparedness in this study when their knowledge about hazards and disasters acquired at school was assessed.

The limitation of the study was that data was only collected from educators and learners through questionnaires completed by educators currently teaching Natural Sciences, Social Sciences and Life Orientation and learners from grade 5-9 only. Interviews were conducted with school principals, educators, and school safety committee representatives only. The contribution of this study to the body of knowledge is to provide a baseline data of what is the current status of disaster preparedness in public schools and encourage more research on the concept of disaster risk reduction in schools by elucidating the gaps that exist. This study therefore raises a further research question of how learners acquired knowledge of disaster preparedness even though their educators had not attended disaster preparedness training.

Concepts: *disasters, hazards, preparedness, risk reduction, education, curriculum*

Acronyms

AIDS	Acquired Immune deficiency Syndrome
ADPC	Asian Disaster Preparedness Center
CTMM	City of Tshwane Metropolitan Municipality
DoE	Department of Education
DCOG	Department of Cooperative Governance and Traditional Affairs
FEMA	Federal Emergency Management Agency
FET	Further Education and Training
GAR	Global Assessment Report
GET	General Education and Training
HFA	Hyogo Framework for Action
HIV	Human Immunodeficiency Virus
IFC	International Finance Corporation
IFRCRCS	International Federation of Red Cross and Red Crescent Societies
ISDR	International Strategy for Disaster Reduction
MDG	Millennium Development Goal
NDMC	National Disaster Management Centre
NDMF	National Disaster Management Framework
NGOs	Non- governmental Organizations
UN DESD	United Nations Decade for Sustainable Development
UN	United Nations
UNDP	United Nations Development Program
UNESCO	United Nations Education, Scientific and Cultural Organisation
UNICEF	United Nations Children's Fund
UN-IDNDR	United Nations International Decade for Natural Disaster Reduction
UNISDR	United Nations International Strategy for Disaster Reduction

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Chapter 1

Introduction, background and orientation

1.1 Introduction

Public schools are required to take measures to ensure the safety of learners during any school activity (South African School Safety Act, 1996). There is a need to assess whether learners and educators are aware of the safety plans and are well prepared for any outbreak of disasters. The study focused on collecting data from learners, educators, principals and school governing body safety representatives.

1.2 Background and orientation

The concept *disaster* is defined as a serious disruption of the functioning of a community or a society, causing widespread human, material, economic or environmental losses which exceed the ability of the affected community/society to cope using its own resources (ISDR, 2002:24). Paton and Johnston (2001:270) and Alexander (1997:289) define disasters as those events that displace the structural, economic, organizational, cultural and spiritual well-being of communities by destroying their means of existence. Disaster could either be human-induced or natural occurrences. Disasters are natural if they just happen without being induced by humans like tsunamis, volcanoes, earthquakes, storms and floods.

Disaster preparedness refers to activities and measures taken in advance to ensure effective response to the impact of disasters, including the issuance of timely and effective early warnings and the temporary removal of people and property from a threatened location (ISDR, 2002:25).

Adimola (1999:7) states that most of the natural disasters which affect people in Africa are caused by the weather, drought and floods but fewer disasters are caused by earthquakes and volcanoes. Whereas Van Niekerk (s.a:1), finds that South Africa is a country not prone to spectacular destructive and media intensive disasters such as volcanic eruptions and massive earthquakes, but has rather been dominated by localized incidents of veldt fires, informal

settlements fires, seasonal flooding in vulnerable communities, drought and human made disasters such as oil spills and mining accidents.

According to UN ISDR (2006-2007), when a natural hazard strikes, children are among the most vulnerable population group, especially those attending school in times of disaster. Furthermore during disasters, school buildings are destroyed, taking away the precious lives of children and teachers and stalling access to education in the aftermath of disaster. This is supported by the Pakistan earthquake in 2005, where over 16 000 children died in a school that collapsed and in a mudslide in the Philippines, more than 200 school children were buried alive. Therefore children need to be protected before disaster strikes. Protecting children during natural hazards requires two distinct yet inseparable priorities for action: disaster risk education and school safety as reported by ISDR (2006: s.p.).

Natural and man-made disasters cannot be prevented, but at least communities can plan for them through disaster management involving preparedness and mitigation measures as indicated by UNESCO (2010:30). According to Ozmen (2006:384), to prevent the huge destructions and to become a disaster resistant society, schools can play a pivotal role.

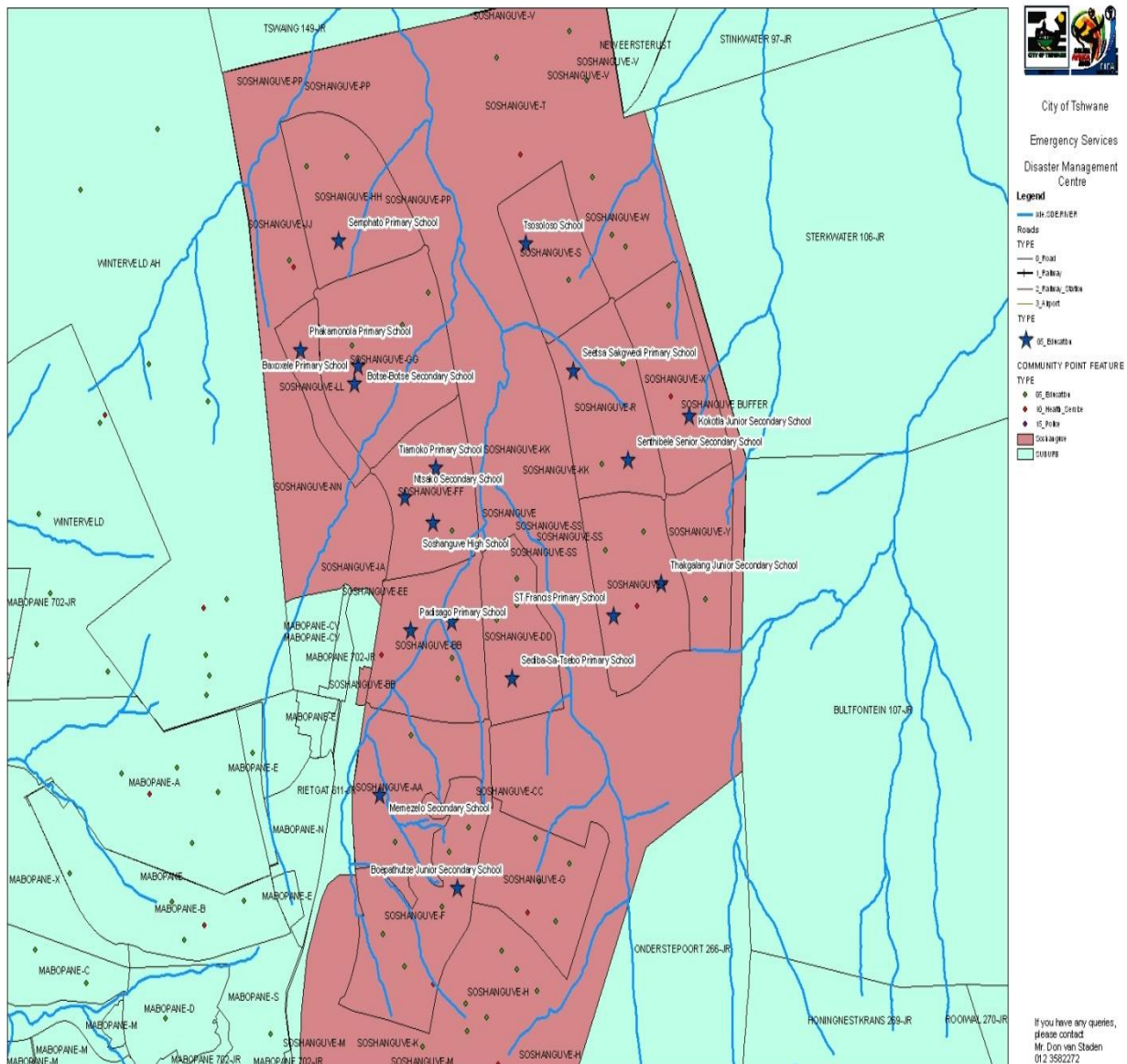
For disaster preparedness to be achieved in schools, Disaster Management Act (South Africa, 2002) requires National Disaster Management Centre (NDMC) to promote disaster management capacity building, training and education throughout the country, including schools. According to section 6.3.3 of the National Disaster Management Framework of 2005, Disaster risk reduction education must be integrated in primary and secondary school curricula. Furthermore Hyogo Framework for Action 2005-2015: Priority 3 under the theme “Use knowledge, innovation and education to build a culture of safety and resilience at all levels”, states that disasters can be substantially reduced if people are well informed and motivated towards a culture of disaster prevention and resilience. With the theme of “Let our children teach us”, the UNISDR (2007:s.p) states that children taught about disasters, can pass on to their parents what they have learnt about hazards and risk reduction.

In a South African context, Enabler 2 of the National Disaster Management Framework (NDMF) (2005:156) encourages the need to promote a culture of risk avoidance through education and training throughout the Republic of South Africa. The National Curriculum Statements also makes provision for the teaching of hazards and disasters to Grade 7 learners (DoE, 2003:48).

There are no reports to determine whether educators are aware of the need to teach learners about disaster preparedness. Some of the schools in Tshwane are situated near dangerous locations, which are occasionally affected by flash floods and environmental health hazards that may result in ill health of learners, educators and everyone around school premises.

1.3 Study area

Soshanguve is situated about 45km North West Region of Tshwane, in Gauteng Province. Nkowanta and Ochieng (2009) maintain that Soshanguve is inhabited by a multicultural population such as Basotho, Tsonga, Nguni and Venda-speaking people. There are 50 schools in Soshanguve North, which fall under Tshwane North District 3, which includes 27 Primary schools, 13 Middle schools and 10 Secondary schools (DoE, 2010). The reason for conducting research in Soshanguve schools is that the researcher is familiar with the area and has easy access to schools. Most importantly there are schools that are located in disaster-prone areas situated near rivers, in informal settlements, and as such there is a possibility of flash floods and diseases caused by environmental pollution, which leads to poor health.



1.4 Problem statement

There is a need for countries to meet the requirements of Millennium Development Goal (MDG), Priority 2 related to teaching of disaster risk reduction in all primary schools as part of the national curriculum, so that children and teachers can protect themselves from natural hazards by knowing exactly what to do when there is an outbreak as reported by ISDR (2010:18). The problem is that the National Curriculum Statements for Social Science stipulates that learners should be taught about disasters only in Grade 7 classes (DoE, 2003:48). From a preliminary

literature review it appears that there is not much evidence to prove whether learners and educators in Soshanguve are well prepared for the outbreak of disasters.

The National Disaster Management Framework (NDMF) of South Africa (2005), requires that the Department of Education develop Disaster Risk Management plans to manage disasters and to have education and training being taught in schools. There is also no evidence to prove that schools in Soshanguve have developed these plans.

UNISDR (2006:66) maintains that in the current education, teaching learners about hazards is not enough to promote risk awareness or action on the part of children and youth. Teaching about academic earth and climate science is good, but should be taught as part of a comprehensive package with disaster prevention and preparedness. Where possible some of the teaching should focus on locally relevant hazards.

According to UNISDR (2006:66) there is an opportunity for disaster risk reduction to be offered in primary and secondary school teaching. There are also many programmes underway in environmental education, and some of these already include materials on natural hazards.

The current practice in South African education is that the Department of Education encourages public schools to take measures to ensure the safety of learners during any school activity (South African School Safety Act, 1996). As reported by UNISDR (2010:5), Disaster Risk Reduction (DRR) education requires schools to implement safety, emergency and disaster preparedness plans to prepare learners and educators to know what to do during and after a disaster has occurred. For instance, the Department of Education (DoE, 2003:48) stipulates that learning area such as Social Sciences teaches about natural disasters. According to disaster risk reduction requirements, schools should plan for making learners aware of disasters. In the current education system, apart from Grade 7 Social Science, it seems there are no lessons offered on disaster preparedness.

Since the achievement of disaster preparedness in schools by learners and educators is critical, and can be achieved through an integration of disaster education in the national curriculum, teaching and learning as well as assessment of learners. This study therefore intends to explore whether disaster preparedness is achieved by both learners and educators in schools located around Soshanguve in Tshwane North District. The above problem statement will help the

researcher to understand to which extent schools prepare learners to cope and respond appropriately to disaster outbreak.

1.5 Main research questions and sub-questions

1.5.1 Main questions

- To what extent is disaster preparedness achieved by learners and educators in Soshanguve schools?

1.5.2 Sub- questions

- Are schools in Soshanguve North, aware of policy documents stipulating the teaching of disaster preparedness to learners?
- To what extent have learners around Soshanguve schools been taught about disaster preparedness?
- What is the level of learners and educators' knowledge about disaster education in Soshanguve schools?

1.6 Aim and research objectives

1.6.1 Aim

The aim of this study is to determine the extent to which disaster preparedness is achieved by learners and educators in schools located in Soshanguve North.

1.6.2 Research objectives

- To assess whether schools in Soshanguve are aware of policy documents stipulated for the teaching of disaster preparedness to learners.
- To assess whether learners around Soshanguve schools have been taught disaster preparedness.
- To assess whether learners and educators have knowledge about disaster education in Soshanguve schools.

1.7 Significance of the study

The findings of the research would be made available to the Government of SA as a whole, especially to Gauteng Department of Education, Tshwane North District to realize the importance of having disaster preparedness plans in schools. If learners and educators are not well equipped or prepared to handle the situation before, during and after disaster occurs then the Department of Education should consider training of educators, conducting Disaster Management workshops for educators as well as including preparedness education or lessons in the curriculum.

1.8 Literature study

1.8.1 Key terms as defined by International Strategy for Disaster Reduction

Disaster is defined as a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses, which exceed the ability of the affected community/society to cope using its own resources (ISDR, 2002:24). Paton and Johnston (2001:270) and Alexander (1997:289) define disasters as those events that displace the structural, economic, organizational, cultural and spiritual well-being of communities by destroying their means of existence. Disaster could either be human-induced or natural occurrences. Disasters are natural if they just happen without being induced by humans like tsunamis, volcanoes, earthquakes, storms and floods.

Hazard is defined as a potentially damaging physical event, phenomenon or human activity, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation (ISDR, 2002:24).

Disaster Risk Reduction is defined as the systematic development and application of policies, strategies and practices to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) adverse impact of hazards, within the broad context of sustainable development as reported in ISDR (2002:25).

Disaster prevention refers to those activities that provide outright avoidance of the adverse impact of hazards and related environmental, technological and biological disasters.

Disaster preparedness refers to activities and measures taken in advance to ensure effective response to the impact of disasters, including the issuance of timely and effective early warnings and the temporary removal of people and property from a threatened location.

Disaster management, according to the Disaster Management Act (South Africa, 2002:6), means a continuous and integrated multi-sectoral, multi-disciplinary process of planning and implementation of measures aimed at:

- (a) Preventing or reducing the risk of disasters.
- (b) Mitigating the severity or consequences of disasters.
- (c) Emergency preparedness.
- (d) A rapid and effective response to disasters.
- (e) Post-disaster recovery and rehabilitation.

1.8.2 Conceptual framework

1.8.2.1 Development of disaster prevention and preparedness programme

Under the theme “Disaster Risk Reduction Begins at School”, the UN ISDR (2008:5) report set goals of school disaster prevention which include: to save lives and prevent injuries; to prevent interruption of education due to recurring natural hazards, and to develop a resilient citizenry able to reduce the social, economic and cultural impacts of recurring hazards. The objectives are to create and maintain safe learning environments, teach and learn disaster prevention, and build a culture of safety around school communities

With the theme of “Building a Culture of Prevention”, the UNISDR report (2007:47) states that disaster risk reduction is everyone’s business, and to be a reality and part of everyone’s daily life a culture of disaster safety should prevail within the society, and this can be done through schools.

1.8.2.2 Knowledge and education

With the theme “Let our children teach us”, a review of the role of education in Disaster Risk Reduction covered the key activities related to Priority 3 of the Hyogo Framework for Action 2005-2015: “Building the Resilience of Nations and Communities to Disasters” which includes: knowledge, education and risk awareness (ISDR, 2006:2).

The Hyogo Framework for Action 2005-2015 under the theme, “Use knowledge, innovation and education to build a culture of safety and resilience at all levels”, states that disasters can be substantially reduced if people are well informed and motivated towards a culture of disaster prevention and resilience, which in turn requires the collection, compilation and dissemination of relevant knowledge and information on hazards, vulnerabilities and capacities (ISDR, 2005:9).

Shaw *et al.* (2004: 40), state that the need for teacher education and their roles as disaster managers in schools were realized after 1983 tsunami in Akita, Japan had killed 13 elementary school children. Whereas Ronan and Johnston (2001:1062) in their findings after conducting research about hazard education for youth, suggest that hazard education programmes can help children achieve increased awareness, more realistic risk perceptions and more knowledge of risk mitigation and increased levels of home-based hazard adjustment.

1.8.2.3 Global perspective on learners’ disaster preparedness

The following are ongoing global and regional processes of Disaster Risk Reduction: December 2002, the United Nations General Assembly through its resolution 57/254, declared a Decade of Sustainable Development (2005-2014) and UNESCO were designated as the lead agency for the promotion of this decade (UN DESD, 2005). At the World Conference on Disaster Reduction (2005) Kobe, Hyogo, Japan: Priority 3 of the Hyogo Framework for Action was: building the resilience of communities and nations to disasters 2005-2015 (UNISDR, 2005).

Whereas 2006-2007 World Campaign on Disaster Reduction entitled “Disaster Risk Reduction Begins at School” states that various initiatives have been taken worldwide to make school buildings safer, and have disaster risk reduction taught in schools (ISDR, 2006- 2007: s.p). With the above 2006-2007, there is another publication, entitled “Towards a Culture of Prevention: *Disaster Risk Reduction Begins at School– Good Practices and Lessons Learned*” highlights

many instances where school children played a role, where adults finally welcomed their contributions (ISDR, 2007:s.p).

1.8.2.4 School preparedness plans

The priority of Millennium Development Goal 2 is to ensure that schools in high risk areas have developed and implemented disaster preparedness and contingency plans so that students survive and continue their schooling in the aftermath of disasters (ISDR, 2005:19).

The South African National Disaster Management Framework of 2005 requires the department of education to have Disaster Risk Management plans in place to manage disasters and to have education and training, regarding public education being taught in schools (NDMF, 2005:156).

According to the National Education, Training and Research Needs and Resources Analysis (NETaRNRA) report, after conducting the 2010 survey of primary and secondary schools, a consolidated analysis report of National Curriculum Statements (NCS) focus on disaster risk reduction, was placed on the Department of Education's website. The analysis found that the assessment standard or Learning Outcome Statements of some of the learning areas in General Education and Training (GET) band, directly or indirectly cover concepts and principles of disaster risk reduction.

According to Further Education and Training (FET) band, learning areas such as Geography, Life Orientation and Natural Science also make reference to disaster risk management concepts and principles: Geography Grade 10/11/12 (DoE, 2003b:26-28, 31) and Life Orientation Grade 12 (DoE, 2003c:15).

1.9 Research design

Mixed methods approach was used for this study, where both qualitative and quantitative methods were combined. Mixed methods is defined as a procedure for collecting, analyzing and "mixing" both quantitative and qualitative data at some stage of the research process within a single study to understand a research problem more completely (Maree, 2010:263).

Data was gathered from primary and secondary sources. Primary data was gathered with the aid of questionnaires and interview process. Literature review of relevant sources of information about the research problem and research questions were conducted as secondary data.

A chapter on literature review focused on books, articles in professional journals, research reports, policy documents such as NCS, NDMF and Acts, conference reports, internet and periodicals. Sources consulted were international, national and of local standing and focused on research that provided sound conclusions and recommendations on learner and educator preparedness.

1.10 Research methodology

A mixed research method was employed in this study using both qualitative and quantitative techniques of collecting data through questionnaires and interviews from principals, educators, learners and school safety committee representatives. Random and purposeful sampling was used to select participants for the study. Data collected was displayed through charts and analysed using descriptive analysis.

1.11 Ethical consideration

Ethical issues were considered to ensure the safety of the research participants, during the process of research. According to Creswell (2003), the participants have the right to participate voluntarily and the right to withdraw at any time, so that individuals are not being coerced into participation. The participants also have the right to know the purpose of the study, so that they understand the nature of the research and its likely impact on them. These aspects were observed before data collection from both the respondents and participants. To ensure confidentiality of responses from participants, the real names of participants were made confidential only using pseudonyms.

1.12 Validity and reliability

To ensure that data collected was valid and reliable, a pilot study was conducted ensuring that questionnaire and interview instruments were tested. The pilot phase participants consisted of

one principal, three educators and three learners. The questionnaires were checked and validated by the UFS statistics department.

1.13 Limitations and delimitations

1.13.1 Limitations

- Schools to conduct interviews were chosen from Soshanguve North under Tshwane North District 3. Although these are not representative of all the views of educators, principals, learners and school safety committees, it nevertheless provided relevant evidence to determine whether disaster preparedness is taught in Gauteng Schools in South Africa.
- The research was conducted within eight to nine months.

1.13.2 Delimitations

- Interviews were conducted with principals, educators, and school safety committee members only.
- Focus was on disaster preparedness of learners and educators in schools only.
- Findings and conclusions of the study were based on both primary and secondary information.

1.14 Chapter outline for the proposed research

Chapter 1: Introduction, background, problem statement, research questions, research objectives, research design, research methodology, ethical considerations and limitations and delimitations of study.

Chapter 2: Literature review

Chapter 3: Research methodology

Chapter 4: Data analysis (Findings and interpretations)

Chapter 5: Conclusion, recommendations and list of references

1.15 Estimated time for data collection

- a) **Week 1:** Meeting with four educators employed as field workers, training them on the content and completion of questionnaire procedure.
- b) **Week 2:** Visit to schools per blocks selected for collection of data. The completion of questionnaires by educators and face to face interviews with school principals, educators, safety committee members from each selected schools.
- c) **Week 3:** Discussing the completed questionnaires.

1.16 Conclusion

Chapter 1 presented the outline of the study which reported on the preliminary literature study that helped in shaping the main research question, to which extent disaster preparedness had been achieved by learners and educators in Soshanguve North. The chapter also discussed a conceptual framework which took as its point of departure the framework of UN ISDR stating that disaster risk reduction begins at school. Both the research questions and conceptual framework will guide the in-depth literature study to be reported in Chapter 2, the research methodology, data collection from learners, educators, school safety committee members and principals.

Chapter 2

Literature review on assessing disaster preparedness of learners and educators in Schools

2.1 Introduction

The aim of this chapter is to report on the review of literature related to the research topic of assessing the extent to which disaster preparedness is achieved in schools. The chapter focused on the overview of disasters and their impact to schools around the world, the depiction of disaster management continuum, and explored what the preparedness phase entails in detail. This chapter further reviewed policy documents stipulating the teaching of disaster preparedness education in schools, while discussing the curriculum integration in formal and informal education regarding learner and educator preparedness.

Furthermore, the global/international frameworks, conferences and workshops conducted on the role of education in disaster preparedness were reviewed. In Chapter 2 knowledge and skills required for education to contribute to learners, educators and community preparedness of disasters were explored. The availability of resources such as teaching materials as well as school preparedness plans were determined in order to answer the research questions. The discussion below presents an overview of disasters and their impact on schools.

2.2 Overview of disasters and its impact on schools

According to UNISDR (2009:4), disaster is defined as a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceed the ability of the affected community or society to cope using its own resources. According to UNISDR (2009), disasters are often described as a result of the combinations of vulnerabilities that are present and insufficient capacity of measures to reduce or cope with the potential negative and catastrophic consequences. Disaster impacts may include loss of life, injury, disease and other negative effects on human physical, mental and social well-being, together with damage to property, destruction of assets, loss of services,

social and economic disruption and environmental degradation. Wisner (2004:5) maintains that disasters are a constraint to economic and human development at the household and national level when roads, bridges, hospitals, schools and other facilities are damaged. Figure 2.1 provides different types of disasters that could have an impact on schools.

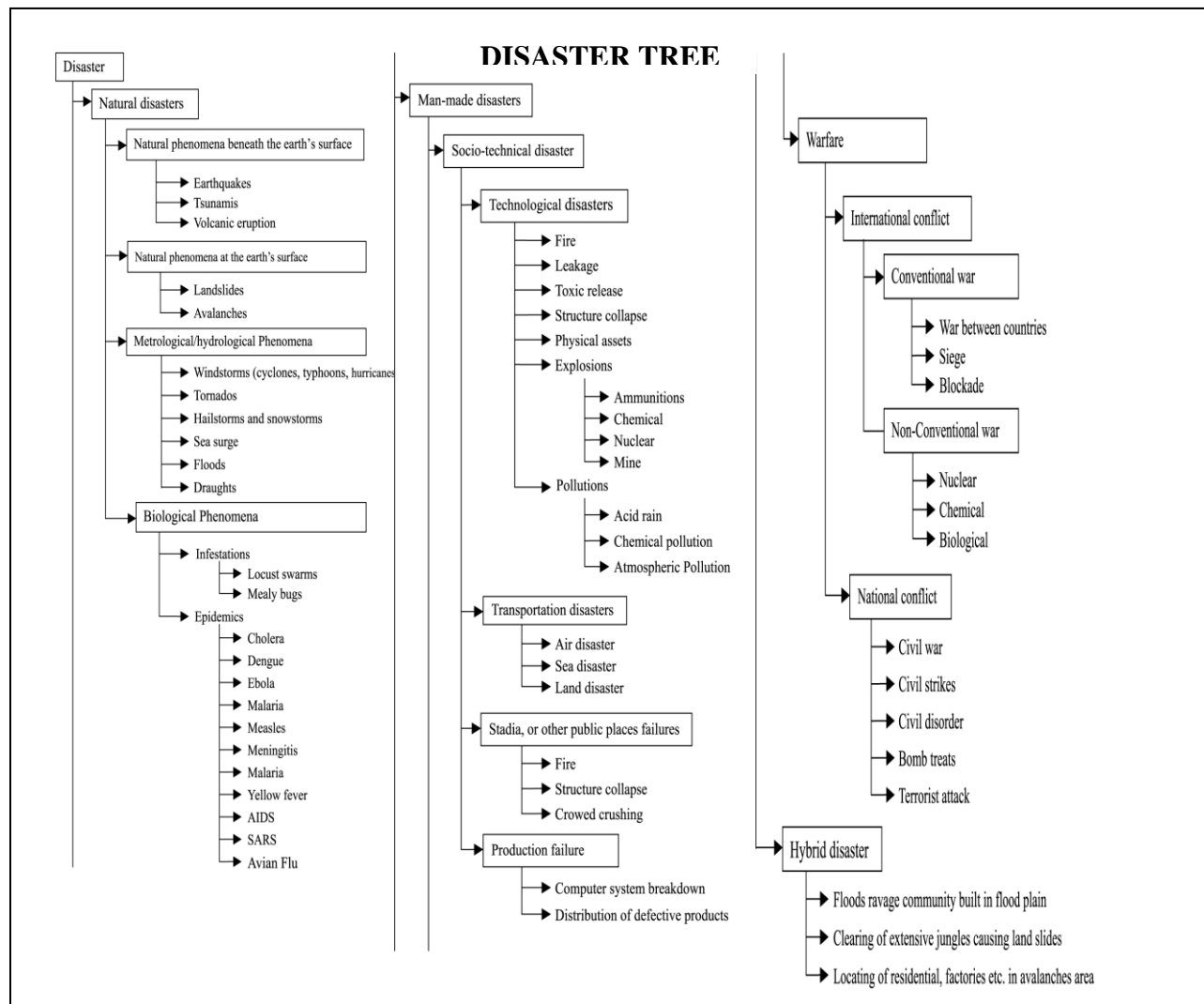


Figure 2.1: Types of disasters, natural, man-made, warfare and hybrid disasters classification

Source: Shaluf (2007:706)

In line with the above schematic representation of disaster classification, According to Shaluf (2007:714), disasters are classified as natural, man-made or hybrid, which covers all types of disastrous events. He also maintains that natural disasters are catastrophic events resulting from natural causes, are beyond human control and are often termed as “Acts of God”. Some of the natural disasters such as earthquakes, strike with no early warning, while flash floods are

sudden and difficult to forecast and give people little time to escape or to take other essentials with them. Anderson (2010:9) adds that disasters caused by hazard-induced climate change can damage or destroy school facilities and educational systems, threatening the physical safety and psychological well-being of communities and interrupting educational continuity.

ActionAid (s.a:1) reports that natural disasters like floods, destroy the lives of more than 300 million people every year and also state that disasters can affect anybody at any time, but in most cases the poorest and most vulnerable people are affected first and are hit hardest. To highlight the impact of disasters in schools, Table 2.1 depicts a list of countries, the year and type of disasters with impact on schools.

TABLE 2.1: DEPICTING THE IMPACT OF DISASTERS ON SCHOOLS

Year	Country	Disaster impact
2008	NW China	An estimated 10 000+ children died in their school, estimated classrooms were destroyed.
2007	Bangladesh	Cyclone destroyed 496 school buildings and damaged 2 110 more.
2006	Leyte Iland, Philippines	245 children and their teachers died in mudslide that buried the village elementary school after five days of rain.
2006	Uganda	13 children died in a school dormitory fire where children were using candles.
2005	Northern Parkistan, Kashmir	17 000 students died at school, and 50 000 were seriously injured, many disabled, 10 000 school buildings destroyed, 300 000 children affected. In some districts 80% of schools were destroyed.
2004	Tamil Nadu, India	93 children died in fire due to explosion of a cooking gas cylinder.
2003	Bingol, Turkey	84 children and teachers died in collapsed school building in a moderate earthquake. four schools collapsed, 90% of schools were impacted and education disrupted.
2002	AbGarm	16 500 students education disrupted when eight schools collapsed and 137 were damaged
2001	Carioco, Venezuela	Two schools collapsed in an earthquake and 46 students died.
2001	Bhuj, India	971 students and 31 teachers were killed by earthquake.1 884 schools collapsed, destroying 5 950 classrooms including 78% of public secondary school.11 761 school building suffered major damaged with 36 584 classroom unusable.

Source: UNISDR (2008:3)

In view of the above representation of disaster impact on schools in different countries, it clearly shows that disasters cause damage in different ways. According to UNISDR (2008:2), natural disasters could have physical, educational, economic and psychological impacts on schools and its constituencies. According to UNESCO (2010:33), disasters have the following impact on education:

- Natural disasters, such as earthquakes, volcanic eruptions, tsunamis, floods, and others can have devastating impacts on formal, non-formal and informal education.
- Disasters can disrupt learning for days, weeks, months or even for a life time.
The worst are the after effects of the event including trauma, displacement of families, health impacts, the common decrease in food security, etcetera, all of which can contribute to negative impacts on the education sector and society in general.

Ways in which natural disasters impact the education sector include:

- Disruption of the school calendar, as school buildings are usually used as temporary shelters.
- The return of teachers to their affected home communities.
- Lack of access to schools due to disruptions in transportation systems, destroyed bridges, damage to school structures and equipment.
- Psycho-social trauma leading to attention-deficit problems and lack of focus in the classroom.
- Children removed from school by parents because their services are needed to clean homes, replant crops, and engage in other livelihood practices.
- Homeless families relocated to temporary shelters.

According to ARC (2009:14), impact of emergencies on children and education, both complete and of natural causes, can have long-term social, psychological and physical repercussions on the affected population especially the most vulnerable. Children are in most instances at the centre of such events as they witness the worst ravages of man-made or natural destruction at a young impressionable age. It is therefore essential to discuss the consequences of man-made and natural disasters on children and education.

Consequences of man-made and natural disasters on children:

- Children witness violence, looting and widespread death and destruction.
- Children are displaced with their families, causing loss of familiar environment, friends, relatives, school and personal belongings.

- Children witness or experience sexual abuse the latter puts them at risk of HIV and AIDS and other STDs.
- Family's ongoing stress of managing life and low morale affects children.
- Psychological impact, fear that event will recur, inability to carry out routine tasks, aggression, difficulty in concentration, loss of developed skills and other common stress reactions.

Consequences of man-made and natural disasters on education:

- Government which includes Ministry of Education are weakened by conflict or losses caused by natural disaster.
- Limited or no support to schools as government overwhelmed with immediate needs of affected population.
- Loss of teachers, teaching and learning material and supplies, and school buildings used for shelter.
- Quality of education low, already high rates of drop out, low enrolment and limited access before the emergency. The current situation leads to complete breakdown, lack of teachers, infrastructure and systems to support education needs of affected population.
- School personnel not equipped to address emerging psychosocial needs of students in the classroom.

According to Hassanain (2006:838), school occupants are children and youth who can easily panic, and become difficult to manage in case of emergencies or crises and damages are enormous when a school catches fire. The disruption of school operation, psychological damage to students, families, and teachers after a fire will impair the learning environment. Hassanain (2006: 839) also maintains that school occupants, mostly untrained children on evacuation drills, are at a risk of incurring high rate of fatalities and/or injuries in the case of fire mainly because they may be less able to take the quick action necessary.

Pandemic diseases are also seen as a challenge for Millennium Development Goal 2 for the achievement of universal primary education. According to a United Nations (2005:11) report, Aids takes a harsh toll on education whereby the education crisis in sub-Saharan Africa is made worse by the impact of the epidemics. In 1999 alone, nearly one million children lost their teachers to Aids. When parents become ill of Aids, children are often pulled out of school to

care for them and when parents die, children often leave school because of economic hardships. Two basic kinds of experiences that children who live through a disaster might have according to Richardson (s.a:35) include:

- (a) *The trauma of the disaster event itself*: the most obvious experience that children might have during a disaster is experiencing or witnessing a frightening event or series of events. These include the destruction of homes, property or personal possessions; being personally injured or faced with physical danger or witnessing the death, injury or pain of others.
- (b) *Disruptions to daily life*: life might not return to normal quickly following a disaster. There may be changes in living conditions that cause changes in day-to-day activities, including strains in the relationships between friends, changes in expectations that family members have for each other. These disruptions in relationships, roles and routines can be unfamiliar or unpredictable, which can be unsettling or sometimes frightening for children.

To add to the issue of disruption, Bartlet (2008), Cuttle (1995) and Peek cited in Global Assessment Report GAR (2011:4) state that disasters have a disproportionate impact on the poor in developing countries, especially affecting those segments of the population that are more vulnerable. Children and especially young children are less well equipped to deal with deprivation and stress due to their particular physical, social and psychological characteristics.

From the above list of disasters having an impact on schools, it is evident that natural disasters do have an impact on any country, and damages vary from country to country. There is damage of critical infrastructure where schools are beyond repair and there is major loss of lives.

If the earthquake that occurred in Haiti in 2010 is considered, it is evident that it suddenly strikes without warning. The earthquake happened fast and killed about 1 300 teachers 38 000 school children, and destroyed more than 4 000 school buildings (UNICEF, 2010) in (UNISDR, 2010:17), and in Bhuj, India 2001, the earthquake killed large numbers of students amounting to 971 and 31 teachers. 1 884 schools collapsed and 5 950 classrooms were destroyed. In total 11 761 school buildings suffered major damage with 36 584 classrooms unusable. According to International Federation of Red Cross and Red Crescent Societies (2003) reported in Shaluf (2007:688), earthquakes can cause high mortality from trauma, asphyxiation, dust inhalation (acute respiratory distress) or exposure to the environment (i.e. hypothermia) as well as serious

destruction of buildings and infrastructure. Asian Disaster Preparedness Center, ADPC (2008), cited in UNISDR (2008:20), reported the destructive nature of disasters to schools in Cambodia as follows.

Seventy-eight per cent of school principals in disaster-prone areas report that their schools are affected by flooding for more than 3 months every year. Sixty percent of these schools are subject to closure for up to 2.5 months but only 10 % have an alternative location for school arranged. Sometimes the school year can be extended, but often teachers return to their hometowns in other areas. The disruption to education results in lower quality education. The rainy season occurs at the beginning of the school year and children who miss school have little hope of being able to catch up. Road damage and river crossings results in greater time and money for transport resulting in high absenteeism rates especially among poor students. Principals estimate that half of students drop out due to financial problems and other difficulties caused by floods. Use of schools as emergency shelters for people, livestock or storage can also be damaging and disruptive UNISDR (2008:20).

UNISDR (2008:1) states that each time a disaster occurs, masses of children are excluded from school, many never to return, and these disasters can all be mitigated with knowledge and planning, physical and environmental protection measures, and response preparedness. Hyogo Framework for Action (HFA) is a ten year strategy for disaster risk reduction, and aims to reduce human and material losses from disasters by 2015. ActionAid (s.a.:1), reports that approximately 168 governments have signed up for the HFA. Shaluf (2007:701) maintains that natural disasters can be reduced by setting up advanced warning systems, and the consequences of natural disasters can be reduced through effective disaster management.

ActionAid (s.a.:1) also reported that disasters can be prevented, and the impact of these disasters depends on people's vulnerability and their ability to cope. These can be done by building community resilience and by helping people to adapt to climate change, to reduce the impact of future disasters. The ensuing discussion is about disaster management cycle, starting with depiction of disaster management continuum, and the focus is on preparedness phase.

2.3 The disaster management continuum

According to the Disaster Management Training Programme (UNDP, 1992: 22) disasters can be viewed as a series of phases on a time continuum. UNESCO (2010:30) states that natural

disaster preparedness is an essential component of any disaster management planning because it *minimizes the adverse effects of a hazard*, and that disaster preparedness must be seen as an active, ongoing process. Disaster management therefore involves the response to or anticipation of a hazardous event through a set of policy and administrative decisions and operational activities which pertain to the various stages of a disaster at all levels as reported by UNESCO (2010:31) and Disaster Management Training Programme (UNDP, 1992:22). Figure 2.2 depicts the disaster management continuum, and focuses on the pre-disaster risk reduction phase, preparedness phase and post-recovery phase within the continuum.

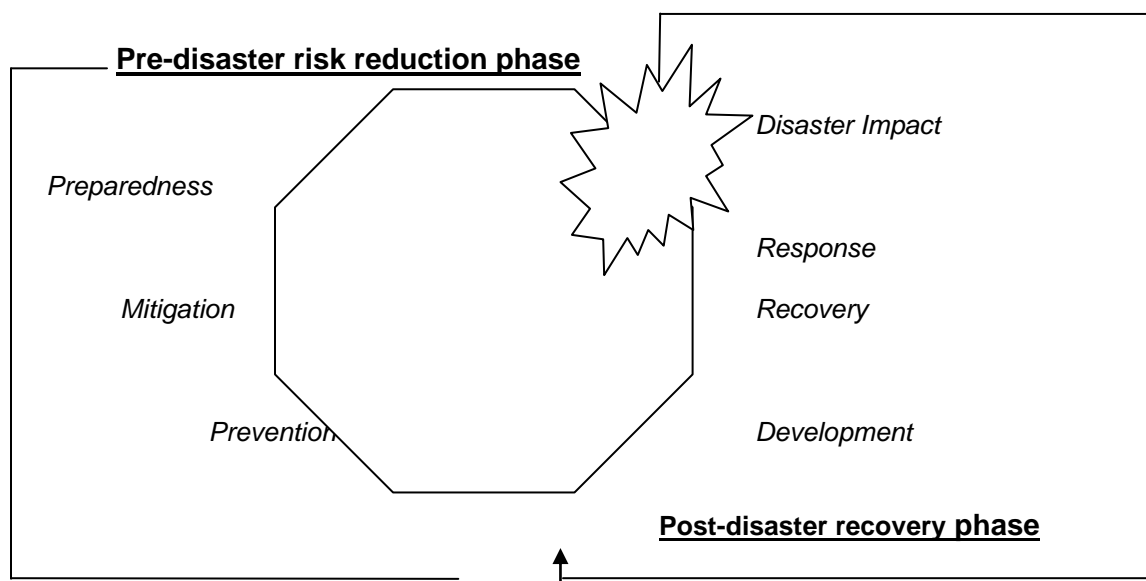


Figure 2.2: Rapid onset disaster management continuum
Source: Disaster Management Training Programme (1992: 22)

2.3.1 Preparedness phase

Guy, the Director of Health and Education reported in International Finance Corporation, IFC (2010) that planning for natural disasters and an emergency is something every educational institution must consider, regardless of its size or location. It is not possible to plan for every eventuality that might occur. However, preparation is a key to saving lives if a disaster strikes.

International Strategy for Disaster Reduction ISDR (2002:25) defines disaster preparedness as activities and measures taken in advance to ensure effective response to the impact of disasters, including the issuance of timely and effective early warnings and the temporary removal of people and property from a threatened location.

According to United Nations Development Program, UNDP (1994), disaster preparedness involves forecasting and taking precautionary measures prior to an imminent threat when advance warnings are possible. Preparedness planning improves the response to the effects of a disaster by organizing the delivery of timely and effective rescue, relief and assistance. UNDP further states that preparedness involves the development and regular testing of warning systems (linked to forecasting systems), and plans for evacuation or other measures to be taken during a disaster alert period to minimize potential loss of life and physical damage. It also involves the education and training of officials and the population at risk, the training of intervention teams, and the establishments of policies, standards, organizational arrangements and operational plans to be applied following a disaster (UNDP, 1994:11).

According to Twig (2004:287), the main aims of disaster preparedness is to help people to avoid impending disaster threats, and to put plans, resources and mechanisms in place to ensure that those who are affected receive adequate assistance. Numerous scholars such as Briton (1986), Pijawka and Radwan (1985), Bogand (1989), Welchsegartner (2001) and Alexander (2002) cited in McEntire (2005:213) agree that the purpose of mitigation and preparedness is to reduce human vulnerability to disasters through hazard assessments, improved engineering, wiser land use management, emergency exercises, public education and more.

According to Ozmen (2006:385), after spending millions on repairing schools after a disaster, many states require specific disaster preparedness activities in the school systems. He further points out that there is much needed from school officials to plan for disasters, to mitigate risk, to protect the safety of students and educators, and to ensure that schools recover quickly.

Afedzie and McEntire (2010:50) point out that the state of knowledge regarding preparedness, response and recovery issues should be inculcated, and also view preparedness as the activities of formulating, testing and exercising disaster plans; and communicating with public and others about disasters, and what to do to reduce them. These authors further examined preparedness in the context of the household, organizations, communities, states and the nation. Fothergill and Peek (2002:92) maintain that preparedness behaviour includes a variety of actions taken by families, households and communities to get ready for disasters. Preparedness activities may include devising disaster plans, gathering emergency supplies, training response teams, and educating residents about potential disaster.

UNESCO (2010:31) states that, preparedness focuses on plans to respond to a disaster threat or occurrence. It takes into account an estimation of emergency needs, and identifies the resources to meet these needs and also highlights preparedness objectives which include:

- To reduce disaster impact through appropriate actions and to improve the capacity of those who are likely to be affected most, for example women and children, the marginalized and the poor, and to get the maximum benefit from relief.
- To ensure that ongoing development continues to improve the capacities and capabilities of the system to strengthen preparedness efforts at the community level.
- To guide reconstruction so as to ensure reduction in vulnerability.

2.3.1.1 The Disaster Management Training Programmes of 1992 and 1994 provides a framework of disaster preparedness strategy that can be explained as follows:

- *Vulnerability assessment* – identifying of geographic areas or communities that are predictably under threats from hazards. Vulnerability assessments also serve as the starting point for determining the types of plans that should be developed as part of a national disaster preparedness strategy.
- *Planning* – there is a need to have plans in place that are agreed upon, that are implementable and for which commitment and resources are relatively assured.
- *Institutional framework* – this relates to the need for a decision-making structure, inter-ministerial committees to co-ordinate plans, focus groups within each ministry that are responsible for the plans implementation and communication, as well as regional and community structures to implement strategies at a local level.
- *Information systems* – the preparedness plan must have an information network such as an early warning and monitoring system to facilitate disaster prediction, warning and evacuation communication.
- *Resource base* – the requirements to meet disaster needs will depend upon the types of disasters the plan anticipates. Such requirements should be made explicit, and should cover all aspects of disaster relief and recovery implementation.
- *Warning systems* – vulnerable population should be given adequate notice of an impending disaster, so that people can either escape the event or take precautions to reduce the dangers.

- *Response mechanisms* – each response depends on the nature of the threat, and that includes evacuation procedures and search rescue.
- *Public education and training* – according to the Disaster Management Training Programme, the focus of any disaster preparedness plan should be to anticipate, to the extent possible, the types of requirements needed for action or responses to warnings and disaster relief operations, and how those requirements will be met. However, the planning process will only be effective if those who are the ultimate beneficiaries know what to do in times of disaster and what to expect. Therefore education is needed for those who may be threatened by disaster and can take many forms such as:
 - a) *Public education in schools* – standardized curricula for children and young adults should include information about actions which should be taken in case of a disaster threat or occurrence for example floods, etcetera.
 - b) *Special training courses* – workshops should be designed for an adult population, either specifically or as an extra dimension of ongoing programmes such as literacy or cooperative training sites.
 - c) *Extension Programmes*– community- and village-based extension workers are instructed to provide relevant information and trained for the tasks they should undertake during the event.
 - d) *Public information* – the mass media, whether television, radio or the printed word, will never replace the impact of direct instruction. However, if sensitively designed and presented, mass media may provide a useful supplement to the overall educational process (UNDP, 1992:65).
- *A rehearsal (drills)* – there is a need to rehearse the disaster preparedness plan. Rehearsals will reemphasize points made in separate training programmes, and test the system as a whole, exposing gaps that otherwise might have been overlooked (UNDP, 1994:34). According to Twig (2004:287), during rehearsals, evacuation and response procedures should be practised, evaluated and improved. The discussion below, presents the teaching and learning of disaster prevention and preparedness.

2.4 Teaching and learning disaster prevention and preparedness in schools

In view of the research question whether schools in Soshanguve North are aware of policy documents stipulating the teaching of disaster preparedness to learners, the discussion that follow in this section attempt to understand the extent of the problem. It will be reviewing available policy or framework document in South Africa regarding curriculum and teaching as key elements of disaster preparedness in schools. The section presents data in table format depicting the integration of teaching disaster risk reduction in education curriculum around the globe. Furthermore, the South African curriculum was reviewed, based on the policy document stipulating the teaching of disaster education in classrooms, a global view, of the curriculum in and around primary and secondary school classrooms, the table depicting teaching in countries with hazards. Furthermore, disaster prevention and preparedness through formal education was reviewed.

2.4.1 Integration of teaching disaster preparedness in school curriculum

2.4.1.1. National policy/ Act or Framework of South Africa

As already stated in Chapter 1, the National Disaster Management Act of South Africa (NDMA, 2002) requires National Disaster Management Centre (NDMC) to promote disaster management capacity building, training and education throughout the country, including schools.

According to the South African National Disaster Management Framework (NDMF), disaster risk reduction education must be integrated in primary and secondary school curricula. Furthermore, schools should be regarded as focal points for raising awareness about disaster risk management and disaster risk reduction. It stipulates that the risk reduction component of disaster risk management education should be linked to broader education programmes on development and environment (NDMF, 2005). In a South African context, Enabler 2 of the NDMF (2005:156) encourages the need to promote a culture of risk avoidance through education and training throughout the Republic of South Africa.

2.4.1.2. Curriculum and teaching practice: key elements of a complex system

Before one discusses the complex nature of the system, it is important to explain some elements of the system such as education, knowledge, skills and training:

- Understanding the concept “Education”

According to UNISDR (2006:7) and Wisner (2006:11), education encompasses formal and informal transmission of knowledge and engagement of groups of people (children, youth, lay people and professionals) in identifying hazards of feasible actions to mitigate them, and to prepare for the risk that cannot be reduced. This includes the formal public and private education systems (primary, secondary and tertiary), vocational and professional training courses, community-based self-assessment, and public discourse involving the media, awareness campaigns, museums, memorials and special events.

- Understanding the concept “Knowledge”

According to Wisner (2006:11) and IFRCRCS (2005) in UNISDR (2006:7), formal and informal knowledge are part of the system that guides understanding and action: data; knowledge; information; wisdom and action. In view of the conceptual Framework adopted by the International Federation of Red Cross and Red Crescent Societies (IFRCRCS) in World Disaster Report 2005, “data” are viewed as the building blocks that create “information” which becomes “knowledge” when it is put into a context that gives it meaning, and some relevance to action or inaction. While “wisdom” is what organizes knowledge and through less tangibles, is the result of accumulated experience of action and inaction.

- Understanding the concept “Action”

“Action” is actually what is being done rather than dwelling on commitments and plans. Evidence is when the WCDR developed the Hyogo Framework of Action, which is action-orientated. According to UNISDR (2006:7) and Wisner (2005:12) action was taken after 2004 Indian Ocean tsunami that cost 220 000 lives in 12 countries. It is then

that ministry of education decided to introduce knowledge about natural hazards in the school curricula, and that happened in a few pilot schools.

According to UNISDR (2006:86) disaster can be substantially reduced if people are well informed and motivated towards a culture of disaster prevention and resilience, which in turn requires the collection, compilation and dissemination of relevant knowledge and information on hazards vulnerabilities and capacities. Under Priority 3 of Hyogo Framework for Action 2005-2015: with the theme, “Use knowledge, innovation and education to build a culture of safety and resilience at all levels”. UNISDR (2006:86) highlights the following key activities under education and training:

- To promote the inclusion of disaster risk reduction knowledge in relevant sections of school curricula at all levels and the use of other formal and informal channels to reach youth and children with information; promote the integration of disaster risk reduction as an intrinsic element of the United Nations Decade of Education for Sustainable Development (2005-2015).
- Promote the implementation of local risk assessment and disaster preparedness programmes in schools and institutions of higher education.
- Promote the implementation of programmes and activities in schools for learning how to minimize the effects of hazards.
- Develop training and learning programmes in disaster risk reduction targeted at specific sectors (development planners, emergency managers, local government officials, etc.).
- To promote community-based training initiatives, considering the role of volunteers, as appropriate to enhance local capacities to mitigate and cope with disasters.
- Ensure equal access to appropriate training and educational opportunities for women and vulnerable constituencies; promote gender and cultural sensitivity training as integral components of education and training for disaster risk reduction.
- Understanding the concept “Curriculum”.

According to UNISDR (2006:10) curriculum does not exist in a vacuum, but the primary and secondary systems of education in the world today are precisely dependant on the strength and functionality of every component part of the system. The overall condition of the education system must therefore be taken into account if recommendations to promote risk reduction

education are to be realistic and feasible. In order to use a curriculum for instance, there must be *teachers* who need to be *trained*, paid decent salaries, be respected and supported. Additionally, teaching and learning materials must be available and affordable. UNISDR (2006) states that the systems of administration, supervision, evaluation and promotion must be consistent with the goal of using education for risk reduction. For instance, in educational systems with standardized examination, it may be difficult for teachers to innovate and take class time for valuable, hazard related experiential learning exercises.

Additionally, UNISDR (2006) states that as a rule, hands-on, experiential learning is the most effective way to educate. Ideally, a disaster relevant curriculum would not only impact knowledge of the natural hazard themselves, but would involve students in inspecting the school buildings, going outside to map extreme natural events in the past. To add to that, such learning could be done in ways that reinforces basic skills in listening, writing, reporting and mapping. Such learning could be integrated into the study of history, geography and natural science. Mathematics, from simple arithmetic to statistics, geometry and trigonometry could be used. The real-life teaching and curricula reviewed vary greatly and some examples provide excellent training in earth and climate science, but do not focus on locally- experienced hazards.

TABLE 2.2: INTEGRATION OF DISASTER RISK REDUCTION IN EDUCATION CURRICULUM

Course	Examples of disaster risk reduction integration
Language arts	Read literature, news articles, concerning disasters, hazards and risks. Read critically, explore myths, use persuasion, Research, write essay, proposal letter to elect officials regarding disaster risk reduction.
Mathematics	Solve problems related to assessment and solutions to natural hazard induced risks.
Geography	Explore climate, habitats, geology and human/environmental interactions producing disaster risk, vernacular, architecture, urbanization, livelihood impacts of disaster.
Sciences	Learn mechanisms of geological and hydro-meteorological phenomena. Investigate local measures for environmental protection. Conduct experiments to learn principles of disaster resistant construction. Learn home and industrial hazardous materials safety. Explore and practice environmental stewardship.
History and Humanities	Explore historic impact of natural hazards on civilizations, indigenous knowledge for settlement and livelihood protection.
Civics	Meet with elected officials and participate in community planning, local disaster risk reduction and advocacy.
Health and Life skills	Basic first aid, family disaster planning, response preparedness, health hazards and pandemic prophylaxis.
Vocational training	Learn non- structural mitigation measures and tools. Learn principles of disaster resistant design and construction.
Foreign Languages	Read passages about natural hazard threats and community- based risk reduction.
Arts	Select disaster risk reduction as a theme for visual and performing arts projects and community exhibits.

Source: UNISDR, 2008:27

2.4.1.3 Curriculum in South Africa

As stated in Chapter 1, the National Curriculum Statements for Social Science stipulates that learners should be taught about disasters only in Grade 7 classes (DoE, 2003:48). There is not much evidence to prove whether learners and educators are well prepared for the outbreak of disasters.

To add to that, a survey conducted by NDMC on National Education, Training, Research Needs and Resources Analysis (NETaRNRA) in 2010 came up with some findings regarding the integration of disaster risk reduction education in the South African Curriculum. The survey found that the assessment standard or learning outcome statements of the following learning areas in the General Education and Training (GET) directly or indirectly cover disaster risk management concepts and principles:

- Grade R: Life Orientation,, health promotion, explains safety in the home and at school Physical Development and Movement,
- Grade 4: Identifies dangers and responsible safety measures in and around water (DoE, 2000:34).
- Grade 5: applies basic First Aid in different situations (DoE, 2000:35).
- Grade 7: Social Sciences focus on natural disasters, for example drought, floods, earthquakes, volcanoes and tropical cyclones that cover the following: how natural hazards occur, its impact on people's lives, who are at risk, why some people are more at risk than others and management of risk and disaster risk reduction.
- Grade 10-12: Geography in Further Education and Training (FET) makes reference to disaster risk management concepts and principles.
- Grade 10: Geography focuses on the structure and changing landforms of the Earth with special emphasis on internal forces such as plate tectonics, faulting and resultant land forms, earthquakes and volcanism and also the responses of humans to these hazards and opportunities.
- Grade 11: Geography includes the significance of water masses resulting in flooding and drought, and the response of humans, impact of humans on oceans resulting in pollution or over-exploitation, forms of exploitation and its impact on sustainable living,

for example commercial and subsistence fishing, mining, dumping of waste, hazards and environmental management of hydrological systems, for example rivers, coastal resource management.

From the discussions above regarding GET survey findings, Grade 7 Social Sciences, Geography section provides a convincing alignment with the disaster risk management concepts and principles contained in South Africa's National Disaster Management Framework of 2005. In their view, children will have a basic understanding and knowledge of disaster risk management concepts and principles if these curriculum directives are implemented in a skilful and creative manner in the classroom. From the presentation regarding FET, it is clear that Geography Grade 10 - 12 is a continuation of work done in primary and secondary level in Social Sciences Grade 7 curricula and Life Orientation up to Grade 12 (DCOG, 2010:14-17).

In view of the presentations above, the inclusion of disaster risk management concepts and principles with regard to consideration of the GET and FET band can fit well, directly or indirectly, in Geography and Life Orientation learning areas. In the survey conducted, they also point out that disaster risk management education is not reaching all senior secondary school children, because of learning area choices in high schools and the high rate of school dropouts (DCOG, 2010:17). For instance learners who choose Geography until Grade 12 will be more knowledgeable about hazards and disasters than those who choose other streams.

2.4.1.5. Global overview of role of curriculum in disaster risk reduction

According to UNISDR (2006:12) there is no national curriculum which deals specifically with disasters risk reduction in South Africa. However, various individual institutions are pursuing relevant disaster educational initiatives. In Western Cape schools offer "life and safety education", focusing on the avoidance of fires and other accidents in the townships. The schools also provide some environmental education including teaching about drought and "thirsty" invasive species of plants. In the then Northern Transvaal, the ISDR/UNICEF board game "Riskland" has been adapted to South African conditions, and teaching materials for ages 10-12 have been produced. The materials feature a mascot for disaster risk reduction, the giraffe which symbolizes foresight because with her great height, she can see hazards. The school uses songs to teach the basics of safety to younger children.

2.4.1.6. Curriculum in and around the primary and secondary school classroom

Children, who are taught about natural hazard risk, play an important role in saving lives and protecting members of the community at a time of disaster. Making disaster risk education part of the national primary and secondary school curricula fosters awareness and better understanding about the immediate environment in which children and their families live and work (UNISDR, 2006:s.p.).

According to UNISDR (2006), children and young people in primary and secondary schools around the globe benefit from a wide variety of treatments of natural hazards, disaster preparedness and prevention. Curricula and teaching practices vary greatly in approach, intensity and quality. These diverse efforts raise the possibility of a rapid spread of good practice. To realize this possibility, relevant actors must devote focused attention and adapting curricula, and networking the most effective pedagogical practices. As pointed out, half of the countries confirmed that their education systems included some form of disaster-related teaching. Table.2.3. presents countries with hazards teaching in primary or secondary schools.

TABLE.2.3: COUNTRIES WITH HAZARDS TEACHING IN PRIMARY OR SECONDARY SCHOOLS

Asia & The Pacific	Latin America & The Caribbean	Africa	OECD	Central & Eastern Europe and CIS	Other UN members
Bangladesh	Bolivia	Algeria	France	Czech Rep.	Monaco
Iran	Br. Virgin Islands	Kenya	Greece	Hungary	
India	Colombia	Madagascar	Japan	Lithuania	
Mongolia	Costa Rica	Mauritius	New Zealand	Macedonia	
Philippines	El Salvador	Senegal	Portugal	Romania	
Tonga	Montserrat	Uganda	Sweden	Russian Fed.	
Turkey			USA		

Source: UNISDR, 2006:11

From the presentation in Table 2.3, countries that are not included, such as Brazil and Venezuela, reported significant primary and secondary teaching at municipal or state level. While others in advance of the WCDR, mentioned plans underway to begin teaching in schools and those are Haiti, Nicaragua, Zimbabwe and Israel. Some who reported teaching without a curriculum included Papua New Guinea, Canada and Australia. In Cote d'Ivoire teaching of disaster education is integrated into other subjects while in Germany the teaching is narrowly-focused on fire safety and in Ecuador there are practical preparedness exercises. Other countries such as Mexico, Romania and New Zealand, mandate by law the teaching of disaster-

related subjects in their schools. In addition, South Africa and Mexico have begun some pilot teaching programmes, and have put considerable energy into the development of teaching material (UNISDR, 2006:11).

2.5 Formal and informal education

Khan (2008:669) maintains that education and awareness are prerequisites for preparedness, and that disaster preparedness education should be provided through formal and non-formal means by both governments and NGO programmes. Formal education in disaster preparedness is provided at primary school level, where the topics focus mainly on general awareness about different types of disasters and at the post graduate level where degrees (Certificate, Diploma and Master's in Disaster Management) are offered to prepare professionals.

The integration of both formal and informal education through schools is the one way to ensure that these messages reach every home and community, and that learning is sustained into future generations. This note elaborates scope of formal and informal disaster risk reduction education in school around the world (Petal & Izadkha, 2008:s.p).

According to Petal and Izadkha (2008), formal curriculum integration may be introduced fairly rapidly in the form of elective courses or modules that plug into existing courses. Disaster risk reduction can also be systematically and more slowly infused into the curriculum by elaborating its full scope and sequence, undertaking an audit of existing curriculum, and designing the entry points in the course of the curriculum adoption cycle for all subjects and age levels.

There are complementary elements that are important for long-term sustainability in mainstreaming disaster risk reduction in formal education, which include curricula and school integration, teacher training and assessment of learning. According to UNDES (2005:10), disaster risk reduction can be integrated into formal school curricula, either as stand-alone courses or modules designated for infusion into existing courses.

According to UNISDR (2008:24), children are the most receptive to incorporating new knowledge to make themselves and future generations safer and are advocates and catalysts for safety in their homes and communities. UNISDR (2008) further states that children have specific vulnerabilities that need to be addressed in risk reduction, and they have the capacity

for active participation in risk identification, risk reduction, preparedness and response. According to Petal & Izadkhah (2008:s.p.) and UNISDR (2008:25-26) teaching may occur in the following manner:

- (a) Stand-alone courses refer to specialized course curricula focused on disaster risk reduction for example a series of courses in disaster management is offered to a small group of students on an elective basis. These courses although they have an important role to play imparting important in-depth knowledge, they reach only a tiny number of students.
- (b) Curriculum units/integration refers to approach that inserts specially developed units, modules or chapters with an emphasis on disaster risk reduction into existing courses. Ideally these are designed to fit into several specific course curricula, at specific grade levels, for a specific duration.

A relevant example is India's Central Board of Education introduction of disaster management modules at three age levels, in which educational materials have been developed by disaster risk reduction advocates designed to link or align to existing curriculum standards and learning objectives. Teachers are permitted flexibility to select materials, and creative teachers can voluntarily access and integrate these materials into their lesson plans or use them as supplementary resources for students interested in exploring further. Disaster risk reduction specialists (from Universities, fire departments, civil protection agencies, and local branches of Red Cross/Red Crescent Societies) often make themselves available as guest speakers to support lessons in schools.

- (c) Curriculum infusion is an approach that seeks to distribute disaster risk reduction content throughout the curriculum, using lessons, readings, activities and problems, enriching the existing curriculum rather than displaying it. This is where high-level policy commitment and guidance is needed to initiate a process that would likely take just a little longer than the full curriculum adoption cycle:

- Elaborate the full scope and sequence of knowledge competencies and skills desired for disaster risk reduction.
- Conduct a complete audit of the existing curriculum seeking the places where the disaster risk reduction content can be integrated into the lesson plan.

- Develop and adapt educational materials and tools for infusion.
- Provide training faculty at teacher training institutes.
- Provide in-service training and distance learning tools for working teachers.

Disaster risk reduction content can be infused into all natural science courses, namely: geography, social studies, physical health and safety education, literature and language arts, civics and even mathematics. Additionally, in most countries general education on natural hazards can be found somewhere in the science or geography curriculum, this may be an effective starting place to begin to familiarize children with the hazards and risks affecting their own communities, and care must be taken that this is not one time content, but rather that it be built upon systematically throughout the school year as motivated by BRI and GRIPS (2007) in UNISDR (2008:27).

2.5.1 Disaster prevention and preparedness through the formal curriculum

In Bogota, Columbia, the educational Secretariat reviewed and redesigned the curriculum guide on risk and disasters according to national standards, providing both theoretical and practical pedagogic guidance. Four basic steps cover natural phenomena (event knowledge), identification of the human actions that convert hazards to risks and the necessity for avoidance, reduction and mitigation, self-protection and response preparedness. More than 1 000 teachers have been trained in the curriculum and in implementation of school risk management plans. A complementary communication campaign aimed at all school children, use of posters, video clips, risk calendar, stories and games to support teachers in their cultural work on the topic. Tens of thousands of children are engaged in complementary project activities Coca (2007) cited in UNISDR (2008:28).

2.5.1.1 Teaching disaster preparedness in Geographic Education

According to the committee on the Support for Thinking Spatial reported by Furmann *et al.* (2008:113), disaster preparedness requires not only organizational skill, but also spatial thinking and decision-making abilities. These scholars pointed out that an essential goal of the lesson plans for disaster preparedness is to enable school children to learn about spatial concepts they have to utilize when facing a disaster situation. This teaching of spatial thinking and spatial literacy to school children is an essential component in domestic disaster preparedness.

Preparing and reacting to a disaster therefore combine these different forms of thinking and existing knowledge skill. Since it is given that in future, natural and human-made disasters will occur, it is therefore important that we must educate our students about how to prepare for, react to, and cope with disasters.

The National Geography Standards built a good foundation for teaching disaster preparedness taking physical and human spatial perspective into account. An appropriate example is shown when a young student remembered a geography lesson about tsunamis reported in Furmann *et al.* (2008:117).

She noticed the receding water as a telltale sign of an imminent tsunami and warned her family; Tilly said she'd just studied an earthquake under the sea. She got more and more hysterical. In the end she was screaming at us to get off the beach

2.5.1.2 Teaching disaster preparedness education in elementary schools

Furmann *et al.* (2008: 117) maintain that the purpose of the lesson is to introduce students to the concept of an emergency, the need for emergency supply kits, basic map design elements and also explore the ways in which human activities alter the physical environment. Students are introduced to two common response strategies for chemical release emergencies, shelter in place and evacuation. The exercise is intended to help children learn what items should be in an emergency supply kit for shelter-in place situations. They are also taught how to draw a map of their home, incorporating important "land marks" such as first aid supplies, food and communications tool locations.

2.5.1.3 Teaching disaster preparedness education in Middle schools

According to Furmann *et al.* (2008:117) Students are introduced to the USGS Natural Hazards to understand weather and flooding patterns. Students utilize map aerial photographs and other images to create a map with historical rainfall, contour lines and potential areas of flooding. Furthermore in such a lesson students analyze ways in which humans could respond to hazardous flooding conditions and synthesize that information to a plan for emergency preparedness.

In addition Petal (2007) cited in Gaillard and Pangilinan (2010:178) maintain that tools have been developed specifically for educating and involving youth in disaster risk reduction. Participatory mapping is one of the major activities carried out as a part of disaster risk reduction, for raising disaster risk awareness among the youth and further enable them to integrate scientific knowledge provided to pupils and students by teachers or visiting scientists. Participatory mapping usually enables people to delineate areas that are perceived as prone to hazards and vulnerable to disasters.

2.5.2 Co-curricular education in disaster prevention and preparedness

Co-curricular activities must include basic disaster awareness and disaster risk reduction, mock drills, first aid training, training on fire safety and other response skills as appropriate, for example light search and rescue, swimming, evacuation and emergency shelter creation as reported by Ahmedabad Action Agenda for School Safety (2007:2).

According to UNISDR (2008), such kind of education often provides the opportunity to introduce and to reinforce important and consistent lessons, for example disaster drills of several kinds depending on the hazard faced. The skills to respond to drills are taught ahead of time during school assembly and in the classroom. International Day for Disaster Reduction which is held every year in October for the remembrance of major national disasters can be annual School Safety Day. It can become an event for the whole school community and create space for a wide range of awareness activities.

Cultural arts, whether music, song, poetry, dance, puppetry, magic, street theatre, improvisation, pantomime or art work are appealing, engaging and creative ways to introduce this important subject area. They also stated that Sports Day activities are an excellent time for drills and demonstrations, as well as for games that introduce cooperative response skills (e.g. fire extinguisher target practice, injury transport relays and knowledge games). Dissemination of writing materials, use of posters and signage, displays and artworks are more subtle, but important ways to share disaster risk reduction message. Assemblies can be used to offer the opportunity to all children through announcements, story-telling, learning rhymes or songs, videos, practising drills, providing home materials and hosting quest speakers including survivors of disasters who can provide lessons, fire department educators, Red Cross/Red

Crescent society representatives, local non-government programme staff or volunteers and civil protection staff as indicated in UNISDR report (2008:29).

2.5.3 Informal education

Petal and Izadkhah (2008) find that informal education can and should be the rapid entry point for disaster risk reduction education. This can take many forms, offering fun and engaging ways to introduce important knowledge, skills and competencies for students of all ages.

2.5.3.1 Disaster prevention and preparedness through extra-curricular education

Extra-curricular integration is a compromise where needed content is slipped into the school day. A school competition enables students to demonstrate their knowledge on disaster risk reduction through art, music and drama. This best practice was selected for replication in two other provinces. According to UNISDR (2008:31) and UNICEF (2009:147), multi-stakeholder cooperation and local media interest support children in reaching the entire community.

To add to that, the Disaster Management Guide Pack for primary schools is a proud initiative of the Disaster Management Centre of the City of Tshwane Metropolitan Municipality (CTMM). The project serves as part of National Curriculum Statements, and its content forms part of the social sciences and environmental management sciences learning areas for Grade 5, 6 and 7. The guide pack consists of text book, poster, disaster management songs for learners to sing, a video that learners can watch and a board game that learners can play with as reported by NDMC (2006:137). The discussion below presents how global/international agreements, conferences and workshops view disaster preparedness education on learners.

2.6 Global/international agreements

The focus of the discussions are on educating, teaching and preparing of learners considering global agreements, affirmations, and recommendations made during a particular workshop or conference held. The discussions that follow below, relate to possible international agreements concerning the teaching of learners about disasters.

2.6.1 The 1990 World Declaration on education for all

In 1990, at a global meeting in Jomtien, Thailand, the world committed to ensure basic education for all. Through Dakar Framework of Action, a call for active commitment to remove disparities in access for under-served groups, notably girls, working children, refugees, those displaced by war and disaster and children with disabilities was made by UNICEF (2009:14).

According to UNICEF (2009:16), wars and natural disasters deny generations the knowledge and opportunities that education can provide. Education protects the well-being, fosters learning opportunities, and nurtures the overall development (social, emotional, cognitive and physical) of people affected by conflicts and disasters.

According to UNICEF (2009:13), education is a right and all children have an absolute right to basic education. Education can play a fundamental role in protection where vulnerable children may be seen as fallen victim to unexpected natural disasters, and where many have directly witnessed violence or destruction, they often face continued threats to their security or fear of repeated disaster.

2.6.2 World Conference on Natural Disaster Reduction 1994

At the world conference the Yokohama Strategy and Plan of Action for a Safer, World, Japan was formulated in May 1994. These international agreements outline pledges made by the international community in a quest to achieve effective disaster management. The Yokohama Conference of 1994 provided an opportunity for countries to focus on disaster risk-reduction. ISDR (2002:18) report identified the following principles, strategy and plan of action:

- Principle 2. Disaster prevention and preparedness are of primary importance in reducing the need for disaster relief.
- Principle 3. Disaster prevention and preparedness should be considered integral aspects of development policy and planning at national, regional, bilateral, multilateral and international levels.
- Principle 7. Vulnerability can be reduced by the application of proper design and patterns of development focused on target groups by appropriate education and training of the whole community.

2.6.3 The 2000 World Disaster Reduction Campaign

The campaign focused on disaster reduction, education and youth. The goal of the World Disaster Reduction campaign was to promote disaster prevention measures in communities at risk, and raise awareness among all relevant stakeholders around the world. The campaign also sought to continue building a culture of prevention, through education channels, so that the youth of today can play an active role in reducing the impact of disasters in the future. According to the United Nations, young people can learn more easily than adults, and they are a key resource in mobilizing their communities.

The objectives of the campaign include promoting a stronger commitment to incorporate disaster reduction in education curricula. Promote greater participation of youth in disaster reduction activities focusing on today's youth as they are essential resources for community mobilization. In order to take advantage of the energetic force, a call has been made to get them to work alongside adults in community efforts while adults also play a role in encouraging youth participation.

2.6.4 The Millennium Declaration of September 2000

Eight Millennium Development Goals (MDGs) were agreed upon by world leaders in the Millennium Declaration of September 2000 to be achieved by 2015. The focus of MDG 2 could be underscored as aiming to achieve universal primary education that encourages the teaching of disaster risk reduction in all primary schools as part of the national curriculum, so that children and teachers can protect themselves from natural hazards by knowing exactly what to do. Moreover children can take the lead in educating families and communities about disaster risks that they live with as reported in ISDR (2010:18).

2.6.5 United Nations Decade of Education for Sustainable Development 2005-2014

In December 2002, the United Nations General Assembly through its resolution 57/254, declared a Decade for Sustainable Development (2005-2014). Throughout the decade, the resolution encouraged education for sustainable development to enable citizens to face the

challenges of the present and future and leaders to make relevant decisions for a viable world as reported by UN DESD (2005:s.p.).The Decade resolution focused on:

- Promoting and improving quality education.
- Reorienting educational programmes.
- Building public understanding and awareness.
- Providing practical training.

2.6.6 World Conference on Disaster Reduction 2005

The World Conference on Disaster Reduction was held from 18-22 January 2005 in Kobe, Hyogo, Japan. The Hyogo Framework for Action 2005-2015 was formulated. A review of the objectives of Priority 3, 'Use of knowledge, innovation and education to build a culture of safety and resilience at all levels', shows that item 18 states that disaster can be substantially reduced if people are well informed and motivated towards a culture of disaster prevention and resilience. This in turn requires the collection, compilation and dissemination of relevant knowledge and information on hazards vulnerabilities and capacities as indicated by ISDR (2005:9). The following priorities for action were considered in education and training:

- Promote the inclusion of disaster reduction knowledge in relevant sections of school curricula at all levels and use of other formal and informal channels to reach youth and children with information; promote the integration of disaster risk reduction as an intrinsic element of United Nations Decade of Education for Sustainable Development (2005-2015).
- Promote the implementation of programmes and activities in schools for learning how to minimize the effects of hazards.

According to ActionAid Participatory Vulnerability Analysis (PVA) means a tool for building awareness and understanding on why disasters occur and how they can be reduced. It is undertaken by vulnerable communities themselves, together with local leaders and government officials. The process involves a joint analysis of hazards and their aggravating factors, highlighting community strengths and discussing potential solutions for reducing risks. This shared analysis helps assign roles and responsibilities to different actors so that in the event of

a disaster, communities can hold these actors to account. Disaster Risk Reduction project activities therefore include:

- Engaging children, teachers, parents, school management, local authorities and other key actors in PVA techniques.
- Raising the awareness of children and their communities on climate change and disaster prevention and mitigation.
- Helping vulnerable children and their communities to claim their rights that will allow them to live in safer conditions.

2.6.7 Ahmedabad Action Agenda for School Safety 2006

The International Conference on School Safety held in January 2006 in Ahmadabad, Gujarat India reaffirmed both the HFA priority for Action 3, “Use knowledge, innovation and education to build a culture of safety and resilience at all levels” and the UN Millennium Development Goal 2 to “Achieve universal primary education” by year 2015. Recognizing that every child has both the right to education and the right to safe and sustainable living set the goal to achieve “Zero mortality of the year 2015”. Therefore the Ahmedabad Action Agenda for School Safety (2007), UNICEF (2009:146) and UNISDR (2008:53) presents Ahmedabad Action Agenda for school safety which covers:

- Top priorities of Disaster Reduction Education in schools are to:
 - a) Include disaster risk reduction in the formal curriculum at both primary as well as secondary school levels.
 - b) Promote disaster risk reduction through co-curricular activities in school acknowledging that children in schools need to develop “Survival/life skills” first, along with academic inputs, and by 2015 aims to: promote exclusive initiatives among children in schools that make them leaders in risk reduction in the community, and ensure effective partnership among schools to share risk reduction education and achieve higher levels of school safety.

- The top priorities of Safe School and Community Environment are to:
 - a) Mobilize parent, student, local community and school staff to champion school safety.
 - b) By 2015, schools to prepare and implement school safety plans including measures to be taken both within school premises and in the immediate neighbourhood. This must include regular safety drills.
 - c) Promote active dialogue and exchange between schools and local leaders including police, civil defence, fire safety, search and rescue, medical and other emergency service providers.
 - d) School children must practise safety measures in all aspects and places of their lives.

2.6.9.1 Stakeholders' roles and responsibilities

To implement the priority actions outlined above, every parent, school principal, teacher, child, government, policy maker, pedagogic/scientific/technical expert, non-governmental organisation, intergovernmental organization, private sector, mass media should consider themselves to be stakeholders, a “champion of school safety” bearing the responsibilities presented by Ahmedabad Action Agenda for School Safety (2007:5). School community/school administrators and teachers should:

- a) Ensure teacher and non-teaching staff receives the opportunity for training in disaster risk reduction.
- b) Ensure active participation of school community including children and parents, in preparing and implementing school disaster plans and disaster risk reduction efforts.
- c) Be prepared to respond to emergencies.
- d) Encourage and support children to participate in spreading disaster risk reduction knowledge, acting as bridges to families and communities.

Children and youth should:

- a) Learn principles and practices of disaster risk reduction.
- b) Become aware of disaster risks in their own community and how to reduce them.
- c) Participate in preparing and implementing school disaster plans and risk reduction efforts.

- d) Participate in drills and appropriate response to early warning available in their school or community.
- e) Participate as bridges to spread disaster risk reduction knowledge to families and communities.

2.6.8 Workshop Geneva 2007

The workshop in Geneva was facilitated by the ISDR Thematic Platform for Knowledge and Education from 5-7 June 2007. The focus was on Priority 3 of the Hyogo Framework which covered:

- Development and sharing of content and strategies for teaching disaster risk reduction to children, in and out of school.
- Physical safety of schools facilities and school disaster management.

International Conferences and regional gathering of experts in education and risk management have provided advocates with important opportunities for collaboration. Advocates are advancing the goal of “Zero mortality of children in schools from preventable disasters by the year 2015”, as recorded by ISDR (2007:28).

2.6.9 Asia Pacific Regional Workshop 2007

The Asia Pacific Regional Workshop on School Education and Disaster Risk Reduction was held in Bangkok, Thailand from 8-10 October 2007. Recommendations that emerged during the workshop included the following priority areas for action:

- Integrating Disaster Risk Reduction into School Education entails to:
 - a) Continue to work towards the inclusion and mainstreaming of disaster risk reduction into school curricula and into pre-service teacher education.
 - b) Encourage education departments to develop a concrete policy in support of the efforts of the curriculum divisions to integrate disaster risk reduction into school curricula and to enhance teachers’ know-how and skills in delivering effectively the disaster risk reduction concepts.

- Empowering children for disaster risk reduction entails:
 - a) To develop child-led disaster risk reduction and response cadres in and out of school at the community level, including from individual homes, as part of child care safety and protection learning.
 - b) To train teachers, implementers to foster child-to-child learning strategies to ensure sustainability of the programmes.

The discussion below presents literature related to learner and educator knowledge about disaster education across the countries through the process of international frameworks and in global perspective.

2.7 The role of education and knowledge in disaster risk reduction

The aim of education for Disaster Risk Reduction is to build the human capacities to understand the most likely risks, likelihood of disasters and their potential consequences. According to UNDESD (2005:10), vulnerable communities should be duly empowered with valuable knowledge, education and skills, to take well-informed decisions and actions at times of emergencies.

Ozmen (2006:384) also states that during the past decade, UN campaigns emphasized the topics such as disaster prevention in schools and hospitals, vulnerable communities, women and children-active participants in disaster prevention, cities at risk, too much water, prevention begins with information, and disaster prevention-education and youth.

According to UNISDR (2007:31), disaster risk reduction education can only be accomplished across public, private, civil sector boundaries engaging family, home, school principals and teachers, government bureaucrats and politicians, civil society leaders and local community activists ministries and boards of education, disaster management authorities, Red Cross and Red Crescent national societies, dedicated disaster risk reduction champions, international and local NGOs, businesses large and small, opinion leaders and mass media producers.

According to UNISDR (2007:31), a core priority in disaster risk reduction is to establish a worldwide culture of safety, partnering with school systems and communities to educate children to think critically and analytically, to draw upon old wisdom, to seek current scientific and technical knowledge, to assess both vulnerabilities and capacities, to problem-solve and to be proactive to reduce disaster risks.

According to UNISDR (2006:4), the purpose of the review of the Role of Education and Knowledge in Disaster Risk Reduction, is to examine good practices to reduce disaster risk through education, knowledge and innovation including efforts to protect schools from extreme natural events. Below is the background and basics for two innovative on disaster risk reduction and school, and those are:

2.7.1 Goals of disaster education

According to the United Nations (2007) in FEMA (2010:9) France, disaster education has four main goals which include:

- Teaching students preventive and protective measures against major risks in a daily life context.
- Informing students of different types of rescue services.
- Teaching students basic survival steps while waiting for organized rescue.
- Encouraging students to develop civic-minded behaviour and sense of individual and collective responsibility.

There were instances where children used the knowledge they obtained from an educational programme to help save lives. As discussed in the previous section, in 2004, ten year-old Tilly Smith convinced her parents to reach higher grounds when she noticed that the waters in Thailand looked similar to the tsunami waters she learned about in geography class (Owen, 2005) in FEMA (2010:10). UN DESD (2005:6) also discussed the story by stating that the power of knowledge in saving lives was illustrated on multiple occasions over the past decade. The discussion below presents literature review related to disaster preparedness education.

2.7.2 Disaster preparedness education for learners

According to Domesian, an officer at the United Nations International Decade for Natural Disaster Reduction (UN-IDNDR) cited in Ozmen (2006:384):

To get people think in a preventing way, and to see the links between disasters, development and environment, one needs a mind-set that is best developed at an early age. A culture of prevention is something that forms over time. Cultural approaches and paradigms must be taught early and in schools to have real success.

The United Nation Convention on the Rights of the child (1990), states that, “Every child has both the inherent right to life and the right to education. Known, expected and recurring hydro-meteorological and geophysical hazards threaten both of these rights”.

UNICEF (2005:2) further points out that a child’s right to survival, protection, clean water and sanitation, food, health and education are all affected when disasters happen. UNISDR (2008:2) maintain that as the global commitment to the Millennium Development Goal is avidly pursued, including achievement of universal primary “Education for All” by 2015, deliberate proactive steps are needed to ensuring that every school is safe, and that children’s education includes the knowledge they need to keep themselves and future generations safe.

According to FEMA (2005:s.p) teaching students to take immediate positive action can help them and those around them come through the disaster safely. The promotion of knowledge, attitude and skills of teachers will not only help students academically, but may one day save their lives. According to Ozmen (2006:392) recommendations, school should be the place where the students can really gain the awareness and knowledge of protecting themselves and others from disasters. Shaw and Shiwaku (2007:581) maintain that self-education underscores that students learn or study disaster or disaster management by themselves through books, TV, or various media or materials. School education consists of education of each learner and talking about disaster management with teachers or friends in class hours.

Shaw and Shiwaku (2007:585) state that the role of disaster education is to provide knowledge and information to students and promote measures. To achieve this, students should be encouraged to know disaster risk reduction, collect information related to pre-disaster mitigation,

and implement it. School disaster education should largely change. To raise risk awareness, more applicable information should be transferred to students and teachers should give students time to think about disaster risk reduction by themselves as well as give information through lectures. Community or student's family should be involved in school disaster education and students should take measures with them or do activities with them.

The Federal Emergency Management Agency (FEMA, 2010) commissioned a review of the literature to emergency preparedness education for youth, and a number of themes emerged focusing on individual youth, school and community levels. Here follows the discussion of the themes:

The first theme focuses on preparedness education at individual/youth level and is explained as follows:

(a) Children play a special role in disaster preparedness

It is important to develop programmes that target the youth and cater to their specific needs while delineating what role they will play in disaster preparedness (FEMA, 2010:5). According to Ronan *et al.* (2008) and Wisner *et al.*, (2006) in FEMA (2010:5) programmes can offer child-friendly activities in their homes, schools and communities that can both educate children on preparedness measures, and help mitigate disasters from occurring. In turn, children can then play a special role in communicating preparedness information to their friends and family members, as children are seen as trusted sources of information as well as good messengers.

(b) Children's unique vulnerability to disasters can cause adverse effects if exposed.

According to Wisner *et al.* (2004) in FEMA (2010:6), children comprise a special population known as "vulnerable groups" and are more prone to damage, loss, suffering, injury and death in the event of a disaster. Peek (2008) in FEMA (2010:6) identified three types of vulnerability that children in particular experience during disasters:

- Psychological vulnerability: a serious traumatic event such as a natural or man-made disaster can greatly impact the mental health of children, and most studies focus on post-traumatic stress disorder (PTSD) or similar conditions.
- Physical vulnerability: a study by Zahran, Peek and Brody (2008), find that different types of disasters affect the physical vulnerability of different age groups.
- Educational vulnerability: destruction caused by a disaster can negatively impact children's academic performance, as it causes children to miss school and delay their progress.

The second theme focuses on preparedness education at school level, and has the following attributes:

- (a) Schools are an ideal place for children to learn disaster preparedness skills.

Since attending school is mandated for every child in most countries, it is the ideal place to implement effective disaster preparedness programmes. According to Slovic *et al.* (1981) in FEMA (2010:8) most children can be seen as malleable and easily shaped and moulded. Ronan and Johnston (2005) also cited in FEMA (2010:8) believe that if children can be given the proper preparedness skills, they can develop those skills, and carry them into their adulthood. They further state that since children spend so much time in school for the majority of their young lives, schools may be seen as the ideal setting for the dissemination of risk-based educational programmes.

A study conducted by Furhrmann *et al.* (2008) in FEMA (2010:8) find that schools must optimize the National Science Education Standards (introduce students to natural and human-induced hazards) by incorporating disaster preparedness information into their lesson plans. In their findings they also argue that disaster preparedness education can be covered in almost any class, whether it is geography, history, economics, civics, social studies, language, arts, mathematics, science, physical education, health or technology. Ronan and Johnston (2001b) in FEMA find that children who have been involved in two or more educational programmes focusing on disaster preparedness and hazard education are significantly more knowledgeable than children who have been involved in only one programme.

Ronan and Johnston (2001:1056) maintain that children who demonstrate more knowledge and less fear have been exposed to hazards in school-based hazard education programmes. They also state that the more children are involved in two or more hazard education programmes, the more knowledge they demonstrate.

Ronan *et al.* (2001) point out that risk perception study of students is important while Shaw *et al.* (2004:41) support the notion of determining how students perceive risks in their daily lives. Ronan and Johnston (2003:11) state that when educating children about natural and other hazards, it may be important to include information that help a child understand what he or she can do relatively independently to be prepared physically and emotionally. Ronan and Johnston (2001:1056; 2003:1011) argue that the more a child is educated concerning hazards and the realistic associated risks, the more potential there is for parents to become better educated through the child sharing this newly learned information at home.

Gustafson (2009) cited in FEMA (2010:11) points out that by incorporating preparedness education on school curriculums; children may see preparedness as a societal value rather than *ad hoc* exercise.

FEMA (2010:11) maintains that South Africa hosts school competitions on the International Day for Disaster Reduction where children demonstrate their knowledge on disaster risk reduction through drama, art and music.

- (b) Educational programmes should encourage interaction between parents and children.

Preparedness measures, such as creating a disaster plan or preparing a disaster kit, are seen as strategies that help to reduce the negative effect of a disaster. According to FEMA (2010:12) a study conducted by Ronan and Johnston (2001b) found that encouraging children to talk with parents about what they had learned significantly correlated with home-based adjustments to those preparedness measures. Instead of just having children go home and discuss what they have learned, it may be more useful to have children bring to their homes specific, selective information about how to prepare for a disaster. Furthermore Ronan (1997) points out that sharing newly learned information with adults will promote readiness, response and recovery.

Gustafson (2009) cited in FEMA (2010) gives an example of Australia's Families Preparing together curriculums, where students create a family evacuation plan to be displayed around the classroom and then later taken home to be shared with family members. Shaw *et al.* (2004:39) maintain that in school education, more experience, and visual aids are found to be more effective ways of disaster education through conversation. Shaw *et al.* (2004) also state that it is believed that school education, coupled with self, family and community education can help a student to develop a culture of disaster preparedness which in turn, will urge them to take right decisions and actions as adults.

According to Fennis and Johnston (2010:175), students who have participated in hazard education programmes are more likely to have better knowledge of safety behaviours and higher household preparedness. In their overall findings, hazard education was found to be beneficial resulting in more resilient children and communities. Additionally, Ronan and Johnston (2005:52) found that educated groups of young people reported more interaction with parents compared to the youth not involved. The educated youth had a much higher level of factual knowledge about mitigation and emergency response, being involved in more than one education programme was seen to have significant benefit: hazards knowledge overall increased by a factor two for those involved in two or more programmes compared to those involved in only one programme.

The third preparedness education programme targets community level and has the following attributes:

Community involvement should be encouraged and supported in providing disaster preparedness education. Newport and Jawahar (2003:33) argue that disaster preparedness will not be effective without the participation of the vulnerable communities. They further state that to make community participation more practical, there has to be a need for a concentrated effort in education, trainings and awareness development within the vulnerable groups as well as with related departments and the general public.

Study conducted by Shaw *et al.* (2004) cited in Shaw and Shiwaku (2007:577) found out that community played an important role in students' awareness and action. Hence local community must be involved in disaster education in school. Their findings showed that

current school disaster education based on lectures could raise risk perception but could not enable students to know the importance of pre-disaster measures and to take actual action for disaster reduction. Community played the essential role for promoting students' actual actions for disaster reduction. Future disaster education in school should be active learning for students. Continuous community involvement was the most important factor for school disaster education.

Local communities play a major role in terms of providing support, encouraging participation in training and education programmes, and raising overall awareness of proper preparedness protocol and procedures. Participation of communities in developing a disaster preparedness and mitigation system can be helpful in determining a community's resources, capabilities, coping mechanisms and facilities as reported by Newport and Jawahar (2003) in FEMA (2010:13). It is therefore important that whole communities become involved in terms of preparing citizens for potential disasters, and creating a sense of security among all individuals, including children.

In Jamaica, for example the Office of Disaster Preparedness and Emergency Management (ODPEM) partnered with local schools along with other agencies such as the Jamaica Red Cross and the Earthquake Unit to create educational programmes that are dynamic and engaging to students as reported by Morris and Edwards (2008) in FEMA (2010:13). Another example is a survey of primary school educators on burn risk and fire safety education found that a holistic approach is important for that particular topic. Combining safety messages from emergency service personnel (e.g. medical staff, fire fighters and police) and community groups such as parent-teacher organisations, burn survivor organisations and after school programmes would provide the most effective and comprehensive approach to relaying burn and fire safety (Franklin *et al.*, 2002 in FEMA, 2010:13).

The ActionAid school project "Disaster Risk Reduction through Schools 2006" is underway in seven countries (Ghana, Kenya, Malawi, Haiti, Bangladesh, India and Nepal), to promote disaster risk reduction through innovative community action. According to UN ISDR (2006:20), ActionAid project will:

- Use the schools for mobilization.

- Rehabilitate the schools affected by floods and make them safe for use as a refuge in cases of subsequent disasters.
- Teach children disaster risk reduction skills, which in the long run ensure adequate knowledge of how to reduce risks for future generations.
- Involve school children in disaster risk reduction initiatives as school project such as tree planting, water harvesting, drip irrigation and role playing in disaster response.
- Extend capacity building with participatory vulnerability assessment methods to the communities around the schools.
- Lobby at policy level for the inclusion of disaster risk reduction skills in the curriculum as a life skill subject.

According to ActionAid five year Disaster Risk Reduction through school project is now operational in seven countries mentioned above. Like in the Disaster Management Continuum of pre-disaster phase level, Disaster Risk Reduction is based on three core areas:

- Prevention, for example planting trees on hillsides to avoid landslides.
- Mitigation, for example building river embankments and raising plinths to reduce the risk of flooding.
- Preparedness, for example early warning, evacuation plans and first aid training for community volunteers.

The three overarching aims of the ActionAid project are:

- To support the implementation of the Hyogo Framework for Action through innovative, grassroots DRR programmes.
- Build local communities' capacity to act on their own behalf and secure their basic rights, using participatory vulnerability Analysis (PVA).
- Advocate for governments to uphold their responsibilities to protect their populations.

According to ActionAid, Participatory Vulnerability Analysis (PVA) is a tool for building awareness and understanding of why disasters occur, and how they can be reduced. It is undertaken by vulnerable communities themselves, together with local leaders and government officials. The process involves a joint analysis of hazards and their aggravating factors, highlighting community strengths and discussing potential solutions for reducing risks. This

shared analysis helps assign roles and responsibilities to different actors so that in the event of a disaster, communities can hold these actors to account. Disaster Risk Reduction project activities therefore are geared for:

- Engaging children, teachers, parents, school management, local authorities and other key actors in PVA techniques.
- Investing in school infrastructure to make buildings and surrounding areas safer.
- Using schools as centres for community action training and coordination on DRR.
- Raising the awareness of children and their communities on climate change and disaster prevention and mitigation.
- Helping vulnerable children and their communities to claim their rights that will allow them to live in safer conditions.
- Campaigning for the implementation of the Hyogo Framework for Action by all signatory governments.

Additionally, ActionAid has been a leading international advocate of involving schools, education ministries and children themselves in reducing the risk of disaster. It commissioned a review of the role of education and knowledge in DRR entitled “Let our children teach us”. Countries that commissioned a review of the role of education include Malawi, Nepal, Bangladesh, Haiti and India, and their brief report is discussed below.

In Malawi the formation of a local risk Management Committee in Nsanje, one of the project’s implementation areas, has engaged local communities in recognizing the importance of disaster preparedness, and taking concrete actions to reduce their vulnerabilities to the hazards that threaten them. The school teacher and head of the Student Nsanje Risk Management (NRM) club said, “I am going to share what I have learnt on disaster preparedness and management with pupils, teachers and communities so that we are all aware. I will also make sure that in our school we work together on issues of environmental management so that floods are banished to history” (ActionAid s.a:3).

In 2006, disaster management committees in three districts of Nepal drew up comprehensive disaster preparedness plans, based on the findings of PVAs. Students from Chiriyamai Secondary School in Makawanpur singled out PVAs and vulnerability mapping as the most exciting skill they had gained through this process, “We now analyze our surroundings and the

vulnerability of our forest, rivers and schools”, students are now helping to clean school compounds and protect river banks through actions such as planting bamboo. Drama proved to be the most effective means of raising awareness of hazards and preparedness in schools and communities. Children and other community members have been trained in how to develop dramas on earthquakes, floods, fire and sanitation (ActionAid s.a:4).

In Bangladesh, ActionAid is working with local teachers and partner organization South Asia partnership to help children understand how to keep themselves safe in a cyclone. When cyclone Sidr hit Bangladesh in 2007 Lamia Akter, a seven year-old student from one of ActionAid’s project sites, helped save the lives of her family and many others by passing on a cyclone warning alert she had received at school, to villagers in her community of char Bangla.

As soon as our teacher announced in class that there would be a cyclone and released us early” she explains, “my five friends and I returned to our village and went from door to door, telling people to store their valuables and go to the cyclone shelter.

In Haiti, there is a progress towards changing social economic and environmental conditions and utilization at community level to reduce underlying risk factors. In August 2008, local children in Thiotte one of the DRRs programmes operational areas, took part in a “Risk Reduction Day where they planted trees to help reduce the risk of mud/landslides during almost annual flood episodes.

In India, individuals and communities are well prepared, ready to act, equipped and resourced with the knowledge and capacities for effective disaster response and recovery. Local children from a number of schools have formed School Disaster Management Committees. They have learned how to make boats out of wooden desks and tarpaulins that can carry three to four people to a safe location. According to ActionAid (s.a:5), in their own words, learners stated that, “DRR has taught us how to live through disasters and has given us new hope”.

It is also important to note that children can become involved in communities in terms of preparedness, education and recovery. Children can become more involved in their communities in terms of facilitating discussions surrounding disaster preparedness measures. Lauten (2002) in FEMA (2010:14) maintains that by being actively involved, these children not only increase their awareness of this particular hazard, but they were also able to openly discuss how to adequately protect their families and loved ones and what to do, to seek help

should their community be directly affected. Children are also capable of teaching others in the community what they have learned. For example in Gujarat, India 84 groups of children from various villages were trained in search-and-rescue activities, risk communication and psychological care (Nkku *et al.*, 2006) in FEMA (2010:14). After they had completed their training, the children met with other children within their villages to share what they had learned.

The UNISDR worldwide awareness campaign, “Disaster Risk Reduction Begins at School” in 2006, “Let the Children Teach Us” (UNISDR, 2006), states that children are important catalysts for carrying public health and safety messages home to families. Linking schools and community-based education helps to foster self-efficacy, action-oriented coping and strengthens the community networks needed for resilience and survival. These links will therefore assure the sustainability of school safety efforts. Furthermore, school-based initiatives can engage and provoke local government, according to Schick (2007) in UNISDR (2008:40). For example Iran’s national school earthquake drills are preceded by radio, television and news coverage reaching virtually every household. As a result of their commitment to children, school communities are uniquely positioned to adapt a leadership role in determining their own futures as reported by ActionAid (2007) in UNISDR (2008:40).

According to UNICEF (2010:9), literature in a recent UNICEF study commissioned with the children in a changing climate consortium, found that children could make a number of positive contributions to disaster risk reduction, including:

- As analyzers of risks and risk-reduction activities.
- As designers and implementers of DRR interventions in their community.
- As communicators of risks and risk-management options (especially communications to parents, adults or those outside the community.
- As mobilizes of resources and action for community based resilience.

Cleveraux (2010:205) maintains that irrespective of location or dominance of ethnicity, school curricula tend to be universal throughout a jurisdiction, the promotion of disaster awareness within schools. Curricula also provide the opportunity for the transfer of risk information to migrant parents via their children. Cleveraux (2010) further states that disaster managers in multicultural societies must tailor information to the needs of all people irrespective of language or ethnicity. Children from multicultural societies should be made aware of disasters by use of

the Disaster Awareness Game (DAG) designed to evaluate and promote disaster awareness. The DAG is therefore a tool and measure of disaster awareness among children in multicultural environments as means of informing interventions for disaster education; use children as conduits for the education of adults about disaster management issues that are relevant to their environment.

2.7.3 Environmental education

Children may be particularly vulnerable to certain environmental hazards (Environmental Health, 1999; Landigran *et al.*, 1998; Children's Health Protection, 1998) cited in Zint (2001:418). Environmental risk education can therefore provide students with knowledge, skills and opportunities to practise participating in public environmental risk management decisions. Furthermore, it can empower the youth to make decisions such that their own and others' human and environmental health risks are minimized. According to United Nations High Commissioner for Human Rights) (1989) cited in Zint (2001:418), argues that society has a duty to prepare the youth for environmental risk decisions so that they have greater control of their future and their communities

To add to that, Twig (2004:180) points out that education, health, safety, hazards and environmental issues are standard in many countries, incorporated to a greater or lesser extent into the formal curriculum with the aim of increasing children's understanding of risk, and teaching them how to prepare for hazardous events and react when one occurs. Twig (2004:180) also maintains that schools also arrange educational visits to or by local emergency services. Local NGOs working on disaster reduction can probably be more active in offering to visit schools, talk to pupils and support school preparedness initiatives. Furthermore, the potential value of the school-based approach is obvious, and can reach large numbers of people who are already gathered to learn, and are essentially teachable. In that regard children are believed to be more receptive to new ideas than adults, and it is also believed that they influence their peers and their parents.

In Thailand, for example local partners innovated with a "Child-Led Disaster Risk Reduction in Thailand", supported by save the children Sweden, a child-focused NGO. Youth trainers reached hundreds of children in dozens of schools to be catalysts taking the lead in DRR activities. Children took community trips, conducted risk and resource mapping, and developed a disaster risk reduction education campaign (UNISDR, 2008:40).

2.7.4 Climate change education

According to Anderson (2010:9), the education sector offers an opportunity to combat climate change through contributing to mitigation efforts, and enhancing the adaptive capacity of education systems and learners, thereby reducing vulnerabilities and building resilient societies.

Anderson (2010:10) states that teaching and learning can integrate environmental stewardship, which encompasses environmental education, climate change and scientific literacy, as well as disaster risk reduction and preparedness through formal, co-curricular and informal curricula. For example children in the Philippines, learned about climate change adaptation, and how to reduce their vulnerability to disaster through education and training in early warning systems. This includes education on rain gauges, disaster simulation and drills as well as carrying out risk mapping and learning first aid, swimming and water safety. Furthermore in 2006, after three days of continuous rain in Liloan and San Francisco village, children and adults used the knowledge they gained from adaptation focused risk reduction contingency planning and evaluation procedures to evacuate before landslides covered their homes.

2.8 Teacher training and capacity development, educational training materials and school preparedness plans

2.8.1 Teacher training and capacity development

According to UNICEF (2009) all governments should commit to teacher training and curriculum development to support large-scale teaching of disaster risk reduction. According to UNICEF (2009:7), teacher training approaches include:

- Pre-service: formal teacher training through institutes, training colleges and others; uses face-to-face lectures and activities, and usually leads to certification of teachers.
- In-service: teachers taught for a short period of time or on weekends, after school or in vacation time; and process repeated for a series of workshops or face-to-face training.

Ozmen (2006:383) maintains that by training people, the rate of losses and damages caused by disasters may be lessened, and even in some cases may be entirely prevented. A foundation in

disaster risk reduction knowledge is a necessity for those training for professions. A long-term and sustainable capacity-building for disaster-resilient education and safe schools relies upon embedding these competencies in higher education programmes for teacher training. Partnerships with pedagogic institutes will be vital to the success of these efforts (UNISDR, 2008:28).

According to Ozmen (2006:392) in his findings, there should be nationwide training programmes at schools for principals, teachers, students, and families. These programmes should be generated, implemented, evaluated and continuously renewed and improved. Especially the school principals, who are the first line of engagement for the realization of effective instruction and management of the schools, should be trained for gaining leadership qualities to deal effectively and adequately with the issues on disaster mitigation, preparedness and management. Below are three complementary approaches all important for long-term sustainability and mainstreaming of disaster prevention education:

- Partnerships with teacher-training institutions and support for faculty-training and seeding.
- Development of distance-learning self-study tools to support widest low-cost dissemination of education.
- Development of in-service and continuing education curricula for training existing pool of teachers.

The Capacity for Disaster Reduction Initiatives (CADRI), a joint programme of the United Nations Development Programme's Bureau for Crisis Prevention and Recovery (UNDP/BCPR), the United Nations Office for the Coordination of Humanitarian-Affairs (UN OCHA), and the secretariat of the International strategy for Disaster Reduction (ISDR) have recently compiled a searchable database where more than 100 post-secondary programmes in disaster risk management, as well as certificate programmes, online courses and other means for professional capacity-building can be found as reported in UNISDR (2008:39).

2.8.2 Educational training materials

According to UNISDR (2008:40), training modules are available on general disaster management, disaster preparedness, disaster response, disaster risk reduction and conflict mitigation. Capacity development programmes for teachers, builders and school administrators have been piloted in some countries, but are not yet available in South Africa nor have been replicated. This remains among the priorities to be addressed to support the realization of the globally shared goal of achieving a culture of safety in South Africa.

Materials that exist in many languages from dozens of countries, often developed by civil protection agencies, National Red Cross/Red Crescent Societies, scientific research organizations, and non-governmental organizations, sometimes supported by civic organizations. The ISDR thematic platform for knowledge and education with the support of UNESCO, UN/ISDR, Risk RED and enthusiastic advocates from at least 50 countries has collected and compiled both a comprehensive physical library (housed with UNISDR in Geneva) and a digital catalogue and library of educational materials for the public, for the children and for teachers. The critical problem here is that these materials are not available to teachers in South Africa and if any, only few could access them from the internet.

There is also the Global online Disaster Reduction Education Materials Library Collection (DREAM Collection) as part of the Web's online professional resources, and is intended to assist countries and education authorities to access models on which to base their own materials hands-on. Furthermore, the searchable database describes key information about the materials, the format, target audience, hazards, themes and settings for the materials as indicated by UNISDR (2008:32).

The Islamic Republic of Iran is well equipped with 20 school textbooks at every level and every subject always training teachers, organising annual national drills for 15 million children, encouraging essay writing and poster competitions, and also organising workshops with the 12-18 age group. They have also begun a weekly television broadcast, and published new training materials for Kindergarten teachers as reported by the ISDR (2007:28). Furthermore, according to UNICEF (2009: 147) in Iran, teacher guides are prepared to support teachers in the transfer of disaster risk reduction knowledge, and teacher training is organized through continuing education courses designed to reach head teachers.

2.9 School preparedness plans

McIvor and Paton (2007:79) pointed out that areas susceptible to experiencing adverse natural hazards focusing on few earthquakes and floods should adopt protective measures such as developing a household emergency plan in advance of any hazard activity. It is vital to minimize the risk of injury, death and property damage. According to People living in communities at risk from natural hazards continue to demonstrate poor knowledge of risk mitigation procedures and a reticence to adopt protective measures (Hurnen & McClure, 1997; Johnston *et al.*, 1999; Lechlitter & Willis, 1996; Rustemli & Karanchi, 1999).

Natural disasters such as floods, earthquakes, fires, hurricanes and tornados can strike a community with little or no warning. Schools must plan to respond to other catastrophic events on campus or in the community. According to Zantal-Wiener and Horwood (2010:52) school emergency management is a new development, and so there is no comprehensive framework for evaluating school emergency management programmes. A Framework for developing the emergency management plans within the context of the four phases include: Prevention-Mitigation, Preparedness, Response and Recovery. The focus of these discussions is therefore on preparedness phase concentrating on goals and activities.

Zantal-Wiener and Horwood (2010:55) maintain that preparedness goals facilitate a rapid coordinated and effective response in the event of an emergency. To them preparedness activities entail:

- Identify needs and goals using the data collected in prevention- mitigation phase.
- Establish emergency management policies, procedures, and plans for rapid response.
- Develop and incorporate a universal design for students, faculty, and visitors with special needs to increase accessibility.
- Identify response roles and responsibilities, including lines of authority and emergency priorities.
- Coordinate communication among first responders, partners, and school officials.
- Conduct training for all partners, school staff, students and parents.
- Conduct simulated emergency drills and exercises.

According to UNESCO (2010:31), preparedness plans are dynamic ventures which need to be reviewed, modified, updated and tested on a regular basis. Active disaster preparedness include developing comprehensive response plans, monitoring hazards threats, training emergency personnel, and training members of the communities at risk “to ensure the timely appropriate and effective delivery of relief”. UNESCO (2010:33) highlights the following preparedness and mitigation measures on education:

- Develop evacuation plans for schools and conduct evacuation drills to minimize risk (using appropriate plans for different types of hazards).
- Incorporate information into the geography, natural science and history curricula through a variety of classroom activities: classroom emergency plans (evacuation routes, fire planning); family emergency plans (for students to create as homework); risk mapping (small group work as part of the geography lesson); observational walk across the community as a field trip; weather forecasting exercise using local periodicals; mural paintings promoting disaster awareness; dialogues, theatre/puppet shows; information about the most likely hazards in island nations (drought and rising seas) incorporated into the national science curriculum.
- Incorporate information into all teacher training provide information to school staff and train teachers and school principals in first aid kit, work with parent-teacher associations, parents, clubs , and other community groups.
- Develop summer projects in disaster awareness and training, provide information to school staff and train teachers.
- Organize mitigation activities to protect the physical infrastructure of school, building retaining walls to save the school from further erosion, construction of well covers for the school water supply, an important preventive measure to protect the water supply from ash storms of nearby volcanoes.
- Design pilot curriculum for highly vulnerable schools, including instructional videos to sensitize learners about natural hazards such as volcanoes and hurricanes

2.9.1 School Disaster Management

According to Ahmedabad Action Agenda for School Safety (2007:1), school safety refers to safe environments for children starting from their homes to their school and back. This includes safety from large-scale “natural hazards of geological/climate origin, human-made risk, pandemics, violence as well as more frequent and smaller scale fire, transportation and other emergencies, and environmental threats that adversely affect the lives of children. In this agenda, children in school refer to children while they are on the school premises, as well as on their way to or back from school.

According to UNISDR (2008:16), the purpose of school disaster management is to protect the lives of students and staff, and to ensure educational continuity of students. UNISDR (2008) further states that administrators, teachers and staff always take the place of parents and bearing both moral and legal imperatives to stay with and to protect children. All are expected to serve as “disaster service workers”, during times of emergency, and are responsible for reunifying children with their families. This responsibility makes it a necessity for every school system and school site to have risk reduction plans and teaching. School Disaster Management is the process of assessment and planning, physical protection and response capacity development designed to:

- Protect students and the staff from physical harm.
- Minimize disruption and ensure the continuity of education for all children.
- Develop and maintain a culture of safety.

Furthermore, IFC (2010:3) states that school disaster management involves hazards assessments, vulnerabilities, capacities and resources; plan and implement for physical risk reduction, maintenance or safe facilities, standard operating procedures and training for disaster response; test mitigation and preparedness plans and skills regularly, with realistic simulation drills and to revise a plan based on experience.

2.10 Summary

In view of the above discussions, it is clear that natural disasters happen every time and everywhere without warning. As a result, natural disasters have negative impacts on children and education globally whereby large number of children and teachers reported dead in schools, as well as damage to school buildings, resulting in school interruptions. Teaching, learning and preparing of learners and educators in disaster education is seen as global issue, following international agreements during world conferences and workshops. Some countries have integrated disaster education in their curriculum. Other countries also show that teachers were trained on disaster management courses so that they can transfer knowledge to learners, and also have study materials, textbooks varying from grade to grade that are in place. Additionally, some schools do have School Management Plans in place and performing evacuation drills at least three times a year, to prepare everyone around school premises to know what to do in case of emergency.

Although in a South African context there is no training of teachers regarding disaster management education, learners in grade 7 Social Sciences and Geography Grade 10-12, are taught about natural hazards in classrooms. This can be a good start for the department of education towards inclusion of teaching disaster risk reduction, as they show convincing alignment with disaster risk management concepts. Natural disasters such as floods, earthquakes, fires, hurricanes, and tornados can strike a community with little or no warning. Like other countries, South African schools should consider implementing School Disaster Management plans, and must plan to respond to them in case of a disaster or emergency may occur. Schools should also rehearse drills such as evacuation, first aid, etc. so that school communities know what to do in case of emergencies.

2.11 Conclusion

There is not much evidence to indicate whether South African schools are teaching learners and educators about disaster risk reduction even though worldwide it has been indicated as a priority. Although there is no indication of the teaching of disasters in schools, there are national policies requiring the integration of disaster risk reduction education in primary and secondary school curricula. The literature review has provided a good rationale for this study to explore in practice whether education and school principals know about disaster risk reduction and the school disaster management plans.

Chapter 3

Research methodology

3.1 Introduction

Chapter 3 explains the procedures and the methods that were used in this study to assess the disaster preparedness of learners and educators in Soshanguve North. Firstly, the study area was presented and followed by starting with the research design and data collection where contents of both questionnaire and interview guidelines were explained, data analysis and data interpretation, ensuring the validity and reliability of data collected as well as the limitation and delimitation of the study.

3.2 Study area

As it was explained in Chapter one, Soshanguve is situated about 45km North West in the region of Tshwane in Gauteng Province. Nkowanta and Ochieng (2009) maintain that Soshanguve is inhabited by multicultural populations such as Basotho, Tsonga, Nguni and Venda-speaking people. There are 50 schools in Soshanguve North, which fall under Tshwane North District 3, which includes 27 Primary schools, 13 Middle schools and ten Secondary schools (DoE, 2010). The accessibility and proximity of this area makes it an ideal research area especially the multiracial nature of the population in the area.

3.3 Research design

Research is the systematic process of collecting and analyzing information (data) in order to increase our understanding of the phenomenon about which we are concerned or interested (Leedy & Ormrod, 2001:4). Although research projects vary in complexity and duration, Leedy and Ormrod (2001:4) maintain that research typically has eight distinct characteristics:

- Research originates with a question or problem.
- Requires a clear articulation of a goal.
- Follows a specific plan of procedure.

- Research usually divides the principal problem into more manageable sub problems.
- Is guided by the specific research problem, question or hypothesis.
- Accepts certain critical assumptions.
- Requires the collection and interpretation of data in an attempt to resolve the problem that initiated the research.
- Research is, by its nature, cyclical or more exactly, helical.

3.3.1 Definitions of quantitative, qualitative and mixed research approaches

Creswell (2003:18) presents definition that can help further to clarify the three approaches:

- A quantitative approach is one in which the investigator primarily uses post positivist claims for developing knowledge, employs strategies of inquiry such as experiments and surveys and collects data on predetermined instruments that yield statistical data.
- A qualitative approach is one in which the inquirer often makes knowledge claims based primarily on constructivist perspectives, or advocacy/participatory perspectives. It also uses strategies of inquiry such as narratives, phenomenologies, ethnographies, grounded theory studies, or case studies. The researcher collects open-ended, emerging data with the primary intent of developing themes from data.
- Mixed methods approach is one in which the researcher tends to base knowledge claims on pragmatic grounds. It employs strategies of inquiry that involve collecting data either simultaneously or sequentially to best understand research problems. The data collection also involves gathering both numeric information for example (on instruments) as well as text information (interviews) so that the final database represents both quantitative and qualitative information.

3.3.2 Mixed methods approach

Mixed methods research approach was used for this study, where both qualitative and quantitative methods were combined. Mixed methods is defined as a procedure for collecting, analyzing and “mixing” both quantitative and qualitative data at some stage of the research process within a single study to understand a research problem more completely as reported by Maree (2010:263).

Tashakkori and Teddlie (2003) cited in Creswell (2003:201) highlight the reasons why researchers employ a mixed methods design, which amongst others, include expanding and understanding from one method to another, converging or confirming findings from different data sources. Also it is important to note that “mixing” might be within one study or among several studies in a programme of inquiry. Creswell (2003) further recognizes that many different terms are used for this approach, such as integrating, synthesis, quantitative and qualitative methods, multi-method and multi-methodology. Recent writings, however, use the term “mixed methods”.

Leedy and Ormrod (2003:102) distinguish characteristics of quantitative and qualitative approach in the following manner:

- Quantitative researcher seeks explanations and predictions that will generalize other persons and places. The intent is to establish, confirm or validate relationships, and to develop generalizations that contribute to theory.
- In qualitative, researchers seek a better understanding of complex situations. Their work is exploratory in nature, and they describe, explain, interpret and use their observation to build a theory.
- Quantitative researchers choose methods that allow them to objectively measure the variables of interests. They also try to remain detached from the research participants so that they can draw unbiased conclusions.
- The qualitative research process is more holistic and “emergent” with the specific focus, design and measurement instruments, for example interviews and interpretations developing and possibly changing along the way. The researchers enter the setting with open minds, prepared to immerse themselves in the complexity of the situation and interact with their participants. Categories or variables emerge from the data, leading to “context-bound” information, patterns, and /or theories that help to explain the phenomenon under study.
- Quantitative researchers identify one or a few variables that they intend to study and collect data specifically related to those variables. Specific methods of measuring each variable are identified and developed, with attention to the validity and reliability of the measurement instruments. Furthermore data is collected from a population or from one or more large samples that represent the population, in a form that is easily converted to numerical indices.

- Qualitative researchers are often described as being the research instrument because the bulk of their data collection is dependent on their personal involvement, for example interviews and observations in the setting. Qualitative researchers tend to select a few participants who can best shed light on the phenomenon under investigation. Therefore both verbal data (interview comments, documents, field notes) and nonverbal data (drawings, photographs and videotapes) may be collected.
- All research requires logical reasoning hence quantitative researchers tend to rely more heavily on deductive reasoning, beginning with certain premises (e.g. hypotheses, theories) and then drawing logical conclusions from them.
- Whereas qualitative researchers make considerable use of inductive reasoning: They make many specific observations and then draw inferences about larger and more general phenomena.
- Quantitative researchers typically reduce their data to numbers, which they then present as the results of statistical tests. The power of interpretation rests in the large number of scores that depict the norm, or average, of the group's performance. The results are usually presented in a report that employs a formal, scientific style using passive voice and impersonal language.
- While qualitative researchers construct interpretive narratives from their data and try to capture the complexity of the phenomenon under study. They use a more personal, literary style, and they often include the participants' own language and perspectives.

3.4 Research methodology

3.4.1 Sampling Methods

The research sampling method used in this study focused on types of data collected and sources of data consulted, data collection methods and instruments which included questionnaires and interviews. The section explains the rationale for selecting the research methods and sampling techniques used.

According to Maree (2010:79) sampling refers to the process used to select a portion of the population for study. This is therefore the reason why the small portion of Tshwane, which is Soshanguve, was selected. Since mixed research method was used in this study both random and purposeful sampling methods were used. For quantitative data collection, a simple random

sampling was used. The sample was chosen by simple random selection, whereby every member of the population had an equal chance of being selected. Although there are many schools, primary and secondary schools in the area, time, human resources and financial constraints dictate that a limited study be conducted, hence a random sampling was conducted. As a result, ten schools from a total number of 50 were selected randomly to serve as research sites.

For qualitative data collection, a purposeful sampling method was used, and according to Leedy and Ormrod (2001:219) purposive sampling is applied where people are chosen for a particular purpose, for instance we might choose people who we have decided are “typical” of a group or those who represent diverse perspectives on an issue. The principals, educators, learners and school safety members were selected for completing questionnaires and face-to-face interviews because they experienced everyday life and were representing selected schools, thus relevant sources for the proposed research topic.

The proposed study was conducted by applying probability sampling, where the researcher could specify in advance that each segment of the population was represented in the sample and non-probability sampling, where the researcher had no way of forecasting or guaranteeing that each element of the population was presented in the sample. Leedy and Ormrod (2001:211) state that some members of the population have little or no chance of being sampled as participants in the study. Creswell (2003:220) supports combining both simple random sampling during the first phase then followed by purposeful sampling as second phase in the selection of participants.

3.4.2 Data collection sources

Data was gathered from both primary and secondary sources with primary data gathered from participants through questionnaires and interview process. Literature review of relevant sources of information about the research problem and research questions were conducted as secondary data from books, articles in professional journals, research reports, policy documents such as NCS, NDMF and Acts, conference reports, internet and periodicals.

The data collection method was carried out through questionnaires and interviews from principals, educators, learners and school safety committee representatives. Quantitative data

was collected from ten schools out of a population of 50 schools around Soshanguve North. The total of 50 respondents completed questionnaires consisting of twenty learners and thirty educators. For qualitative data collection, a purposeful sampling method was used where ten participants consisting of five principals, three educators and two school safety committee representatives were interviewed.

3.4.3 Questionnaires

Quantitative data was collected by means of questionnaires consisting of different types of questions; namely, open-ended questions and closed questions. The questions were designed in order to establish the level of participant's knowledge of disasters, preparedness and awareness of disaster school policies.

The targeted respondents were educators and learners and were asked to complete a consent form. The School Governing Body as representatives of parents was asked to give consent for learners to participate in the study. The educator respondent and learner consent forms were issued to all participants for them to state that they participated voluntarily and they had rights to withdraw if they wished to do so. The aims and objectives of the study were explained to participants. The questionnaires were administered with the help of four educators as research assistants. Fifty questionnaires were given to respondents, 20 learners, two per school from grade 5-9 and 30 educators, three per school teaching Social Sciences, Life Orientation and Natural Sciences were targeted to complete questionnaires from ten schools.

3.4.3.1 Data collected through questionnaires

The questionnaires for both educators and learners consisted of Multiple choice and YES, NO or Uncertain and required the participants indicate the appropriate answer or their response by making use of "X" in the box provided, and to motivate their answers in the space provided. The questionnaires were divided into two, those of educators and learners. Each questionnaire was estimated to take 15-20 minutes of participants to complete it and comprised of three parts, part A personal profile; part B general disaster education; and part C level of educator/learner preparedness. Both part B and part C questions for educators and learners were designed in a manner in an attempt to address the following research sub-questions:

1. Are schools in Soshanguve North, aware of policy documents stipulating the teaching of disaster preparedness?
2. To what extent have learners around Soshanguve schools been taught about disaster preparedness?
3. What is the level of learners and educators' knowledge about disaster education in Soshanguve schools?

To address the research sub-question no.1, part B educator questionnaire no.7, 8 and 9, part C no. 18, cover questions which need participants' knowledge regarding policy document stipulating the teaching of disaster preparedness education to learners. The secondary data collected through reviewing of related literature was used. As already stated in Chapter 2, the Disaster Management Act (South Africa, 2002), requires National Disaster Management Centre (NDMC) to promote disaster management capacity building, training and education throughout the country, including schools. Millennium Development Goal (MDG), Priority 2 relates to teaching disaster risk reduction in all primary schools as part of the national curriculum, so that children and teachers can protect themselves from natural hazards by knowing exactly what to do when there is an outbreak as reported by UN/ISDR (2010:18).

According to Ahmedabad Action Agenda for School Safety (2007) the top priority of disaster reduction education in schools is to include disaster risk in the formal curriculum at both primary as well as secondary levels and to ensure that teacher and non-teaching staff receives the opportunity for training in disaster risk reduction.

To answer sub-question no. 2, part C educator questionnaires no.19, 20, 21, 22, 23 and 24 as well as part C learner questionnaires no. 11, 12, 13, 16 and 17 covered questions that need participants' knowledge and views as whether learners around Soshanguve schools have been taught about disaster preparedness education in classrooms. As stated in chapter 2, according to UNDESD (2005:10) the teaching of disaster preparedness in schools, the main aim of education for disaster risk reduction is to build the human capacities to understand the most likely risks, likelihood of disasters and their potential consequences.

To answer the sub-question no.3, part C educator questionnaires no.10, 11, 12, 13, 14, 15,16 and 17 as well as part B learner questionnaires no. 5, 6, 7, 8, 9 and 10; part C learner questionnaires no.14,15,18,19,20 and 21 cover research questions about disaster education in

Soshanguve schools. By reviewing literature as stated in Chapter 2, Shaw and Shiwaku (2007) state that the role of disaster education is to provide knowledge and information to students and promote measures. Ronan and Johnston (2003:11) further stated that when educating children about natural and other hazards, it may be important to include information that help a child understand what he or she can do relatively independently to be prepared physically and emotionally.

3.4.4 Interviews

Face-to-face interview was used for this study. According to Maree (2010:87), the aim of qualitative interviews is to see the world through the eyes of the participants, and they can be a valuable source of information, provided they are used correctly and also to obtain rich descriptive data that will help researcher to understand the participant's construction of knowledge and social reality. According to Leedy and Ormrod (2001:196), face-to-face interviews have the distinct advantage of enabling the researcher to establish rapport with potential participants and therefore gain their cooperation and such interviews yield the highest response rates in survey research.

Interview guidelines questions were developed based on research sub-questions as stated in Chapter 1. Respondent consent forms were issued to participants sampled for the study. Interviews were conducted with each selected individuals, through purposeful sampling in which Maree (2010:79) maintain that purposive sampling simply means that participants are selected because of some defining characteristics that makes them the holders of the data needed for the study. Interviews were conducted with each selected individuals face to face, five school principals, three educators, and two school safety committee representatives.

3.4.4.1. Data collected through interviews

As already stated above, interview guidelines were developed based on research sub-questions, which were divided into three categories; school principals, educators and school safety committee. According to section 6.3.3 of the South African National Disaster Management Framework of 2005 (NDMF, 2005:163), as stated in Chapter 2, disaster risk reduction education must be integrated in primary and secondary school curricula and furthermore schools should be regarded as focal points for raising awareness about disaster

risk management and disaster risk reduction. It states that the risk reduction component of disaster risk management education should be linked to broader programmes on development and environment.

To address the research sub-question no.2, the school principals' interview questions no.3 and 6, educator questions no.2 and 5 as well as school safety committee questions no. 4 needs participants' knowledge to the extent in which learners have been taught about disaster preparedness in classrooms. In support of this view, looking back to Chapter 2 and according to UN/ISDR (2006:20), it is important to teach children disaster risk reduction skills, which in the long run ensure adequate knowledge of how to reduce risks for future generations, and involve school children in disaster risk reduction initiatives. School projects can be tree planting, water harvesting, drip irrigation and role playing in disaster response.

To address the research sub-question no.3, the school principals' interview question no. 1, 3, 4 and 5, educator questions no. 1 and 4 as well as school safety committee question no. 3 and 7 needs participants' views regarding the level of learners and educators' knowledge about disaster education. This is supported by UNISDR (2006) reported in chapter 2, stating that all governments should commit to teacher training and curriculum development to support large-scale teaching of disaster risk reduction. A recommendation made by Ozmen (2006:392), in his findings is that, there should be nation-wide training programmes at schools towards principals, teachers, and students.

3.5 Data analysis and interpretations

According to De Vos (2005:362), mixed method research is used when a researcher combines quantitative and qualitative methods in order to observe something from different angles or to acquire multiple measures of the same phenomena by applying different research measures. Data collected using quantitative methods was analysed using excel spreadsheet. Results were presented in the form of line and pie charts. In qualitative data a descriptive analysis was used.

Findings from completed questionnaires by 30 educators, 20 learners and results from five interviewed school principals, three educators and two school safety committee members representative of ten different schools were compared to check whether they differed, agreed or

corroborated. Furthermore perceptions or opinions that sounded similar were grouped together, and a percentage was allocated.

3.6 Validity and reliability

According to Maree (2003), validity refers to the extent to which an instrument measures what it is supposed to measure. Reliability is the extent to which a measuring instrument is repeatable and consistent. In qualitative research, validity and reliability are usually referring to research that is credible and trustworthy, where observation, interviews and document analysis lead to trustworthiness as reported by Maree (2010:80).

Ensuring the validity and reliability of data collected, the following measures were employed: internal validity was employed where research questionnaires and interview guidelines were sent to supervisor to be assessed and to the University of the Free State, statistic department to be reviewed by experts for approval before issued for respondents.

It was also ensured that data collected were valid and reliable by ensuring that the questionnaires and interview instruments were tested in the pilot phase, which consisted of the following participants, one principal, three educators and learners. The interviewees did not approve of recording their conversations based on their personal reasons. The intention of the study was not to coerce the respondents to be recorded without consent.

3.7 Limitations and delimitations of the study

3.7.1 Limitations

- All schools, in which data was conducted, were chosen from Soshanguve North, even though there were other areas under Tshwane North District 3. For the purpose of this study data was therefore collected from school principals, educators, learners and school safety committee representatives only.
- Although this research cannot claim to be representative of all the views of educators, principals, learners and school safety committees, it will nevertheless provide relevant evidence to determine whether disaster preparedness is taught in Gauteng Schools.

- Research was conducted within a limited time constraints of eight to nine months which was a limitation.

3.7.2 Delimitations

- Questionnaires were completed by educators currently teaching Natural Sciences, Social Sciences and Life Orientation and learners from Grade 5-9 only.
- Interviews were encompassing as it were conducted with school principals, educators, and school safety committee members only.
- The focus was on disaster preparedness of learners and educators in schools only.
- Findings and conclusions of the study would be based on both primary and secondary information.

3.8 Conclusion

The chapter presented a research design that was followed, research methodology with sampling of population, data collection sources using primary, where completing of questionnaires, and interviews were conducted. For secondary data sources, related literature reviews were conducted using books, journals, policy documents and conference reports to answer sub-research questions. Mixed method approach was used for the study where combinations of both quantitative and qualitative methods were used.

Chapter 4

Data analysis and interpretations

4.1 Introduction

The main purpose of Chapter 4 is to discuss the methods used for analysing and interpreting data that was collected through questionnaires and interviews to determine the extent to which the research addressed the main research question as stated in Chapter 1 of this study. The collected data was discussed using narrative and interpretive analysis and also using line and bar charts. The chapter starts by discussing the profile of participants and then giving closing arguments to indicate connection with the research questions.

4.1.1 Administrative information

At the beginning of the third term of the year, July 2011, ten schools around Soshanguve North, Tshwane North District 3, in Gauteng Province were visited for collection of data through questionnaires where 50 respondents were issued with questionnaires. Thirty educators teaching Natural Sciences, Social Sciences and Life Orientations and 20 learners in grade 5-9 were asked to fill out the questionnaires. Data was also collected through individual face-to-face interviews with five school principals, three educators and two school safety committee representatives.

4.2 Data analysis and interpretations

Triangulation method was used to analyse data collected through secondary data (literature review) and primary data (interviews and questionnaires) in order to compare results to determine whether they corroborate, are similar or differ. According to Maree (2010:80), triangulation is a strategy for improving the validity and reliability of research or evaluation of findings. Maree (2010) further states that triangulation is used extensively in quantitative studies for the confirmation and generalization of research findings.

4.2.1 Data analysis through questionnaires

Data collected using quantitative methods was analysed using excel spreadsheet. Results were presented in the form of excel spreadsheet and pie charts. The excel spreadsheet and pie charts displayed how many respondents answered a particular question. Quantitative data was collected first then followed by collection of qualitative data in the second phase and the two methods were integrated during the interpretation phase of the study.

A comparison of the findings from questionnaires completed by 30 educators, 20 learners and results from interviews with five school principals, three educators and two school safety committee members representative of ten different schools was done to check whether they differ, agree or corroborate. Furthermore, perceptions or opinions that sounded similar were grouped together and a percentage was allocated to each category of opinions or perception.

For both Part B and Part C, as stated in Chapter 3, questionnaires were designed to address the research sub-questions, by reviewing literature as stated in Chapter 2. Shaw and Shiwaku (2007) state that the role of disaster education, is to provide knowledge and information to students, and to promote measures for averting disaster risks. Furthermore, Ronan and Johnston (2003:11) state that when educating children about natural and other hazards, it may be important to include information that help a child understand what he or she can do relatively independently to be prepared physically and emotionally.

4.3 Results obtained from educators' questionnaires

4.3.1 Part A: Educators' personal profile

Part A displays the participants' profiles which consist of gender, rank, type of school teaching, learning area, teaching, number of years in current teaching position and age group. This information is essential as it will help to determine any variable that might affect the results.

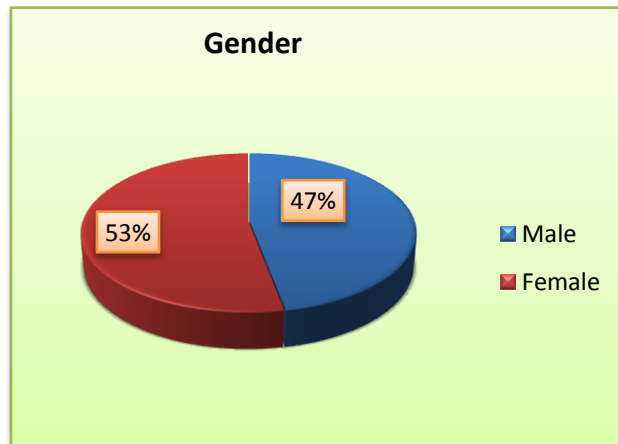


Figure 4.1: Gender of educators who participated in the study

Educators' gender ratio was included in order to gain a perspective on disaster preparedness of educators from males and females who participated in the study. The results show that the majority were females who contributed 53% and males contributed only 47%. Everyone participated in the study by completing questionnaires.

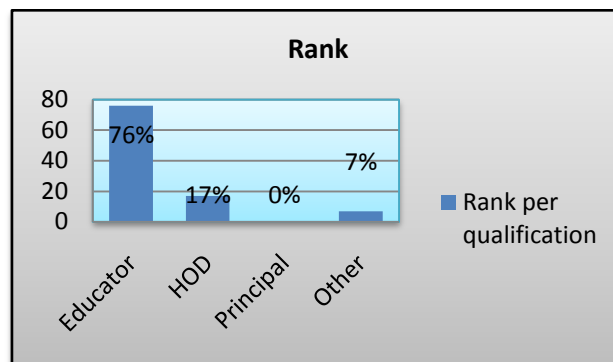


Figure 4.2: Rank of educators who participated in the study.

Rank of educators shown above, was included to show those who participated most in the study. As stated in Chapter 1, educators were targets in this regard; therefore they constituted 76% of the population that participated in the study while the HODs constituted 17 % of the population, and only 7% of the population was constituted by deputy principals who also participated by filling in questionnaires labelled as 'other' in the study.

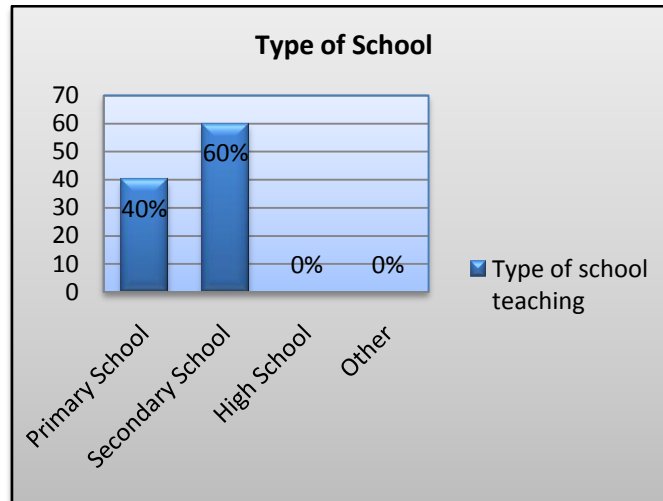


Figure 4.3: Types of school in which educators are currently teaching.

The results presented in the chart above shows that 60% of educators who participated in the study are currently teaching at secondary schools consisting of Grade 7 to 9, whereas the remaining 40% of educators are currently teaching at primary schools from Grade 1 to 6. The sampled schools were five for both primary and secondary schools as stated in Chapter 1. The results shown in Figure 4.4 below are the evidence of the number of educators who participated in the study constituting 100% with a distribution of 33.3% consisting of ten educators each, currently teaching Natural Sciences, Social Sciences and Life Orientation at ten schools. Therefore 30 educators, three per learning area were given equal chance to complete questionnaires to air their views as they were learning area respondents.

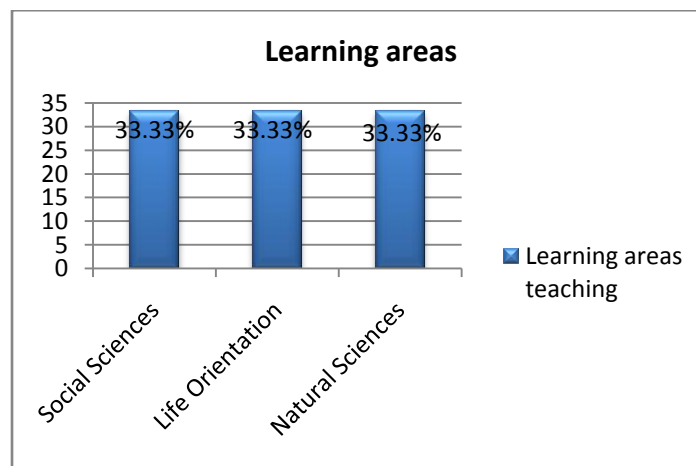


Figure 4.4: Learning areas educators are currently teaching

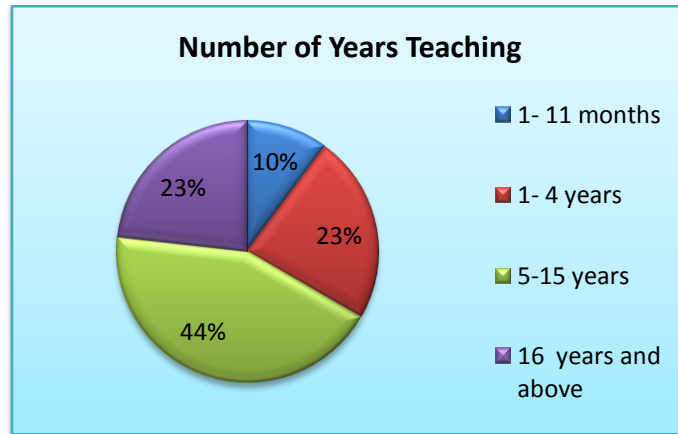


Figure 4.5: Educators' number of teaching years at current school.

The results shown in Figure 4.5 indicate that 44% of educators had 5-15 years teaching in a particular school, 23% of educators indicated that they had 16 years and above teaching experience in a particular school, and the other 23% indicated that they had one to four years only. The remaining 10% showed that they had only 1-11 months teaching experience at their current schools. Based on the results, the majority of educators who participated in this study are ranging between 5-15 years as well as 16 years and above. After analysis of their responses regarding their knowledge after a long stay, the results may be helpful.

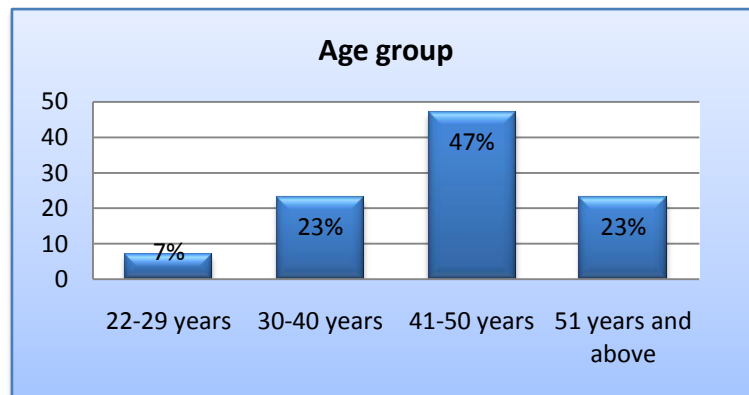


Figure 4.6: Age group educators fall under.

The Figure 4.6 shows that the majority of educators contributing, 47%, indicated that they were in the age group 41-50. Twenty-three per cent shows that they are 51 years and above, another 23% is in the 30-40 age group, and the remaining 7% of educators in the 22-29 age group. The results show that everyone was given a chance to participate in the study and had the opportunity to voice their views.

In summary, part one of this study found that the majority of educators who participated in the study were within the age group 41 – 50. In terms of experience, the majority were educators who had taught between 5 to 15 years. The majority of educators who participated were females and they were teaching in secondary schools, Grade 7 to 9.

4.3.2 Part B: General disaster education questions

This part discusses educators' general disaster education knowledge and their motivation for their answers given; the results are presented as follows:

The figure 4.7 below shows results regarding educators' understanding of disaster preparedness framework. Lack of knowledge or understanding about disaster preparedness framework, was shown by 97% of educators as they indicated by ticking "NO" to vulnerability assessment, followed by 87% of resource base, 83% of institutional framework and response mechanism. Of educators, 77% indicated that they did not understand warning systems, 63% lacked knowledge of rehearsals and 53% reported lack of knowledge regarding planning and public education and training.

Furthermore, those who ticked "YES" in their responses regarding their understanding or knowledge about disaster preparedness framework, at least 47% of them indicated that they knew or understood planning and public education and training. Followed by 37% of those saying they knew something about rehearsals. Only 23% of educators showed an understanding of warning systems, 17% indicated that they understood response mechanisms and institutional framework, 13% indicated that they understood resource base, while three per cent indicated that they knew something about vulnerability assessment.

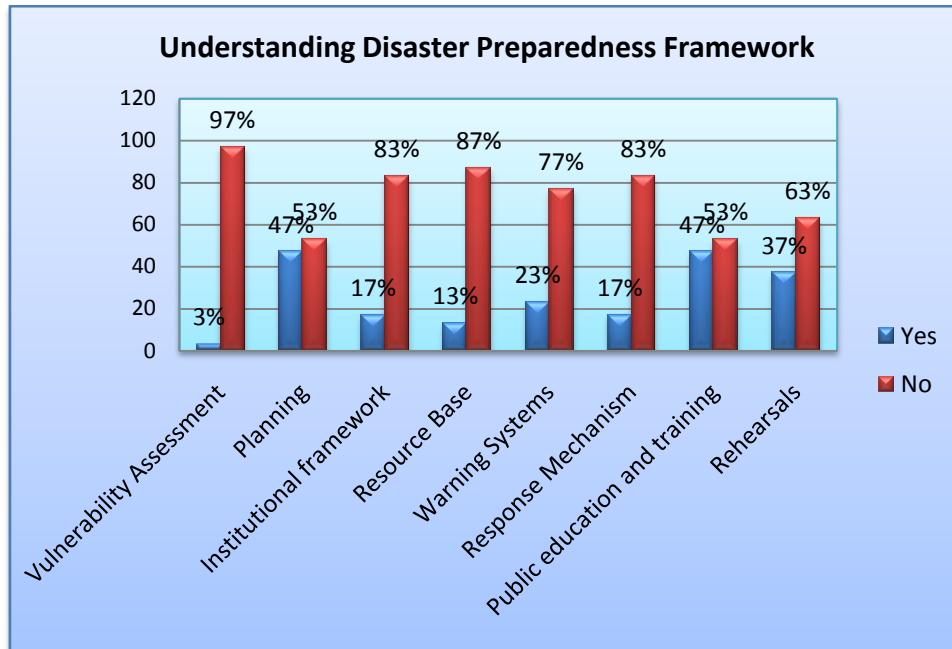


Figure 4.7: Educators' understanding of disaster preparedness framework.

Figure 4.8 presents the results of the sub-question that set out to determine whether educators think other schools around Soshanguve are aware of the existence of disaster preparedness framework in Figure 4.7. Majority of educators making up 53% of the respondents ticked "Uncertain" which indicated that they did not know whether other educators working around Soshanguve schools were aware of the existence of disaster preparedness framework or not, whereas 30% of educators by ticking "YES" indicated that they were aware of the existence of disaster preparedness framework, and the remaining 17% indicated by selecting a "NO" option that in the schools around Soshanguve, no educators were aware of the existence of disaster preparedness framework.

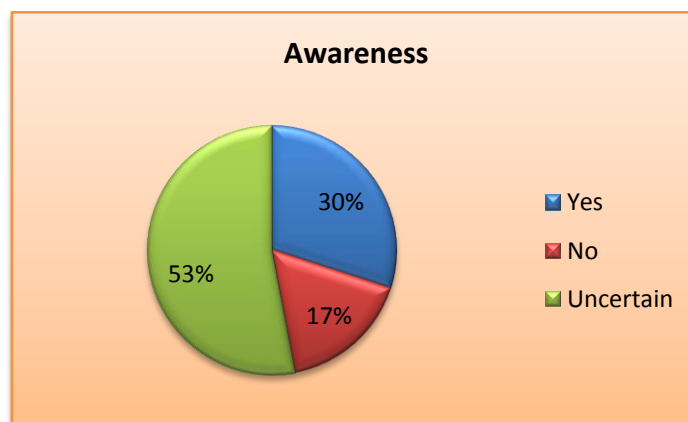


Figure 4.8: Existence of disaster preparedness framework in Soshanguve schools.

Educators' comments to support options from the previous question, the majority of educators, (70%) indicated that they were not aware of it, but only 30% they were aware of it. Some stated that the Tshwane Municipality had been running workshops on fire at schools. Other respondents reported that they attended safety workshops to teach them how to use fire extinguishers; an indication that they were aware of the existence of the disaster preparedness framework as stipulated in Figure 4.7.

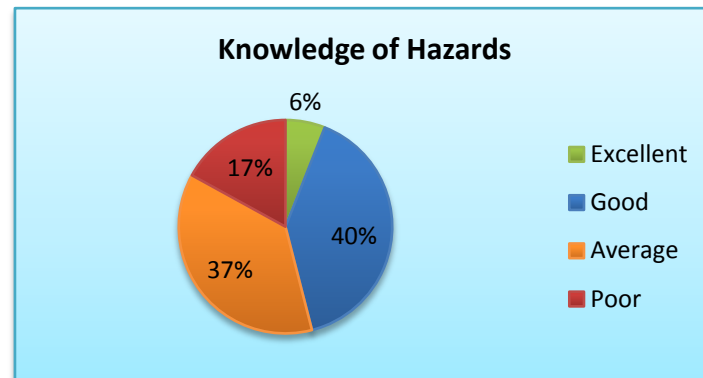


Figure 4.9: Knowledge that educators have of various hazards

The results presented in Figure 4.9 shows that the majority of educators constituting 40%, indicated that they had good knowledge of hazards, 37% had average knowledge while 6% of respondents had excellent knowledge of hazards. The remaining 17% shows that their knowledge about hazards is poor.

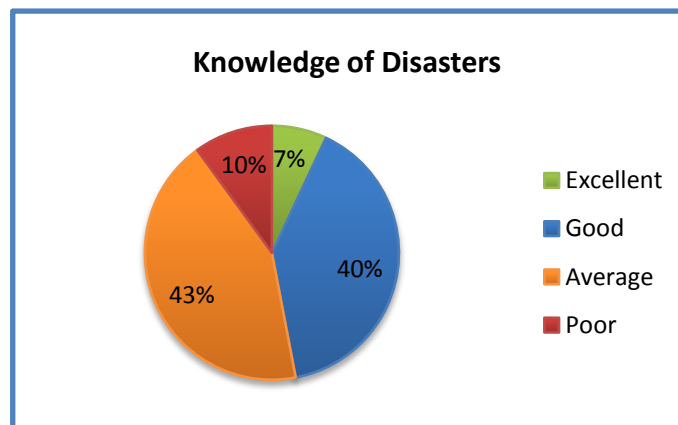


Figure 4.10: Educators' disaster knowledge.

The results presented in Figure 4.10, shows that the majority of the respondents constituting 43% had an average knowledge of disasters and 40% had good knowledge, while only 7% had excellent knowledge. The remaining 10% indicated that they had poor knowledge of disasters.

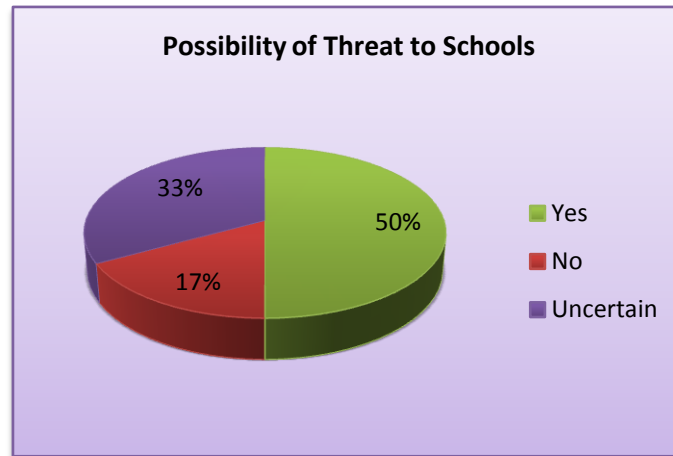


Figure 4.11: Educators' perception if schools could be seriously affected by disasters in future.

From the results presented in Figure 4.11 of whether their schools could be affected by disasters in future, 50% of educators agreed that their schools could be affected by disasters, 33% was uncertain and the remaining 17% did not think their schools would ever be affected by any disasters in future.

To motivate the answers given in the previous question 67% of educators mentioned that disasters were natural events and therefore they were unpredictable and anything could happen at any time. Other educators commented by saying that their schools were located near a stream that could cause floods. The schools were surrounded by many shacks, if they caught fire the school would be affected too. An educator commented that because of global warming and climate change, anything could happen at any time without warning. Another educator commented that: "I think our school can be affected because the weather in South Africa changes radically".

Based on their comments, respondents in this study strongly believed that their schools could be affected by disasters one day. While 33% of those participated did not give any additional comment on whether their schools could be affected or not.

4.3.3 Part C: Level of educators' disaster preparedness

This section probed the level of preparedness for disaster outbreaks. The results are presented below, and the respondents were requested to motivate why they opted for specific answers.

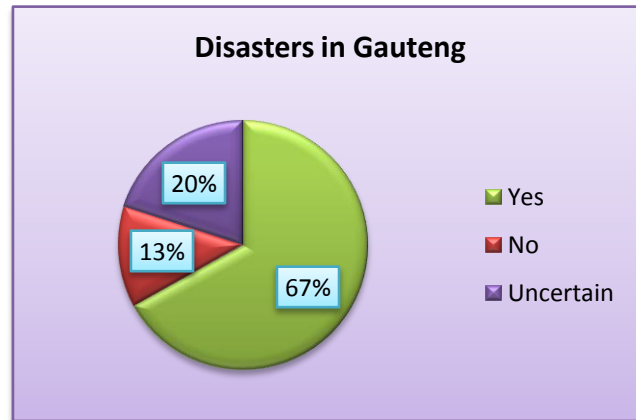


Figure 4.12: Indication of educators' thoughts whether disasters happen in Gauteng Province

The results presented in Figure 4.12 show that 67% of educators indicated that disasters happened in Gauteng Province, 25% selected uncertain and only 13% said "NO", disasters did not happen in this province.

Motivating the answers given above, 67% of educators commented and some stated that floods and shack fires affected Gauteng Province, Ten per cent commented on fires only and three per cent commented on storms, while the remaining 20% did not make comments.

The inclusion of this question was influenced by the following as mentioned in Chapter 2 that all governments should commit to teacher training and curriculum development to support large-scale teaching of disaster risk reduction (UNISDR, 2006: s.p.). Ozmen maintains that by training the people, the rate of losses and damages caused by disasters may be lessened and even in some cases may entirely be prevented (Ozmen, 2006:383).

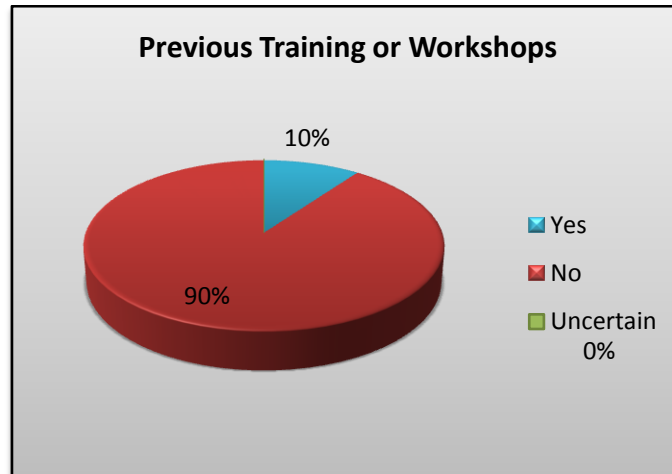


Figure 4.13: Educators' previous training or workshops attended on disaster management

The results presented in Figure 4.13 shows that 90% of educators did not attend any training or workshops on disaster management, and the remaining ten per cent indicated that they attended workshops on disaster management.

Comments to the question above show that the majority of educators constituting 90% of the respondents indicated that they did not have workshops or training on disaster management. The remaining ten percent indicated that they attended workshops on how to deal with fires, fire brigade education, first aid, disaster handling, as well as damage control.

The inclusion of this question was influenced by the declaration of Millennium Development Goal (MDG), Priority 2, which encourages the teaching of disaster risk reduction in all primary schools as part of the national curriculum, so that children and teachers can protect themselves from natural hazards by knowing exactly what to do. Moreover children can take the lead in educating families and communities about disaster risks that they live with (UN/ISDR, 2010:18).

The majority of educators who participated in the study constituting 73% of the respondents showed that they had not seen any policy document stipulating the teaching of disaster preparedness to learners. The remaining 27% indicated that they had seen such a policy which was included in the Social Science policy document, the Life Orientation policy document, the Health & Safety GDE, and School Safety policy.

This question was influenced by UNISDR (2006), stating that children, who were taught about natural hazard risk, played an important role in saving lives and protecting members of the

community during disaster outbreak. Making disaster risk education part of the national primary and secondary school curricula fostered awareness and better understanding about the immediate environment in which children and their families live and work.

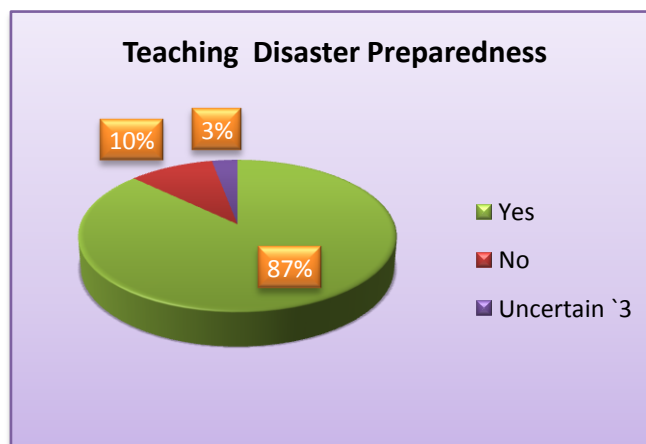


Figure 4.14: Results whether disaster preparedness should be taught to learners in classrooms.

From the results shown in Figure 4.14, 87% of educators affirmed that disaster preparedness education should be taught to learners in classrooms. Three per cent of educators were uncertain as to whether such education should be offered to learners in classrooms or not, and ten percent opted that such education should not be offered at all.

Respondents were requested to motivate their answers given to question 19 above. The majority of educators who participated in the study constituted 83% emphasized that as they were exposed to dangers every day, learners needed to be taught about disaster preparedness education, to empower them with knowledge about safety measures, so that they could carry the knowledge they had to their homes and to their community. The remaining 17% did not comment whether such education should be taught to learners or not.

The results presented in Figure 4.15 show that 37% of educators thought that Social Sciences should cover the teaching of disaster preparedness education in classrooms, 28% thought that Natural Sciences should cover disaster preparedness education, and 23% indicated that Life Orientation was the relevant learning area to cover such education. The remaining 12% thought other learning areas should cover the teaching of disaster preparedness in classrooms.

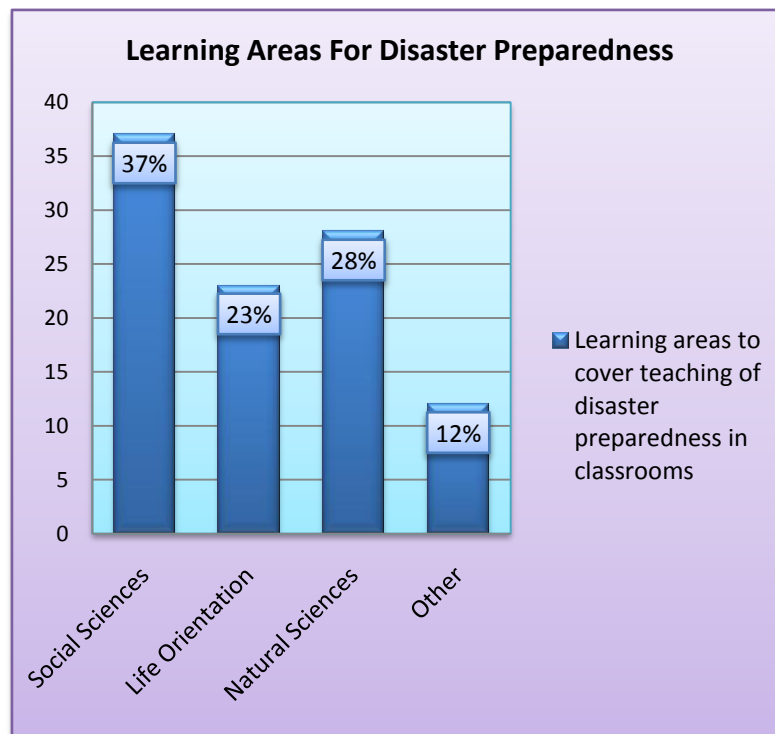


Figure 4.15: Which learning areas to cover teaching of disaster preparedness.

Motivation was requested from the respondents after each given answers to the question above to indicate which learning areas they thought should cover the teaching of disaster education in classrooms. Educators constituting 36% thought that Social Sciences should cover disaster preparedness education as disaster and hazard education are covered in those learning areas.

Twenty-five per cent of educators thought Life Orientation should cover such education as it involved issues on environment, how to look after the area and how to keep it clean. Eighteen per cent thought Natural Sciences should cover such education it currently dealt with air and water pollution that affected their everyday lives. Five per cent of educators thought that all learning areas should be given some time to talk about disaster preparedness education as disasters were a serious threat to the whole world, including our own country South Africa. Furthermore four per cent of educators thought Art and Culture, four per cent thought languages and four percent thought Technology but did not support their views in this regard, whereas the remaining four per cent indicated that none of learning areas should offer such education in classrooms.

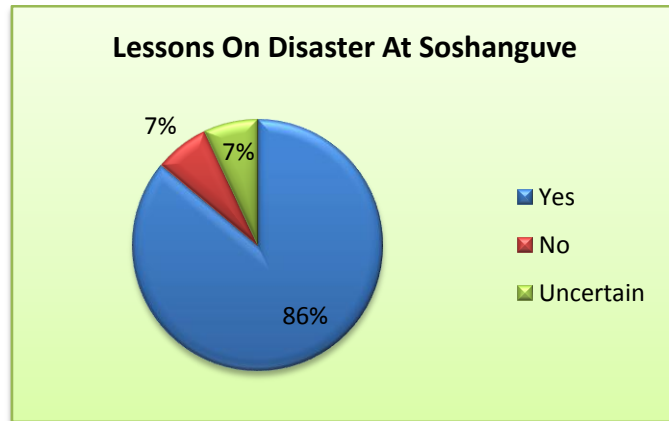


Figure 4.16: Educators' perspectives on whether schools in Soshanguve should teach disaster preparedness.

The results presented in Figure 4.16 show that 86% of educators thought that schools around Soshanguve should offer lessons on disaster preparedness. Seven per cent of educators said they did not think such education should be offered in classrooms, whereas the remaining seven per cent were uncertain of whether disaster preparedness lessons should be offered in classrooms or not.

As motivation to answers given the majority of educators (70%) thought that lessons on disaster preparedness education should be offered at an early stage and all schools around Soshanguve had to consider offering such lessons so that learners together with staff could protect themselves in case disasters occurred. The remaining 30% of educators did not give any comments on whether such lessons should be offered in classrooms or not.

4.4 Results obtained from learners' questionnaires

4.4.1 Part A: Learners' personal profile

This part discusses profiles of learners as participants; their gender, the type of school attending, the number of years in current school and their age group. The results presented below are those of learners sampled to take part in this study.

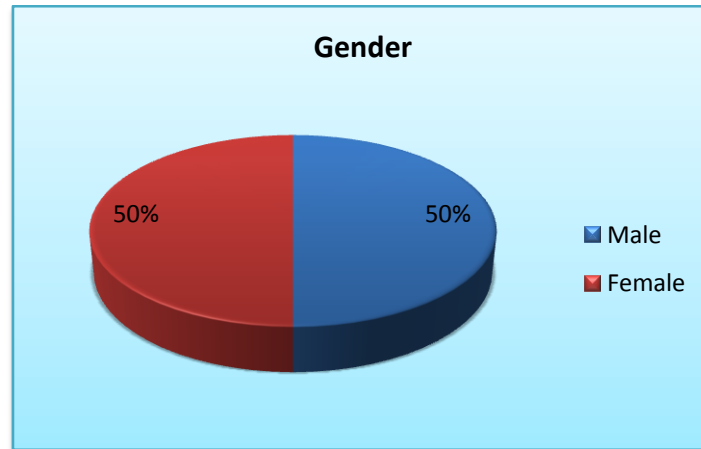


Figure 4.17: Gender of learners who participated in the study.

The results presented in figure 4.17, show that Question 1 was included in order to gain a perspective on disaster preparedness of learners both male and female which constituted 50% each in this study as sampled respondents to participate in this study, namely ten boys and ten girls.

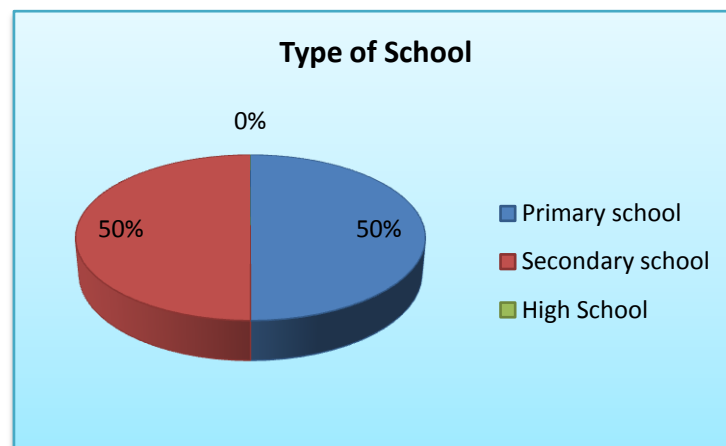


Figure 4.18: Type of school learners are currently attending.

The results presented in Figure 4.18 show that learners who participated in this study constituted 50% each from both primary and secondary schools. As stated in Chapter 1, five primary and five secondary schools were sampled to be primary data collection sites for the study.

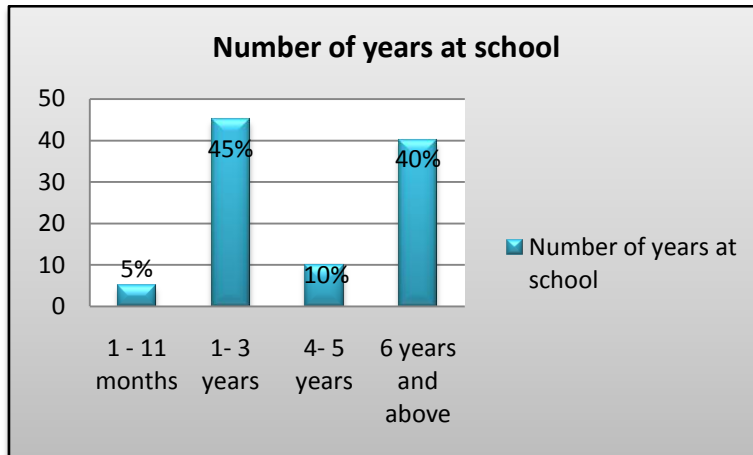


Figure 4.19: Learners' number of years at current school.

The results shown in Figure 4.19, indicate that the majority of learners, constituting 45%, had been at school for one to three years, followed by 40% of learners at six years and above, while ten percent attended school for four to five years and only five per cent indicated that they were at their current school for only one to eleven months. Learners in the 1-3 age group and 6 and above participated mostly in this study. Therefore they might be reliable sources and experienced participants regarding the information they provided.

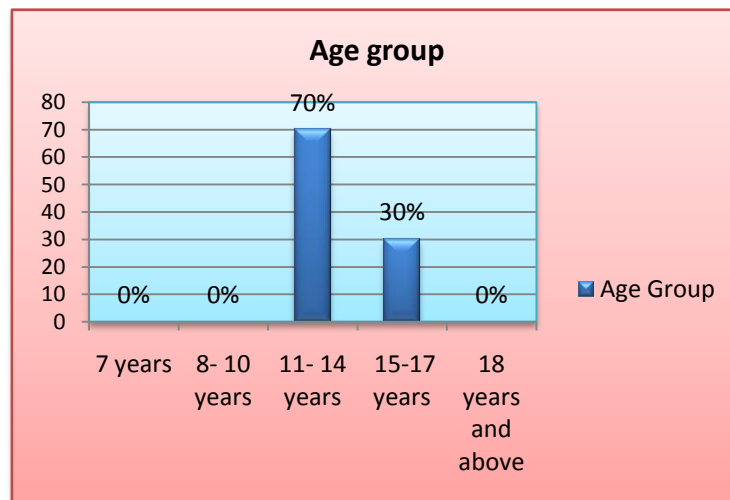


Figure 4.20: Learners' age group.

The results in Figure 4.20, indicate that the majority of learners (70%) ranged between 11-14 years, followed by 30% of learners ranging from 15 -17 years, whereas 7 years, 8-10 years and 18 years and above contributed nothing (0%), meaning that no learners from that particular age

took part in the study. Learners ranging from 11-14 years and 15-17 are relevant participants as their ages allow them to be at primary and secondary level. Grade 5-9 were the targeted population for this study.

4.4.2 Part B: General disaster education questions

This section provides responses regarding learners' general knowledge about disasters. Learners were requested to provide motivation to some of the questions asked.

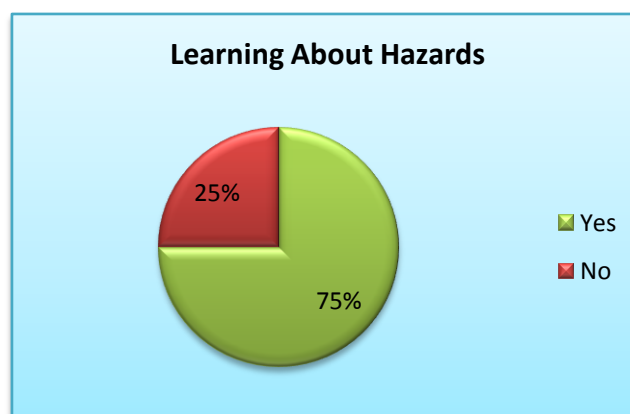


Figure 4.21: Responses of whether learners have learned about hazards.

The results shown in Figure 4.21 indicate that the majority of learners constituting 75% learnt about hazards and only 25% indicated that they did not learn about hazards.

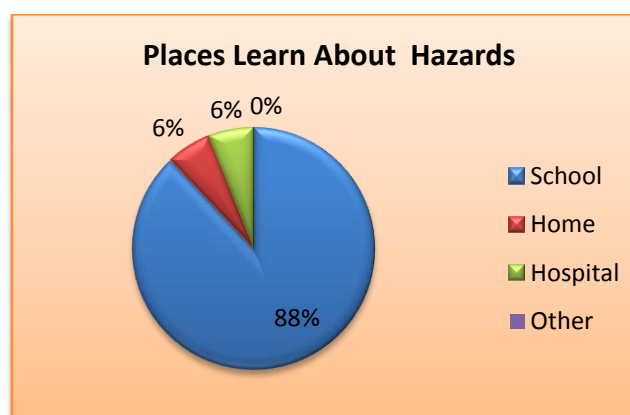


Figure 4.22: Places where learners learnt about hazards.

The above figure presents results which show that 88% of learners indicated that they had learnt about hazards at school. Six per cent of learners learnt about hazards at home and the remaining six per cent said they learnt about it from hospital.

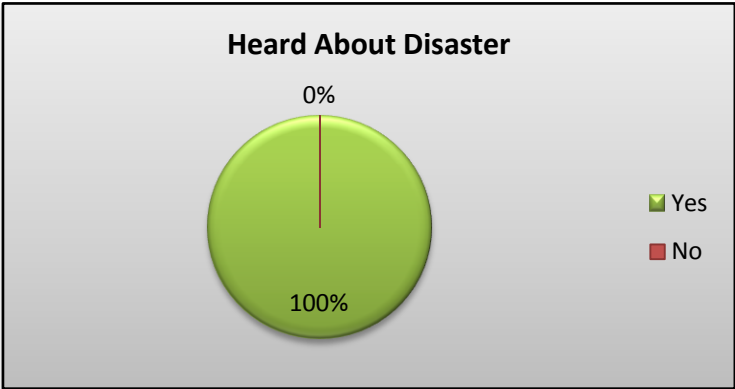


Figure 4.23: Whether learners have heard about the concept, disaster.

Figure 4.23 shows that 100% of the learners who participated in the study learnt about the disaster concept.

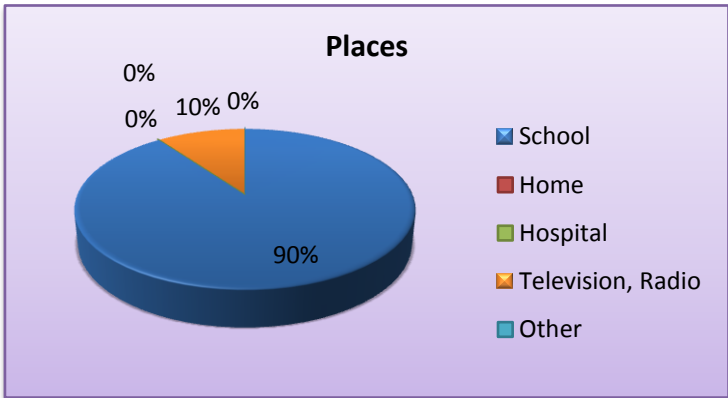


Figure 4.24: Places where learners heard about the concept disaster.

Figure 4.24 provides the results that indicate the places where learners heard about the concept disaster. Ninety per cent of learners indicated that they heard about it from school, and the remaining ten per cent indicated that they heard about it on television or radio.

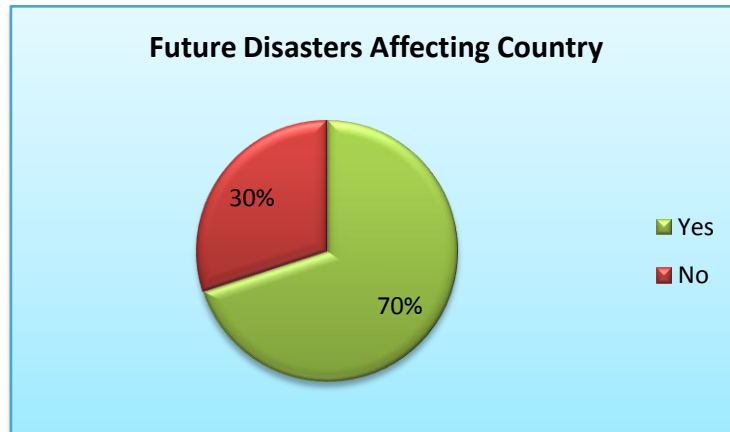


Figure 4.25: Whether our country can be affected by disasters in future.

The results presented in Figure 4.25 shows that 70% of learners thought that our country could be affected by disasters one day, and only 30% of learners did not agree.

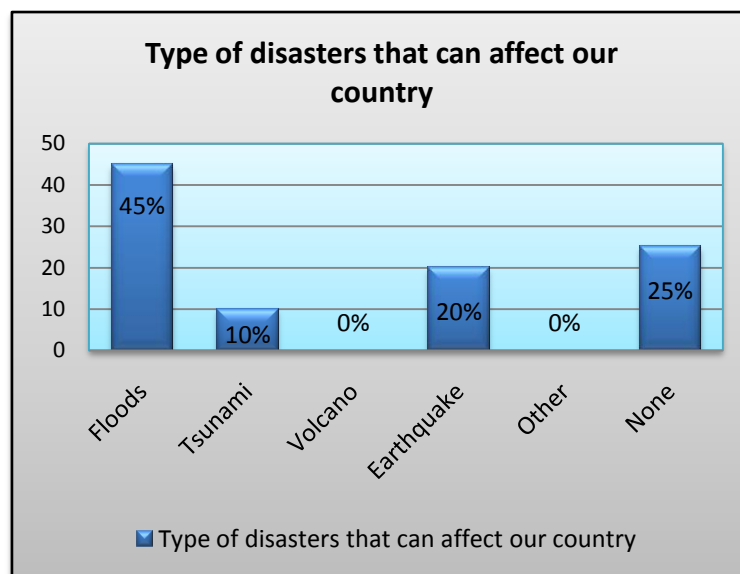


Figure 4.26: Line chart display the type of disasters that can affect our country.

From the results presented above, the majority of learners constituting 45% thought that our country could be affected by floods, 20% thought earthquakes, and ten percent mentioned tsunamis. Volcanoes were not regarded as a threat to our country; they did not mention any other disaster except those allocated with percentages. Furthermore 25% of learners indicated that none of the listed disasters would ever affect our country.

4.4.3 Part C: Level of learner disaster preparedness

This section provides perspectives regarding the level of disaster preparedness of learners. The results are presented below and learners were requested to motivate their answers to previous questions.

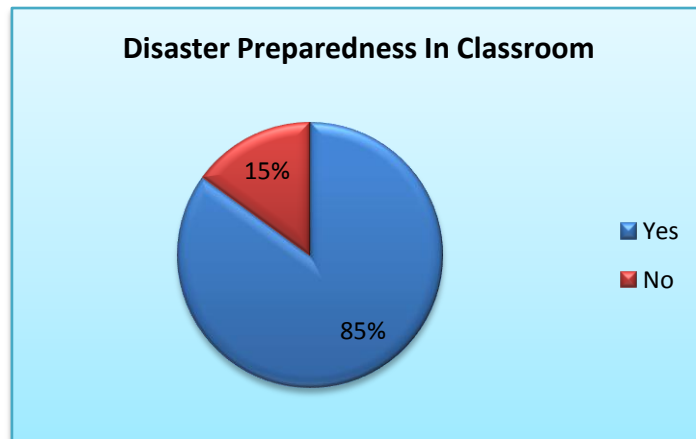


Figure 4.27: Whether learners have been taught about disaster preparedness.

From the results presented above, 85% of learners indicated that they had been taught about disaster preparedness education in classrooms. 15% of learners showed that they had never been taught about it in classrooms.

Motivation of the answers given to Question 11 above shows that the majority of learners constituting 33%, indicated that they received disaster preparedness education in Grade 6, while 28% indicated that they received such education in Grade 7, and 14% showed that they have been taught about it since Grade 4. 10% indicated that they had been taught about disasters and their dangers in Grade 9. Only 5% indicated that they had not received education regarding disaster preparedness. Those who indicated that they were taught about it, mentioned disaster education covered in one of their learning areas.

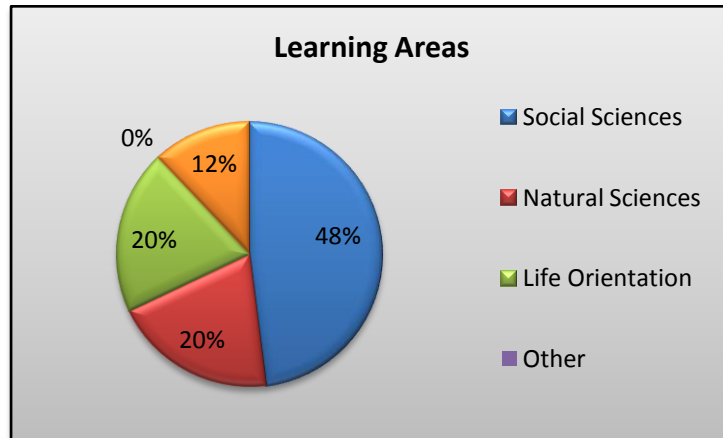


Figure 4.28: Learning areas in which disaster preparedness taught.

The results presented in Figure 4.28, show that 48% of learners indicated that they had been taught about disaster preparedness education in Social Sciences, 20% of learners indicated in Natural Sciences and another 20% indicated Life Orientation. The remaining 12% indicated that they had never taught about disaster preparedness in classrooms.

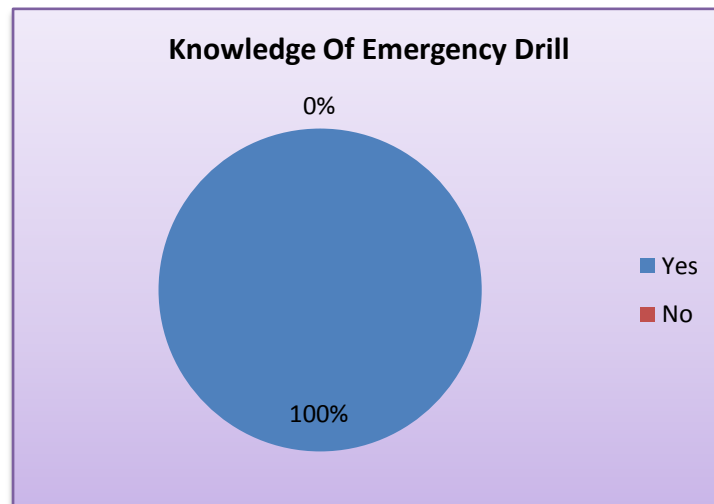


Figure 4.29: Displaying learners' knowledge of response during an emergency

The results presented in Figure 4.29, show that all the learners that participated in the study knew what to do during any emergency at school which constituted 100% of the population. It is not clear whether the result above was motivated by co-curricular activities which included basic disaster awareness and disaster risk reduction such as mock drills, first aid training, training fire safety and other appropriate response skills, for example light search and rescue, swimming,

evacuation and emergency shelter creation (Ahmedabad Action Agenda for School Safety, 2007:2).

Following their motivation for answers given to question 14 above of whether they knew what to do during any emergency at school, 65% of learners who participated in the study taught that they knew what to do as they emphasized the fact that they should stop whatever they were doing and evacuate to an open space for their own safety. Some added that they knew how to help those who got injured by applying first aid, whereas others said they knew how to use fire extinguishers in case of fire. Only 35% did not say anything about what to do during an emergency at school.

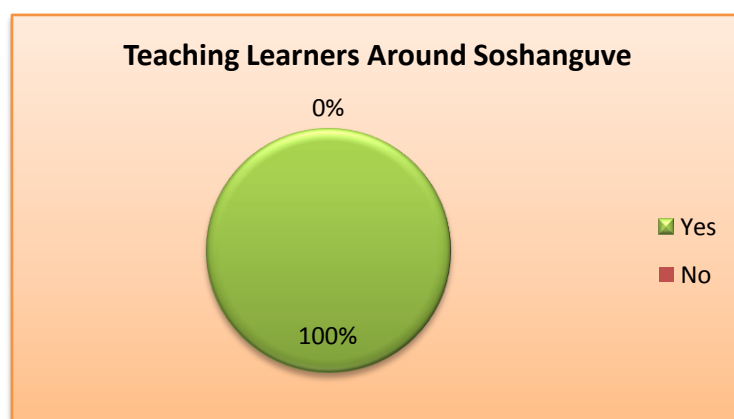


Figure 4.30: Learners' views of whether learners around Soshanguve are taught disaster preparedness in classrooms.

The results presented in the pie chart above, show that the majority of learners were unanimous that other learners around Soshanguve schools should be taught about disaster preparedness education in their classrooms.

When motivating their answers from question 16,, 95% of learners indicated that such education should be offered in classrooms to empower them with knowledge about disasters, to prepare learners on what to do in case disaster occurred, as well as to know evacuation procedures in emergencies.

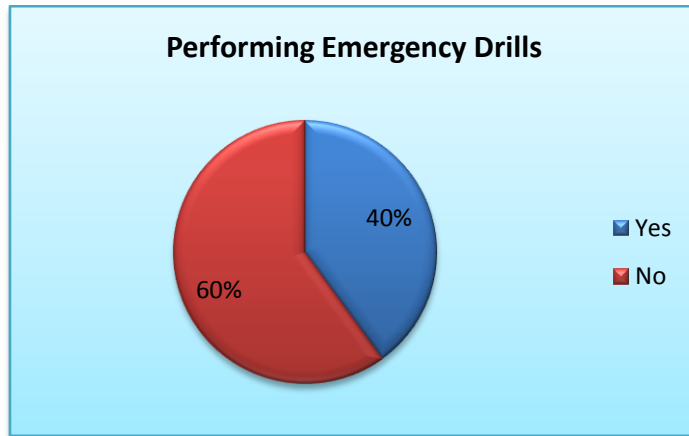


Figure 4.31: Whether learners perform emergency drills at schools.

The results presented in Figure 4.31 show that 60% of learners indicated that they did not rehearse emergency drills at their school, but 40% of learners indicated that emergency drills were performed at their school.

The inclusion of such a question was influenced by UNDP (1994:34) as mentioned in Chapter 2, stating that there was a need to rehearse the disaster preparedness plan, and that rehearsals would reemphasize points made in separate training programmes, test the system as a whole, and expose gaps that otherwise might have been overlooked. According to Twig (2004:287), rehearsals, evacuation and response procedures should be practised often, evaluated and improved.

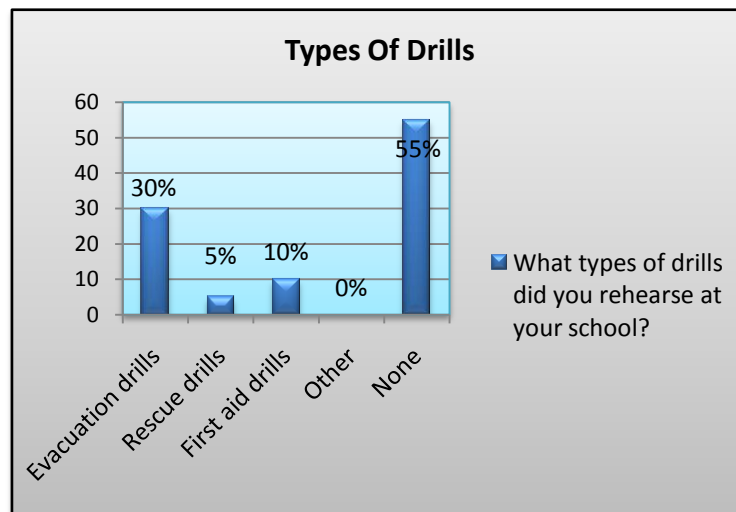


Figure 4.32: Types of drills performed by learners at school.

The results presented in Figure 4.32, indicate that 55% of learners indicated that they did not perform any drills at school. Only 30% admitted to performing evacuation drills at their school, Ten per cent indicated that they rehearsed first aid drills, and five per cent rehearsed rescue drills and no other drills.

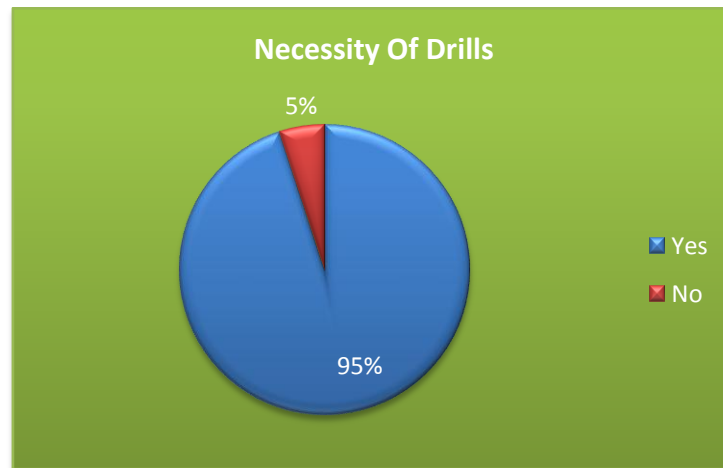


Figure 4.33: views of learners whether it is necessary to perform such drills at school.

The results presented in Figure 4.33, show that 95% of learners thought such drills should be performed at schools, but only five per cent thought it was unnecessary to perform such drills at school.

In their comments to answers given in question 20 above, 90% of learners thought that drills should be performed at school, so that they could keep on practising what they had learned, for instance how to apply first aid to an injured person, how to use fire extinguishers in case of fire, and lastly on how to evacuate to a safe space. 10% did not comment on whether it was necessary to perform such drills at school or not.

4.5 Data analysis through interviews

To understand qualitative data collected in the study, a descriptive analysis was used which narrated the responses of participants. Face-to-face interviews were used where the interviewer had an opportunity to ask participants questions, and clarify where there was no clarity. As stated in Chapter 3, the aim of qualitative interviews is to see the world through the eyes of the participants, as they are a valuable source of information, provided they are used correctly and

also provide rich descriptive data that will help the researcher to understand the participants' construction of knowledge and social reality.

Interviews were conducted with each selected individuals face-to-face, five school principals, three educators and two safety committee representatives. The results presented below are obtained from interviews. Therefore interviewees were asked questions in sequence according to their categories, school principals named P1, P2, P3 , P4 and P5, educators named P6, P7 and P8 whereas school safety committees were named P9 and P10.

4.6 Results obtained from school principals

Question 1: respondents were asked whether they thought disasters occurred in our country:

P1 said: “ Yes, our country are affected by disasters, let me say almost in all nine Provinces, to mention few, here in Gauteng province floods are reported to cause damages to shack dwellers destroying their properties and were remain homeless”.

P2 said: “Yes, shack fires and floods reported to hit our country lately, caused damage to property even lost lives”.

P3 said: “Accidents happen any time without warning; children were burned to death in a certain school in North West provinces in this country”.

P4 said: “Yes, floods hits Gauteng Province, Kwa Zulu Natal, and Eastern Cape and reported to cause malicious damages to property and people remain homeless and high rate of death resulting from such floods as some people were drowned”.

P5 said: “Yes, our country do affected by disasters, to mention few, in the following provinces: Gauteng hits by floods and shack fires, Limpopo experiences drought and there is loss of livestock there, shortage of water in other parts of the province, actually is dry as there is no grass for animals to feed on and storms happen to destroy buildings. Kwa Zulu Natal, Eastern Cape, Northern Cape, Western Cape, Northwest, Free State and Mpumalanga experiences floods during rainy seasons especially those situated near rivers, their shacks or homes and even farmers lost their property as a results of heavy rains”.

Question 2: respondents were asked to state whether they were aware of the policy stipulating the teaching of disaster preparedness education to learners in classrooms:

P2, P4 and P5 indicated that they saw such policies.

P2 said: "I saw a policy on disaster management at the district department".

P4 mentioned that she saw a policy on occupational health and safety as well as disaster management.

P5 indicated that he saw HIV/Aids policy, Admission policy, Health and safety policy as well as a School Governing Body Constitution.

P1 said: "I have never seen a policy on the teaching of disaster preparedness to learners in classrooms".

P3 said: "I am not aware of such policy".

Question 3: respondents were asked whether it was necessary to have disaster preparedness education taught to learners at schools, participants thought it was necessary to have such education. Their responses were presented as follows:

P1 said: "I think that even if we do not have a school policy on disaster management, in terms of experience of climate change that may affect children, they must be made aware through education".

P2 said: "I think it is important to teach learners about it and children like to pass knowledge to their parents at home about new things they learnt at school, so I see this as a way of educating our communities as well and they will learn a lot from them".

P3 said: "Only if department of education can include the teaching of disaster preparedness in classrooms, really it will be helpful and not to children only but to their communities".

P4 said: "As children are leaders of tomorrow, they must be taught to take responsibility about their country by knowing what is happening and what must be done thereafter".

P5 said: "I think that will do as it will stipulate the time of rehearsing the safety drills as we have time limit for each learning area in classrooms".

Question 4: respondents were asked whether their educators had ever attended any training or workshops on disaster management:

P2, P3 and P4 responded positively.

P2 said: "Safety Committee members attended workshop on how to use fire extinguishers".

P3 said: "Educators from safety committee were trained on how to use fire extinguishers and training on first aid".

P4 said: "educators from safety committee attended workshops on first aid and on safety".

P1 said: "No, educators were not trained or attended any workshop on disaster management".

P5 said: "I have never seen such invites from the district on disaster management, but regarding safety they use to call educators to attend workshops".

Question 5: respondents were asked whether learners rehearsed emergency drills at school:

P2 said: "Yes, learners performed fire drills"

.

P3 said: "every Wednesday of every month learners rehearse fire drills".

P4 said: "learners performed safety drills, including how to apply first aid to injured person".

P1 said: "No, learners did not perform any drills".

P5 said: "We did not engage learners in performing such drills.

Question 6: respondents were asked whether other schools around Soshanguve schools should offer lessons on disaster preparedness education:

P1 said: "I am uncertain, as far as I know we are all directed by the curriculum, so I cannot say, they offer such lessons or not".

P2 said: "I think that will depend on schools as there is integration of learning areas like Social Sciences, Natural Sciences and Life Orientation which include safety of learners from environment, air and water pollution as well as hazards education. Educators may integrate such knowledge and provide information to learners".

P3 said: "I am uncertain on that as we are guided by the curriculum".

P4 said: "I think that school for the blind and deaf, Philadelphia might have such education to prepare learners how to cope with whole situation within the school premises and also think Tsosoloso known as a school for troublesome children should offer such lessons as they are dealing with troublesome learners every day".

P5 said: "I don't know whether there are schools offering such education but I know that we teach what is in the curriculum".

4.7 Results obtained from educators

Question 1: respondents were asked whether they thought disasters do happen in Gauteng province:

P6 said: “Yes, there were incidents were shack fires reported to cause damage and people remain homeless, and our school was once affected badly by flash floods”.

P7 said: “Shack fires and floods used to hits our province and thereafter reported loss of lives and their property”.

P8 said: “I think floods and shack fires affect the province”.

Question 2: respondents were asked on whether learners should be taught about disaster preparedness education in classroom:

P6 said: “I think that in case of fires, learners should be taught how to evacuate to safe place and learn how to use fire extinguishers”.

P7 said: “For The sake of the learners to know what to do in case their school is affected, we should teach them in classrooms”.

P8 said: “In My view, I don’t think as educators we will manage to do that as we have no idea maybe if they can train us or conduct workshops for us, with little information we get we can transfer such knowledge about disaster preparedness”.

Question 3: respondents were asked whether they were aware of policy document stipulating the teaching of disaster preparedness to learners in classrooms:

P6 said: "I think so, because of Technology scenario, talks about disasters and is part of lesson need to be prepared for learners in classrooms".

P7 said: "I am not aware about it".

P8 said: "I think that as Social Sciences policy document stipulates that learners should be taught about disasters and hazards in classroom".

Question 4: respondents were asked whether they had attended any training or workshop on disaster management:

P6 said he never attend any workshop nor been trained on disaster management.

P7 said: "a member from Tshwane Municipality visited our school to conduct workshop on fire safety and show us how to draw evacuation plan for the school as well as how to perform evacuation drills involving learners and the whole staff".

P8 said: "such workshops were attended by school safety committee only, and they gave us feedback".

Question 5: respondents were asked whether they thought schools around Soshanguve schools should offer lessons on disaster preparedness:

P6 said: "such education should be offered as learners still need to be empowered with knowledge regarding their protection and safety at school".

P7 said: "I am uncertain, as what we teach in class, we are guided by the curriculum".

P8 said: "As Long as we are still guided by the curriculum, I don't think so, maybe if our department can consider including it for the coming years".

4.8 Results obtained from school safety committee

Question 1: respondents were asked whether they thought disasters occurred in our country:

P9 said:, "Almost In All provinces, like in Kwazulu Natal and Gauteng, floods incidents were reported repeatedly this year and damage to property as well as loss of lives".

P10 said: "Fires In schools North West province were learners reported dead on the scene".

Question 2: respondents were asked whether they heard about disasters that caused damage to schools in other countries:

P9 said: "Recent earthquake in Japan and China that caused damage to buildings including schools".

P10 said: "In Japan, tsunami which cause damaged to the country's infrastructures, hospitals and schools".

Question 3: respondents were asked whether they thought learners should be taught about disaster preparedness in classrooms:

P9 said: "Yes, for safety reasons and to be proactive".

P10 said: "Yes, in order for learners to know how to react when such disaster occurs".

Question 4: respondents were asked whether they are aware of the policy document stipulating that disaster preparedness should be taught to learners in classrooms,

P9 said: "I have read a booklet on safety in schools", and

P10 said: "I saw policy, Tshwane Municipality drafted policy, creating awareness in schools of how to handle situations caused by fires".

Question 5: respondents were asked whether it is necessary for educators as well as members from safety committee to be trained or to attend workshops on disaster management:

P9 said: "I think such education will be helpful as it will teach learners the importance of managing disasters".

P10 said: "I think that when teachers are trained on how to manage disasters, it will be easy to implement policies on disaster management and to assist learners and give them directive in case disasters do happen".

Question 6: respondents were asked whether they have organized any emergency drills to learners and other employees at their school:

P9 said: "We did three fire evacuation drills for the whole school this year".

P10 said: "We did first aid drills to few learners and educators who assisted during school athletics in case of those injured and fire evacuation drills was done for the whole school, targeting principal, educators, administration clerks, security, cleaners SGB and hawkers within the school premises".

Question 7: respondents were asked whether they think other schools around Soshanguve teach learners about disaster preparedness in classrooms:

P9 said: “I personally don’t know as they offer such lessons because curriculum does not stipulate the teaching”.

P10 said: “Not All schools are involved in disaster management because of lack of resources to handle precaution programmes”.

4.9 Summary of data collection

As it was discussed in Chapter 3 that questions asked in the questionnaires as well as those asked during interviews, were designed to address the research sub-questions that would in the end address the main research question as to what extent disaster preparedness was achieved by learners and educators in Soshanguve schools. The findings that emerged during data analysis looking at both learners and educators had been discussed.

In terms of awareness of a policy document stipulating the teaching of disaster preparedness education, it seems like the majority of both respondents of questionnaires and participants from interviews had not seen such a policy.

In terms of the extent to which learners around Soshanguve had been taught about disaster preparedness, the disaster preparedness framework was used to assess educators’ knowledge and it emerged that most of the educators lacked knowledge on vulnerability assessment, planning, public education and training, warning systems and rehearsals, to mention but a few. Most of the educators were not aware of the existence of such a framework. Only few indicated to have some knowledge following a workshop on fire safety conducted by Tshwane Metropolitan Municipality.

Regarding hazards and disaster knowledge, few educators thought they had knowledge about them as they rated it good and average. However, on the part of learners regarding hazards and disaster knowledge all of them with 100% representation thought they had knowledge of disaster preparedness as they received such education at school in Social Science education.

In view of the level of education regarding training or attending of workshops, almost all of them with a 90% representation indicated that they did not receive any training regarding disaster management. Regarding rehearsals and knowledge during an emergency at schools, the majority of learners confirmed that they knew what to do, they said they would stop whatever they were doing and run for safety by evacuating to an open space. They emphasized that they rehearsed evacuation drills, rescue drills and first aid drills. Learners tended to be the ones who achieved disaster preparedness in this study regarding their knowledge about hazards and disasters as well as rehearsals and emergency drills (acquired at school from Social Sciences education stipulated by the curriculum, and safety drills conducted at school despite their educators' lack of knowledge as they had not been trained).

4.9.1 Educators' findings on training in disaster education

A male educator in the age group 22-29 who participated in this study and who is currently teaching at a primary school, offering Life Orientation, indicated that he was untrained and never attended any workshop on disaster management. He had the knowledge and understanding of planning, institutional framework, warning system and public training, and had some knowledge of both hazards and disasters.

Six respondents from different age groups, types of schools teaching different learning areas participated in this study, and fall in the above category. A male educator in the age group 30-40 currently teaching at a secondary from 1-4 years, offering Social Sciences, did not attend any training on disaster management, but has understanding of planning, warning systems, public education and training and rehearsals. His knowledge of hazards and disasters is excellent.

A male educator in the age group 41-50, currently teaching at a secondary school, offering Social Sciences also falls in the above category. He indicated that he was not trained and had no understanding of a disaster preparedness framework, while he has good knowledge of hazards and disasters. Three females in the age group 41-50 also fall in the above category and participated in this study. A female HOD, currently teaching at a primary school offering Natural Sciences, did not attend any training, but has an understanding of planning, institutional framework, warning systems, response mechanism, public education and training and rehearsals. Has a good knowledge of hazards and disasters.

A second female educator falls in the above category, currently teaching at a primary school as well as offering Life Orientation, indicated she was not trained and had no understanding of disaster preparedness framework, but had a good knowledge of hazards and disasters. A third female educator teaching at a secondary school offering Natural Sciences had an understanding of public education and training and rehearsals. She has an average knowledge of hazards and disasters.

Thirteen educators varying in age, gender and the type of school where they are teaching fall in the above category and all of them were not trained or attended workshops on disaster management. The views of four educators, three females and one male in the age group 30-40 are presented as follows:

- First female educator, teaching at secondary school offering Social Sciences, had knowledge or understanding of planning and public education and training, and average knowledge of both hazards and disasters.
- Second female educator teaching at secondary school offering Social Sciences as well, had no understanding of disaster preparedness framework but average knowledge on both hazards and disasters.
- Third female HOD, teaching at primary school offering Life Orientation, had no understanding of disaster preparedness framework, but good knowledge of hazards and disasters.
- Fourth one, male educator, currently teaching at primary school offering Social Sciences also indicated to have understanding of warning, response mechanisms, public training and education and rehearsals. He also had average knowledge of both hazards and disasters.

Seven educators, three females and four males who participated in this study were 41-50 years, from different schools and offered different types of learning areas. Their views are presented as follows:

- First female educator, currently teaching at secondary school offering Life Orientation, indicated no training or workshop, but understood planning, public education and training and rehearsals. The educator had good knowledge of hazards and disasters.

- Second female educator, teaching at secondary school offering Natural Sciences, indicated understanding of planning, warning systems, public education and training and rehearsals. She had good knowledge of both hazards and disasters.
- Third female educator teaching at secondary school, offering Natural Sciences, had no understanding of disaster preparedness framework and hazards and disasters.
- Fourth one a male educator teaching at secondary school offering Social Sciences, indicated no understanding of disaster preparedness, but his knowledge regarding hazards and disasters was excellent.
- Fifth one a male educator teaching at primary school offering Social Sciences, had no understanding of disaster preparedness framework or hazards and disasters.
- The sixth one a male educator teaching at primary school offering Natural Sciences, had no understanding of disaster preparedness framework or disasters, but had average knowledge of hazards.
- The seventh one a male educator teaching at secondary school offering Social Sciences, had no understanding of disaster preparedness and hazards, but average knowledge of disasters.

The two female educators who participated in this study were 51 years, currently teaching at primary and secondary schools, both offering Life Orientation and were not trained in disaster management. The one teaching at primary school understood planning and rehearsals, and was competent regarding hazards and disasters. The other one teaching at secondary school had no understanding of disaster preparedness framework, but had good knowledge of hazards and disasters.

Six educators, male and female, in the age group 41-50 and above, from different schools teaching different subjects participated in this study. Their views are presented as follows:

- First female educator in the age group 41-50 currently teaching at secondary school, offering Life Orientation understood planning, public education and training. She also indicated to have average knowledge of hazards and disasters.
- Second one, a male educator in the age group 41-50, teaching at primary school offering Natural Sciences, had no understanding of disaster preparedness and his knowledge of hazards was poor, but average on disasters.
- Third one, a female HOD 51 years and above, currently teaching at primary school, offering Life Orientation had no understanding of disaster preparedness framework, but had average knowledge on both hazards and disasters.
- Fourth one, a female educator aged 51 years and above and teaching at secondary school, offering Natural Sciences had no understanding of disaster preparedness framework, but average knowledge of hazards and knowledgeable about disasters.
- Fifth one, a male educator aged 51 years and above, teaching at secondary school offering Natural Sciences had no understanding of disaster preparedness framework, but had average knowledge of hazards and disasters.
- The sixth one, HOD male educator currently teaching at primary school, offering Social Sciences understood planning and rehearsals and his knowledge regarding hazards and disasters was poor.

4.9.2 Learners' findings

The findings that emerged from this study showed that there were learners who did not perform emergency drills at their schools depending on which school they attended, number of years at school, age group and gender.

A female learner in the age group 11-14, currently attending secondary school for the period 1-11 months, indicated that she had not performed any emergency drills at schools, but heard about the two concepts hazards and disasters at school.

There are learners currently attending a particular school for the period 1-3 years in the age group 11-14 participated in this study. Two male learners both attending primary school indicated that they did not perform emergency drills at their schools, but heard about two concepts, hazards and disasters at school. One of them was not familiar with the concept hazards.

Four learners currently attending different schools from 1-3 years, in the age group 15-17 participated in the study. Learners consisted of two males and two females both attending secondary school, indicated that they did not perform drills at their schools, but heard of the two concepts hazards and disasters at school and on TV, and the other male learner did not state where he heard of the concept disaster.

Two learners being at school for the period of 4-5 years in the age group 11-14 participated in the study were, male and female learners both attending primary school, showed that they did not perform any emergency drills at their schools, but heard about the two concepts hazards and disasters at school, and only a female learner indicated that she had never heard of hazards.

Three learners in the age group 11-14, being at their current schools for a period of 6 years and above also participated in this study. They are two male learners and one female both attending primary school, who indicated that they did not perform emergency drills at school, but heard of the concepts hazards and disasters at school. The female learner heard of hazards at home and disasters at school.

4.9.3 Drills at school

Two female learners in the age group 11-14, and at school for the period of 1-3 years, one from primary school and the other from secondary school, had performed evacuation drills at their schools and heard about two concepts hazards and disasters at school.

Two learners, male and female in the age group 15-17 years, at school for the period of 1-3 years, both from secondary school, performed evacuation drills and heard about the two concepts hazards and disasters at school.

Four learners participated in this category in the age group 11-14. Two males from primary schools, performed different drills; one performed rescue drills and had not heard of hazards, but of disasters at school. The other performed evacuation drills and heard about the two concepts hazards and disasters at school. Two female learners attending primary school performed first aid and heard of two concepts hazards and disasters at school.

Chapter 5

Recommendations and conclusions on assessing disaster preparedness of learners and educators in Soshanguve North Schools

5.1 Introduction

The purpose of this chapter is to discuss recommendations and conclusions based on the findings that emerged from the literature review as stated in Chapter 2, and findings from data collected through questionnaires and interviews that were presented and analysed in Chapter 4. The objective of the study was to assess disaster preparedness of learners and educators in Soshanguve North Schools.

The main aim of the study was to determine the extent to which disaster preparedness is achieved by learners and educators in schools located in Soshanguve North. To achieve this, the problem statement, research question and objectives were revisited as stated in Chapter 1, and the focus will be on recommendations and conclusions.

As indicated in Chapter 3, data were collected through questionnaires and interviews. The data collected were analyzed in Chapter 4 using different analysis techniques. For quantitative data charts were used to display and the data descriptive analysis method was employed. Triangulation method was used through questionnaires, interviews and literature review to determine the similarities, differences or corroboration in the findings.

5.2 Problem statement

The National Curriculum Statements for Social Science stipulates that learners should be taught about disasters in Grade 7 classes (DoE, 2003:48). There is not much evidence to prove whether learners and educators in Soshanguve are well prepared for the outbreak of disasters. The South African National Disaster Management Framework (2005:156) requires that the Department of Education develop Disaster Risk Management plans to manage disasters and to have education and training being taught in schools. There is also no evidence to prove that schools in Soshanguve have developed these plans.

5.3 Research questions and objectives

As stated in Chapter 3 and 4, the main research question was divided into sub-questions to address the research problems through questionnaires and interviews in which both educator and learner questionnaires Part B and Part C together with principal, educator and school safety committee interview questions were designed to address the research sub-questions.

5.3.1 Main questions

- To what extent is disaster preparedness achieved by learners and educators in Soshanguve schools?

5.3.2 Sub-questions

- Are schools in Soshanguve North, aware of policy documents stipulating the teaching of disaster preparedness to learners?
- To what extent have learners around Soshanguve schools been taught about disaster preparedness?
- What is the level of learners and educators' knowledge about disaster education in Soshanguve schools?

5.3.3 Research objectives

- To assess whether schools in Soshanguve are aware of policy documents stipulating the teaching of disaster preparedness to learners.
- To assess whether learners around Soshanguve schools have been taught disaster preparedness.
- To assess whether learners and educators have knowledge of disaster education in Soshanguve schools.

5.4 Findings from analysed data

After analysing completed questionnaires and interviews in Chapter 4, 70% of educators were not aware of policies stipulating the teaching of disaster preparedness, but data collected from interviews revealed that P2, P4, P5, P6 and P8 were aware of the policies.

In determining the extent to which learners around Soshanguve had been taught about disaster preparedness, the disaster preparedness framework was used to assess educators' knowledge and understanding. It emerged that most of the educators lacked knowledge on vulnerability assessment, planning, public education and training, warning systems and rehearsals, to mention but a few. Most of educators were not aware of the existence of such a framework. Only few indicated to have some knowledge following a workshop on fire safety conducted by Tshwane Metropolitan Municipality.

Regarding hazards and disaster knowledge, few educators thought they had enough knowledge as they rated it good and average. However, on the part of learners regarding hazards and disaster knowledge, the majority (100%) thought they knew as they received such education at school in Social Science education.

In view of the level of learners and educators' knowledge about disaster education in Soshanguve schools with regard to educator training or attending of workshops, almost all of them (90%) indicated that they did not receive any training regarding disaster management. It is possible for learners to have knowledge on hazards and disasters as educators are trained to transfer knowledge they read from text books to learners, as stipulated by the curriculum. Therefore, this wants further investigation of how learners acquired knowledge of disaster preparedness even though their educators had not attended disaster preparedness training.

From the findings, learners tended to be the ones who were aware of disaster preparedness with knowledge they acquired at school from Social Sciences education stipulated by the curriculum, as well as from emergency drills conducted as separate training programmes at school, even though their educators were not trained. Sixty per cent of educators who participated in this study were from secondary schools, Grade 7 - 9 constituting 50% and only 33% of educators were teaching Social Sciences as they were specialists in that learning area and offered lessons on hazards and disasters as guided by the curriculum from text books.

The respondents (P2, P3, P4, P6, P8, P9 and P10) who participated in the interviews stated that they rehearsed emergency drills at schools as a result of workshops attended by educators and school safety committee members that contributed. Thirty per cent of learners had been involved in evacuation drills, 10% in first aid and 5% in rescue drills.

5.5 Recommendations

5.5.1 Recommendations for Department of Education

Data collected were analyzed in an attempt to address the main research question as to what extent disaster preparedness was achieved by learners and educators in Soshanguve schools. The disaster preparedness framework was used to assess educators' understanding as it served as a guiding tool to be applied by disaster managers to emphasise the importance of having such a kind of framework, according to Guy, the Director of Health and Education, Planning for natural disasters and emergencies is something every educational institution must consider, regardless of its size or location. It is not possible to plan for every eventuality that might occur; however preparation is a key to saving lives if a disaster strikes as indicated by IFC (2010:s.p).

According to FEMA (2005:s.p) teaching students to take immediate positive action can help them and those around them survive the disaster safely. The knowledge, attitude and skills used by the teacher to promote this, will not only help students academically, but also may one day save their lives. According to Twig (2004:287), the main aim of disaster preparedness is to help people to avoid impending disaster threats and to put plans, resources and mechanisms in place to ensure that those who are affected receive adequate assistance.

Khan (2008:669) maintains that education and awareness are prerequisites for preparedness, and that disaster preparedness education should be provided through formal and non-formal means by both governments and NGO programmes. Formal education in disaster preparedness is provided at the primary school level, where the topics focus mainly on general awareness about different types of disasters and at the post graduate level where degrees, certificate, diploma and master in disaster management are offered to prepare professionals for this task.

Regarding results of educators' understanding of disaster preparedness framework, it emerged that educators lacked knowledge or understanding with 97% ticking "NO" to vulnerability assessment, followed by 87% to resource base, 83% to institutional framework and response mechanism. Seventy-seven per cent of educators indicated that they had no understanding of

warning systems, 63% lacked knowledge about rehearsals, and 53% reported lack of knowledge about planning and public education and training.

The Department of Education must therefore consider adopting disaster preparedness framework as a strategy that can help in the development of disaster management plans for schools as stated in Chapter 2, and also it is recommended that the Department of Education conduct vulnerability assessment in each province.

Vulnerability assessment involves identifying of geographic areas or communities that are predictably under threat from disasters. Vulnerability assessments also serve as the starting point for determining the types of plans that should be developed as part of a national disaster preparedness strategy. It is therefore recommended that the Department of Education ensures that every school has disaster preparedness plans.

There is a need to have plans in place that are agreed upon, that are implementable and for which commitment and resources are relatively assured. It is therefore recommended that the Department of Education encourages the establishment of the institutional framework which involves schools and other disaster management institutes.

This relates to the need for a decision-making structure, inter-ministerial committees to co-ordinate plans, focus groups within each ministry that are responsible for the plans implementation and communication, as well as regional and community structures to implement strategies at a local level. It is recommended that the Department of Education ensures that every school includes information systems when implementing a school disaster preparedness plan.

The preparedness plan must have an information network such as an early warning and monitoring system to facilitate disaster prediction, warning and evacuation communication. It is therefore recommended that the Department of Education ensures that every school include a resource base when implementing school disaster preparedness plans, and the requirements should meet disaster needs depending upon the types of disasters the plan anticipates. Such requirements should be made explicit, and should cover all aspects of disaster relief and recovery implementation. It is therefore recommended that the Department of Education ensures that every school has warning systems.

Vulnerable population should be given adequate notice of an impending disaster; such people can either escape the event or take precautions to reduce the dangers. It is therefore recommended that the Department of Education encourages the establishment of response mechanisms in schools, depending on the nature of the threat and that includes evacuation procedures and search rescue. It is also recommended that the Department of Education ensures that schools conduct public education and training on disaster management.

According to the Disaster Management Training Programme, the focus of any disaster preparedness plan should be to anticipate, to the extent possible, the types of requirements needed for action or responses to warnings and disaster relief operations and how those requirements will be met. However, the planning process will only be effective if those who are the ultimate beneficiaries know what to do in times of disaster and what to expect. The education is therefore needed for those who may be threatened by disaster and can take many forms such as:

- a) Public education in schools – standardized curricula for children and young adults, should include information about actions which should be taken in case of a disaster threat or occurrence for example floods, etcetera.
- b) Special training courses – workshops should be designed for an adult population, either specifically or as an extra dimension of ongoing programmes such as literacy or cooperative training sites.
- c) Extension Programmes – in which community- and village-based extension workers are instructed to provide relevant information and trained for the tasks they should undertake during the event.
- d) Public information – through the mass media, whether television, radio or the printed word, will never replace the impact of direct instruction. However, if sensitively designed and presented, mass media may provide a useful supplement to the overall educational process (UNDP, 1992:65).

Based on the forms of education above, it is recommended that the Department of Education encourages every school in all nine provinces to rehearse emergency drills. There is a need to rehearse the disaster preparedness plan because rehearsals reemphasize points made in separate training programmes, test the system as a whole, and expose gaps that otherwise

might have been overlooked as reported by UNDP (1994:34). According to Twig (2004:287), rehearsals, evacuation and response procedures should be practised, evaluated and improved.

With regard to policy stipulating the teaching of disaster preparedness in classrooms, UNISDR (2006:12) maintains that there is no national curriculum which deals specifically with disaster risk reduction. As stated in Chapter 4, the majority of educators participating in this study (73%) stated that they did not see any policy document stipulating the teaching of disaster preparedness to learners, and the remaining 27% indicated that they had seen such policy referring to Social Science policy document, Life Orientation policy document, Health & Safety GDE and School Safety policy.

With reference to the study conducted by Furhrmann *et al.* (2008) in FEMA (2010:8) that schools should optimize the National Science Education Standards (that introduce students to natural and human-induced hazards) by incorporating disaster preparedness information into their lesson plans. Furhrmann *et al.* (2008) also state that disaster preparedness education can be covered in almost any class, whether it is geography, history, economics, civics, social studies, language, arts, mathematics, science, physical education, health, or technology. Table 4.1.2 in Chapter 2 shows the integration of disaster risk reduction in education in almost all learning areas.

In consideration of the above results emanating from educators and reviewed literature, it is recommended that the department of education should include the teaching of disaster preparedness education in the national curriculum in all learning areas guided by Department of Cooperative Governance through NDMC.

Twig (2004:180) in Chapter 2, maintains that schools should arrange educational visits to or by local emergency services. Local NGOs working on disaster reduction could probably be more active in offering to visit schools, talk to pupils and support school preparedness initiatives. It is recommended that Tshwane North District organises disaster risk reduction awareness focusing on hazards, vulnerability and seasonal awareness in schools guided by Tshwane Metropolitan Municipality responsible for disaster management.

A recommendation is that Tshwane North District conducts workshops for school principals, educators and school safety committees to empower them with knowledge regarding disaster management in schools.

In Chapter 1, it is stated that the current practice in South African education is that the Department of Education encourages public schools to take measures to ensure the safety of learners during any school activity, as amendments of the South African School Act (South Africa, 1996). Whereas Disaster Risk Reduction (DRR) education requires schools to implement safety, emergency and disaster preparedness plans to prepare learners and educators to know what to do during and after a disaster occurred as reported by UNISDR (2010:5).

It is recommended that the Department of education encourage the school principals to have school disaster preparedness plans in place according to UNISDR (2008:16) as the purpose of school disaster management is to protect the lives of students and staff, and to ensure educational continuity of students. Regarding school safety, it is recommended that the Department of Education, through the guidance of Department of Public Works and Tshwane Metropolitan Municipality consider vulnerability assessment and monitoring of building codes and project cycle management before building a new school.

5.5.2 Recommendations for Higher Education and Training

According to UNICEF (2009:7) all governments should commit to teacher training and curriculum development to support large-scale teaching of disaster risk reduction. Teacher training approaches include: formal teacher training through institutes, training colleges and etcetera. It is therefore recommended that South African colleges and Universities should consider offering training of educators on disaster management. Regarding the training on disaster management, it is recommended that the Department of Education should consider offering formal training to educators accredited by SETA for a career path. It is further recommended that the Department of education should fund training of educators on disaster management.

5.5.3 Recommendation for National Disaster Management Centre

The National Education, Training, Research Needs and Resources Analysis (NETaRNRA) conducted by the National Disaster Management Centre (NDMC) in 2010 arrived at certain findings, and proposed measures to improve disaster risk management education and training. In particular, NETaRNRA found that the integration of disaster risk reduction education in the South African curriculum, the assessment standard or learning outcome statements of some of learning areas such as Social Sciences, Life Orientation and Natural Sciences in the General Education and Training (GET) and Geography in Further Education and Training (FET) directly or indirectly cover disaster risk management concepts and principles reported in DCOG (2010:12). In line with NETaRNRA, the study revealed that learners received hazard and disaster education in Social Sciences learning area stipulated by national curriculum based on the findings of the study, taking into account NETaRNRA recommendations.

It is recommended that the NDMC should encourage and provide guidance to the Department of Education to include the teaching of disaster preparedness education in the school curriculum.

5.6 Conclusion

The findings in this study revealed that disaster preparedness of learners and educators seemed to have been achieved by learners based on the knowledge received in classrooms during hazards and disaster education in Social Sciences, and during rehearsals performed at school. Principals and educators including members from school safety committee need to be trained regarding disaster management to understand the disaster management framework so that they can use it as a tool to manage disasters at school.

Schools should have disaster management plans in place to address the threats of floods, fires and storms as research findings revealed to be possible disasters participants identified. The Department of Education should consider funding the training of educators in disaster management and organizing workshops to empower them with knowledge.

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APPENDIX A: RESEARCH QUESTIONNAIRES

To whom it may concern:

I am a Masters student, currently registered with the University of the Free State. I am on the process of collecting data in Soshanguve North schools, on the following research topic: Assessing disaster preparedness of learners and educators in Soshanguve North schools. The aim of this study is to determine the extent to which disaster preparedness is achieved by learners and educators in Schools located in Soshanguve North. The research objectives are:

- To assess whether schools in Soshanguve are aware of policy documents stipulating for the teaching of disaster preparedness to learners.
- To assess whether learners around Soshanguve schools have been taught about disaster preparedness.
- To assess whether learners and educators have knowledge about disaster education in Soshanguve schools.

I therefore kindly request you to complete the questionnaires by indicating your choice with an "X" in the boxes provided, and you are also expected to add comments or motivate your choices in the space provided.

Thank you for your cooperation.

1. EDUCATOR QUESTIONNAIRES

PART A: PERSONAL PROFILE

(Indicate your choice by marking the appropriate block with “X”).

1. Gender

Male	
Female	

2. Rank per qualification:

Educator	
HOD	
Principal	
Other (specify)_____	

3. What type of school are you teaching?

Primary school	
Secondary school	
High school	
Other (specify)_____	

4. Which learning area do you teach at school?

Social Sciences	
Life Orientation	
Natural Sciences	
Other (specify)_____	

5. For how long have you been teaching at this school?

1-11months	
1-4 years	
5-15 years	
16 and above	

6. Under which age group do you fall?

22 –29 years	
30 – 40 years	
41-50 years	
51 years and above	

PART B: GENERAL DISASTER EDUCATION QUESTIONS

(Indicate your choice by marking the appropriate block with an “X”).

7. Do you have understanding of the following disaster preparedness framework for schools?

DISASTER PREPAREDNESS FRAMEWORK		
Vulnerability Assessment	YES	NO
Planning	YES	NO
Institutional Framework	YES	NO
Resource Base	YES	NO
Warning systems	YES	NO
Response mechanisms	YES	NO
Public education and training	YES	NO
Rehearsals	YES	NO

8. Do you think other schools around Soshanguve are aware of the existence of disaster preparedness framework on management of disasters in number 7 above?

Yes	
No	
Uncertain	

9. Motivate your answer:

10. Please rate the level of your hazards knowledge.

Excellent	
Good	
Average	
Poor	

11. Please rate the level of your disasters knowledge.

Excellent	
Good	
Average	
Poor	

12. Do you think your school could be seriously affected by disasters one day?

Yes	
No	
Uncertain	

13. Motivate your answer:

PART C: LEVEL OF EDUCATOR DISASTER PREPAREDNESS

(Indicate your choice by marking the appropriate block with an “X”).

14. Do you think disasters do happen in this Province?

Yes	
No	
Uncertain	

15. If your choice is “YES” what type of disasters are likely to affect your area?

16. Have you ever attended any training or workshops on disaster management?

Yes	
No	
Uncertain	

17. If your answer is YES, what was the focus of the training?

18. What policy document stipulating the teaching of disaster preparedness to learners have you seen or used before?

19. In your own view, do you think disaster preparedness education should be taught to learners in classrooms?

Yes	
No	
Uncertain	

20. Motivate your answer: _____

21. Which learning areas do you think can cover the teaching of disaster preparedness education in classrooms?

Social Sciences	
Life Orientation	
Natural Sciences	
Other (specify)_____	

22. Motivate your answer: _____

23. Do you think other schools around Soshanguve should offer lessons on disaster preparedness in classrooms?

Yes	
No	
Uncertain	

24. Motivate your answer: _____

THANK YOU!!!

2. LEARNER QUESTIONNAIRES

PART A: PERSONAL PROFILE

(Indicate your choice by marking the appropriate block with 'X').

1. Gender

Male	
Female	

2. What type of school are you attending?

Primary school	
Secondary school	
High school	

3. For how long have you been at this school?

1-11 months	
1-3 years	
4-5 years	
6 and above	

4. Under which age group do you fall?

7 years	
8-10 years	
11-14 years	
15-17 years	
18 years and above	

PART B: GENERAL DISASTER EDUCATION QUESTIONS

(Indicate your choice by marking the appropriate block with an "X").

5. Have you learn about the word hazard?

YES	
NO	

6. If YES, where did you learn about hazards?

School	
Home	
Hospital	
Other (specify) _____	

7. Have you heard about the word disaster?

YES	
NO	

8. If YES, where did you heard about the word disaster?

School	
Home	
Hospital	
Television, Radio	
Other (specify)_____	

9. Do you think our country can be affected by disasters one day?

YES	
NO	

10. What type of disasters do you think can affect our country?

Floods	
Tsunami	
Volcano	
Earthquake	
Other (specify)_____	
None	

PART C: LEVEL OF LEARNER DISASTER PREPAREDNESS

(Indicate your choice by marking the appropriate block with an "X").

11. Have you ever been taught about disaster preparedness in classroom?

Yes	
No	

12. If YES, which grades were you taught about disasters?

13. In which learning areas have you been taught about disaster preparedness?

Social Sciences	
Natural Sciences	
Life Orientation	
Other (specify) _____	
None (Not taught about disasters)	

14. Do you think that you know what to do during emergency at school?

YES	
NO	

15. If YES, what do you think you should do?

16. Do you think other learners around Soshanguve Schools should be taught about disaster preparedness in classrooms?

YES	
NO	

17. Motivate your answer: _____

18. Do you ever perform disaster/emergency drills in your school?

YES	
NO	

19. What type of drills did you rehearse at your school?

Evacuation drills	
Rescue drills	
First aid drills	
Other (specify) _____	
None	

20. In your view, is it necessary to perform such drills at school?

YES	
NO	

21. Motivate your answer: _____

THANK YOU!!!

APPENDIX B: INTERVIEW GUIDELINES

SCHOOL PRINCIPALS

1. Do you think disasters do occur in our country SA?
2. Are you aware of policy document stipulating that disaster preparedness education should be taught to learners in classrooms?
3. In your view, is it necessary to have disaster preparedness education been taught to learners at schools?
4. Did your educators ever attend training or workshops on disaster management?
5. Did learners ever attend emergency drills at school?
6. Do you think other schools around Soshanguve offer lessons on disaster preparedness in classrooms?

EDUCATORS

1. Do you think disasters do occur in this Province?
2. Do you think learners should be taught about disaster preparedness in classrooms?
3. Are you aware of the policy document stipulating that disaster preparedness should be taught to learners in classrooms?
4. Have you trained or attended any workshops on disaster management?
5. In your own view, do you think other schools around Soshanguve offer lessons on disaster preparedness education?

SCHOOL SAFETY COMMITTEE

1. Do you think disasters do occur in our country SA?
2. Have you heard about disasters that caused damage to schools in other countries?
3. In your view, do you think learners should be taught about disaster preparedness in classrooms?
4. Are you aware of the policy document stipulating that disaster preparedness should be taught to learners in classrooms?
5. In your view, is it necessary for the educators as well as members from safety committee to be trained or to attend workshops on disaster management?
6. Did you organize any emergency drills to learners and other employees at your school?
7. Do you think other schools around Soshanguve teach learners about disaster preparedness in classrooms?

APPENDIX C: CONSENT FORM



LEARNER CONSENT FORM

I hereby give consent to Ms. H.M Mamogale for learner's participation in the study titled "Assessing disaster preparedness of learners and educators in Soshanguve North Schools. Learners will be completing questionnaires. I confirm that Ms. Mamogale explained to me the purpose of the research and informed me of the learners' rights, to withdraw from participating if they wish to do so and also guaranteed confidentiality in the final report. I therefore give consent to learners voluntarily and confirm that they will not coerce nor tricked to participate.

.....
.....

Parent/SGB Signature

.....

Date



RESPONDENT CONSENT FORM

Consent form to participate in the study to “Assess disaster preparedness of learners and educators in Soshanguve North schools” through completing questionnaire and be interviewed. I confirm that Ms. Mamogale explain the purpose of research and informed me of my rights to withdraw if I wish to do so and guaranteed my confidentiality in the final report. I therefore wish to participate in the study voluntarily and confirm that I will not be coerced nor tricked to take part.

.....

Respondent Signature

.....

Date