PUBLIC AWARENESS CAMPAIGNS AS EFFECTIVE MEANS TO REDUCE DISASTER RISK: A CASE STUDY OF THE FIRE AND FLOOD CAMPAIGN IN THE WESTERN CAPE

BY

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‘*Education is the most powerful weapon which you can use to change the world.*’
Nelson Mandela

DECLARATION

I hereby declare that the work herewith submitted is my own and that it is submitted for the first time at the University of the Free State for a Masters Degree in Disaster Management. It has never been submitted to any other university in order to qualify for a degree.

In addition, I hereby cede copyright of this thesis in favour of the University of the Free State.

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Carin Inge Joyce Date

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ABBREVIATIONS

Abbreviation/Acronym	Full Name
CDW's	Community Development Workers
DFID	Department for International Development
DRR	Disaster Risk Reduction
GIS	Geographic Information System
GMHRC	General Model of Hazard Risk Communication
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Virus
IFRC	International Federation of the Red Cross
ISDR	International Strategy for Disaster Reduction
KPA	Key Performance Area
MDMC	Municipal Disaster Management Centre
M&E	Monitoring and Evaluation
NDMC	National Disaster Management Centre
NDMF	National Disaster Management Framework
NGO	Non-Governmental Organisation
PAR	Pressure and Release
PDMC	Provincial Disaster Management Centre
PrE	Person Relative to Event
PSASA	Paraffin Safety Association of Southern Africa
RAVA	Risk and Vulnerability Assessment
UN	United Nations
UNICEF	United Nations Children's Fund

ABSTRACT

Public awareness has long been regarded as one of the tools to achieve disaster risk reduction through increased hazard knowledge, risk perception, and the fostering of risk avoidance behaviour; but measuring the effectiveness of such campaigns proves to be a difficult task. A case study of the Fire and Flood Awareness Campaign in the Western Cape Province served as an attempt to assess such a campaign using the international best practice Logic Model framework.

As disaster risk has historically been a culmination of vulnerability, hazards such as fires or floods and ability to cope with the impacts thereof, it stands to reason that by reducing vulnerability, increasing ability to recover or prevent a disaster and being out of harm's way would lessen the hardships disaster situations are accompanied by.

The legislative mandate and obligation awarded to the provincial government of the Western Cape's Disaster Management Centre saw the implementation of the Fire and Flood Awareness Campaign. Flood and fire risks have long plagued the Western Cape Province, and have subsequently been prioritized as high priority risks in the region. The awareness campaign aims to reach those most vulnerable to the impacts of such hazards, and thus focuses on residents in informal settlements and primary school leaners in the respective informal settlement areas.

In the name of good governance, continual improvement and accountability, a need for an assessment of the effectiveness of the Campaign is identified. The Logic Framework is used to guide the assessment through the identification of the Campaign's inputs, activities, outputs, outcomes and envisioned impact as well as the achievement of these elements. Both qualitative and quantitative data is collected through field observations, poetry and art competition entries, pre-and post-intervention questions and questionnaires respectively.

The results indicate that the 2010 Fire and Flood Awareness Campaign increased hazard knowledge, the audience's risk perception, encouraged communication of this knowledge to others and the fostering of a safety culture. It can therefore be suggested that from these four outcomes the Campaign may be said to have achieved its envisioned long term impact of reducing flood and fire risk. It is however recommended that an assessment of this kind be guided by the proposed Logic Framework that was developed for the specific campaign. In addition, it is suggested that future evaluations be longitudinal studies as this would reflect a more solid argument for the risk reduction impact of a campaign and lastly that a longer time period allowed to plan an evaluation as this would markedly distinguish and strengthen a quantitative assessment.

1. CHAPTER 1 – INTRODUCTION AND BACKGROUND

1.1 Introduction

Floods and fires are two prevalent hazards worldwide with South Africa herself suffering from cyclical flooding events and fires, frequently displacing hundreds of people and destroying many more livelihoods. The impact of such events is illustrated by the National Disaster Management Centre's (NDMC) contribution of R780 million towards flooding rehabilitation projects and R14 million towards aerial firefighting support in South Africa in the 2006/2007 financial year alone (South Africa, 2007: 49). These disasters result from the culmination of various risk factors that make a society vulnerable to the impacts of such hazards occurring and in order to address such issues, risk reduction measures need to be implemented (Wisner, Blaikie, Cannon & Davis, 2004:4; DFID, 2006: 9).

A shift from the traditional response-based thinking to a pro-active risk reduction mindset has highlighted risk education, training and public awareness as essential elements in the overall integrated approach towards Disaster Risk Management (United Nations International Strategy for Disaster Reduction, 2002: 23; South Africa, 2005:156). Fortunately, the South African National Disaster Management Act, 2002 (Act No 57 of 2002) makes provision for the implementation of risk reduction initiatives which aim to cultivate a widespread culture of risk-avoidance (South Africa, 2004: 26). The legislative obligation flowing from the Act, allowed the Provincial Government of the Western Cape to prioritise public awareness initiatives for hazards in the precinct.

Following the identification of both flooding and fires as recurrent hazards in the Western Cape, the Provincial Disaster Management Centre (PDMC) proceeded with a pilot public awareness campaign in 2009 (Provincial Government of the Western Cape, 2002: 7, 46; Provincial Government of the Western Cape, 2010:1). The Campaign comprised of industrial theatre shows performed at various primary schools in the Province, and aimed at mitigating flooding and fire hazards in informal settlement areas by incorporating safety tips and emergency numbers into the shows, thus educating the learners in an interactive and entertaining manner.
The following Campaign in 2010 was extended to include adult community members in order to widen the target audience, reaching a larger percentage of the population (Provincial Government of the Western Cape, 2010:2).

In order to motivate further funding for the continuation of such public awareness campaigns, an evaluation of the last Campaign was required. The resulting recommendations would indicate whether the intended goals were attained, and improvements would be incorporated into the current project methodology. By evaluating the effectiveness of the current Campaign, this research would act as supplementary motivation for prospective public awareness campaigns in the Western Cape, and enable decision makers in the Provincial Government to determine the rationale that risk reduction initiatives often lack.

1.2 Background

The disaster management fraternity exchanged the traditional thinking of a primarily reactive, response driven one for a more pro-active, risk reduction mindset where the saying '*Prevention is better than cure'* never rang truer (Dubey, Kamlage, Bishoff & Chatterji, 2008: 86). Disaster Risk Reduction (Risk Reduction) is defined as all components, including the development and application of policies, strategies and practices, that aid in minimising vulnerabilities and disaster risks; to prevent, mitigate and prepare for adverse impacts of hazards, within the broader context of sustainable development (UNISDR, 2002: 24; South Africa, 2005: 3). The reasoning behind integrating risk reduction strategies into daily living, is to cultivate a '*culture of risk avoidance'*, decreasing a society's vulnerability to various hazards and thus lessening any potential impacts such hazards may have on the society. Various actions are associated with risk reduction, and public awareness and knowledge development are two such essential elements (UNISDR, 2002: 22-23).

A public awareness campaign is defined as a communication campaign that uses the '*media, messaging, and an organised set of communication activities to generate specific outcomes in a large number of individuals and in a specific period of time*' (Coffman, 2002: 2). Public awareness and education as elements of disaster risk reduction was first highlighted in the Yokohama Strategy and Plan of Action in 1994 and since then the United Nations International Strategy for Disaster Risk Reduction (ISDR) set it as one of its four (4) key objectives in the Hyogo Framework for Action for 2005-2015 (UNISDR, 2005: 2, 9). Public awareness in conjunction with education, aims to familiarize vulnerable societies with their risks and inform them of the various actions that could be taken to minimise these risks (UNISDR, 2002: 188).

According to Chagutah (2009:116), risk reduction in the South African context where physical and financial mitigating measures are not easily realised due to financial constraints, public awareness may be the most accessible and practical tool of reducing risks in the most vulnerable communities. In order to determine whether these measures are effective, projects should be evaluated and the results integrated into further strategies and planning processes.

The process of evaluation measures the changes that the intended outputs of a project have on the target audience, therefore evaluating the impact and thus the effectiveness of the programme (UNICEF, 2005: 10). Evaluating a project has two main purposes, namely to use resulting feedback to enhance future projects and to create a framework for answerability for implementing organisations (Twigg & Benson, 2007: 153). It is with this focus in mind that the public awareness campaign in the Western Cape will be evaluated.

1.3 Study Area: The Western Cape and her Risks

The Western Cape is one of nine (9) Provinces in South Africa. It forms the southernmost tip of the country and is home to an estimated 5.2 million people, constituting 10.9% of the South African population (Statistics South Africa, 2007: 6). This province saw the largest increase in population in the country of 16.7% between 2001 and 2007 where 14.2% of households live in informal settlements, a figure that increased by 2% over the same period (Statistics South Africa, 2007: 6, 10).

Informal settlements often house the most vulnerable proportion of the population. Various factors contribute to this vulnerability and include amongst others poverty, high density of the inhabitants and housing structures, few municipal services and dangerous physical locations in low lying areas. These factors combine to increase disaster risk and create situations where hazards such as fires and flooding occur on a daily basis in many such settlements (Pharoah, 2009: 105).

The Cape of Storms' winter rainfall is synonymous with flooding throughout the province. The Province as a whole experienced flooding incidents which led to damages amounting to an estimated R2.5 billion during a period extending from 2003 to 2008 (Holloway, Fortune, Chasi, Beckman, Hart, Pharoah, Poolman, Punt & Zweig, 2010:79). Between 1994 and 2004, 47% of all fire related incidents in the Metropolitan area of Cape Town alone occurred in informal settlements (Pharoah, 2009: 116). The main ignition sources in informal settlement fires are uncontrolled open flames; over thrown paraffin stoves and candles, as well as illegal electricity connections. These disaster events arise from interaction between the hazards themselves and inappropriate human factors such as dwelling density and linked social and behavioural factors (Holloway, Roomaney, Pharoah, Solomon & Cousins, 2008:130-132).

Not surprisingly, a hazard assessment performed for the Western Cape in 2002 concluded that 78% of all large hazard events in the province were shown to be either flooding, fires or transport related accidents (Provincial Government of the Western Cape, 2002: 3).

Subsequently, the Department of Local Government, through its Provincial Disaster Management Centre, having identified flooding and fires in informal settlements as high priority risks, embarked on the first Fire and Flood Awareness Campaign for the Western Cape in 2009 as part of their risk reduction portfolio.

1.3.1 The Flood and Fire Awareness Campaign

This initial campaign in 2009 reached four (4) of the five (5) District Municipalities namely the West Coast, Central Karoo, Overberg and Eden District Municipalities and the City of Cape Town as a Metropole in the Province over a period of one month as illustrated in **Figure 1.1**. An industrial theatre group was employed to use an interactive show to communicate various facts of fires and floods as well as emergency numbers to the audience. The target audience was primary school learners from Grades four (4) to seven (7). The addition of Gerry the Giraffe as a disaster management mascot engaged the learners and teachers alike, and proved a captivating addition to the campaign. Educational materials such as brochures containing the various messages, soccer and rugby balls and t-shirts were handed out during the shows (Provincial Government of the Western Cape, 2010: 1).

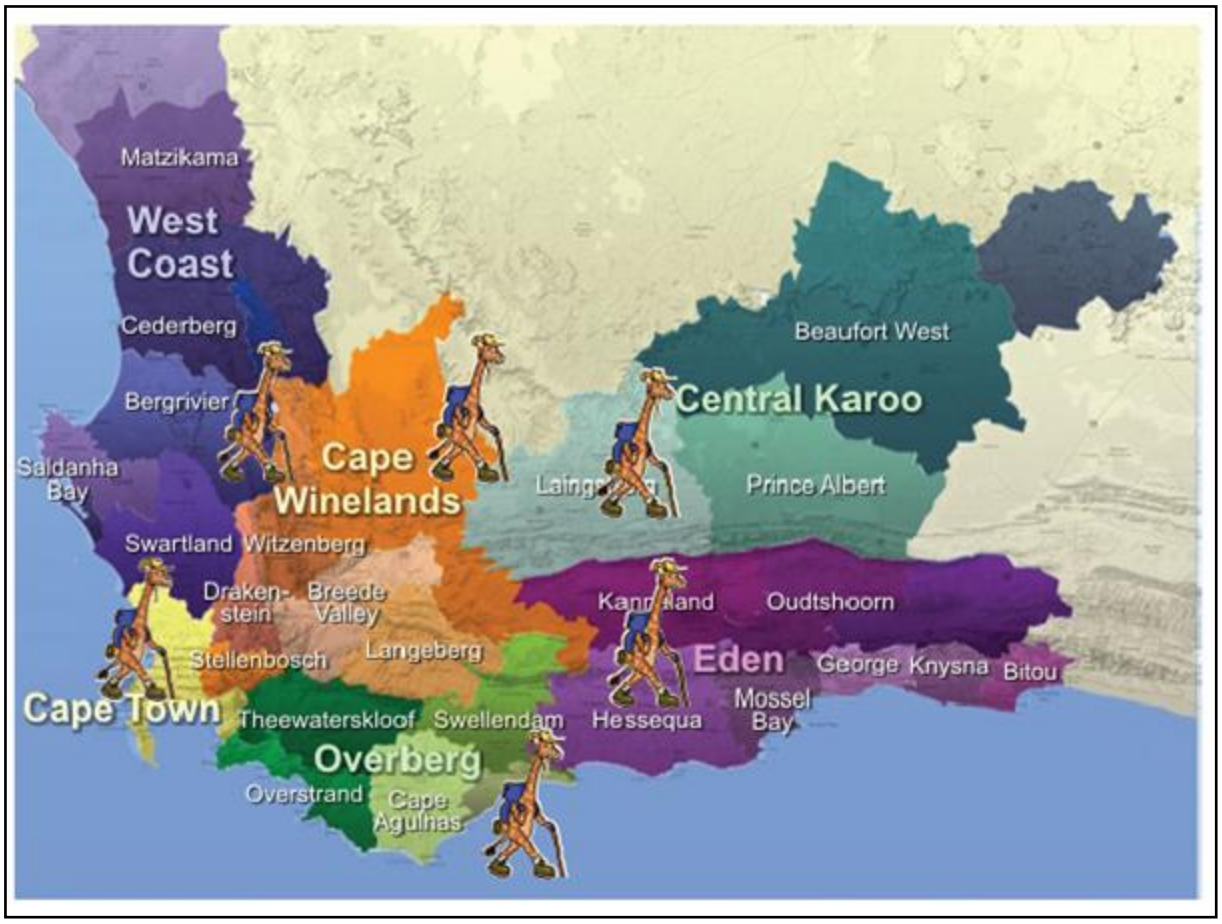


Figure 1-1: Areas reached by the Fire and Flood Awareness Campaign of 2010
(Provincial Government Western Cape, 2010)

The 2010 Fire and Flood Campaign was designed to reach a broader audience. The target audience consisted of not only primary school learners (Grades 1-7) but also of community members in informal settlements, based on the same methodology as the previous year's campaign.

The play included four characters representing the various demographics in the Western Cape and uses Afrikaans, English and isiXhosa dialogue. The actors had to be fluent in one of the three languages in order to communicate the broader plays message to any audience. The script contextualised risk perception messages and everyday situations that occur in the lives of people living in informal settlements, highlighting the vulnerabilities that certain behaviours cause, for example leaving paraffin stoves unattended A school script and an adult street script were written with the respective audiences in mind.

In addition to the theatre performances, educational items translated in all three languages of the Province were distributed at each performance, and the Campaign concluded with a story writing and art competition which was held for school learners across the Western Cape Province.

A variety of stakeholders were involved with the Campaign and included CapeNature, the Paraffin Safety Association of Southern Africa (PSASA) and a variety of government officials from the Provincial Fire Brigade Service, the five (5) District Disaster Management Centres and City of Cape Town Disaster Risk Management Centre as well as the local Community Development Workers (CDW's) and Municipal Fire Services representatives in each of the areas that were visited.

1.4 Research Problem, Aims and Objectives

In order to evaluate the campaign as a risk reduction measure for flood and fire hazards in the Western Cape, the Campaign and its methodologies were examined in order to determine its impact.

1.4.1 Research Problem

Disaster risk management public awareness campaign initiatives have never been evaluated in the Western Cape Province. The impact and methodology of the current campaign is in question, and a need has been identified to analyse the campaign's methodology and impacts. In order to identify the effect of the campaign as a risk reduction measure for flood and fire hazards in the Western Cape, an evaluation was required to determine the impact of the Campaign.

1.4.2 Research Aim

The aim of this cross-sectional research project was to investigate whether this campaign was an effective means to increase public awareness regarding flood and fire hazards, and secondly to recommend improvements to the current methodology in order to adequately educate the public regarding these risks, thereby reducing disaster risk in the Western Cape Province.

1.4.3 Research Objectives

In order to achieve the research aim, the following research objectives were identified:

- Evaluate the methodology of the 2010 public awareness campaign;
- Evaluate the outcomes of the awareness campaign in both adult and primary school audiences; and
- Formulate recommendations for an effective public awareness campaign in the Western Cape Province and integrate the recommendations into a model for future campaign design.

1.5 Research Design

The study utilised two data collecting instruments, namely field observations and questionnaires in order to collect both quantitative and qualitative data. Self-administered anonymous questionnaires were circulated to ten (10) randomly selected cooperative individuals using convenience sampling methods after each of the community theatre shows which were collected upon completion. In addition to these questionnaires, a second set of self-administered questionnaires were sent electronically to disaster management officials of each of the five (5)

district municipalities as well as the City of Cape Town Metropole for their feedback and inputs regarding the campaign.

Field observation methods were employed as the second research tool as the qualitative part of the study in order to assess behaviours and attitudes towards the campaign. The data collecting team comprised of officials from the Provincial Department of Local Government's Disaster Management and Communications directorates. Teams of two data capturers completed the standard data capturing forms prior to, during and after each performance of both the school and community performances.

1.6 Research Methodology

A desk top study was performed reviewing literature regarding both international and South African literature relating to public awareness campaigns as risk reduction initiatives in order to assess the methodology of the Campaign, as well as defining the indicators for measuring the impact of the Campaign. The review looked at articles published over a period of thirty years using books, policy guidelines, electronic journals and databases, such as Science Direct.

The Campaign extended over a six (6) week time period and reached specifically selected informal settlement areas and primary schools that were identified in collaboration with the Western Cape PDMC and local disaster management officials in the Western Cape Province's five (5) District Municipalities and the one Metropole namely the City of Cape Town. The Campaign consisted of three (3) day visits to each of the District Municipalities and Metropolitan area in the Province and included two (2) informal settlement theatre shows to community members and one (1) school show per day to primary school learners in Grades one (1) to seven (7). During each of the interventions or theatre performances, data were collected for analyses.

The data gathered from both the field research and the questionnaires were captured into a database in Microsoft Excel. A registered statistician was employed to carry out further analyses at the Cape Peninsula University of Technology. After the statistics report was received from the statistician, the relevant discussions and analyses were made.

1.7 Key Definitions

The following terms are frequently used throughout the study and are briefly defined for ease of reference.

Capacity: The manner in which people and organisations use combined existing resources to reduce their disaster risks and achieve various beneficial ends during unusual, abnormal and adverse conditions of a disaster event or process. This could include physical, social, economic measures as well as collective attributes such as leadership and management (UNISDR, 2002: 24; South Africa, 2004: 226).

Disaster: A progressive or sudden, extensive or restricted natural or human-caused event, that occurs with or without warning which threatens to result in serious disruption of the functioning of a community causing extensive human, material, economic or environmental losses which

exceed the ability of the affected community to cope using its own resources (UNISDR, 2002: 24; South Africa, 2004: 6; South Africa, 2005: 227).

Disaster Management: A constant, multi-disciplinary, multi-sectoral, integrated planning and implementation process that strives towards (a) reducing and preventing disaster risk; (b) mitigating the impacts of a disaster; (c)preparedness for all emergency situations; (d) timeous and effective response efforts; (e) recovery and rehabilitation efforts after disasters (South Africa, 2004: 6).

Disaster Risk Management: All processes and activities which address the implementation of policies and capacity of a society's abilities to recover from the impacts of hazards both pre- and post-occurrence in either structural and or non-structural manners with a primary focus on prevention and mitigation (UNISDR, 2004, 24).

Disaster Risk Reduction (Risk Reduction): The systematic development and application of a framework of policies, strategies and practices to minimise vulnerabilities and disaster risks throughout a society; to avoid (prevention) or to limit (mitigation and preparedness) adverse impacts of hazards, within the broader context of sustainable development (UNISDR, 2004: 24).

Hazard: Potentially damaging physical event which may cause loss of life, injury, property damage, social and economic disruption or environmental degradation (UNISDR, 2002: 24).

Industrial Theatre: 'method of education, uplifting and informing stakeholders of issues concerning them using drama and drama techniques' (Baker, 2001:4).

Mitigation: Structural and non-structural measures or actions taken to attempt to reduce the detrimental impact or effects of natural hazards, environmental degradation and technological hazards (UNISDR, 2002: 25; South Africa, 2004: 7).

Public awareness/education: A means of communicating risks to a population, thereby increasing their perception of their specific risks, hazards and vulnerabilities. These processes also highlight any ways of reducing such risks. Public awareness processes aim to guide communities into behaviour that cultivates a culture of risk reduction and includes public information dissemination, education, radio or television broadcasts, printed media and creating disaster information centres and networks (UNISDR, 2002: 340; South Africa, 2005: 234).

Recovery and Rehabilitation: Measures taken after the disaster has taken place to develop and rebuild damaged infrastructure; restoring homeostasis in the community affected and initiate actions to reduce future vulnerabilities (South Africa, 2004: 7).

Resilience: The ability of a system or community to adapt to maintain an acceptable level of functioning and structure. This is ascertained by the level to which the social system is capable of organising itself and the capability to increase its capacity adaption, including the capacity to recover from a disaster (UNISDR, 2002: 24).

Risk: The probability of harmful consequences, or expected loss resulting from interactions between natural or human induced hazards and vulnerable/capable conditions. Risk can be

traditionally expressed by the equation: Risk = Hazards x Vulnerability / Capacity (UNISDR, 2002: 24).

Risk Assessment: A process to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability/capacity that could pose a potential threat or harm to people, property, livelihoods and the environment (UNISDR, 2002: 24; South Africa, 2005: 235).

Vulnerability: Set of conditions resulting from physical, social, economic and environmental factors, which increases the susceptibility of a community to the impact of hazards (UNISDR, 2002: 24; South Africa, 2004: 9).

1.8 Thesis Structure

The study consists out of six (6) chapters.

The First Chapter of the thesis introduces the subject of public awareness as a risk reduction tool and gives a slight background as to the paradigm shift in disaster management thinking. It illustrates the rationale of the study and explains the aims, objectives and methodology of the study.

The Second Chapter explains the key disaster risk management principles and illustrates which factors need to be addressed to minimise the probability of a disaster and so doing reduce disaster risk. This chapter also delves into the theory behind public awareness and its link to disaster risk management. The social sciences underpinning public awareness are explored as well as current models used in hazard risk communication strategies.

The Third Chapter depicts the relevant international, national and local legislation relating to disaster risk reduction and public awareness.

The Fourth Chapter will depict the methods applied for this research, including the development of the questionnaires and structure of collecting the observational data, as well as an explanation of the data analyses. The limitations of the study are also discussed here.

Chapter Five illustrates the findings of the data analyses and discusses the findings, incorporating them into a public awareness campaign model.

The Sixth Chapter comprises of the conclusion and recommendations flowing from the research.

1.9 Summary

Chapter One provided a brief introduction to public awareness as a disaster risk reduction tool and encapsulated the shift in Disaster Risk Management thinking from a reactive approach to a pro-active style. The rationale behind the study as well as the aims and objectives were explained. Chapter Two will convey the theoretical background to the study, explaining key Disaster Risk Management principles and refines the various factors of Disaster Risk Reduction. In addition,

the social sciences foundation of public awareness is studied and the various models used in hazard communication and education explained.

2 CHAPTER TWO - A THEORETICAL BACKGROUND TO PUBLIC AWARENESS AS PART OF DISASTER RISK MANAGEMENT

2.1. Introduction

This chapter delves into the theory that underpins the process of using public awareness campaigns in order to reduce disaster risk.

South Africa frequently faces a variety of seasonal natural disasters such as floods, droughts and fires, and numerous man-made disasters such as the Human Immunodeficiency Virus/Acquired Immune – Deficiency Syndrome (HIV/AIDS), poverty and food insecurity. Disaster Risk Management is a relatively new discipline in South Africa as it was born from the former Civil Protection which was responsible for response and recovery efforts following a disaster.

Guided by international best practices, the newly formed Disaster Risk Management function included not only response and recovery as in the past, but also prevention and mitigation efforts as part of preparing or limiting possible impacts of incidents. This process, also known as the Disaster Continuum, is traditionally used to explain disaster risk management, dividing the various functions into pre- and post-disaster phases as illustrated in **Figure 2.1**.

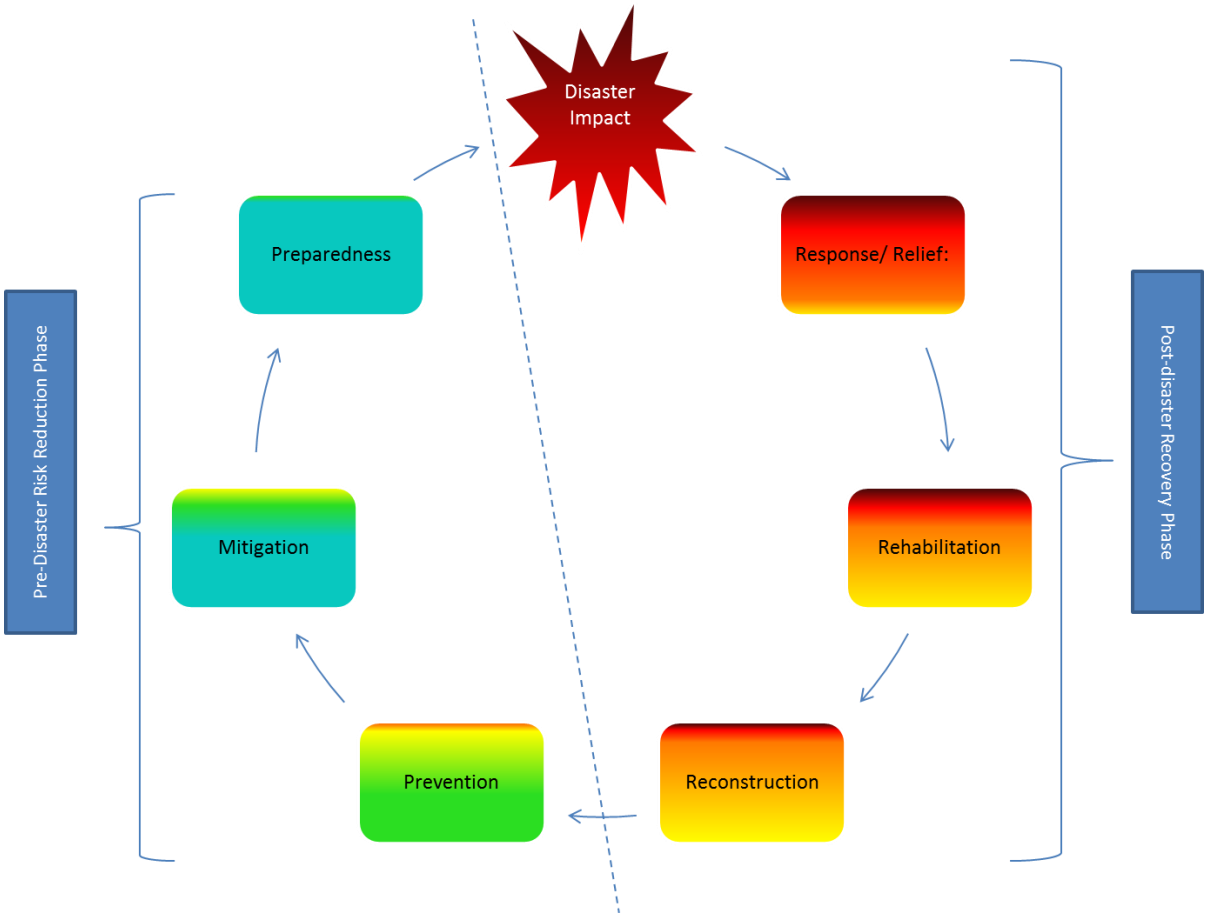


Figure 2-1: Disaster Risk Management Continuum
(Adapted from South Africa, 1998: 19)

The *post-disaster phase* includes the disaster event itself, which triggers response and recovery efforts followed by rehabilitation of the affected areas, structures and livelihoods in an attempt to return the affected community to its original or better equipped pre-disaster state.

The *pre-disaster phase* includes preparedness, mitigation and prevention principles that integrate planning and development processes in order to minimise possible impacts that a disaster might have (mitigation) as well as to try and prevent such an event from occurring at all (prevention).

If the *preparedness phase* of the continuum is properly integrated and implemented, the resilience of a community is strengthened through capacity building initiatives, allowing the said community to cope with the disaster and enabling them with the ability to '*bounce back'* much quicker than if no preparedness measures were in place (South Africa, 1998: 19).

Disaster Risk is often divided into three concepts namely vulnerability, the hazard to which someone is exposed to and lastly their capacity which allows resiliency in recovering after a disaster.

2.2 Key Concepts in Disaster Risk Management

A disaster is defined as a significant disturbance in the daily operation of a group of people which may lead to loss in terms of human life, the economy, as well as the affected environment; surpassing the group's ability to use their own resources to cope with the situation (UNISDR, 2002: 24).

The South African National Disaster Management Framework defines Disaster Risk Management as '*the systematic process of using administrative decisions, organisation, operational skills and capacities of the society and communities to lessen the impacts of natural and related environmental and technological disasters*' (South Africa, 2005:228).

Disaster Risk is traditionally expressed as the following equation:

Risk = Hazards X Vulnerability / Capacity (UNISDR 2002: 24-25).

The probability of risk that one is exposed to thus depends on the hazard characteristics and processes, how vulnerable you and your surroundings are to the effects of the hazard and how capacitated you are to return life back to normal after an event.

2.2.1 Hazards

A hazard is a potentially damaging event which may lead to the loss of life, property or the breakdown of the surrounding environment. Various types of hazards are identified, among them natural hazards (including geological, hydrological and biological dangers) and human induced hazards (which constitute environmental degradation and technological hazards). Hazards are graded and arranged according to their intensity, location and the probability of them happening (South Africa, 2005: 231).

2.2.2 Capacity

Capacity is defined as the combined strengths and resources available in a community that would reduce the community's risk and enable them to deal with and recover from the impacts of a hazard (South Africa, 2005: 226). One way of capacitating a community is by ensuring they have the necessary resources to face the possibility of a disaster event. Such resources include social, human and cultural capitals.

Social capital comprises values such as leadership and the ability to activate and assemble communal resources in the possible event. Human capital involves the knowledge base concerning hazards, risks and response activities prior to an emergency, whereas cultural capital refers to the indigenous knowledge of hazards, risks and responses of the people in the area (Pretty, 2000:78). Wisner, Blaikie, Cannon and Davis (2004: 96) add two categories of capital to the above list namely financial capital and natural capital. Financial capital addresses an individual or organisations savings or available credit and natural capital refers to physical assets in hand such as land and other natural resources.

2.2.3 Vulnerability

The UNISDR (2002: 24) defines the vulnerability of a community as a series of conditions which impacts the community's exposure to a specific hazard and its impacts and specifies four factors of vulnerability namely physical, social, economic and ecological factors.

Physical factors imply the geographical location of people, the structures they live in and the population density of the areas they are situated in, thus focusing largely on the physical context of the people. Social factors describe demographic characteristics of the individuals in a community, including aspects such as literacy and education levels, a sense of values and community, cultural beliefs and practices, gender and social equity levels and physical well-being among other needs (Sattler, Kaiser & Hittner, 2000:1400; Cutter, Boruff & Shirley, 2003 :252).

Economic factors explain the economic status of people, including poverty levels, livelihoods and income and debt levels. Ecological factors collates the effects of the aforementioned four factors on the environment, as well as the state of the environment itself with regards to resource exhaustion, pollution levels and destruction of biodiversity (UNISDR, 2002:47).

By combining socio-economic and demographic factors, children and the elderly, people with disabilities, single-parent or child-headed households, immigrants, the illiterate and those who lack the skills to communicate in the local language as well as low-income earners are all classified as being highly vulnerable (King & MacGregor, 2000: 54). Such vulnerabilities do not exist in isolation and are an accrual of the various factors and their interactions that result in a vulnerable state (Morrow, 1999: 2; Wisner *et al*, 2004:56; Phillips, Metz & Nieves, 2005:124).

2.2.4 Risk

Risk in a specific community is therefore the probability of the hazard multiplied with the combined vulnerability and capacity levels of that community (UNISDR 2002: 24-25). This equation is the central dogma of the Disaster Risk Assessment. A more in depth look at the

risk assessment process would involve first looking at the Hazard Assessment, then the Vulnerability/Capacity Assessment. Hazard Assessments identify the location, probability as well as the intensity of a specific hazard occurring at a particular time. The risk assessment will outline what might possibly happen, thus ensuring that all preparedness plans cover the identified risks.

The Vulnerability and Capacity assessment aspect of the above equation and the overall risk assessment procedure will include: checking the levels of social, economic and environmental vulnerability factors as well as the physical aspects like infrastructure which is assessed making use of Geographical Information System (GIS). Here different variables can be overlapped creating '*hazard zones*'. Thereafter an estimation of acceptable levels of risks are identified where risks are evaluated in terms of a socio-economic cost/benefit analyses which would lead to priority formation, the acceptable levels of these risks are then laid out and an expansion of possible situations and the measures needed to handle them are then set in place. The main explanatory model used to explain risk and the development of vulnerability is the Pressure and Release (PAR) Model of Wisner, Blaikie, Cannon and Davis (2004:51).

2.3 Pressure and Release (PAR) Model: Progression of Vulnerability

The Pressure and Release (PAR) Model's name is derived from the build-up of pressures which predispose communities to being vulnerable, and contrastingly the release of such pressures by addressing the root causes which is achieved by focusing on means to decrease vulnerability and increase the capacity of the said community. This is then referred to the '*Progression of Safety*', and not the '*Progression of Vulnerability*'.

In the PAR model's Progression of Vulnerability, '*Root Causes' lead to certain 'Dynamic Pressures*', which translate into '*Unsafe Conditions*' which, combined with a natural or human induced hazard such as a fire or flood, could lead to a disaster as illustrated in **Figure 2.2** (Wisner *et al*, 2004: 51). Root causes create a predisposition for a state of vulnerability. Examples of root causes may be the limitation of access to power structures and resources of specific groups of people which may be due to skewed political and economic ideologies.

Due to the root causes, a build-up of pressures such as a vacuum of training and thus a skilled workforce which is able to enter the job market, few or no local investments and markets, limited or no press freedom and increased population migration and urbanisation, lead to deforestation and subsequent decline in soil productivity in these areas.

Unsafe conditions are consequently developed, allowing people to live in dangerous physical locations in unprotected and unsafe buildings. Unskilled workers and a high level of unemployment precede low income levels and unstable livelihoods. In such circumstances, a general lack of disaster preparedness prevails and endemic diseases such as HIV/AIDS are widespread. If a hazard event occurs in community with low levels of capacity to mitigate and recover from the hazard event and high levels of vulnerability, the probability of the incident becoming a disaster greatly increases.

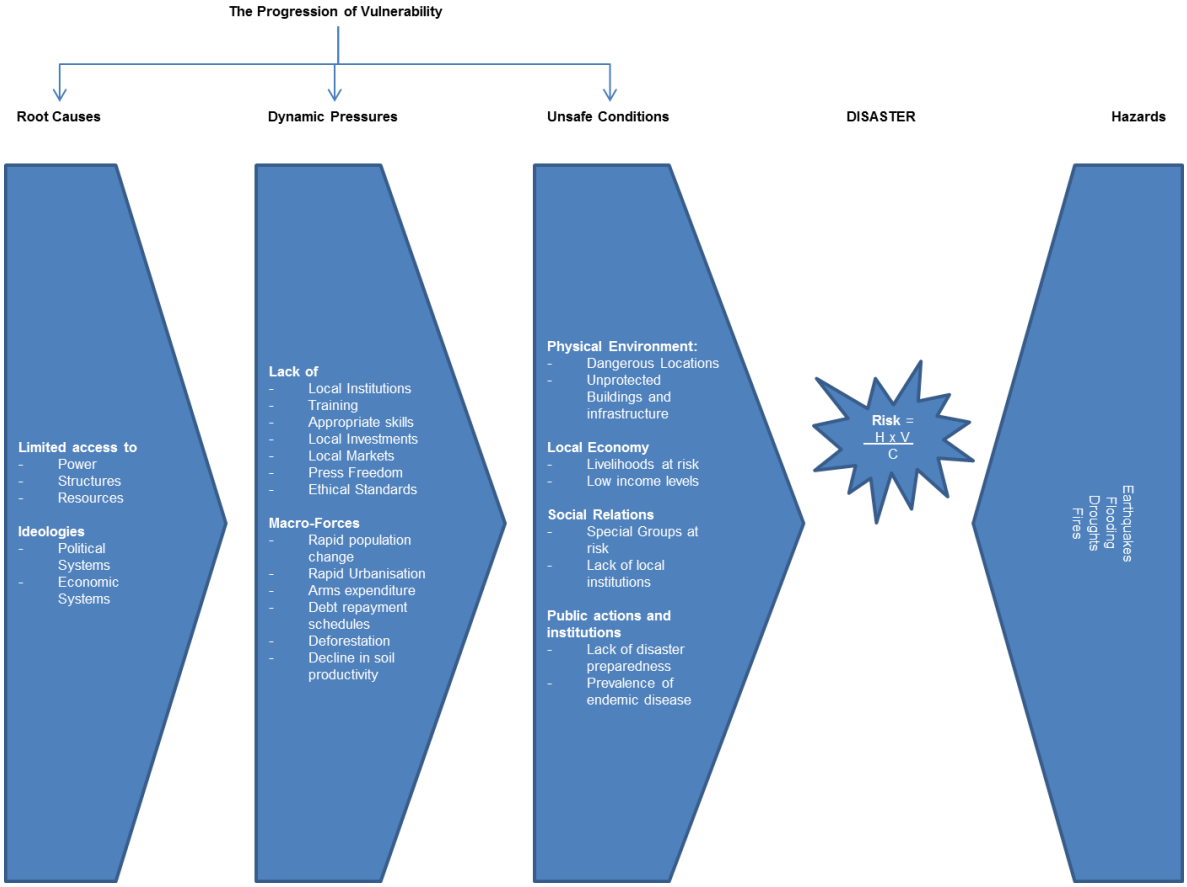


Figure 2-2: The Pressure and Release Model (PAR): Progression of Vulnerability
(Wisner, Blaikie, Cannon & Davis, 2004: 51).

In order to achieve a culture of safety, the '*Progression of Vulnerability*' must be taken into account and reversed into the '*Progression of Safety*'. By focusing on the effects of root causes instead of the root causes themselves, the entire risk reduction methodology is flawed as the causes are not addressed.

2.4 Pressure and Release Model: Progression of Safety

In contrast to this '*Progression of Vulnerability*' the '*Progression of Safety*' reverses the elements of the PAR model by releasing the pressures to reduce disasters risk through the application of various Risk Reduction methodologies. The progression of safety is illustrated in **Figure 2.3**.

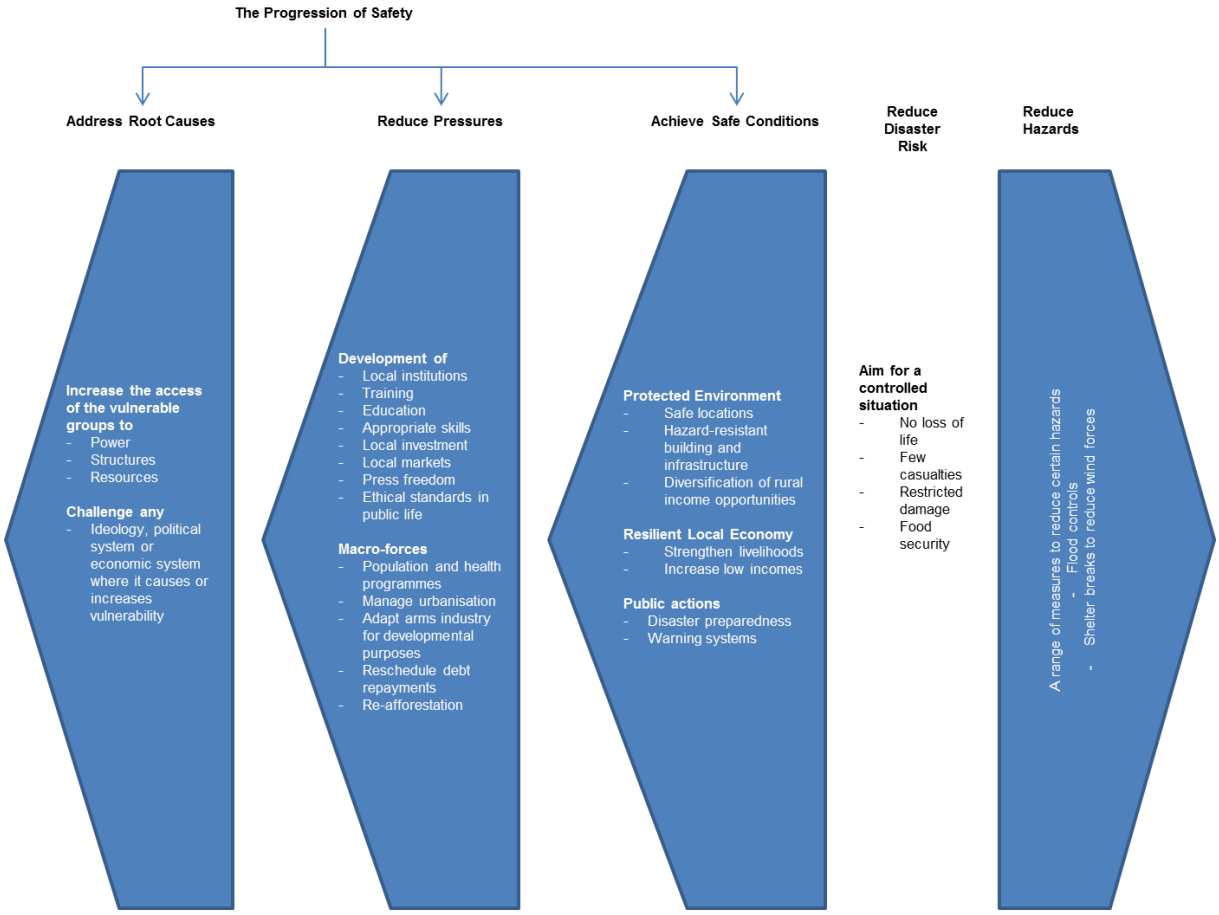


Figure 2-3: Pressure and Release (PAR) model: Progression of safety
(Wisner, Blaikie, Cannon & Davis, 2004: 344)

By addressing Root Causes of Vulnerability, the vulnerable group/community would gain more access to local resources and power structures as well as foster change in any repressive political and or economic situation (Wisner *et al*, 2004: 52-56). This would lead to the development of amongst others, local institutions for the support of special groups in the community, availability of further education and training for the necessary skills to create sustainable livelihoods, support of local investments and the extension of markets.

Similarly, by focusing Risk Reduction measures on other Dynamic Pressures such as introducing efficient municipal service systems and the formulation and implementation of population growth and urbanisation management strategies, pressure is released and safer living conditions can begin to form. Safer living conditions then arise where a protected environment is achieved with safe housing in safer areas, infrastructure which is resistant to

hazards and the diversification of livelihoods which would lessen the impacts of a hazardous event on a family.

A heightened sense of risk awareness would be achieved through awareness, education and knowledge enhancing campaigns, adding to the preparedness levels in communities, capacitating them to cope with impacts of possible risks in their areas (Tanaka, 2005:216; Gill, 2005:75).

The role of good governance cannot be stressed enough in the reversal of the PAR process, and should be the main focus of risk reduction initiatives.

2.5 Disaster Risk Reduction

Disaster Risk Reduction is described as the development of methodologies, practices and policies to guide risk reduction activities, in order to decrease vulnerability in a specific community and thus prevent and constrain the impact a hazard may have, thus reversing the PAR model (UNISDR, 2002:24).

The most important factor in the reversal of the PAR model is of course good governance (Wisner *et al*, 2004: 345). The local government, the private sector and the civil society and all their interactions will impact on this reversal.

In an attempt to explain the exact direct and indirect inputs required from the local government, the '*Four Point Plan for a safer World*' model will be used.

The plan highlights the four (4) key responsibilities of local governments with regards to Risk Reduction and includes, improving the community's resilience; incorporating risk reduction efforts in disaster prone areas; identifying and working on origins of the risk that a community may face and enhancing responsibility towards survivors of disaster events (Yates, Alam, Twigg, Guha-Sapir & Hoyois, 2002:3).

In order to improve a society's resilience, the need to alleviate poverty, not only on a local or national scale, but also international scale should be identified and pursued. Vulnerable groups should be the focus in all development planning and a bottom-up approach should be incorporated into any developmental plans. This is seen in the form of Integrated Development Plan in South Africa. When the at-risk community members are seen as a resource in prevention and disaster response, not as the cause thereof, risk reduction strategies would become the focus of all disaster risk management objectives (Quarantelli, 1984:12).

Local Governments need to incorporate disaster risk reduction measures such as disaster mitigation, including public awareness processes, as a core principle in all planning and deal with the origins of risks by involving the governing bodies of that country to meet international standards of disaster management in their legislation as well as in practice. Care should be taken that such measures should not increase vulnerability of one group while decreasing the vulnerability of the next.

Lastly, Local Governments should take responsibility towards survivors of a disaster by respecting their human rights. Disaster Risk Reduction targets should be identified for both integrated planning and mitigation measures in Local Government Departments (Wisner *et al* 2004: 345).

Wisner, Blaikie, Cannon and Davis (2004: 330) aptly summarised risk reduction objectives through the acronym '*CARDIAC*'. The *'**C**'* stands for communication of the vulnerabilities to the public, thus creating awareness of the hazards and possible risks these communities are exposed to and to build capacity that is aimed towards a risk-avoidance behavioural change. Awareness forms a large part of being prepared to face a disaster and is essentially affected by individual knowledge regarding hazards (Tierney, Lindell & Perry, 2001: 23). The '***A***' describes the analyses of the risk through risk assessments which evaluates the vulnerabilities, capacities and hazards that a community may face in order to reduce the risks respectively. The '***R***' in CARDIAC implies the reduction of risks by focusing on the reversal of the Pressure and Release (PAR) model's progression of vulnerability into a progression of a safety. The '***D***' stands for development, specifically in a broader context of sustainable development thereby allowing future generations to gain from present initiatives. For example, infrastructure built according to safe building codes and in areas which are out of harm's way. The *'**I**'* in CARDIAC explains the improvement of livelihoods which focuses on the economic stability and sustainability of income to families. The last '***A***' in the acronym for risk reduction objectives represents additions in recovery, where a risk reduction methodology is intertwined into all disaster recovery measures. Lastly, the '***C***' of CARDIAC stands for culture, aiming to incorporate risk reduction mentalities into the daily lives of all individuals so as to create a culture of safety (Wisner *et al*, 2004: 330-367).

Risk reduction efforts should therefore, and as illustrated in the intentions of the Provincial Government of the Western Cape's Fire and Flood Public Awareness Campaign, concentrate on the areas of highest risk.

Public awareness as a tool for increasing the capacity of at-risk communities has been thoroughly researched as it is an essential tool in making informed decisions and in so doing enabling communities and individuals to survive the possible impacts of disaster events.

2.6 Disaster Risk Management and Public Awareness

In order to address the issue of risk in a community, their understanding of hazards and how to prevent that from negatively impacting on that community needs to be cultivated and must form an integral part of any Disaster Reduction Strategy. The UNISDR (2002: 340) defines Public Awareness as '*The processes of informing the general population, increasing their levels of consciousness about risks and how to take action to reduce their exposure to hazards.*' These processes gear towards positive behavioural change that would guide preventative decision making in at-risk communities. It entails the broadcasting of public information through various media instruments such as printing, broadcasting and education programmes (UNISDR, 2002: 340). Public awareness as an element of risk communication is an invaluable tool in increasing at-risk communities' capacity.

It is generally accepted that risk communication is a '*process*', and should not be regarded as individual initiatives but rather as a seamless progression of building risk awareness through '*hearing, understanding, perceiving, believing, confirming and responding'* to such messages (Blanchard-Boehm, Earl, Wachter & Hanford, 2008:299). Historically, risk communication is divided into two components, namely short term '*emergency warnings*' and how the public respond to such communications, and secondly long-term '*pre-emergency*' communications or public awareness measures which integrate the audience's perceptions into such communications.

Most risk communication research focused mostly on the short-term urgent warnings, but with more consideration given to the workings of vulnerability and capacity of a community and how it affects their ability to respond to emergency situations, the focus of risk communication shifted towards a more long-term public awareness environment (Blanchard-Boehm *et al*, 2008:299).

2.7 Risk Communication and Disaster Risk Reduction

The purpose of risk communication or public awareness is fourfold: for authorities to conform to legislative requirements and disseminate hazard information, to advocate and educate communities, to change belief systems, and eventually change risky behaviour using the various combined concepts of the social science theories (Mileti, Mathe, Gori, Greene & Lemersal, 2004:1; Morgan, Fischhoff, Bostrom & Atman, 2001:2).

Public awareness campaigns advocate risk communication messages to encourage a group of people to perform certain risk reduction measures by way of giving them information and promoting why these measures are the best means of reducing their specific risks (Aspinwall, 1999: 88). It forms part of the mitigatory function of Disaster Risk Reduction which aims to arm at-risk communities with the necessary knowledge and skills as part of their capacity artillery in the face of a possible disaster incident.

The recent global financial recession combined with the existing financial constraints local authorities face makes awareness campaigns useful as a mitigation tool as it is much cheaper to implement than other risk reduction methods such as structural measures (E.g. levees) or non-structural measures (E.g. relocation of at-risk communities) (Chan, 1997: 80). At the same time awareness campaigns allow the at-risk areas free access to hazard information which they can use to capacitate themselves, a cheaper alternative than relocating or re-building a dwelling which is unaffordable to most (Tanaka 2005:204; Chagutha, 2009: 116).

Bird, Gisladottir and Dominey-Howes (2010: 34, 39) propose five factors that affect one's ability to respond to such an incident namely hazard knowledge, risk perception, implementation of preparedness measures, response behaviour and lastly hazard and risk education. These factors are inter-related and dependent on the social, political and economic context of the at-risk community and must be approached holistically during the planning of any awareness campaign.

Hazard knowledge refers to the personal *understanding* of hazard information and its specific processes (Paton, 2006:7). The rationale being the better one understands the process of hazards, the better equipped response and preparedness actions are, thereby reducing vulnerability and in so doing also disaster risk (Paton, Smith, Daly & Johnston, 2008:180).

Risk perception or the measure of how exposed individuals feel to a risk, is influenced by one's social, cultural context as well as past experiences of such a risk (Siegrist & Cvetkovich, 2000:719). In order to effectively change risk behaviour, the target audience's risk perception and therefore priority areas must be identified taking into consideration the context of the community's situation (Paton, Johnston, Bebbington, Lai and Houghton, 2001:62).

The third factor, implementing preparedness measures, is vital in empowering the at-risk community. In order for such measures to be accepted and enacted, they need to be stressed and continuously re-iterated to such communities (Bird *et al*, 2010:39).

Appropriate response behaviour during a disaster incident is directly influenced by the hazard knowledge, as well as the social, cultural and economic context of an individual (Johnston, Paton, Crawford, Ronan, Houghton & Burgelt, 2005:179; Chester, Duncan & Dibben, 2008: 225). Feelings of unconcern, dependence on external response and doubt could all lead to mal adaptive response behaviour requiring constant corrective guidance in order to substitute into positive adaptive and preparedness behaviour.

The fifth and final factor namely educational campaigns inform the public of their particular risks and how to mitigate, prepare for and respond to them respectively (Paton *et al*, 2008:180). By formulating such campaigns in such a way to influence risk perception and guide informed decision making, hazard ignorance and therefore the community's risk is reduced (Wisner *et al*, 2004:332).

Public awareness campaigns address all five aspects of disaster preparedness and response ability elements by highlighting these vital elements and are therefore an essential part of the overall disaster risk management process.

2.7.1 Risk Communication Psychology

In light of the vast amount of research regarding risk communication and the supporting theories, two recent studies will be used to try and capture the essence of the psychology behind it.

The first, a study by Bostrom (2003:553-573), combines the underlying ideas of risk communication as identified by a number of social science theories such as the theory of reasoned action (Ajzen, 1991:179), theories of social learning (Bandura, 1999:21), group decision making (Janis & Mann, 1977:180), trans-theoretical stages of change (Prochaska & DiClemente, 1992:185) and the decision analysis theory or '*precaution adoption process'* (Weinstein, 1988:26).

The combined ideas include '*perceived threat, perceived efficacy, perceived costs and benefits, stages of change and goals/aspirations*' all try to rationalise and motivate behaviour, be it maladaptive or beneficial. The concept of '*perceived threat'* defines the magnitude of threat one feels exposed to and could induce feelings of anxiety which in turn could provoke behaviour that could either increase or decrease risk. The notion of feeling capable to effectively adapt in order to lower that risk is the perceived efficacy concept (Bostrom, 2003:562). Indications of adaptive behaviour in light of risk with regards to planning, mitigating, performing and continuing such behaviour is known as the '*stages of change*' (Prochaska & DiClemente, 1992:185).

By combining the above and with the added societal pressures, encouragement and reactions, individual goals and aspirations are formed. '*Perceived costs and benefits*' may rationalise certain risk-reduction behaviour, Kahneman and Tversky (1979:263) argue that it does not directly '*explain risk related behaviour'*.

Blanchard-Boehm (2008:299) proposes the General Model of Hazards Risk Communication (GMHRC) as a combination model of historical research on risk communication as explained in **Figure 2.4**.

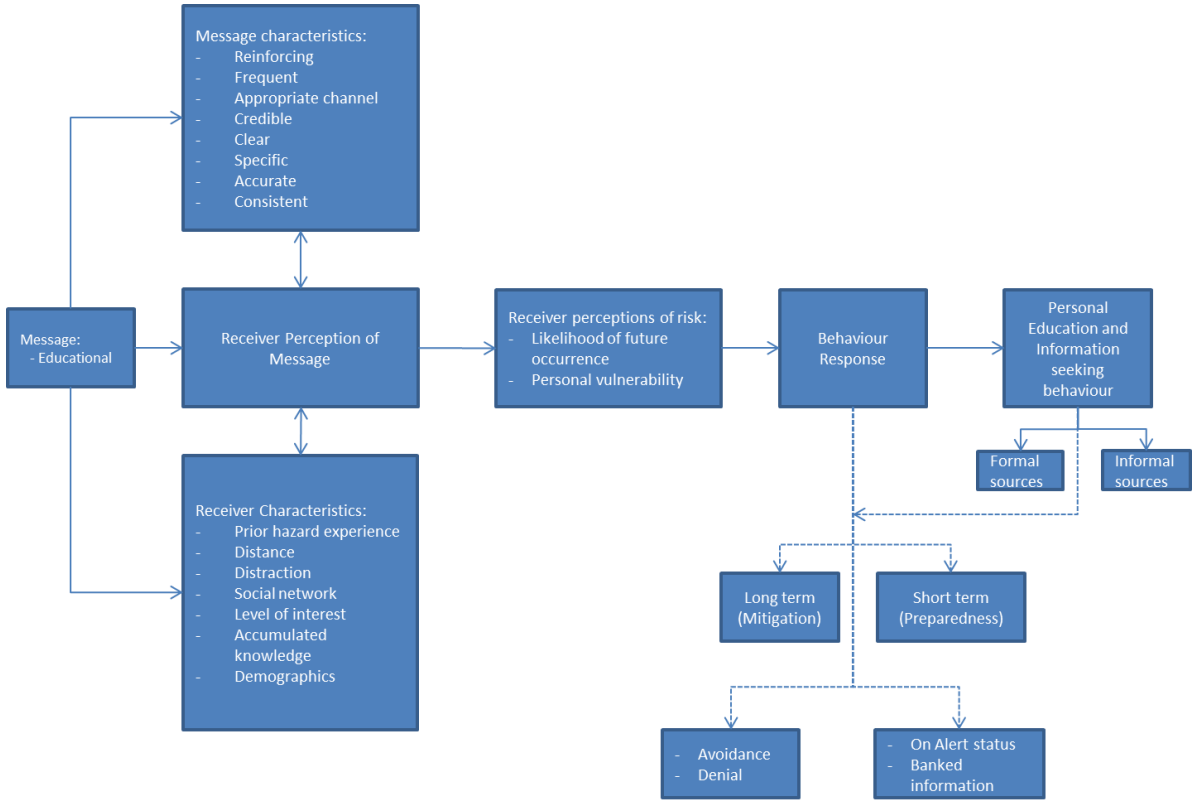


Figure 2-4: General Model of Hazards Risk Communication (GMHRC)
Blanchard-Boehm (2008:299)

This model explains the various elements of risk communication and proposes that the process narrates as follows: a public awareness message is communicated via a specifically selected media conduit; the message's characteristics should be guided by the audience's characteristics, and should be frequent, credible, and accurate in nature and aiming to positively influence the receiver's perception of the message. The receiver has certain characteristics which are predisposed by his or her previous experiences of the said hazard, their social context and previous knowledge. The receiver then compares the message to his/her perception of risk and a behaviour response is triggered which either leads to personal education and information seeking activities and/or long- or short-terms risk reduction activities. The opposite effect that a risk communication message could have is that it leads to apathy or denial of the risk, creating more vulnerability and could lead to higher levels of risk.

The second study, by Lindell and Hwang (2008:540) tested several theoretical theories in order to determine the motivating factors of risk reduction behaviour. The study combined the expectancy theory (Vroom, 1964:19), the theory of reasoned action (Fishbein & Ajzen, 1975:14), planned behaviour theory (Ajzen, 1991:179), protection motivation theory (Rogers, 1983:153-176), person-relative-to-event (PrE) theory (Mulilis & Duval, 1997:1755) and the protective action decision model (Lindell & Perry, 1992:117) into a proposed model as illustrated in **Figure 2.5**.

These theories are all based on '*Expectancy-Valence'*, meaning that people's behaviour is based on their desire for certain consequences, the resources they have to achieve such consequences and their beliefs regarding the extent of efforts and the resulting outcomes (Lindell & Hwang, 2008:540).

The study then identified the theories and their accompanying motivating factors which were proven to be more indicative of behavioural change (solid lines), and lesser indicative of behavioural change (dotted lines). This model therefore suggests that perceived personal risk is strongly influenced by that person's income, their gender and previous hazard experience. This risk then impacts on how that person makes certain adjustments to mitigate, prepare for or prevent the hazard.

Factors that have a lesser impact on perceived personal risk and therefore hazard adjustment includes ethnicity, hazard information, hazard proximity, and past hazard experience. Interestingly, personal income also strongly impacts hazard proximity, indicating that poorer individuals generally are closer to hazard areas than more affluent people are.

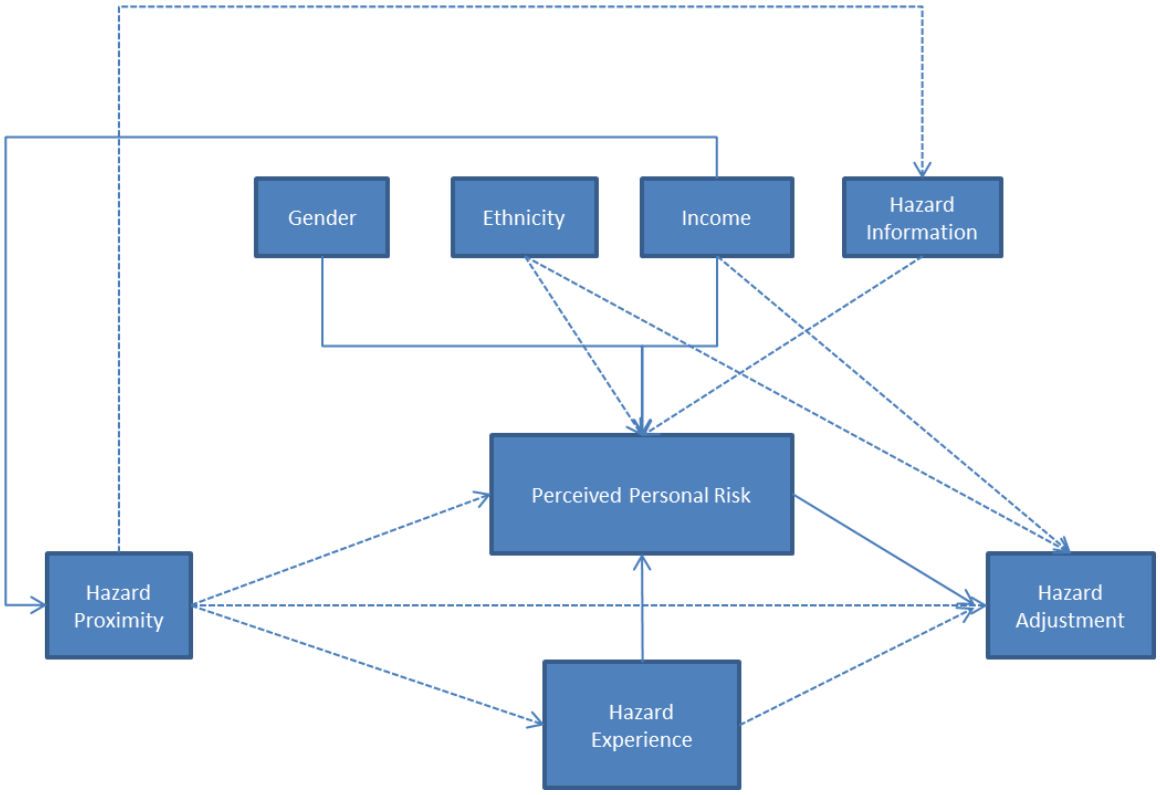


Figure 2-5: Lindell and Hwang's model to explain response to natural hazards
(Lindell & Hwang, 2008:541)

Parallel to Bostrom and Lindell and Hwang's consolidations of theoretical models as explanatory methods for risk associated behaviour, individual belief models can be applied to contextualise risk communications. The five classes of beliefs include the identification of risks, exposure to such risks, the effects thereof, available mitigatory actions and when various risks occur over time (Meyer, Leventhal & Gutman, 1985:122). Mileti, Nathe, Gori, Greene and Lemersal (2004:2) argue that even though one is aware of personal risk, if no option other than to live with the risk is available, no risk adjusting behaviour will ensue.

2.7.2 Building effective risk communication/public awareness strategies

Effective public awareness strategies incite uncertainty in the minds of its audience regarding their risks in order to initiate risk reducing behavioural changes, and concurrently give basic answers to the uncertainties created (Nathe, 2000:192; Mileti *et al*, 2004:1).

The secret to effective risk communication is to contextualise the message in terms of individual threat and belief systems, be it local customs, traditional knowledge or belief in own risk reduction capacities. This seems to achieve better results than bulk communications, but effective evaluation of such methods is difficult to achieve (Paton & Johnston, 2001: 271; UNISDR, 2002:190; Bostrom, 2003: 565). By seeing the audience's context as an advantage for the awareness strategy, behaviour within the socio-economic ability of the audience could be encouraged, allowing for a better probability of such behaviour being accepted and implemented (Mileti *et al*, 2004:2)

Public Awareness should attempt the use of interactive methods to encourage audiences to generate possible risk reduction actions, allowing a feeling of audience ownership which in turn adds to the likelihood of such actions being integrated into everyday life (Mileti *et al*, 2004:11).

Public awareness strategies need to be based on what has been referred to as the '*laws of effective public hazard education*' (Mileti *et al*, 2004:3). The first '*law*' is for messages to be clear and uncomplicated, explaining all technical jargon in basic and easy to understand terms, and secondly, reiterate the information using illustrations as this attracts more attention. Thirdly, information should be based on a variety of sources and include relevant local information. The fourth '*law*' is that campaigns should be continuous and fifthly, messages should be reiterated through a variety of media instruments and other information conduits such as brochures, school programmes and community networks. The sixth '*law*' is that specific risk-reducing actions should be the focus of any awareness campaign to inform audiences what they could do pre-, during, and post-disaster events. The seventh '*law*' of effective public awareness campaigns is to encourage the audience to spread the word thereby enlarging the reach of the message and lastly, make additional information accessible in the various target areas, indicating where it is available .

Added beneficial factors to maximise the level of effective public awareness strategies include the use of partnership organisations, translating information and using different ways of communicating. Partnerships with relevant institutions and field specialists could assist in all aspects of the strategy, including funding and assisting logistically, for example in the distribution of materials, or in the compilation of awareness messages. By translating the information into the local languages, and distributing it in a variety of forms, the message is delivered to a larger audience (Mileti *et al*, 2004:4).

The use of schools as a conduit for public awareness and education efforts, is widely accepted as an effective means to create public awareness as the messages are relayed to not only the learners, but also the educators themselves and through the learners' enthusiasm to their guardians and the rest of their community (UNISDR, 2002:201; Hosseini & Izadkhah, 2006:650; Clerveaux, Spence & Katada, 2010:202).

2.7.3 Risk Communication Challenges

Several risk communication challenges additional to the factors that influence risk reduction behaviour exist. The first is that most awareness campaigns are performed on an ad-hoc basis, with few indications of the impacts of the communications and no analysis of the contents of the communications (Blanchard-Boehm *et al*, 2008:298). The second challenge is that risk communication is usually delivered from the '*experts*' to the '*public*', excluding local beliefs and customs which firstly creates '*public*' distrust and secondly creates a perception that the '*public*' has no understanding of their risk, as explained in Hilgartner's Deficit Model also known as popularization (Hilgartner, 1990:519). This model explains that in the process of trying to simplify their research findings into layman's terms, scientists could create a certain '*distortion*' of the data which can create confusion during risk communication (Hilgartner, 1990: 520). It is thus crucial to integrate indigenous knowledge and the public understanding of risk into communication messages (Smith, 2009:131).

A third possible challenge for not only public awareness campaigns but any risk reduction initiative is the lack of complete support from local authorities. In order to allocate funding towards future risk reduction projects, authorities require an indication of project impacts. The problem with risk reduction initiatives is that they are often long term projects that may not indicate immediate effects. Quantitative measurement of the impact of Risk Reduction initiatives is challenging as disaster occurrences cannot be planned and thus pre-intervention and post-intervention methodologies typically used to measure intervention impacts for risk reduction behavioural change has little effect (UNISDR, 2002:330). Qualitative measures are just as complicated as yardsticks for intervention impact and subjective research could affect the overall outcome of the study. It is therefore advised to use a combination of both quantitative and qualitative methods to capture a change in perceptions and behaviours in this social environment.

The Achilles heel of public disaster awareness is the human factor. If audiences are not continuously reminded and informed, risk information does not advance into risk reduction behaviour. Research shows that the continuous flow of information using a variety of conduits is effective in increasing disaster awareness, but that audiences respond better to printed information than to auditory information as reading material requires active involvement whereas listening passively to a radio broadcast for example requires less participation (Tanaka, 2005: 205). By diversifying disaster risk awareness to be available at various spaces and in many forms such as school curricula, community training programmes and internet sources as education tools, the constant flow of information could be achieved (Mileti, Nathe, Gori, Greene & Lemersal, 2004:5).

Disaster Risk Management, including Disaster Risk Reduction is firmly mandated and guided by both international and national policy as well as certain legal obligation. South African Disaster Risk Management is a relatively new discipline as it was born along with the democratic government in 1994.

2.7.4 *Local and International examples of Disaster Awareness Campaigns*

A number of public education/awareness campaigns have been implemented over the last century; one example of a campaign that has made a large impact with regards to its envisioned risk reduction is the United States of America's wildfire awareness campaign of '*Smokey Bear'* that was launched in the early 1940's. This campaign has reduced the number

of wildfires to the extent the fuel load in certain areas has increased to dangerous levels due to an absence in wildfires (Donovan & Brown, 2007: 73).

Figure 2-6 Illustration of a poster for the Smokey the Bear Campaign from 1951
(Smokey the Bear, 2011)

Several local awareness/education campaigns are worth mentioning such as the '*I-Spy Campaign'* which allowed the public in both the Eastern and Western Cape Provinces to learn about various hazards in their communities by looking into information boxes containing educational pictures, the Western Cape Province's '*Ukuvuka*' campaign meaning to '*wake up'* in Xhosa subsequent to large wildfires along the Table Mountain areas in 2000 (UNISDR 2004: 290), as well as '*Wildfires burn more than trees'* campaign of the Volunteer Wildfire Services in 2011 illustrated in **Figure 2.7** below.

Figure 2-7 'Wildfires burn more than trees' poster of Volunteer Wildfire Services of the Western Cape
(Wildfires burn more than trees, 2011)

Public education/awareness campaigns relating to disaster risk reduction, and more specifically campaigns based on performing arts have rarely been comprehensively evaluated, assessed and the results subsequently published, creating a data vacuum but at the same time space for development of effective methods to guide such processes, beginning the groundwork for future development of such evaluations in the risk reduction niche.

2.8 Summary

Chapter Two presented the theoretical background pertaining to Disaster Risk Management, illustrating factors influencing Disaster Risk Reduction and thus the complexity of the implementation of Risk Reduction measures.

The link between Disaster Risk Reduction and Public Awareness was studied, investigating the social basis thereof and the various models that have been used in hazard communication strategies.

Chapter Three will describe the relevant international, national and local legal requirements with regards to Disaster Risk Reduction, and more specifically, Disaster Awareness Campaigns.

3 CHAPTER THREE- A LEGISLATIVE FRAMEWORK FOR DISASTER RISK MANAGEMENT AND PUBLIC AWARENESS

3.1 Introduction

Chapter Three explains the legislative mandate, national, provincial and international policies and requirements regarding Disaster Risk Management and Public Awareness. Both international and South African policies, best practice and legislation address the need for public awareness as a risk reduction measure in order to influence a culture of risk-avoidance.

3.2 National legislation pertaining to Disaster Risk Management and Public Awareness

3.2.1 Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996)

The Constitution of the Republic of South Africa,1996 (Act No. 108 of 1996) is the legislative base for the organisation of the South African people. Various sections of the Constitution relate to Disaster Risk Management and Public Awareness. Section 7 comprises of the Bill of Rights and specifies the '*rights of all people*' in South Africa '*and affirms the democratic values of human dignity, equality and freedom*' (South Africa, 1996: 1245). Sections 9, 10 and 11 expounds that all South Africans are equal, have the right to dignity and to life (South Africa, 1996: 1247). Section 24 provides for '*an environment not harmful to a citizen's health or well-being*' and Section 29 states that '*everyone has a right to an education*', (South Africa, 1996: 1257) In keeping with these rights, all South Africans are entitled to live in a safe environment, being educated in order to increase knowledge.

These rights are in-line with the objectives of Disaster Risk Reduction goals, which educate at risk individuals, increasing knowledge and thereby encouraging safety seeking behaviour. In addition to this, Section 41(1)(b) requires that all government departments at all spheres of government are obliged '*to secure the wellbeing of the people of the Republic*' and as Disaster Management is identified as a '*functional area of concurrent National and Provincial legislative competence*' in Schedule 4(A), it is called to perform these duties as part of its legal mandate and responsibility (South Africa, 1996:1268, 1331).

3.2.2 Green Paper on Disaster Management, 1998

During the post-apartheid era, the South African government re-visited the Civil Protection Act of 1977 and initiated conversations between all relevant stakeholders regarding an improved and all-inclusive approach to disaster management in the country. The Green Paper alluded to the then current disaster management principles and approaches as well as proposals as to a legislative framework that was opened for public comment in 1998. Even then, public awareness regarding disasters as a risk reduction instrument was regarded as an important element in the holistic approach to disaster management (South Africa, 1998:20).

After public comments were received, the White Paper on Disaster Management was compiled to further South Africa's goal for effective and all-encompassing Disaster Management Legislation.

3.2.3 White Paper on Disaster Management, 1999

Subsequent to public comment on the Green Paper, the White Paper amalgamated all inputs into a policy document and was promulgated in 1999. Risk reduction formed part of the seven objectives identified, and Section 6 establishes a framework facilitating community awareness and education (South Africa, 1999: 56).

Succeeding the White Paper on Disaster Management, the South African Disaster Management Act, 2002 (Act No. 57 of 2002) and the National Disaster Management Framework were developed and promulgated and have become the National guiding legislation for Disaster Risk Reduction in the country.

3.2.4 South African National Disaster Management Act, 2002 (Act No. 57 of 2002)

The National Disaster Management Act, 2002 (Act No. 57 of 2002) is the South African guiding document for all disaster risk management related initiatives. Due to major flooding in the Cape Flats during June 1994, a paradigm shift occurred in terms of disaster response and recovery. The previous Civil Protection, which was the department responsible for all humanitarian response, was re-organised and disaster (risk) management in South Africa was born. Various government departments and other stakeholders drew up the Green and White papers on Disaster Management and in 2000 a draft legislative document was developed from these preceding papers.

By 2003, the Disaster Management Act was propagated and out of this act promulgated the National Disaster Management Framework (NDMF), which as stipulated by the act allows for explanation thereof and guides the implementation of the act.

One of the purposes of the Act is to enable integration and co-ordination of disaster management guidelines in order to reduce risks of disasters occurring, to mitigate the possible effects thereof, to prepare for worst case scenarios, to respond in a timeous and efficient manner to any disaster event and to recover and develop pro-actively post-disasters (South Africa, 2004: 1). According to the Act, the National Disaster Management Centre (NDMC) as in section 20 (South Africa, 2004: 26), the Provincial Disaster Management Centres (PDMCs) as in section 38 (South Africa, 2004: 44) and the Municipal Disaster Management Centres (MDMCs) as in section 48 (South Africa, 2004: 55) are obligated to examine and evaluate all plans as well as all projects that aim to prepare, mitigate and respond to disastrous events in not only government departments but also in the private sector and also the non-governmental organisations (NGOs). In addition to this, sections 15 and 20(2) of the Act emphasise the need for education and training in order to cultivate a risk-reduction mentality in South African communities.

This responsibility of these Centres requires them to firstly determine levels of risks that communities may face through Risk and Vulnerability Assessments (RAVAs) as well as to use this data and incorporate it into sustainable mitigation and prevention strategies, including public awareness campaigns, which are mandated by the Act in section 30(1)(h). Here the Act instructs Provincial Disaster Management Centres to '*promote disaster management capacity building, training and education, including in schools*' (South Africa, 2004: 32), continuing in section 33(2), that the Provincial Disaster Management Centres '*should promote formal and informal initiatives that encourage risk avoidance behaviour*'. The Act further requires that

such initiatives be monitored and evaluated (section 34 (b)) and the progress of these initiatives recorded in the annual reports of the Centres as per section 36 (1)(b)(South Africa, 2004: 34,36).

The Act stipulates the various processes and entities that should be in place, but the National Disaster Management Framework allows for a deeper explanation of the various mechanisms that are to be employed in order to reach the Act's respective requirements.

3.2.5 The National Disaster Management Framework (NDMF), 2005

The Policy Framework for Disaster Risk Management (forthwith known as the Framework) explains the Act. The NDMF comprises of four Key Performance Areas (KPAs) and two enablers which speak to the implementation of all four KPAs.

As disaster risk reduction is the focus of this research, the relevant sections pertaining to this focus are explored.

Section 3.3 of KPA 3, disaster risk reduction, outlines the methodology to be followed when a disaster risk reduction initiative is developed (South Africa, 2005: 100). Eight points are identified as follows:

- The Disaster Risk Assessment findings are to be used as a basis for risk reduction initiatives;
- An educated multi-disciplinary team should be established in order to manage the process in an informed and transparent fashion;
- Vulnerable communities should be included in the planning process;
- Focus on numerous vulnerabilities if possible;
- Include the changing risk profile in planning risk reduction initiatives, as risk is a dynamic process;
- Approach all projects with a '*Do no harm*' manner, which implies that the initiative should not add to the existing vulnerability of the target audience;
- Do not generate a culture of charity, where an expectation of relief is fostered in the communities that are affected by hazards rather than building their ability to cope with adverse situations; and
- Link all risk reduction programmes with monitoring and evaluation procedures, and their findings fed into planning for future initiatives.

These guidelines as well as a strong research focused foundation and sound monitoring and evaluation practices should form the basis of any risk reduction initiative. The Framework reiterates these guidelines as set in the Act, relating to the implementation and monitoring of disaster risk reduction programmes and initiatives (South Africa, 2005: 107 – 110). Sections 3.3.3 and 3.5.1 speaks to the documentation of all risk reduction programmes in the annual reports of provincial disaster management centres. These reports should include the programme's quantitative and qualitative monitoring and evaluation outcomes and reflect conformity with regards to the planned '*goals, objectives, time frames and resource requirements identified in the planning process*' (South Africa 2005: 103, 107).

Section 3.5.4 specifies that the most effective method for disseminating risk reduction information should be developed, implying that the effectiveness of current conduits are to be investigated and either re-enforced or added research performed to establish best practice for the purpose of public education.

Enabler 2 is of particular interest relating to risk reduction initiatives as it describes education, training, public awareness and research regarding disaster risk management in South Africa. The objective of the enabler is to support risk-reduction behaviour not only in at-risk communities, but also in private and public organisations using, amongst others public awareness mechanisms that is based on scientific research (South Africa, 2005: 156, 259).

Section 6.5.1 and 6.5.2 specifies that a culture of risk-avoidance should be accentuated and awareness created concerning disaster risks and decreasing vulnerability through initiatives such as planned campaigns and conferences and other interventions such as the dissemination of information to at risk audiences such as schools (South Africa, 2005: 171-172). The media should be used as a tool during such interventions. The function of the media with regards to risk reduction is explored in section 6.5.3, explaining that planned communication initiatives to educate and circulate disaster risk reduction information are encouraged (South Africa: 2004: 172).

3.3 Provincial legislation pertaining to Disaster Risk Management and Public Awareness

3.3.1 The Western Cape Disaster Management Framework, 2010

The Western Cape Disaster Management Framework was published in the Province of the Western Cape's Provincial Gazette on 22 February, 2010. The Provincial Framework, keeping in line with the National Disaster Management Framework, reflects a focus on risk reduction and mitigation of disaster risk (Province of the Western Cape, 2010:8).

The Western Cape Disaster Management Framework mirrors the National Disaster Management Framework in structure and content with regards to requirements for risk reduction initiatives.
Section 3.3.1 highlights the eight points that are to be employed in planning risk reduction initiatives as in the NDMF and the importance of initiatives based on sound research and monitoring and evaluation practices are mentioned in sections 3.3.2 and 3.3.3. (Provincial Government of the Western Cape, 2010: 33-34).

The figure below illustrates the envisaged structure of disaster risk management relating to Enabler 2: education, training, research and public awareness in the Western Cape.

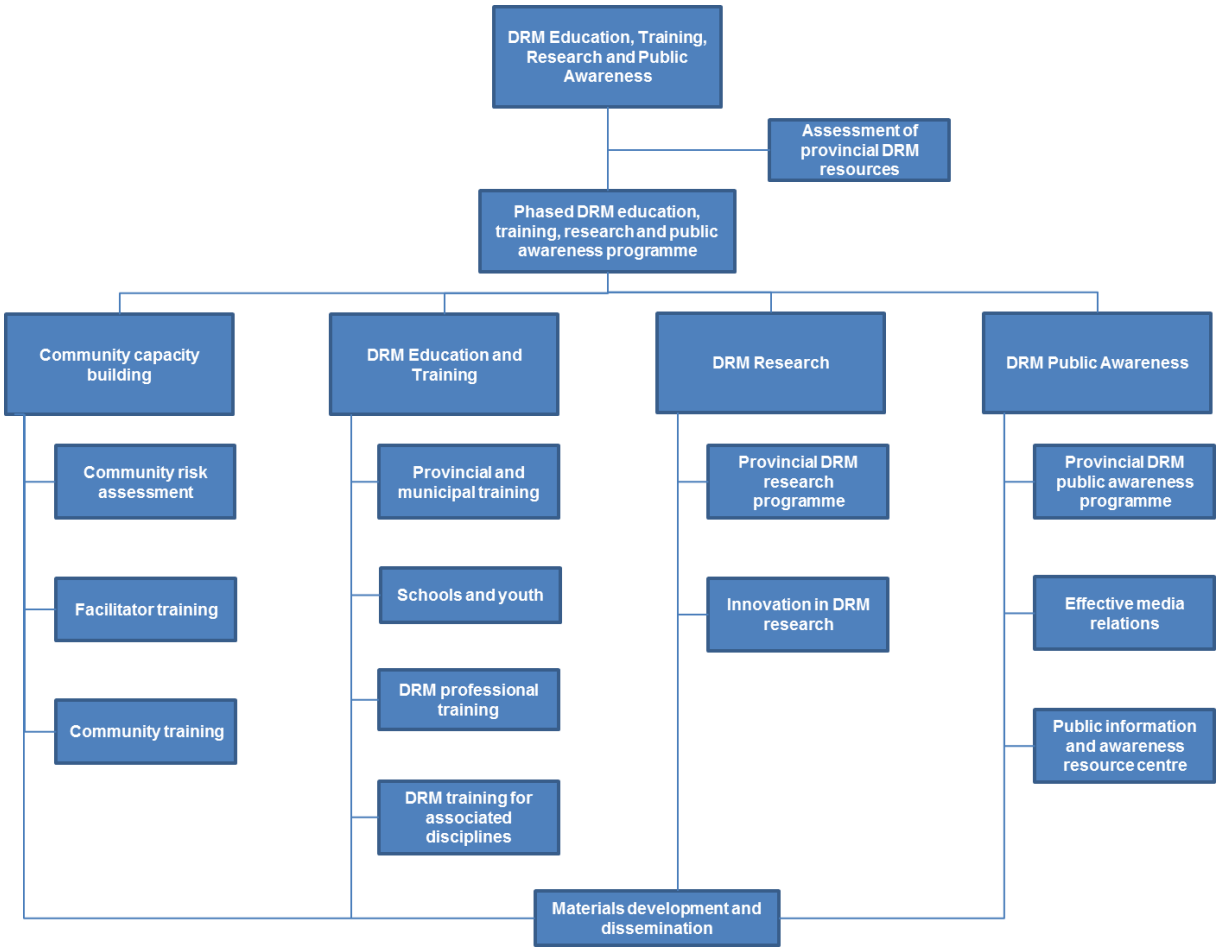


Figure 3-1: Western Cape Disaster Risk Management's key components of Enabler 2 - Education, Training, Research and Public Awareness
(Provincial Government of the Western Cape, 2010: 52)

The fourth leg of the structure pertains to the development of a provincial public awareness programme, Section 6.3.6.6 of the Western Cape Framework describes the objectives of such a programme and that the programme should be planned, implemented and reported with a strong partnership with provincial media sources.

The requirements of the media include:

- Risk reduction information should be distributed in a variety of languages through numerous media conduits such as radio, print and television;
- Unambiguous warnings should be broadcast during high risk periods;
- Reporting of disaster events should be urged to be as accurate as possible;
- Information should be sources from a focal point at the Disaster Management Centre; and
- Streamlined operating procedures are to be developed for pre-, during and post-disaster communications.

The objectives of public awareness campaigns for the Western Cape should include:

- Properly planned awareness programmes aimed at at-risk target audiences (including communities, government officials and other stakeholders) through the use of a variety of media conduits;
- Congresses and meetings such that reach municipal structures;

- The celebration of World Disaster Risk Reduction Day;
- Incentives for risk reduction initiatives; and
- The dissemination of information to the relevant stakeholders (Provincial Government of the Western Cape, 2010: 59).

The Western Cape Disaster Management Framework aligns itself with the National Disaster Management Act, 2002 (Act No 57 of 2002) as well as the National Disaster Management Framework and in so doing is mandated to plan and implement its awareness campaigns.

3.4 International risk reduction guiding legislation and policies

3.4.1 Yokohama Strategy and Plan of Action for a Safer World, 1994

The Yokohama Strategy and Plan of Action for a Safer World was the ground breaking document that is the basis for the risk reduction paradigm shift in the early 1990's. In the strategy outlined for the decade from the year 2000, an '*improvement of awareness in vulnerable communities, through a more active and constructive role of the media in respect of disaster reduction*', and the establishment of '*educational and information programmes aimed at generating general public awareness*' are called for (UNISDR, 1994:5,9-12).

This strategy paved the way for innovation and remodelling of the way that disasters were being managed thus far, and emphasised the need to concentrate on risk reduction as well as disaster response as a two pronged approach to manage disasters.

3.4.2 United Nations International Strategy for Disaster Reduction (UNISDR) Hyogo Framework for Action (HFA) 2005 – 2015

The Hyogo Framework for Action is a strategic document focussed on disaster risk reduction which was adopted by the 168 member states of the United Nations.

It highlights five (5) key priorities for action as follows:
- Prioritising Disaster Risk Reduction (DRR): making DRR both a national and local focus in every member state, inciting political will;
- Identifying and acting upon risks: in order to reduce disaster risk, the specific risks have to be categorised in order to put the necessary mitigating and prevention measures in place;
- Increased knowledge and awareness of disaster risk: through education, a culture of risk avoidance can be cultivated;
- Reduction of the root causes of disaster risk: address the deeper causes of risk and risky behaviour, such as poverty; and
- Increase preparedness to respond: by capacitating individuals and institutions alike, a network of prepared and able responders can lead to safer communities (UNISDR, 2005: 6-10)

Of particular interest relating to public awareness is key priority number 3. This international priority has underpinned many risk reduction initiatives and complements the National Disaster Management Framework's Enabler 2, combining into a strong motivation for public awareness initiatives such as the Fire and Flood Awareness Campaign.

The second international guiding policy for risk reduction and more specifically public awareness as a tool for DRR, is the UNISDR's Disaster Risk Reduction framework.

3.4.3 UNISDR Disaster Risk Reduction Framework, 2004

The International guiding policy for Disaster Risk Reduction is the UNISDR Disaster Risk Reduction Framework (UNISDR, 2004:393-395). Knowledge Management, Governance, Risk Identification and Assessment, Risk Management Applications and Instruments and lastly Disaster Preparedness, Contingency Planning and Emergency Management are the five thematic areas of the UNISDR. Knowledge Management includes public awareness as one of its four components as illustrated in **Table 3. 1**.

This guiding policy delineates certain characteristics all public awareness campaigns should feature, as well as recommended indicators for monitoring and measurement purposes. The guideline indicates that public awareness components should comprise of public awareness policies, programmes and materials, and that the media should play a large role in communicating risk reduction messages. The suggested yard stick of public awareness should include an indication of media coverage of any risk reduction activities, the level of public awareness and the prominence of Disaster Reduction day.

Table 3-1: ISDR Disaster Risk Reduction Framework for Thematic Area 3: Knowledge Management

Knowledge Management		
Thematic Component	**Characteristics**	**Criteria for Benchmarks**
Information Management & Communication	- Information and dissemination programmes and channels; - Public and Private information systems - Networks for disaster risk management	- Documentation and databases on disasters - Professional and public networks - Dissemination and use of traditional/local knowledge and practice - Resource centres and networks, especially educational centres
Education and Training	- Inclusion of disaster education at all levels of education, training of trainers programmes - Vocational Training - Dissemination and use of traditional/local knowledge - Community training programmes	- Educational material on disaster and risk reduction - Courses and institutions - Trained Staff - Evidence of systematic capacity development programmes
Public Awareness	- ***Public awareness policy, programmes and materials*** - ***Media involvement in communicating risk and awareness raising***	- ***Coverage of disaster risk reduction related activities by the media*** - ***Public aware and informed*** - ***Visibility of disaster reduction day***
Research	- Research programmes and institutions for risk reduction - Evaluations and feedback - National, Regional and International cooperation in research, science and technology development	- Existence of a link between science and policy - Indicators, standards and methodologies for risk identification - Regional and International exchange and networking

(Adapted from UNISDR, 2004: 394)

These policies and the legislative mandates given to Local Government in South Africa, compels the development of strong risk reduction communications, and is the reasoning behind the Flood and Fire Awareness Campaign in the Western Cape.

3.5 Summary

Chapter Three described the guiding national, provincial and international legislation pertaining to public awareness and risk reduction mandates and requirements.

These requirements all indicate that public awareness is a vital cog in the wheel of risk reduction and if based on best practice and research, would decrease vulnerability to disaster events.

The following chapter, Chapter Four, will outline the methodology followed in the evaluation of the 2010 Fire and Flood Awareness Campaign.

4 CHAPTER FOUR – RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

This chapter illustrates the methods applied in this research, including the development of the questionnaires and structure applied for the design of the study, and the collection of data, concluding with a description of the data analyses.

4.2 Monitoring and Evaluation (M&E)

A programme's execution is measured for three reasons: for accountability, to portray the said programme's value and to improve the programme (Mclaughlin & Jordan, 1999: 70). In order to assess the effectiveness of an intervention, certain monitoring and evaluation tools are required, which should be appropriate, valid and reliable (Contento, Randell & Basch, 2002: 12). Monitoring and Evaluation (M&E) of programmes are essential devices for the Programme Management process as it allows the measurement of programme performance through which a level of accountability is enforced. In addition, M&E enhances the advocating of future programmes and promotes better planning an implementation of such programmes (UNICEF, 2005: 10). The M&E process thus has three functions, namely to allow for answerability to all donors and relevant role players, forms the basis of project management of the project itself and lastly to ensure that the lessons learnt are fed back into the programme to improve future initiatives (Mphaisha, 2010: 13).

Monitoring is defined as '*the routine process of tracking inputs and outputs*' of a programme, and will indicate if a project is reaching target dates and various outputs. Evaluation on the other hand, measures whether the intervention outputs translated into the programme's objectives, in other words if the programme has made an impact, or not (UNICEF, 2005: 10). These processes are part of the programme cycle as illustrated in the **Figure 4.1**.

As an intervention or programme is developed, the context is assessed and a baseline study performed which would indicate what the indicators of an area are prior to an intervention[1]. The next step is to plan the intervention which may include *inter alia* time schedules, budgets and curricula. These plans are then executed. However, in order to measure the programme's progress, the implementation process is continuously monitored. The evaluation of the efficacy of the programme is then gauged and this feeds back into the overall impact that the intervention was meant to achieve.

[1] For the purposes of this research, the terms 'intervention' and 'programme' are used interchangeably.

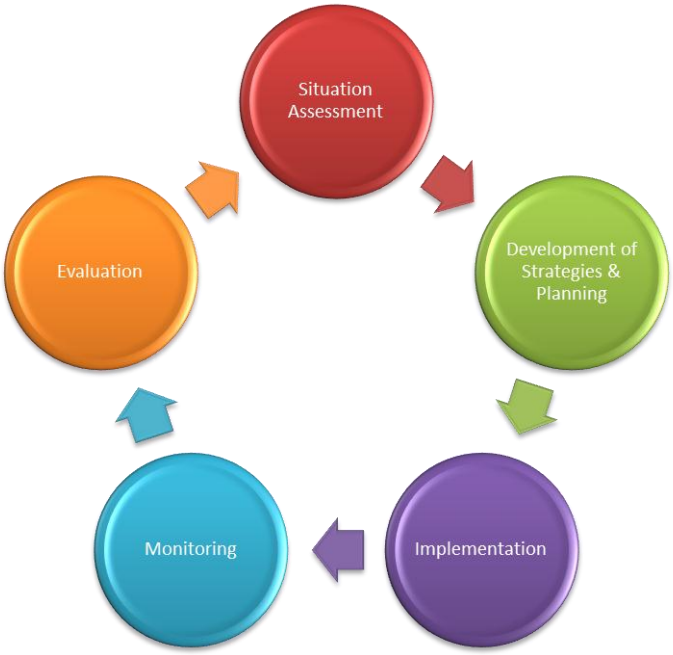


Figure 4-1: Intervention/Programme Cycle
(UNICEF, 2005: 11)

UNICEF (2005:15 – 16) identifies five (5) essential elements of M&E which includes ownership and capacity, resources, data collection, analyses and use, attribution and collaboration. The leading authority of the intervention is required to take the ownership of the M&E process, as this not only builds capacity within the organisation, but also ensures a sustainable process as M&E skills are then forced to become an integral part of the programme.

Secondly, a large contribution to the success of a programme is sufficient funding for the efficient management of information generated from the project. This is often neglected in the budgeting allowances of the project planning and could lead to the mismanagement of the data collected (UNICEF, 2005: 15).

Thirdly, if the information that flows from the programme is to be substantial, the data that it is based upon needs to be of a good quality and therefore the means of gathering, analysing and integrating data into information needs to be thoroughly planned (UNICEF, 2005: 15).
In recent times, donor or funding agencies often require that the effects or impacts of an intervention needs to be illustrated, and thus the element of attribution comes into play. By demonstrating the effect of the programme on the target audience, the implementing organisation can validate the spending of funds and advocate for future funding (UNICEF, 2005: 15).

The last element of effective M&E is collaboration which implies that all role-players involved in the context of the intervention should be included in the mapping of the programme, its educational information, its execution and in data analyses as this would minimise the chances of subjectivity as well as provide an inclusive approach to the programme (UNICEF, 2005: 16).

4.3 The M&E Process and Study Framework

The monitoring and evaluation process involves five (5) steps (Mphaisha, 2010: 20-25). The Programme goals and objectives are firstly identified, followed by a desktop study regarding the existing literature and available data (Cooksy *et al*, 2001: 120 - 122). The third step identifies internal and external evaluation resources in hand, and during the fourth step the evaluation operation is designed. This involves the development of data gathering tools such as questionnaires and other relevant instruments (Cooksy *et al*, 2001: 122). The fifth and final step is ensuring that evaluation findings are integrated and applied to future initiatives, thus creating a feedback loop.

In order to facilitate the M&E process of the Fire and Flood Awareness Campaign of the Western Cape, a framework based on the international best M&E practice called the '*input-output-outcome-impact framework*' was utilised (UNICEF, 2005:19). This framework, also known as the Logic Model, allows the designation of certain inputs required for the effective implementation of the programme, as well as the various outputs that are generated from the programme, such as the number of schools visited, the number of learners reached etc. The intended outcomes can then be envisioned, and through that the various intended impacts demonstrated. The various linkages between each input, its activity, the outputs, outcomes and finally the predicted impact is revealed by the connecting lines between each element in the model. The model is then used as a framework to base data collection methodology, data analyses and resulting relationships on and is the foundation upon which the Fire and Flood Awareness Campaign's M&E process is built. Such a framework for the Fire and Flood Awareness Campaign did not exist and was drawn up by the author in order to structure this paper.

4.4 The Logic Model

Cooksy, Gill and Kelly (2001: 119) explain that the Logic Model is an integrated approach to project management as the model unpacks the various factors that need to be considered for any programme, the steps to reach the defined outcomes, data requirements, and foreseen long term community impacts. It allows for a basic overview of the various phases of a project from a bird's eye view. This model is used in the M&E domain because it assists in simplifying the programme's intentions, assists in programme strategies and facilitates easy identification of data collection and measurement instruments (McLaughlin & Jordan, 1999: 66). Likewise, it directs programme evaluation by identifying the programme's various constituents and their relationships, as well as if the various objectives were achieved (Cooksy *et al*, 2001:123; Helitzer, Hollis, de Hernandez, Sanders, Roybal and Van Deusen, 2010: 224; Brouselle & Champagne, 2011:69; Julian, 1997: 251).

The model is usually broken down into five (5) elements, namely inputs, activities, outputs, outcomes and impacts portrayed in **Figure 4.2**. Inputs include all human or financial resources required in order to facilitate an envisioned programme. Activities consist of the specific actions that generate programme outputs. Outputs are the products of the programme and are measured as indicators, which illustrate whether the related outcomes were achieved. These outcomes are the short term objectives of the programme, McLaughlin & Jordan (1999: 66) dubbing them as '*benefits resulting from outputs*'. Outcomes subsequently influence the longer term objectives of a programme, which are the anticipated impacts of the intervention (Julian, 1997: 252).

Figure 4-2: Structure of a Logic Model
(Adapted from McLaughlin & Jordan, 1999:67)

4.5 Data collection instruments and gathering process

Due to the explanatory and descriptive characteristics of the research, two data collection tools namely field research and questionnaires were used, making the study both quantitative and qualitative in nature. The purpose of the study was to identify whether the Fire and Flood Awareness Campaign was an effective means to increase public awareness regarding flood and fire hazards, and secondly to recommend improvements to the current methodology in order to adequately educate the public regarding these risks, thereby reducing disaster risk in the Western Cape Province.

Using the Logic Model developed (**Figure 5.1**) the programme outcomes that were to be achieved were broken down into the following four (4) categories:

- Increased fire and flood hazard knowledge;
- Communication of this knowledge to others;
- Increased risk perception; and
- Risk avoidance behaviour fostered.

These categories were used to design both the qualitative and quantitative data collection instruments as well as to assess the content of the Campaign itself. The Campaign methodology from its initiation to the final report were all included in the assessment.

Hazard Knowledge was measured through pre- and post-intervention questions, the story writing and art competition and the adult questionnaires. Risk Perception was measured by the questionnaires, risk perception measured by field - observations on both the adult and learners audiences, and stakeholder questionnaires. Behavioural intentions evaluation measures included intentions to plan for a fire (sand bucket) and planning to evacuate in the case of a fire (all important documents in one place), giving an indication of the cultivation of risk avoidance behaviour.

4.5.1 Secondary Data Collection

The Campaign road-show commenced on 6 September 2010 and ended on 22 October 2010 during which all data were collected. Secondary data relevant to the Campaign that did not include the questionnaires or standard data collecting forms was collected from the Programme Manager at the Western Cape PDMC during and after the Campaign. This documentation included the Microsoft Word document containing the road show schedule, a Microsoft Excel database of all art and story writing competition entries, and examples of all

educational items, pamphlets, photos of the campaign and marketing material that was distributed and used during the campaign.

4.5.2 Qualitative Data Collection

Field research using observational methods were employed to collect the qualitative data for the evaluation for the duration of the campaign from 6 September to 22 October 2010, as well as throughout the Art and Story writing competition evaluation on 28 October 2010.

The data collecting team included various Provincial Local Government Officials that formed part of the group that toured the Western Cape during the Campaign road show. During each school and community theatre performance, two officials or '*data capturers*' would be observers, only witnessing behaviours during the intervention but not interacting or participating at all. The data capturers took notes of their observations before and during the theatre shows on either Community or School Data Capturing Forms. Copies of both the data capturing forms are attached as **Appendix 2** and **3**. These forms were completed in a standard format, creating structured observations for each show that were later compared in data analyses.

The data capturing forms were developed in keeping with the intended outcomes of the Campaign. Evaluations of behavioural changes effected through interventions usually include pre- and post-assessments, thus creating a baseline dataset to compare behavioural changes to. The primary schools visited allowed for a more controlled environment, and enabled pre- and post-intervention base line information to be collected in addition to the standard data capturing forms. The pre- and post-questions were read out-loud before and after each in an effort to firstly identify a base-line data set, and secondly to assess the information retained by the audience after the intervention to gauge whether the outcomes were achieved. The final pre- and post-intervention questions are attached as **Appendix 5**. The observations of the data capturers were noted on the data forms and analysed.

The standard format forms recorded details *inter alia* the number of attendees, their reaction towards the mascot and their interactions during the show.
The entries for the art and story writing competition for the school learners were also assessed for indications of the sought after outcomes, and was the basis of their winning prizes. An adjudication committee consisting of all the programme stakeholders was divided into the three languages that the entries were made in and were each given evaluation forms with the evaluation criteria for the entries and each entry validated. The Art and Story writing Competition Evaluation Form is attached as **Appendix 5**. The competition evaluation forms were collated and an assessment of the artwork and stories prepared.

4.5.3 Quantitative Data Collection

The schedule of the road show was collected in order to identify the various communities, and schools that were visited. Self-administered anonymous questionnaires in Afrikaans, English and Xhosa were handed out by the data collecting teams to 10 randomly selected cooperative individuals after each of the community theatre shows. The Questionnaire is attached as **Appendices 6, 7 and 8**.

The questionnaires were only handed out at community performances and consisted mostly of multiple-choice questions and a few open ended written answer questions. The questionnaires focused on evaluating hazard knowledge and risk perception.

The data collecting teams assisted in the completion of the forms where requested to do so by the individual community members. The completed questionnaires were collected by the data capturing teams, and identified numerically. The data gained from the questionnaires were collated using an Excel spread sheet and analysed statistically with the use of the statistical analyses software programme, SPFF Version 19 by an external statistician at the Cape Peninsula University of Technology. The results were descriptive statistics for categorical data, which indicated frequencies for respondents according to the data collected from the questionnaires. The results were analysed and reported in a final report to the Western Cape Provincial Department of Local Government (**Appendix 9**).

In addition to these Community questionnaires, a second set of self-administered stakeholder questionnaires based on on a five level Likert rating scale (**Appendix 1**) were sent electronically to disaster management officials of each of the 5 district municipalities as well as the City of Cape Town Metropolitan Municipality for their feedback and inputs regarding the campaign for stakeholder feedback regarding the programme as a whole, its observed impacts and any recommendations for future campaigns. The data from these questionnaires were collected and analysed in a similar fashion as the first questionnaires.

4.5.4 Logic Model Framework

The data that was collated, including the statistics that resulted from the questionnaires were consolidated and compared to the Logic Framework's outcomes developed for the programme.

4.6 Limitations and challenges

The programme evaluation was developed and as the Campaign was implemented, so was the M&E process. Various data collecting challenges were identified and addressed during the Campaign. Due to time constraints, the only pre-assessment that was possible was before the theatre performance commenced, a series of pre- and post- intervention questions relating to the programme objectives were read out load, the answers of which were then recorded onto the data capturing forms by the various data field observers. The same questions were asked directly after the intervention in the same manner and the answers and collated onto the data capturing form.

As the first performance was executed, the practicality of the pre- and post-intervention questions was queried. Three problems were identified during the first few performances. Firstly, the pre- and post-intervention questions proved to be unfeasible in the community performances as the adults were too uncomfortable answering the questions in front of their peers. Secondly, the initial amount of questions was too overbearing and the school learners soon became unruly and distracted. This led to the pre-and post-intervention questions being totally abandoned for the community performances, and the number of questions limited to four basic questions for the school learners. The third issue that limited the data collection relating to base-line data was that the pre- and post-intervention questions were occasionally omitted or the incorrect questions read out loud in subsequent school performances. This had an immense impact on the base-line data for the study.

Reed, Cheadle and Thompson (2000:74) state that in order to execute an accurate evaluation, '*controlled environments and comparison groups*' are required, a criterion that this evaluation lacked due to time and funding constraints. Circumstances and programme actions continually mold to the context of a situation, and therefore meticulous adherence to evaluation procedures is impractical. Secondly, evaluator inexperience, strict time constraints and a lack of substantial sample size influences the availability of control groups as well as the ability to randomly select individuals for the evaluation. It is suggested that evaluation designs for prevention programmes should be focused primarily on qualitative data either as a separate data collection tool or in conjunction with achievable quantitative designs (Reed, Cheadle & Thompson, 2000: 74).

The weather played an important role in the attendances of the various performances. As many of the schools that were visited did not have halls, and all the community locations were communal and public open air spaces, the cast and the members of the Campaign team struggled against the forces of nature. Windstorms, icy-cold temperatures and rain meant that many of the possible audience members either did not attend the performances, or had to seek shelter. The reasoning behind the selection of the time for the implementation of the Campaign was that it was before school exams times, and not over a school holiday, falling within the end of winter towards the beginning of spring in the Province.

Figure 4-3: Windstorm in Beaufort West during community performance, Central Karoo District Municipality

Before the implementation of the Campaign, it was envisaged that there would be a school performance early in the morning, one at mid-day and a community performance in the late afternoon when adults were returning home from their daily vocations. This was however not to be the case as it was announced that no non-school related activities were allowed during the school day, implying that all school performances had to be shifted to after school hours, and an early community performance had to replace the first school performances. This was problematic for attendance figures as the few adults in the community areas were reluctant to attend early performances, and most of the inhabitants were away at work.

4.7 Assumptions and their implications

Certain assumptions were made prior to the implementation of both the Campaign as well as the evaluation thereof. Such assumptions may have influenced the programme results both negatively and positively. The assumptions made and their impacts on the Campaign and its impact are discussed below.

The first assumption was that the Campaign would be allowed into schools during school time in order to perform once early in the morning and once after lunch at the various schools. This assumption was however short lived as the Western Cape Department of Education insisted that no interruption of any school's teaching programme was allowed during school times (South Africa, 2009:3). In order to incorporate this constraint into the programme schedule, it was decided that one adult performance would be held in the morning, one school performance after school, and one late afternoon performance for adults would take place instead. This had a large impact in attendance figures during the morning performances in the identified informal settlements as the communities were mostly empty as most individuals went to work, and the remaining few were not interested in the loud hailing and posters enticing them to attend the performances.

Secondly, it was assumed that adults would want to attend the performances and give feedback during the pre-and post-intervention questions. This proved not to be the case as firstly, as mentioned the morning adult performances were poorly attended, and secondly the first three performances to adults proved that no amount of prompting would draw responses from the adults prior to a performance – a problem the industrial theatre group did not seem to have with the school performances. The pre- and post-intervention questions were for practical reasons abandoned and only the questionnaires utilised to gain the adult feedback.
The third assumption made was that the pre- and post- intervention questions at school performances would all be answered and that this would effectively indicate whether the performance made an immediate impact on the audience. A preliminary list of ten (10) questions were designed to effectively identify the school learners's pre- and post – intervention hazard knowledge, risk communication, and risk perception. This list was used during the first school performance, but due to very short attention spans, the audience members lost interest in the questions soon after half of the questions were asked. It was then decided to shorten the list of pre- and post- intervention questions to only four questions in order to maximise feedback from the school audiences. This has however had an impact on the base-line data that was meant to be captured, as well as the overall impact indicators for the intervention.

The fourth and last assumption was that the intervention and all the elements connected to it would be delivered without any hindrances. This assumption was soon disqualified as the practicalities of the implementation of the intervention soon pushed for allowances in time schedules, human errors, and venue relocations. The impact of these hurdles will be a constant cord throughout the findings of the research as is illustrated in Chapter Five.

4.8 Summary

The methods applied for this research, including the development of the questionnaires and structure of the collecting the observational data, including an explanation of the data analyses was undertaken during Chapter Four.

The purpose of the research and reasoning behind the use of the Logic Model as evaluation guideline for the effectiveness of the Fire and Flood Awareness Campaign was explained and the study's limitations, challenges, assumptions and their implications expounded.

Chapter Five will reveal the results from the data captured and discuss them according to the framework developed for the study.

5 CHAPTER FIVE – RESULTS AND DISCUSSION

5.1 Introduction

Planning for a monitoring and evaluation programme of an intervention should form part of the initial planning phases in any awareness programme. Planning should include the purpose of the evaluation, what the main objectives of the evaluation would be, how the data will be collected and who will undertake such an evaluation, when and what the resources are that would facilitate the entire process (Mphaisha, 2010:4, 5). This chapter firstly outlines the outputs, data collection instruments, outcomes and impacts section of the Fire and Flood Awareness Campaign as per the Logic Model and then delineates the results per anticipated outcome of the Campaign.

5.2 The Fire and Flood Awareness Campaign Logic Model as framework for incorporation of research findings and analyses

In order to design an M&E plan for the Fire and Flood Awareness Campaign, the Logic Model was populated in July 2010 prior to the Campaign implementation phase. The framework was slightly amended in order to reflect the instruments used for Data Collection in order to specifically identify such tools per output, and is illustrated in **Figure 5.1.**

The inputs included the industrial theatre group, the communications team, the disaster management team, stakeholders and funding resources all of which contributed to the various activities that encompassed the Fire and Flood Awareness Campaign. The Project Team consisted of Western Cape Provincial Government officials from the Department of Local Government's Disaster Management and Fire Brigade Services' Disaster Mitigation Sub-Directorate, the Communications Sub-Directorate, as well as representatives from the Paraffin Safety Association of Southern Africa, CapeNature and the Disaster Management and Fire Services officials from the five (5) District Municipalities of the Western Cape as well as the City of Cape Town Metropole.

Linkages between inputs, activities, outputs, data collection instruments, outcomes and impacts are illustrated with connecting lines.

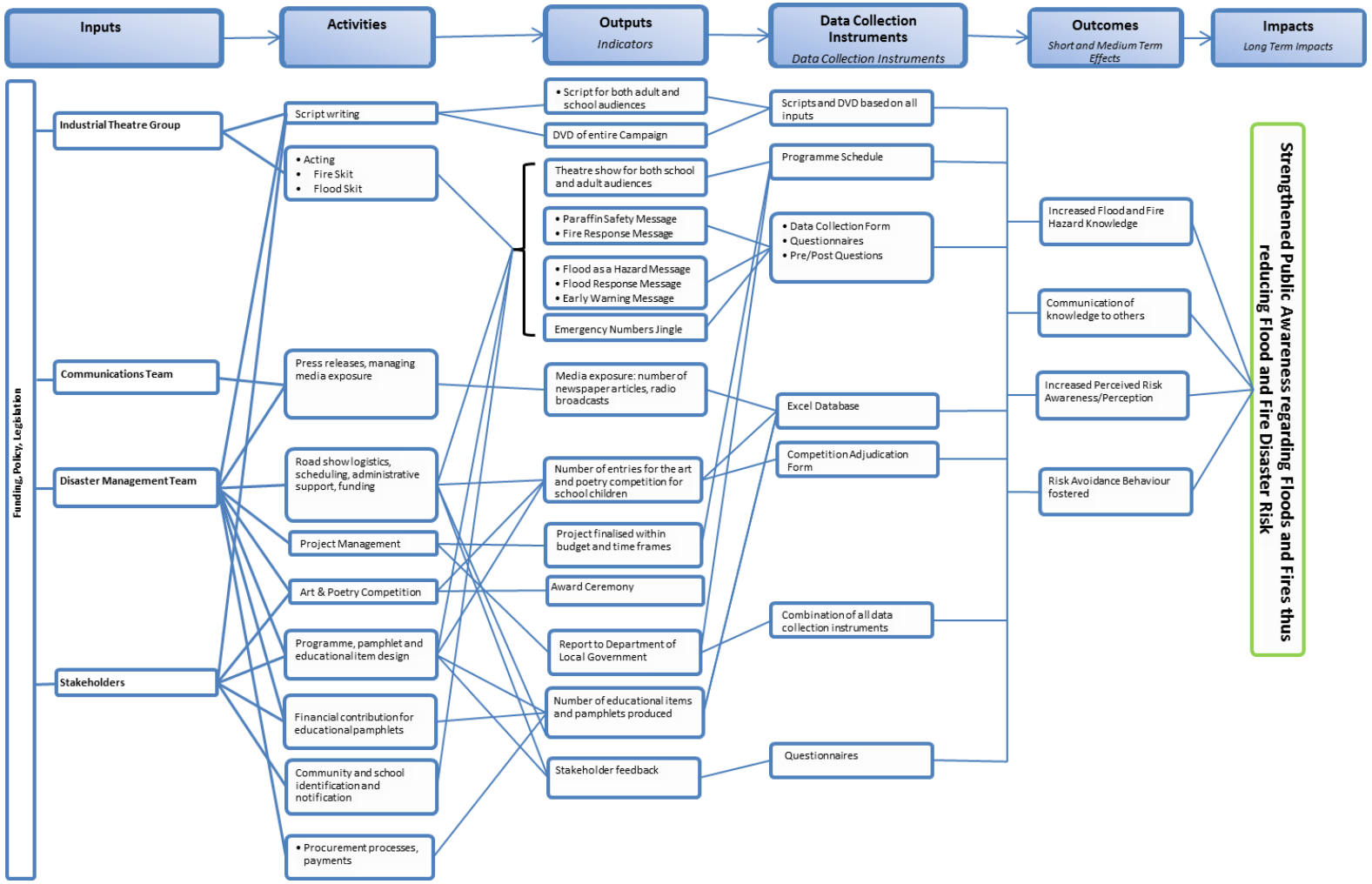


Figure 5-1: The Logic Model Framework for Monitoring and Evaluation of the Flood and Fire Awareness Campaign.
(Adapted from UNICEF, 2005:19)

5.3 Outputs and corresponding data collected

Each Output's (Indicator) will be discussed in terms of its individual data that were collected, the analyses thereof, as well as its outcomes.

5.3.1 Script for both adult and school audiences

This output, a script for both adult and school audiences was realised through the actions of an industrial theatre group that was appointed for this purpose. The script was written to relate to primary school learners and for an adult audience. Two very similar skits were transcribed in order to relate to the differing age groups of the audiences.

Both skit scripts included messages relating to fire and flood hazards. After the scripts were drafted, stakeholders were requested to review the scripts and provide feedback in order to have finalised the specifics of the scripts with regards to unambiguous messages and information that was to be included in the performances.

The literature in Chapter Two points to six basic elements of an effective awareness campaign. These elements include:

- By creating uncertainty in the audience's minds, curiosity is sparked and interest in the subject matter grows (Nathe, 2000:192; Mileti *et al*, 2004:1);
- Messages should be simple and unambiguous in nature (Mileti *et al*, 2004:3);
- Messages need to be reiterated during the intervention through illustrations or a variety of media sources, for example material resources (pamphlets, educational items), and advertising of the campaign across various media avenues including radio interviews and newspaper articles (Mileti *et al*, 2004:3);
- Local (area specific) information should be included in the intervention and social context should not be forgotten (Paton & Johnston, 2001: 271; UNISDR, 2002:190; Bostrom, 2003: 565; Mileti *et al*, 2004:3; Kirby, Laris & Rolleri 2007:213);
- Specific risk reduction messages should be distributed (Mileti *et al*, 2004:3); and lastly
- The Campaign should aim to be interactive in order to facilitate the learning process, for example the use of physical interactions during the skit itself (calling audience members to re-shuffle the emergency numbers into the correct sequence) (Mileti *et al*, 2004:3).

The scripts of both skits allow for all six these elements. The first element, creating uncertainty is fostered by not only the unusual appearance of a road show in the various schools and open areas in communities, but also by the opening scenes of both skits where the actors lure the audience in with attractive costumes and loud music.

The second element, simple messages, is included in the skits as the skits are divided into a fire focussed message and a flood focussed message, illustrating simple mistakes that could occur in any home and integrate simple and clear lessons throughout each skit.

These safety and hazard response messages were all highlighted again at the end of each skit through repetition and the post-intervention questions that were asked. An emergency number jingle to the melody of a common and recognised tune was included in the script for both performances and the audience was encouraged to sign along to the song. Both the jingle and the pre- and post-intervention questions encouraged audience participation, another of the key elements of an effective awareness campaign.

Figure 5-2 & 5-3: Performances in Eden District Municipality illustrate interaction with the audience members by asking them to rearrange the emergency number into the correct sequence(left), and asking pre- and post-intervention questions (right).

In terms of contextualising the scripts, the locations that were visited were all identified as high risk for flood and fire hazards and were in low income areas and mostly in informal settlements. Family structures and social context were included in the performance script in order to be able to relate the lessons to the audiences. Accordingly, the scripts scenarios were set in such circumstances in order to relate to the specific audience members, and flexible enough to incorporate Afrikaans, English and Xhosa depending on the language preference at the specific location. Before each performance, the local newspaper in each area was acquired and was used as a prop in the skits. In addition to the local newspaper, the script allowed for the specific location of the area being visited to be included in each scenario that was played out, contextualising the campaign even further and aligning with the third '*law of effective public hazard education*' which is that information should be based on a variety of sources and include relevant local information (Mileti *et al*, 2004:3). One respondent specifically highlighted the fact that he enjoyed the taxi representation of the play, indicating that the contextualisation of the play was appreciated.

Figure 5-4 & 5-5: Local newspapers of the respective areas visited were used in each performance. Performances are illustrated in the Overberg (left) and the Eden (right) District Municipalities.

5.3.2 Theatre Show for both school and adult audiences

A programme schedule was established as a programme management best practice, indicating which school and community would be visited at what period in time of the road show. All logistics flowed from this schedule, such as performance notifications, and loud hailing announcements in the various areas and schools a week before each show by the CDW's and the printing of competition entry forms and posters. The programme schedule is attached as **Appendix 10**. The actors were specifically chosen for the proficiencies in one of the three local languages, thus allowing for an adaptable cast depending on the preferences of each specific audience.

The identification of schools and community areas was selected by the respective local Disaster Management Officials in conjunction with the Western Cape PDMC in areas of high fire and flood risk. The community areas had to be in a public open space, allowing free access for all community members. Loud hailing a week before as well as an hour before each community performance, as well as notification posters were used to communicate the location and time of each performance to the local communities.

A total of 52 performances were completed in 19 primary schools and at 33 community locations (See **Appendix 10**). Comments collected from the respondents who completed the adult questionnaire relating to the performance were included in section 5.2.3.2 of the findings. All comments were positive, with specific remarks such as '*the performance was very engaging*' and '*exciting*' indicating that the audience members were drawn into the performance, accomplishing the one criteria of a good campaign which aims to use interactive means to engage the target audience. As mentioned in chapter two, Public Awareness should attempt the use of interactive methods to encourage audiences to generate possible risk reduction actions, allowing a feeling of audience ownership which in turn adds to the likelihood of such actions being integrated into everyday life (Mileti *et al*, 2004:11).

In addition, the performance messages, as per the first '*law of effective public hazard education*' (Mileti *et al*, 2004:3), were to be clear and uncomplicated. This proved to be the case, as a definite trend that followed from the comments in the Adult Questionnaires was that the targeted messages were grasped by the audience. This is evident by a comment from two specific respondents from the two separate performances that '*things were very clear*', with numerous added comments such as '*very exciting*', and '…*very interesting*' captured.

Figure 5-6 & 5-7: Community performance in the City of Cape Town (left) and a school performance in the Eden District Municipality (right)

5.3.3 Safety and Hazard Knowledge Messages and Emergency Numbers Jingle

For the purposes of simplicity, the safety and hazard message outputs were combined due to the similarities in design and mechanisms of implementation. The skits included a number of safety, hazard response messages as well as an emergency number jingle. All four outcomes (as per **Figure 5.1**) were addressed through these messages as they are the main components of the Campaign.

The various messages were tailored to the requirements of the stakeholders as well as contextualised to an environment that the audience members could relate to. As previously mentioned, the messages and jingle were available in all three languages and was reiterated throughout the performances, maximising the level of effective public awareness strategy. These messages support the sixth '*law*' of effective public hazard education that specific risk-reducing actions should be the focus of any awareness campaign to inform audiences what they could do pre-, during, and post-disaster events (Mileti *et al*, 2004:3).

Figure 5-8: A safe method of using a candle as a source of light is illustrated during a community performance in the Central Karoo District Municipality

The inclusion of the mascot, a giraffe named Gerry, was used to encourage interaction between the cast and the audience, giving learners and adults alike the liberty to touch Gerry, and at the same time be taught about fire and flood safety in their areas. A large number (27) of respondents specifically commented on their respective questionnaires that the best thing about the performance was Gerry the Giraffe. This added to the efficiency of the public awareness strategy as an unconventional way of communicating the message that was used as is indicated as a benefit for an awareness campaign (Mileti *et al*, 2004:4).

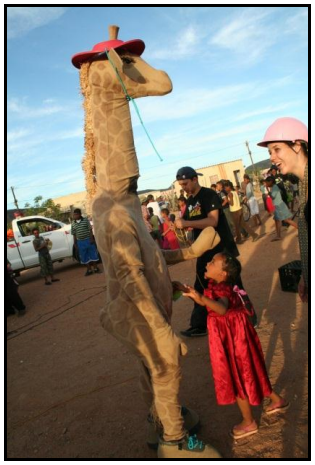


Figure 5-9: (School performance in the West Coast District Municipality) & 5-10 (Community performance in the Eden District municipality) show how Gerry, the Disaster Management mascot, proved very popular and allowed for interaction with both adults and learners alike.

The data collecting instrument for safety and hazard knowledge messages and emergency numbers jingle were the Data Collection Forms, Pre- and Post – Intervention Questions for the school performances and Questionnaires for the community performances.

5.3.3.1 Data collected during School performances

The data collected during the school performances was captured using observational methods as described in the Chapter Four. A Data Capturing Form (**Appendix 3**) was completed during each of the 19 school performances. The pre- and post-Intervention questions were intentionally asked before school performances in order to find some indication of a baseline to measure impact of the intervention in terms of knowledge increase with regards to flood and fire hazards. During the first school performances, the initial 10 pre-intervention knowledge questions indicated that too many questions lost the learner's attention, and thus only four questions were put together in order to keep the learners interested and focussed throughout the interaction.

The four standard pre-and post-intervention questions were as follows:
- How do fires start?
- How do you stop fires?
- What is a flood?
- What do you have to do when it floods?

In addition, the learners were reminded at the end of each performance to communicate the messages on to all their family and friends in order to promote further filtering of the hazard and emergency information to the rest of the community, and this fits in with the seventh *'law'* of effective public awareness campaigns which is to encourage the audience to spread the word thereby enlarging the reach of the message (Mileti *et al*, 2004:3). The use of schools as a conduit for public awareness and education efforts, is widely accepted as an effective means to create public awareness as the messages are relayed to not only the learners, but also the educators themselves and the learners' guardians (UNISDR, 2002:184).

Data capturing forms captured specific data such as the times of the performances, the school name, preferred language, number of learners attending and their respective grades, their responses to the pre- and post-intervention questions, and any additional comments the observers witnessed.

Table 5.1 illustrates the data collected during each school performance during the Fire and Flood Campaign 2010.

Table 5-1: Data collected per school performance for the duration of the Fire and Flood Campaign 2010.

School Name	Grades	Language Preference	Number of learners	Pre-Intervention Knowledge	Post- Intervention Knowledge	Comments
Naphakade Primary, Ilingulethu	1-7	Xhosa	500			Too many questions, learners lost concentration and focus.
Laurie Hugo Primary, Moorreesburg	1-7	Afrikaans	1500	10%	60%	Learners were clapping and singing along, very excited about Gerry, emergency number jingle was received with enthusiasm
				15%	70%	
				5%	50%	
				5%	50%	
Graafwater Primary, Graafwater	1-7	Afrikaans	130	10%	Data capturers not able to record Post-Intervention data.	Attentive learners, project is greatly needed in this area as fire response is an hour away (from Clan William); Communication to family and friends were highlighted.
				30%		
				30%		
				30%		
Elizabethfontein Primary, Clanwilliam	1-7	Afrikaans	250	5%	50%	Learners responded very positively towards Gerry at the first appearance, at his second appearance, 80% of learners knew his name; learners enjoyed the music and dancing, doing moves with the actors.
				5%	50%	
				15%	40%	
				10%	50%	
H.M Dlikidla Primary, Beaufort West	1-7	All three languages	400	1%	Data Capturers not able to capture Post-Intervention data.	Learners engaged with actors,
				1%		
				1%		
				1%		
Rustdene Primary, Beaufort West	R-12	Afrikaans	47		40%	Learners too unruly, difficult to ask Pre-Intervention Questions as it was after school and the learners had difficulty concentrating.
					40%	
					50%	
					30%	
A.H Barnard Primary, Beaufort West	1-7	Afrikaans	800	20%		Learners were very interactive and reacted excitedly to Gerry. The post-intervention questions could not be asked due to time constraints as leaners had to be transported home.
				40%		
				5%		
				5%		

School Name	Grades	Language Preference	Number of learners	Pre-Intervention Knowledge	Post- Intervention Knowledge	Comments
De Rust Futura Academy, Grabouw	1-7	Afrikaans	700	Facilitators were unable to ask questions due to time constraints.		Learners sang along to the emergency numbers jingle very enthusiastically; responded very positively to Gerry
Panorama Primary, Riversdale	1-7	Afrikaans	1005	5%	60%	Prior to the performance, the learners did not really respond to the pre-intervention questions; good repetition and retention of the emergency numbers
				20%	60%	
				5%	70%	
				20%	60%	
Buffeljagsrivier Primêr, Buffeljagsrivier	1-7	Afrikaans	82	3%		Average reaction to Gerry but do sing along to the emergency numbers jingle
				5%		
				3%		
				0.5%		
Thyolora, George	5-7	Xhosa	300	5%	90%	Very enthusiastic interaction with the actors
				10%	90%	
				10%	90%	
				10%	90%	
Thyolora, George	2-4	Xhosa	300	50%	90%	Learners really enjoy the emergency jingle and react well excitedly to Gerry
				70%	90%	
				30%	90%	
				30%	90%	
R.P Botha URC Primary, Zoar	7-9	Afrikaans and English	300	15%	40%	Not much pre-intervention knowledge – older learners also enjoyed the performance
				15%	50%	
				20%	20%	
				10%	20%	
Bontebok Primer, Swellendam	R-7	Afrikaans	1600	30%	80%	Learners reacted very excitedly to Gerry and very responsive to actors
				80%	90%	
				40%	80%	
				5%	90%	
Rietvlei Primary, Montagu	R-6	Afrikaans	39	10%	80%	Very cooperative learners
				50%	90%	
				20%	70%	
				5%	50%	

School Name	Grades	Language Preference	Number of learners	Pre-Intervention Knowledge	Post- Intervention Knowledge	Comments
Van Cutsem Combined School, De Doorns	R-7	Xhosa and English	529	2%	10%	Learners interacted freely with the actors
				90%	20%	
				40%	20%	
				30%	40%	
Caravel Primary, Mitchell's Plain	1-7	Xhosa	661	1%	50%	Learners learnt the emergency numbers after a few repetitions, and reacted very positively to Gerry. Principal indicated that many learners had experienced shack fires and flooding events.
				70%	80%	
				3%	50%	
				4%	70%	
Vinkrivier Primary, Robertson	1-6	Afrikaans	59	1%	Unable to ask Post-Intervention Questions	
				80%		
				10%		
				1%		
Kukhanyile Primary, Khayelitsha	1-7	Xhosa and English	800	2%	Unable to ask Post-Intervention Questions	Learners react very enthusiastically to Gerry and interact with Actors
				98%		
				15%		
				8%		
Somerset West, Somerset West	1-7	Afrikaans and English	650	1%	40%	
				3%	40%	
				2%	30%	
				1%	50%	

The data collected from observing the learner's behaviour during the various performances, indicate a marked increase in hazard knowledge when the percentages or learners pre- and post-intervention are questioned. A definite trend that was identified was that the learners reacted positively to the mascot, Gerry the Giraffe, and that the emergency numbers jingle was interacted with enthusiastically.

5.3.3.2 Data Collected during community performances

Two data collecting instruments were used during the community performances, namely the Questionnaires and the Adult Performance Data Collecting Forms.

The questionnaires were divided into three focus areas namely the fire message, the flood message and lastly on the overall feedback of the performance.

Figure 5-11 & 5-12: Community members completing the individual questionnaires after community performances in the Overberg District Municipality

The data collated from the 312 questionnaires that were collected during the community performances indicated that the mean age for the community performances was 33.68 years of age and that 39% of respondents were male, and 61% were female.

The following tends regarding fires as focus areas were underscored:

- 96% of respondents had found the performance interesting and felt that it assisted their understanding of fires and floods in their area yet 52.5% of respondents were confident that they were familiar with the paraffin safety tips that were shared during

the performance; This indication suggests that the messages were aiding in the community's hazard knowledge, outcome one of as identified in **Figure 5.1**.

- 81.5% of respondents indicated that they would implement preventative measures to combat fires, which alludes to the third outcome of **Figure 5.1**, fostering a culture of risk avoidance; This is reinforced by comments collated from the data capturing forms, with one respondent from Grabouw remarking that '*I will use the safety tips given, especially the stop drop and roll'* and *'I've learned a lot about paraffin'* from a respondent in Moorreesburg;
- 69% of respondents felt that their respective areas were prone to regular fires, with 71.8% of respondents feeling that fires are a major problem in these areas as indicated in **Figure 5.13**. This combined with the familiarity implied in the prioritisation of fire ignition sources (**Figure 5.14**), is indicative of an awareness of fires as a hazard in the respondents' area reflects an understanding of their risk perception (outcome number two in **Figure 5.1**) regarding fires.

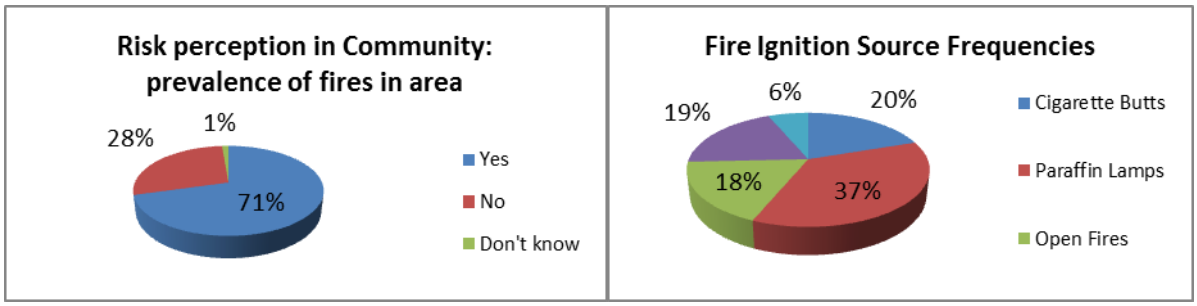


Figure 5-13 Pie chart depicting the cumulative risk perception with regards to fires as hazards (left); Figure 5-14: Pie chart depicting various sources of ignition (right)

Data collected with regards to floods as a focus area is as follows:

- 50 % of respondents claimed that flooding was a major concern in their respective areas;
- 55% of respondents indicated that they would commence preventative measures (such as moving towards higher ground) upon being warned of an approaching flood.

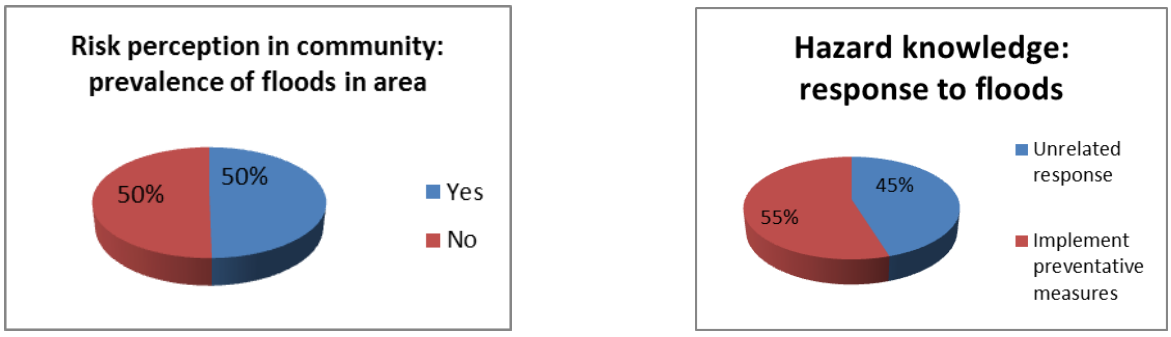
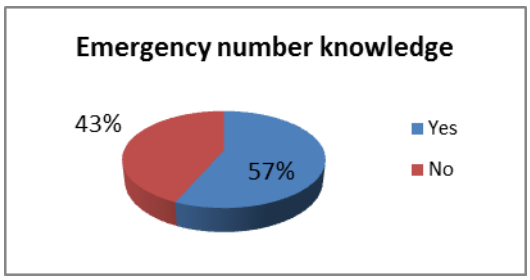


Figure 5-15: Pie chart depicting the cumulative risk perception regarding the prevalence of fires in the respondents' areas (left); Figure 5-16: Pie chart depicting reactions with regards to flood responses (right).

Nine respondents from Buffelsjags, Riversdal, Mossel Bay, De Doorns, Bonnievale, Worcester and Stellenbosch respectively commented that the best thing about the performance was the flooding story.

In addition, when asked whether any emergency number had been called in the past, 56.6% of people revealed that they had called an emergency number yet only 67.3% of respondents indicated that they had access to a cell phone, 21.6% had access to a landline and 11.1% did not have access to any form of telecommunication infrastructure. Two respondents from Vredendal and Grabouw separately commented that '*The best thing about the presentation were the emergency numbers*' and '*10177*'.



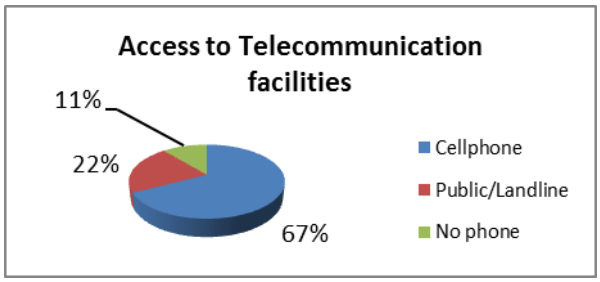


Figure 5-17: Pie chart depicting respondents knowledge of emergency numbers (left); Figure 5-18: Pie chart illustrating respondents' access to telecommunication facilities (right).

In general, 96.7% of respondents that made comments of the performances were positive with comments such as '*We learnt a lot from the play*' from a respondent in Vredendal, and *'(a) great help'* from a respondent from Beaufort West. Many respondents noted in the questionnaires that more of these performances should be made available to the communities. People expressed their appreciation for the campaign, many writing thank you messages at the bottom of the questionnaires, and that '*more such shows must be brought to the community*'.

Additional comments from the Questionnaires highlighted the first, third and fourth outcomes of the Campaign, namely increased hazard knowledge, an increased risk awareness/perception as well as an increase in risk avoidance behaviour. One respondent in Grabouw mentioned that *'(we) should be more cautious with fires'*, another that *'(we) should be more careful with matches and paraffin'* also from Grabouw, whereas someone from Swellendam added that *'(we) need to be more careful with fires'*, and "*I now know what to do in an emergency'*. A respondent from Buffelsjag included that *'(this) all granted the rural community access to learn about safety tips in an informal manner'*. A comment from a Grabouw respondent was that *'(the) radio is important'*, indicating that the early warning message in the play was incorporated into the audience's thinking – which could be helpful during emergencies in the future. The most fitting response came from a respondent in George, saying that *'(I) learn(ed) to prevent than (to be) sorry'*.

The Adult Performance Data Collecting Forms allowed several observers the ability to capture their remarks during each community performance. The type of data that were collected included the start and end time of each show, the physical location, as well as the preferred language of the area. The approximate numbers of attendees (men, women and learners) were also captured, as well as the weather conditions at the time of the performance, and the audience response to the performance.

The weather conditions during the performances varied from extremely cold and windy, to sunny and wind still. This impacted on the use of props as they were often blown away, and

high winds carried the sound away. If the weather was very cold, most audience members endured the cold, but some did leave for shelter and warmth.

A trend that was identified was that in the open air venues, more attendees were attracted, than in community halls or covered and enclosed areas. The times of the performances included a mid-morning show, beginning between 10:00 and 10:30, and an afternoon show starting between 16:00 and 17:00.

Some of the observations that were captured included: '*The audience was completely absorbed into the story', '(the) audience was laughing and listening', 'interaction with the actors was great'*, '*todays show was amazing!'* (Grabouw), '*good answers from the audience when actors asked questions after show'* (Riversdale), '*audience joined in enthusiastically with singing*' (Mossel Bay), and *'both adults and learners reacted positively to the characters and the story; loved the music, humour and dancing'*.

During one performance in Grabouw, the location was surrounded by local Somali shops, and as the performance was about to start, the owners approached the team saying that they would translate the messages into Somali for those people that would not understand. This performance was held in an open area, under extremely cold conditions, yet the attendance was very good (over 120 people attending) and very interactive.

In several locations (Grabouw), the audience members approached the team to fill in the Questionnaires, wanting to interact and communicate their inputs through to the team. In Langa, Cape Town, the community leaders approached the team, requesting that permanent signage be erected in order to facilitate the awareness in the area, and in Paarl, Embekweni, an audience member approached the team, thanking them for the performance, saying that the awareness is much needed in the community and that the Campaign should come again.

The two areas where audience members did however not interact with the performance or the team was Beaufort West (Shoprite Parking Lot) in the Central Karoo District Municipality and Swellendam (Smarty Town Informal Settlement) in the Overberg District Municipality. The reason for this in the case of the Smarty Town Informal Settlement, could have been the early time of the performance (10:17 am), and very windy conditions yet the Beaufort West performance was poorly attended (30 people), even though it was held in an open area (Shoprite Parking Lot) and during warm weather conditions and at 17:10 pm.

One area in Cape Town, Du Noon, was politically unstable with riots and public upheaval breaking out a week prior to the performance, and thus performance was cut short and no questionnaires were completed due to the safety risk of the team.

It did become apparent that the morning performances in the communities was not very successful as the crowds were not too large (between 45 and 150 people), and this might have been due to the fact that not many people were in the areas (many had left to go to work) and the weather discouraged those in their shelters to come out, whereas the afternoon community performances was attended by more people as illustrated at a performance at Zoar in the Eden District Municipality where the performance attracted up to 600 people, but it was warm and sunny and at 17:00.

5.3.4 Media Exposure

The media team allowed for broad distribution of the news of the Campaign, with newspaper articles in 15 local newspapers (see **Table 5.2**), one online newspaper article and 12 radio-interviews as per **Table 5.3**. The Data Collecting Instrument for this Output was an Excel Database.

The advantages of radio broadcasts and newspaper articles is that a large audience could be reached with planned and uniform messages and lastly it could be intriguing enough that people want to know more (IFRC,2011:50).

Table 5-2: Newspaper articles of the Fire and Flood Awareness Campaign 2010

Date of Article	Newspaper Name	Area of performance	Language
13 September 2010	Die Burger	Provincial	Afrikaans
16 September 2010	Swartland Monitor	Moorreesburg	Afrikaans
16 September 2010	Swartland Monitor	Piketberg	Afrikaans
23 September 2010	Caledon Kontreinuus	Caledon	Afrikaans
22 September 2010	Die Burger (Southern Cape)	George	Afrikaans
24 September 2010	Suid-Kaap Forum	Riversdal	Afrikaans
24 September 2010	Mossel Bay Adviser	Mosselbay	English
1 October 2010	Suidernuus	Bredasdorp	Afrikaans
8 October 2010	Langeberg Bulliten	Swellendam	Afrikaans
8 October 2010	Elgin Grabouwer	Grabouw	English
15 October 2010	Suidernuus/ Southern Post	Bredasdorp	Afrikaans
23 October 2010	Weekend Argus	Khayelitsha	English
27 October 2010	Table Talk	Du Noon	English
28 October 2010	Vukani	Khayelitsha	Xhosa
November 2010	Montagu Mail	Montagu	English

Table 5-3: Radio interviews performed with regards to the Fire and Flood Awareness Campaign 2010

Date	Station	Language	Duration
07September 2010	Radio Namakwaland	English/Afrikaans	10 Min Slot
14 September 2010	Radio Gamkaland	English/Afrikaans	30 Min Slot
21 September 2010	Eden FM	English/Afrikaans	10 Min Slot
23 September 2010	Valley FM	English/Afrikaans	60 Min Slot
27 September 2010	Radio Atlantis	English/Afrikaans	45 Min Slot
27 September 2010	Radio Namakwaland	English/Afrikaans	45 Min Slot
28 September 2010	Whale Coast FM	English/Afrikaans	45 Min Slot
30 September 2010	Eden FM	English/Afrikaans	45 Min Slot
01 October 2010	Radio KC	English/Afrikaans	45 Min Slot
22 October 2010	EWN	English/Afrikaans	45 Min Slot
11 November 2010	Valley FM	English/Afrikaans	10 Min Slot
15 November 2010	Voice of the Cape	English/Afrikaans	10 Min Slot

The newspaper articles were all very positive, with comments such as ‘Community members, old and young, attended to enjoy this funny but well-informative campaign.’ (Mossel Bay

Advertiser, 24 September, 2010:3); '*Watching it was a happy experience…adults in the Ashbury crowd giggled and laughed…*' and ' *…lines (were) bold enough to grab the attention of the packed crowd…*' (Montagu Mail, November 2010:4).

The newspaper clippings informed their readers of the purpose of the Campaign as well as the importance of flood and fire safety in the respective communities. Some of the articles highlighted parts of the skits and included the safety messages that were portrayed in the performances. In addition, the Art and Story writing Competition was published in many of the clippings.

The media component of the Campaign addresses all four programme outcomes, as the articles and radio broadcasts not only encourage the communication of the campaign's messages to a broader audience, but it also facilitates the learning of safety messages and therefore increased hazard knowledge and risk avoidance behaviour. In addition, these conduits of information allow for an increased risk perception of the community which they reach, educating them to the prevalence of floods and fires in their immediate environment.

5.3.5 Art and Poetry Competition Entries

The Data Collecting Instruments used for the Art and Poetry Competition were an Excel Database and Competition Evaluation forms. The Competition Evaluation form is attached as **Appendix 5.**

The advantages of implementing the competition, is that competitions allow audiences to participate in the campaign, it stimulates discussion, and it may increase a gain in knowledge and the retention thereof (IFRC, 2011:49)

An Art and Story Writing Competition formed part of the Awareness Campaign in order to access the learners' level of retention of the various messages that formed part of the performances. The art competition was aimed at school learners in Grade One to Grade Three and the story competition included school learners in Grade Four to Grade Seven.

The Competition included not only the nineteen (19) schools that the programme was implemented at, but included 6 additional schools that did not form part of the scheduled performances. Although they were invited to enter into the Competition, no entries however were received from the schools that did not take part in the Campaign itself. Competition entry forms in Afrikaans, English and Xhosa (depending on the schools preference) were delivered to each school, and entries collected after the closing date of 15 October 2010. An example of the English entry form is illustrated in **Figures 5.19** and **5.20**.

Figure 5-19 & 5-20: English Competition entry form for Art/Story Writing Competition

An adjudicating panel consisting of all the stakeholders of the Campaign was assembled on 28 October 2010. The panel evaluated the Competition entries according to a Competition Evaluation Form (**Appendix 5**). Both the artwork and story entries were all categorised according to the various age groups and languages represented.

The artwork entries were judged according to their illustration of the artists understanding of the fire and flood message, thereby evaluating an increased hazard knowledge and risk perception, and the inclusion of planned risk avoidance behaviour (such as always having a sand bucket ready and nearby in case of a fire).The story entries were judged by assessing the author's representation of the Fire and Flood message, creative writing ability and the correct use of grammar.

A total of 672 competition entries were collected from as is illustrated in the **Table 5.4.**

Table 5-4: 2010 Fire and Flood Campaign Competition entries per School

Name of School	Gr. 1	Gr. 2	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Total
Arieskraal	0	0	0	0	0	0	3	3
Bertie Barnad	0	0	0	0	1	0	1	2
Caravelle	13	10	8	50	17	36	23	157
Elizabethfontein	15	10	34	26	22	16	10	133
Maxania	15	12	0	0	0	4	0	31
Montagu Lower	0	6	0	3	0	0	0	9
Naphakade	76	64	43	0	0	0	0	183
Pineview	0	0	0	0	3	0	0	3
Rietvlei	8	3	5	1	3	3	0	23
Roodewaal	0	0	0	10	0	0	0	10
St. Matthews	28	2	14	0	0	0	0	44
St. Michaels	0	0	0	0	0	10	10	20
Touwsriver	0	0	12	1	1	0	0	14
Van Custem	0	6	4	0	0	18	0	28
Voorwaarts	0	0	12	0	0	0	0	12
TOTAL	**155**	**113**	**132**	**91**	**47**	**87**	**47**	**672**

Many of the artworks entered depicted flooding rivers washing houses and people away, some included fire engines extinguishing fires. One of the winners of the art competition drew a household with a bucket of sand readily available, indicative of a culture of safety and preparedness and not just response driven.

The stories that were evaluated mainly based their content on defining fires and floods. Many stories told of situations where alcohol played a large role in the origins of fire emergencies, which is a prevalent scenario in many of the informal settlements the learners live in. Several stories pointed out the various emergency numbers that were included in the lyrics of the songs that were sung during the performances, as well as the various emergency procedures to be followed in the case of a fire or flood.

An Award Ceremony held on 15 November 2010 marked the end of the 2010 Campaign, and allowed the Competition Winners of the Art and Story Writing Competition to be awarded their prizes by the Provincial Minister of Local Government. Prizes included items such as soccer and rugby balls and pencil bags all illustrating the emergency numbers of the Western Cape Province.

Figure 5-21 & 5-22: Art/Story writing competition winners during the award ceremony with Cape Winelands (left) and Central Karoo (right) District Municipality's Disaster Managers and Provincial Minister of Local Government.

It was evident through the art works and stories that the Campaign informed the learners of the two hazards, fires and floods, their respective preventative measures and emergency response procedures.

5.3.6 Project finalised within timeframes and budget

This outcome was purely programme management focussed, and had an administration and logistics element which had to be controlled. The Data Collecting Instrument for this was the Programme Schedule. The Programme Schedule was kept up to date and any changes immediately captured on the schedule. The Campaign was finalised within the budgetary and time limitations that were set at the conception stages of project planning.

5.3.7 Report to Department of Local Government

All the data collected was combined into a final report to the Department of Local Government. The Fire and Flood Awareness Campaign Final Report (**Appendix 9**) was a standard requirement of all government initiatives and programmes and as such, included a description of the aims, methodology and content of the Campaign as well as a breakdown of stakeholders and services providers. In addition, it described the development and financial implications of the educational items and pamphlets for the Campaign. An overview of the monitoring and evaluation process was presented, and the conclusion of the Campaign, the Awards Ceremony was described with all supporting data that was captured at that time.

5.3.8 Educational Items and Pamphlets

The second '*law*' of effective public hazard education is to reiterate the information using illustrations as this attracts more attention (Mileti *et al*, 2004:3).

The advantages of distributing educational items and pamphlets, is that firstly, it is enjoyable to receive such an item, therefore interest is drawn, and secondly, the items are kept and therefore the educational message may be reiterated at a later stage (IFRC, 2011:43).

Educational items such as pencils, caps, shirts, rugby and soccer balls and water bottles were designed with the Disaster Management logo as well as the emergency numbers that formed part of the messages that were included in the performance scripts

These educational items were captured in an Excel database, and all distributions during the performances noted. These items were the source of great excitement and audiences at the schools and the community performance responded with intense interest.

Figure 5-23 & 5-24: Educational items (information pamphlets, water bottles) were distributed during performances. Cape Winelands District Municipality Community (left) and School (right) performances.

The educational pamphlets were designed in collaboration with all the relevant stakeholders, and included hazard information regarding both floods and fires. In addition, emergency responses and emergency numbers were included in the pamphlets, in all three languages for school learners and an adult version for the community performances.

The various educational items procured are listed in **Table 5.5**.

Table 5-5 Educational Items for the Fire and Flood Awareness Campaign 2010

Educational Item
Educational Pamphlets: School learners (Three Languages) Adults (Three Languages)
Rugby Balls and Soccer Balls
T-shirts
Caps
Water Bottles
Pencil Bags
Rulers
Pens
Vehicle Registration Holder Stickers

These items assisted in not only increasing the hazard knowledge of the audience members, but also increased their risk perception regarding floods and fires and encouraged the message to be communicated to their families and friends. This may have assisted in the process of risk reduction behaviour in the areas impacted upon by the Campaign.

Figure 5-25: Example of the English school pamphlet's inside page (Attached as Appendix 11). Xhosa, Afrikaans, and English pamphlets were also available during performances

Figure 5-26 Example of the English adult pamphlet's outside page (Attached as Appendix 13). Xhosa, Afrikaans, and English pamphlets were also available during performances

5.3.9 Stakeholder Feedback

Stakeholder Questionnaires were sent to the five (5) District Disaster Management Officials who were directly involved with the implementation of the Campaign in their various areas of responsibility. The questionnaire questions were based on a Likert scale of 1-5, with 1 being strongly disagree, 2 disagree, 3 neither agree nor disagree, 4 agree and lastly 5 strongly agree. The frequency tables were calculated and the following results were found relating to the school performances:

- Three out of the five Disaster Management Officials '*strongly agreed'*, and the remaining two '*agreed*' that the campaign's messages were educational;
- One official '*strongly agreed*' and the four others '*agreed*' that the performances educated the learners about their specific risk to fires and floods;
- One respondent *'strongly agreed*' and four '*agreed*' that the performances enticed the learners to communicate the safety messages to their friends and families;
- Two officials indicated that they '*neither agreed nor disagreed*' that the performances promoted a culture of safety in the learners, while two others '*agreed*' and one '*strongly agreed*';
- Four respondents '*agreed*' and one '*strongly agreed*' that the educational materials were contextualised to the needs of the audience.

With regards to the informal settlement community performances, the following frequencies were calculated:

- Three out of four officials indicated that they '*agreed'*, one '*strongly agreed'*, when asked if they thought that the Fire & Flood Safety messages were educational;
- Three out of four respondents '*agreed*' and one '*strongly agreed'* that the performances educated the audience about their specific risk to fires and floods;
- One out of four respondents '*neither agreed nor disagreed*' that the performances enticed the audience to communicate the safety messages to their friends and families, while three others indicated that they '*agreed*' with this statement;
- Two out of four respondents indicated that they '*neither agreed nor disagreed*' that the performance promoted a degree of a culture of safety in the audience, while the remaining two '*agreed*';
- When asked whether they thought that the educational materials were contextualised to the needs of the audience, one out of four respondents indicate that they '*neither agreed nor disagreed*', while three others indicated that they '*agreed'* to the statement.

When asked for general feedback, five out of five respondents indicated that they felt that the campaign targeted the correct audience, and when asked whether they thought that the campaign did indeed increase fire and flood awareness in the audiences, one out of four respondents indicated that they did '*not agree nor disagree'*, while three remaining respondents indicated that they '*agreed*'.

The majority of the feedback received was positive, with the officials indicating that they feel that interventions such as the Fire and Flood Campaign should be carried out on a more frequent and continuous basis. Comments such as '*Good Campaign, we can built on what is achieved so far*', *'(the) target groups were correctly identified'*, '*We thought the initiative was a well-deserved effort and that the impact was effective*', and '*This type of awareness should be done on a more regular basis*' were all indicative of the positive light the Campaign was received in.

Two suggestions were made relating to the inclusion of more farmworkers and rural farm schools, as well as a stronger emphasis on the danger of the hazards as one respondent pointed out that *'(t)hese groups are constantly exposed to these risks and have learned to live and cope with them'*.

5.3.10 Funding implications

Funding, as with policies and guiding legislation, is one of the main predetermining factors of any initiative. The 2010 Fire and Flood Awareness Campaign's budget came to R 501 933.86. A breakdown of the costs is illustrated in the **Table 5.6**.

This figure however did not include man hours worked in planning, implementation and closure of the project. This alone would amount to much more than the total costs indicated in Table 5.6, and should have been included in the planning of the Campaign as this figure may lead to misguided ideas regarding the actual costs of the project.

Although the majority of the funding came from the coffers of the Department of Local Government, some of the pamphlets' printing was funded by the various Stakeholders. This is another indication of networking opportunities utilised to the maximum during the roll-out of the Campaign.

An additional factor that was not factored into the Campaign's costs was the initial creation of Gerry the mascot. Those costs were included in the previous year's funding arrangements and should not be overlooked.

Table 5-6: Fire and Flood Awareness Campaign Budget

Campaign element	Costs
Little LA Productions (theatre group) Included: Actors' fees, travelling costs, accommodation, meals, equipment and cameraman fees.	R363 000,00
Disaster Management staff accommodation and meals	R37 334,00
Travel costs for Disaster Management staff	R18 238,66
Educational materials	R73 000,00
Backdrop banner emergency repairs	R3 169,20
Emergency repairs to Gerry costume	R2 052,00
Catering for awards ceremony and adjudication	R5 140,00
TOTAL COSTS INCURRED	**R 501 933,86**

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5.4 Discussion

The purpose of this research was to evaluate whether the goals of the Fire and Flood Awareness Campaign were effectively reached, and whether the programme methodology

was based on sound theoretical practices. With an increasing focus on good governance within all government departments, effective monitoring and evaluation methods are called for in order to facilitate a level of accountability.

Planning for an evaluation programme of an intervention should form part of the initial planning phases in any awareness programme, as was the case with the 2010 Fire and Flood Awareness Campaign. Planning should include the purpose of the evaluation, what the main objectives of the evaluation would be, how the data will be collected and who will undertake such an evaluation, when and what the resources are that would facilitate the entire process (Mphaisha, 2010:4, 5). By developing the logic model (**Figure 5.1**) for the campaign prior to the implementation thereof, the various inputs, activities, outputs, data collection instruments, outcomes and envisioned impacts were documented. The process of the campaign could then be evaluated, which included the project planning and implementation.

Quantitative indicators for risk reduction behaviour or an increased public awareness as such can only truly be measured in a longitudinal study, which requires appropriate funding and other resources for an extended period of time which this evaluation did not have access to. This evaluation however focussed on more proximate indicators such as an increase in hazard knowledge and risk perception – but was analysed from a qualitative point of view as this was, the most manageable approach for an evaluation of this nature considering the time and cost restrictions in place. Brownson and Simoes (1999: 73) explain that assessing the success of a prevention program is very challenging as it is such a multi-faceted process. This is the reason why of most prevention programs evaluation designs are generally observational studies as was the case with this evaluation.

The methodology that was followed in order to plan for, and implement the Fire and Flood Campaign of 2010 was based on sound project management practices, and the outcomes that were envisaged, evaluated according to best practice for intervention programmes.

The content of an intervention programme curriculum should include:
- Clear prevention goals;
- Exact risk-reducing behaviours and or activities that are culturally and contextually sensitive(education levels, age appropriate, relevant risks);
- Interactive methodologies for communicating messages; and
- Programme should follow a logical sequence.

The intervention programme outcomes should focus on increased knowledge, perceived risk, personal beliefs regarding risk associated behaviour and the communication of the information to other parts of the community such as peers and other community members (Kirby, Laris & Rolleri, 2007: 213).

The Fire and Flood Awareness Campaign's four outcomes, namely an increase in fire and flood hazard knowledge, communication of this knowledge to others, an increased perceived risk and the fostering of risk avoidance behaviour all mirror the prescribed content of such interventions.

The four outcomes were achieved through the employment of various communication conduits such as the theatre skits at schools and communities as well as the circulation of educational items and the roll-out of the Art and Story Competition. The data captured both

through observational methods and from the questionnaires reflect the achievement of these outcomes.

When evaluating the story and art competition entries, all outcomes of the campaign were realised. The stories all depicted scenarios of fires or floods and indicates that the learners internalised the hazard knowledge and were communicating it to their peers. Numerous pictures illustrated the various sources of ignition, as well as means of outing the fires. Several pictures indicated people moving to higher ground when it is raining, and demonstrated the emergency numbers. These are all indications of increase risk perception and a move towards a culture of safety.

The positive feedback from the adult questionnaires as well as the frequencies calculated illustrated that the initiative was needed and appreciated. The respondents indicated that they felt that the performances increased their hazard knowledge and that they would communicate the information to others which implies that outcome one and two namely increase hazard knowledge and communication of this knowledge was achieved.

There was a slight difference in the risk perception between fires and floods, people being more aware of their fire risk (knowing what the sources of ignition are) than their flood risk. Since feedback was collected that the flooding performance was very informative, the flood risk perception was definitely increased after the performances, an illustration that outcome number three, increased risk perception, was achieved. In addition, the data illustrates that respondents would heed flood warnings and take preventative action should the need arise, which alludes to outcome number four, risk avoidance behaviour fostered. .

The UNISDR (2002:190) stipulates that intervention programmes should be contextually designed for specific audiences. The factors that should be considered include the priority risks, risk perceptions, current beliefs and knowledge as well as the culture of the said audience. Such programmes should aim interventions at all levels of society, from the specific at-risk communities, to politicians, educators, government departments and private sector organisations and this should be done using a combination of interventions and delivery conduits in order to achieve an all-encompassing and effective re-iteration of the desired message. In addition, the focus of such programmes should be on being long-term and integrated interventions with sustained inputs which will achieve greater success than once-off occasions (UNISDR, 2002:190).

By designing the intervention scripts for both young and old audiences using humour to retain audience attention, valuable knowledge for fires and flood hazards were shared. The inclusion of various media resources in the form of radio broadcasts and in local newspapers spread the campaign further than only the actual performances at the various schools and informal settlements. By distributing education items containing vital emergency numbers, the Campaign's core purpose was addressed, and the level of retention and impact illustrated through the art and story competition entries as well as the questionnaire feedback.

If the Stakeholder Feedback is taken into consideration as well, the Fire and Flood Campaign 2010 can be said to have been successful in achieving the outcomes set out in the Logic Framework of increased fire and flood hazard knowledge, communication of this knowledge to others, increased perceived risk awareness and the fostering of risk avoidance behaviour. This ultimately leads to strengthened public awareness regarding floods and fires, thereby reducing flood and fire risks.

This said, accomplishing a successful intervention is dependent on not only internal factors such as type of intervention, implementation period, design and evaluation tools used, but also a multitude of external elements which are not in the control of the programme itself and which may lead to either the success or failure of the intervention (McLaughlin & Jordan, 1999: 66; Contento, Randell & Basch, 2002: 12).

The elements of the Fire and Flood Campaign of 2010 bar the sustained efforts of long term interventions, all reflect the requirements of effective public awareness programmes as per the Campaign's Outputs, Data Capturing Instruments and Outcomes. The overall impact of a strengthened public awareness regarding floods and fires, thereby reducing disaster risk cannot be definitely assessed, but the short term outputs were positively achieved.

5.5 Summary

Public awareness has long been regarded as one of the tools to achieve disaster risk reduction through increased hazard knowledge, risk perception, and the fostering of risk avoidance behaviour but measuring the effectiveness of such campaigns proves to be a difficult task. This case study of the Fire and Flood Awareness Campaign in the Western Cape Province served as an attempt to assess such a campaign using the international best practice Logic Model framework.

The results of the case study indicate that the 2010 Fire and Flood Awareness Campaign increased hazard knowledge, the audience's risk perception, encouraged communication of this knowledge to others and the fostering of a safety culture. It can therefore be suggested that from these four outcomes the Campaign is in good standing to achieve its envisioned long term impact of reducing flood and fire risk.

Chapter Five demonstrated the various data that were collected and collated during the 2010 Fire and Flood Awareness Campaign. A logic model was used to create a framework for evaluation and the results thereof indicative of a successful campaign.

Chapter Six will give a short summary of the case study and conclude with detailed recommendations for future campaigns.

6 CHAPTER SIX – RECOMENDATIONS AND CONCLUSION

6.1 Introduction

The Western Cape Province is prone to fire and flooding events which leads to disaster situations in areas of high vulnerability. Following a disaster risk assessment, the provincial government's Disaster Management Centre, identified these two hazards as a priority and saw to alleviate the losses of its citizens through a variety of risk reduction measures. The Fire and Flood Awareness Campaign was embarked upon and as per the various legislative requirements set by the amongst others the South African Constitution, the National Disaster Management Act and Framework and the Western Cape Provincial Disaster Management Framework was required to perform monitoring and evaluation procedures in order to indicate the effectiveness of such an campaign in the name of sound governance and accountability.

The intended outcome of the evaluation was to indicate whether its envisioned outputs were reached, as well as if the right methodology for project planning and implementation was used. Note this was not an impact assessment, as this would require a longitudinal study over an extended period of time. This research evaluated the process, and outcomes of the campaign, but in order to effectively evaluate its impact, long term evaluations need to be embarked upon to follow community behavioural change and since this is impacted on by a multitude of factors, it requires intricate planning and implementation.

Many social theories are the basis of awareness campaigns and founded the theory upon which five factors that affect one's ability to respond to an incident namely hazard knowledge, risk perception, implementation of preparedness measures, response behaviour and lastly hazard and risk education were identified. These factors were used as the underpinning for the framework of the evaluation, the logic model. It must be noted that this was an awareness campaign and not a formal school based intervention or informal training exercise and should not be evaluated as such.

The campaign itself was evaluated not only for the achievement of the mentioned outcomes, but also on the elements that were identified as the '*laws of effective public hazard education*'. These '*laws*' include that messages are to be clear and simple, they should reiterate the information using illustrations as this attracts more attention, information should be based on a variety of sources and include relevant local information, the campaign should be sustainable, messages should be reiterated through a variety of media instruments and other information conduits such as brochures, school programmes and community networks, specific risk-reducing actions should be the focus of any awareness campaign to inform audiences what they could do pre-, during, and post-disaster events and lastly campaigns should encourage the audience to spread the word thereby enlarging the reach of the message and lastly, make additional information accessible in the various target areas.

The methods used included qualitative output evaluation (direct responses observed and captured) as well as quantitative methods through the use of questionnaires from both adults that attended the performances as well as stakeholder feedback from the various disaster management officials that were involved throughout the process.

The Fire and Flood Awareness Campaign's four outcomes, namely an increase fire and flood hazard knowledge, communication of this knowledge to others, an increased perceived risk

and the fostering of risk avoidance behaviour all mirror the prescribed content of such interventions. The outcomes that fed these outputs were measured in terms of number of radio broadcasts, newspaper articles, school and community performances and competition entries received in addition to the various data capturing forms using observational methods.

The four outcomes were achieved through the employment of various communication conduits such as the theatre skits at schools and communities as well as the circulation of educational items and the roll-out of the Art and Story Competition. The data captured both through observational methods and from the questionnaires reflect the achievement of these outcomes.

It must be noted that external influences may cancel all intended outcomes for an audience member, and that is one of the most difficult challenges of awareness campaigns. Another major influence on the outcomes of effective awareness campaigns is the available resources at hand (i.e. knowledge, time, experience and finances).

6.2 Brief exposition of the Chapters

6.2.1 Chapter One

Chapter One introduced the study, its reasoning, aims, objectives and methodology. The subject of public awareness as a risk reduction tool was briefly visited, and further explored in Chapter Two.

6.2.2 Chapter Two

Chapter Two explored the theory behind disaster risk management and more specifically disaster risk reduction and the use of public awareness as an instrument to achieve lowered disaster risk. The various models that public awareness as well as best practices for implementing such campaigns were investigated.

6.2.3 Chapter Three

Chapter Three discussed that legislative requirements and mandates that the provincial government has with regards to disaster risk reduction, with specific reference to public awareness. In addition, international guidelines and requirements are presented and the importance of the study linked to these requisites.

6.2.4 Chapter Four

In Chapter Four, the methodology implemented in the study was expounded, including the development of the various tools for data collection and the approach for analyses explained. The study's limitations, assumptions and the various implications were also included in this chapter.

6.2.5 Chapter Five

The Fifth Chapter examines the data collected, and deliberates the various findings. In addition, the Logic Framework developed for the assessment of the Campaign is introduced, as it was the basis for the assessment.

6.3 Recommendation for future Campaigns

The recommendation flowing from this research is that the Logic Model proposed in this research as **Figure 5.1** be implemented as a planning, design and evaluation tool for future

awareness campaigns as it is based on international best practice and has a proven track record in the evaluation of the Fire and Flood Awareness Campaign.

If the need to assess the level of impact such a campaign had on the targeted audiences, a more robust evaluation structure would be required which would include, amongst others control groups and a sustained programme implementation It is recommended that the lessons learnt reflected in the research be fed back into the decision making process, as this will assist in justification of budget requirements for future interventions.

Therefore, one should not focus on one model alone, but approach risk communication, and public awareness with a holistic understanding with a balanced consideration for audience context.

It is however recommended that an assessment of this kind be guided by the proposed Logic Framework that was developed for the specific campaign. In addition, it is suggested that future evaluations be longitudinal studies as this would reflect a more solid argument for the risk reduction impact of a campaign and lastly that a longer time period allowed to plan an evaluation as this would markedly distinguish and strengthen a quantitative assessment.

In addition, planning for a comprehensive monitoring and evaluation programme could take up to a few months so when drawing up timelines for a campaign, this should be taken into consideration.

6.4 Conclusion

The 2010 Fire and Flood Awareness Campaign proved to be adequately aligned to both the legal requirements and awareness campaign best practices. The campaign's messages were heard, seen, understood and perceived, which is as Blanchard-Boehm *et al* (2008:299) describes a means to build effective awareness. This research therefore concludes that the campaign proved effective given the resources at hand, and the limited time frames available.

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8 APENDICES

Appendix 1: Stakeholder Feedback Questionnaire and Cover Letter

5 August 2011

Dear Disaster Managers,

I am a graduate from the University of the Free State at DIMTEC. As part of my Masters thesis in Disaster Management, on the Provincial Fire and Flood Awareness Campaign of 2010, I require your valuable feedback regarding the campaign.

The aim of this research is to investigate whether this Campaign was an effective means to increase public awareness regarding the flood and fire hazards, and secondly to recommend improvements to the current methodology in order to adequately educate the public regarding these risks, thereby reducing disaster risk in the Western Cape Province.

As part of an evaluation of the Fire and Flood Awareness Campaign of 2010, I would like to get your feedback and inputs a year post-intervention so as to gauge any possible impacts you may have noticed in your respective areas as a result of the campaign.

Please complete this very short questionnaire which will only take 5 minutes of your time and return it by no later than Monday, 12 September 2011. We look forward to your feedback and thank you in advance for your inputs.

Kind regards,

Carin Joyce

205 Nelson Mandela Drive/Rylaan, Park West/Parkwes, Bloemfontein 9301, South Africa/Suid-Afrika
P.O. Box/Posbus 339, Bloemfontein 9300, South Africa/Suid-Afrika, T: +27(0)51 401 9111, www.ufs.ac.za

Fire and Flood Awareness Campaign 2010 – Feedback Questionnaire

Thank you for taking the time to complete the following Fire and Flood Awareness Campaign feedback questionnaire. Your information will be used to measure the effectiveness and overall performance of the Campaign.

1. School Performances

Do you think the Fire & Flood Safety messages were educational?

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly Agree

Do you think the performance educated the learners about their specific risk to fires and floods?

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly Agree

Do you think the performance enticed the learners to communicate the safety messages to their friends and families?

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly Agree

Do you think the performance promoted a culture of safety in the learners?

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly Agree

Do you think the educational materials were contextualised to the needs of the audience?

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly Agree

2. Informal Settlement Community Performances

Do you think the Fire & Flood Safety messages were educational?

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly Agree

Do you think the performance educated the audience about their specific risk to fires and floods?

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly Agree

Do you think the performance enticed the audience to communicate the safety messages to their friends and families?

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly Agree

Do you think the performance promoted a degree of a culture of safety in the audience?

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly Agree

Do you think the educational materials were contextualised to the needs of the audience?

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly Agree

3. Overall Feedback

Do you think the Campaign was targeted at the correct audience?

Yes		No	

Do you think that the Campaign increased fire and flood awareness in the audiences?

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly Agree

Other comments:

Thank you for your valuable time, your feedback is highly appreciated.

Appendix 2: Community Data Capturing Form

Community Performances Data Capturing Form

Name of Capturer: _____

1. Demographics:

Date: _____ Start time:_____

District Municipality:_____

Town/area:_____

Venue
name:_____

Venue type: Open Air ☐ Hall/Closed ☐

If open air venue, what are the weather conditions like?_____

Main language/s used in the performance: Xhosa ☐ Afr ☐ Eng ☐

Approx. number of people at the venue:
Approx. number of Men: _____
Approx. number of Women: _____
Approx. number of children: _____

2. Post-Intervention questions:

Hand out a minimum of 10 questionnaires to people attending the presentation. Assist with completion of the forms of so required.

3. Additional notes: (eg. are the audience members interacting with the actors)

_____
_____
_____
_____

End time: _____

Appendix 3: School Data Capturing Form

Schools Performances Data Capturing Form

Name of Capturer: _____

1. Demographics:

Date: _____ Start time:_____

District Municipality:_____

Town/area:_____

School name:_____

Main language/s used in the performance: Xhosa ☐ Afr ☐ Eng ☐

Approx. number of people at the venue:
Approx. number of boys: _____
Approx. number of girls: _____

Grade ____ to ____ are present?

2. Pre-Intervention questions:

How do the learners react to the following questions (e.g. Roughly what percentages of the learners answer the questions; do they readily answer the questions; do they *know* the answers to the questions; do they interact?)

2.1 How do fires start? (% of learners wanting to answer) _____
2.2 How do you stop fires? (% of learners wanting to answer) _____
2.3 What is a flood? (% of learners wanting to answer) _____
2.4 What do you do when it floods? (% of learners wanting to answer) _____

3. Intervention/Performance:

3.1 How do the learners react when they see Gerry?

_____

3.2 Do they sing along readily to the song? What is their interaction with the actors?

_____

4. Post-Intervention questions:

How do the learners react to the following questions (e.g. Roughly what percentage of the learners answer the questions; do they readily answer the questions; do they know the answers to the questions; do they interact?)

4.1 How do fires start? (% of learners wanting to answer) _____
4.2 How do you stop fires? (% of learners wanting to answer) _____

4.3 What is a flood? (% of learners wanting to answer) _____
4.4 What do you do when it floods? (% of learners wanting to answer) _____

Are you going to tell other people of the things you learnt today? _____
Did you enjoy today?
_____

5. Additional notes: (eg. are the audience members interacting with the actors)

_____
_____
_____
_____

End time:_____

Appendix 4: Pre- and Post-Intervention Questions

1. How do Fires Start?
2. How do you stop fires?
3. What is a flood?
4. What do you have to do when it floods?

Appendix 5: Art and Story writing Competition Evaluation Form

TYPE: ☐ **STORY** ☐ **ART**

Name of School: _____
Language: _____
Name of Learner: _____
Grade: _____

Criteria for judging: Art

Representation of Fire and Flood message?	____	
How creative was the art piece?		____
Were different shapes and patterns used?	____	
Was the messages of the picture clear enough/ is the individual clearly expressing themselves?		____
Overall presentation of the work (bonus point)		____
TOTAL		____

Criteria for judging: Story

Representation of the Fire and Flood message?		____
Does the story make sense?	____	
How creative is the writing?	____	
Use of language and grammar?		____
Overall presentation of work (bonus point)	____	
TOTAL		____

All these are guidelines to be judged by. The categories range from 1-5:

1: Very good
2: Good
3: Fair
4: Below average
5: Poor

Appendix 6: Afrikaans Community Questionnaire

Vuur & Vloed Gemeenskapsvraelys:

Datum:_____
Dorp: _____

Geslag: ☐ Manlik ☐ Vroulik
Verkose Taal: _____
Ouderdom: _____

1. Het u die toneelstuk interessant gevind en het u verstand van brande en vloede verbeter?
   Ja ☐ Nee ☐ Weet nie ☐

2. Ervaar u baie brande in u gemeenskap?
   Ja ☐ Nee ☐ Weet nie ☐

3. Wat dink u is die rede vir die brande in u areas:

   Sigaret stompies ☐
   Paraffien lampe ☐
   Oop vure ☐
   Mense wat doelbewys brande stig ☐
   Ander ☐
   Indien u die 'ander' blokkie gekies het, spesifiseer asseblief:_____

4. Wat kan u doe nom brande te stop or voorkom?
_____
_____

5. Dink u dat brande 'n groot problem in u area is?
   Ja ☐ Nee ☐

6. Het u geweet van die paraffien veiligheidswenke?
   Ja ☐ Nee ☐

7. Is vloede 'n bekommernis in u area:
   Ja ☐ Nee ☐

8. Wat doen u gemeenskap wanneer daar 'n vloed situasie is?
_____
_____

9. Het u toegang tot:
'n Selfoon ☐ 'n Openbare foon/landlyn ☐ Geen foon ☐

10. Het u al ooit probeer om die noodnommers te skakel?
    Ja ☐ Nee ☐
11. Wat is die beste deel van die vertoning vandag?

    _____

    _____

12. Was die spel van vandag hulpvaardig?

    _____

13. Enige opmerkings?

Baie dankie dat u die tyd geneem het om hierdie vraelys te beantwoord. U insette word waardeer!

Appendix 7: English Community Questionnaire

Floods & Fires Community Questionnaire:

Date: _____

Town: _____

Gender: Male ☐ Female ☐

Preferred Language: _____

Age: _____

1. Did you find the play interesting and that it helped your understanding of fires and floods?

   Yes ☐ No ☐ Don't Know ☐

2. Do you experience many fires in your community?
   Yes ☐ No ☐ Don't Know ☐

3. What do you think start the fires in your area?

   Cigarette Butts ☐

   Paraffin Lamps ☐

   Open fires ☐

   People starting fires on purpose ☐

   Other ☐

   If you ticked the 'other' box, please specify_____

4. What can you do to stop fires?
   _____
   __
   _____
   __

5. Do you think that fires are a major problem in your area?
   Yes ☐ No ☐

6. Did you know about the paraffin safety tips?
   Yes ☐ No ☐

7. Is flooding a major concern in your area?
   Yes ☐ No ☐

8. What does your community do when/if it floods?
   _____
   _____

9. Do you have:
   Cellphone ☐ Public phone/landlir ☐ No phone ☐

10. Have you ever tried to call the emergency numbers?
    Yes ☐ No ☐

11. What was the best thing about the presentation today?
    _____

12. Was the presentation helpful?
    _____

13. Any comments:
    _____
    _____

Thank you very much for taking the time to fill out this questionnaire. Your inputs are greatly appreciated!

Appendix 8: Xhosa Community Questionnaire

Iphepha Lemibuzo Ngezikhukula Nemililo EkuHlaleni:

Umhle: _____
Idolophu: _____

Isini: Indoda ☐ Ibhinqa ☐

Ulwini olukhethwayo:_____
Ubudala: _____

1. Ingaba uwufumanise umdlalo lo usenza umdla nokuba ube luncedo ekukuqondiseni ngemililo nezikhukula?
   Ewe ☐ Hayi ☐ Andazi ☐

2. Ingaba ubona imililo emininzi kwindawo ihlala kuyo?
   Ewe ☐ Hayi ☐ Andazi ☐

3. Ucinga ukuba zintoni onobangela bemililo kummandla ohlala kuwo?

   Zizijungqe zesigarethi ☐
   Izobane zePalafini ☐
   Imililo yamadlelo ☐
   Abantu ababasa imililo ngenjongo ☐
   Okunye ☐
   Ukuba ukrwela ibhokisi ethi ‘okunye’, nceda ucacise_____

4. Ungenza ntoni ukunqanda imililo ukaba ingenzeki?
   _____
   _____

5. Ucinga ukuba imililo yingxaki enkulu kummandla ohla kuwo?
   Ewe ☐ Hayi ☐

6. Ubusazi na ngamanqaku okhuseleko lokusetyenziswa kwepalafini?
   Ewe ☐ Hayi ☐

7. Ingaba isikhululula siyingxaki enkulu kummandla ohla kuwo?
   Ewe ☐ Hayi ☐

8. Benza ntoni abahlali bendawo yakho xa isikhukula?
   _____

9. Unayo i:
   Selfowuni ☐ Ekawonde-wonke/yasendlwini ☐ Akykho fowuni ☐

10. Ibiyintoni ebinomtsalane ngomboniso namhlanje?

_____

11. Ingaba umboniso ube luncedo?

_____

12. Zikhona ezinye izimvo?

_____

Enkosi ngokuthantha ixesha ugcwalisa la maphepha. Silivuyela kakhulu igalelo lakho!

Appendix 9: Provincial Government Western Cape Final Report: Fire and Flood Awareness Campaign for 2010

REPORT OF THE ANNUAL FIRE & FLOOD AWARENESS CAMPAIGN FOR 2010

1. INTRODUCTION

The Department of Local Government, through its Disaster Management Centre (PDMC) in the Western Cape, deemed it necessary to rollout the annual "Fire & Flood Awareness Campaign Road Show" to mitigate the prevalence of fire and flood related incidents /disasters that cause loss of life, damage to property and displace people. This Campaign is a priority project of the Department of Local Government and its aims are fourfold: to raise awareness of fire and flood safety amongst both children and adults; to ensure a high level of preparedness by communities in case of these disasters; to educate and entertain audiences around fire and floods and to reach a larger number of people throughout the province.

The Western Cape can be regarded as one of the most disaster prone provinces in South Africa. Since 2006, ten (10) disasters were declared of which the National Disaster Management Centre (NDMC) classified eight (8) as disasters. These disasters included mostly flooding events, but droughts and even displacement of human beings form part of these declared disasters.

The focus of the Campaign will be on the Province's changing risk profile – with specific emphasis on severe weather events from 2003 to 2008 as well as the annual veldtfires and fires that took place in informal settlements and their consequences.

The 2009 campaign pilot industrial theatre shows and competition were well received and successful and it was decided to take the show on the road. The Campaign was held over a one month period in the form of a poetry competition was well as an educational road show. The road show was an immense success. The play consisted of four characters (appealed to learners of different languages) who educated the learners in an entertaining manner. The messages were well received by the learners who took away safety tips and the emergency number 10177. In that year the Disaster Management mascot, Gerry the Giraffe was introduced. Gerry is always prepared and teaches the learners what to do if they find themselves in a fire or flood situation. The schools, Municipal Disaster Management Centres and local media all responded positively to the initiative.

In 2010 however, it was decided to broaden the target audience to not only school children but also to the adults in informal communities. Various partnerships were established in order to facilitate cooperative governance through the campaign, including CapeNature and The Paraffin Safety Association of Southern Africa.

2. CAMPAIGN ROAD SHOW ROLL-OUT

The PDMC worked in close collaboration with the various District Municipalities of the Western Cape and the City of Cape Town as well as the various partners in planning the entire Campaign. Initially the schedule made provision for two schools to be visited early in

the morning and mid-afternoon, with only one community show late afternoon. The Department of Education then indicated that no interruption of school time was allowed, and the schedule had to change taking the arrangement into consideration.

Communal spaces were identified by the municipal Disaster Management teams, who are familiar with the vulnerable areas, in communities across the province. These spaces included taxi ranks, shopping centres, outside libraries, clinics or hospitals and on street corners. Loud hailing was used to attract large numbers of people. The audience was made up of anyone and everyone who wanted to watch. The theatre shows were further enhanced through active participation enhanced through on-the-spot questions in conjunction with the street theatre. The performances were highly visible, loud and simple to follow in order to attract a crowd. One of the most interesting points about modern street theatre is its unique socio-political place, as people who might not have ever been able to afford to go to the theatre can watch a street show. Community members will walk away with a message that may assist them to save lives. Two plays were scripted for the two audiences (adults and children) and consisted of four characters (appealed to learners and adults of the three official languages of the Western Cape) who educated the learners and adults in an entertaining manner. The messages were well received by the audiences who took away safety tips and the following emergency numbers:

Outside the City of Cape Town: (Landline: 10177 & Cellphone: 112)
Within the City of Cape Town: (Landline: 107 & Cellphone: 021-480 7700)

This was the second year that we've used the Disaster Management mascot, Gerry the Giraffe. The audiences responded very positively to Gerry, and definitely added much value to the entire campaign. In order to reinforce the messages that the campaign was portraying, a Competition was launched for all school learners. Grades 1-3 were asked to enter art pieces depicting their understanding of Fires and Floods, and Grades 4-7 were requested to enter stories depicting the same ideas.

Notices of the informal settlement community shows were sent to the relevant officials in the respective areas, and were put up to notify the communities of the shows a few days in advance. Schedules were sent to the various role-players of not only Provincial Departments, but also all other organizations that were involved in the roll-out of the Campaign. The Schedules for the various weeks of the campaign are attached as Annexures A-F. The Communications Department of the Department of Local Government assisted tremendously, and invited the media to all the shows, and coordinated press releases and aided in the general running of the Campaign.

The Campaign kicked-off on 6 Sept 2010 to 22 October 2010 reaching every district in the Western Cape and the City of Cape Town for a period of three (3) days at a time. Three theatre shows were performed each day; in the mornings and late afternoons in the informal settlement communities identified by the respective District Disaster Managers and afternoon school shows at 13:00 in a variety of schools in the various areas.

A total of 19 primary schools were visited, reaching 10 605 learners and 53 schools were included in our Competition, and a total of 672 entries were received. A total of 51 shows were performed (the last show as performed at the awards ceremony on 15 October 2010) and 5 137 people attended the informal settlement community shows.

3. EDUCATIONAL MATERIALS, AND SERVICE PROVIDERS

The aims of the campaign, as mentioned above are fourfold: to raise awareness of fire and flood safety amongst both children and adults; to ensure a high level of preparedness by communities in case of these disasters; to educate and entertain audiences around fire and floods and to reach a larger number of people throughout the province. In order to facilitate these aims, two service providers were appointed through Sourcelink namely Little L.A Productions for the Industrial Theatre services, and TRF Sport for educational materials.

Two different shows were developed, one for primary school learners for all grades and one show for adults in the form of street theatre in informal settlements and communities for all ages. The plays were designed to be interactive and engaging with the audiences. Scripts were developed to include all the preventative and responsive messages (including a song with Gerry the Giraffe) for each of the target audiences and was inclusive of all three the official languages for the Western Cape namely Afrikaans, English and Xhosa. DVDs containing the video, photos and all the relevant documents of the campaign was distributed to the Community Development Workers, Head of District Disaster Management Centres, The Paraffin Safety Association of Southern Africa, CapeNature and the National Disaster Management Centre officials that were involved in the roll out of this Campaign that could be used in the promulgation of the Campaign for future generations.

The Provincial Disaster Management Centre (PDMC) contributed the following resources towards the campaign:

i. Appointment of an Industrial Theatre Group, Little L. A. Productions CC for 52 shows and the
production of a DVD of the entire Campaign which will later be distributed to all Partners and other role-players;
ii. Printing of all competition entry forms, in all three languages;
iii. All human resources required to coordinate the Campaign.

Educational materials were produced and used throughout the Campaign, namely pencils, pens, rulers, pencil cases, puzzles, rugby & soccer balls, caps, water bottles and pamphlets. These handouts (2 pamphlets in all 3 languages) contained messages with safety tips and emergency numbers and were distributed during the theatre plays for both adults and children in Afrikaans, English and Xhoza.

4. MONITORING AND FEEDBACK

Throughout the Campaign, monitoring of the processes and feedback was integrated into the development of the Campaign. Pre- and Post- intervention knowledge was tested in the school learners by asking 4 identical questions before and after the intervention (show). Questionnaires were also completed post-intervention by adult members of the communities visited.

One of the lessons that were learnt during the campaign was that community members respond more readily in open areas rather than in community halls as was planned initially, and thus future planning should include this into their identification of areas to be used in communities. Another large factor that influenced the Campaign was the weather. During

visits to the Central Karoo District Municipality, gale force winds and sandstorms hindered community members from coming to view the shows.

5. AWARDS CEREMONY

An Awards Ceremony was held on 15 October 2010, where15 Prizes were handed to the various prize winners of the respective categories of the Competition. Minister Bredell was present to present the prizes and the Head of Department, Dr. Fast was the Programme Director. Feedback was given from a Primary School, and from a Community, and various presentations giving feedback were presented.

6. CONCLUSION

With the immense success over the past year, we endeavour to develop the campaign even further next year. With the aim of reaching even more learners and adults across the province and spreading further awareness of fire and flood safety, using various methods, including Industrial theatre shows.
Similar message can be carried over to rural communities, especially the farming communities and farm schools during the same period. A Competition as an assessment tool can be further developed, and the monitoring and evaluation process furthered.

Alone, the goal of reaching a vast amount of learners across the province, cannot be done.
We would like to urge everyone sitting here today to form partnerships around this campaign, so that this awareness campaign can make a difference in the lives of the people of the Western Cape.
Appendix 9: Stakeholder Feedback Questionnaires

Appendix 10: Programme Schedule

Week	Date	Time	Town	Primary School/Venue
Wk 1	6-Sep	09H00	Malmesbury	Laerskool Swartland
		12H00	Vredenburg	Vredenburg Laerskool
		15H00	Vredenburg	George Kerride (Infor.)
	7-Sep	09H00	Piketberg	Steynville Primary
		12H00	Moorreesburg	Laerskool Laurie Hugo
		15H00	Moorreesburg	Roosenhof (Infor.)
	8-Sep	09H00	Citrusdal	Citrusdal Laerskool
		12H00	Graafwater	Graafwater Primer
		15H00	Vredendal	Pholapark (Infor.)
Wk 2	13-Sep	13H00	Beaufort West	H.M.Dlikidla Primary
		15H00	Beaufort West	KwaMandlinkosi Community
	14-Sep	13H00	Beaufort West	John D Crawford Primary School
		15H00	Beafort West	Rustdene Community Hall
	15-Sep	09H00	Beaufort West	Karoo National Park
		13H00	Beaufort West	A H Barnard Primary School
	16-Sep	10h00	Grabouw	Upper Waterworks Informal Settlement
		13H00	Grabouw	De Rust Primary School
		16H30	Grabouw	Lower Waterworks Informal Settlement
	17-Sep	10H00	Swellendam Informal Settlement	Swellendam Informal Settlement
		12H30	Buffeljachs Informal Settlement	Laerskool Buffeljachs Rivier
		17H00	Buffeljachs Informal Settlement	Buffeljachs Informal Settlement
Wk 3	20-Sep	10h00	Riversdale	Multipurpose Centre
		12H30	Riversdale	Panorama Primary School
		17H00	Riversdale	Kwanakatula Community
	21-Sep	10H00	Mosselbay Informal Settlement	ALMA Clinic
		13H00	George	Tyholora Primary
		17H00	George	Thembalethu Informal Settlement
	22-Sep	10H00	Calitzdorp: Bergsig	Bergsig Sportveld in Community
		13H00	Zoar	RP Botha Primary
		17H00	Zoar	Zoar Sportfield
Wk 4	6-Oct	09h00	Bonnievale Community	Happy Valley Sports grounds
		13H00	Montagu	Rietvlei 2 Primer
		15H00	Montagu	Montagu Rugby Field King Edward Sports grounds
	7-Oct	10H00	Bredasdorp Clinic	Open area in front of clinic
		12H30	Swellendam	Bontebok Primary School
		17H00	Bredasdorp	Hobb Inn Family Market: Parking Area
	8-Oct	10H00	De Doorns Community	De Doorns Kliniek, parking area -
		13H00	De Doorns	Van Cutsem Combined School
		15H00	De Doorns Community	
Wk 5	18-Oct	10H00	Worcester	Avian Park Community
		13H00	Robertson	Vinkrivier Primer
		15H00	Robertson	Droe Huiwel

	20-Oct	**11H00**	**City of Cape Town Community**	**Joe Slovo Community, Langa**
		13H00	**City of Cape Town Community**	**Caravelle Primary School, Mitchells Plain**
		17H00	**Tulbach Community**	**Tulbugh Community**
	21-Oct	**11H00**	**City of Cape Town Community**	**Pholile Park, Strand**
		13H00	**City of Cape Town Community**	**Somerset West Methodist Primary School,**
		17H00	**Stellenbosch**	**Idasvallei**
	22-Oct	**10H00**	**City of Cape Town Community**	**Du Noon Informal Settlement**
		13H00	**City of Cape Town Community**	**Kukhanyile Primary School, Khayelitsha**
		17H00	**Paarl**	**Mbekweni Community**

Appendix 11: English School Pamphlet (Front & Back)

Appendix 12: English School Pamphlet (Inside)

Hello boys and girls. My name is Gerry the Giraffe and I am here to help you prevent fires and floods. My long neck allows me to see over the tallest trees so I can spot danger a mile away. You can help me too by staying alert, planning ahead and calling for help when it comes to fires and floods.

What is a fire?

Fires come in two different forms, veld and informal settlement fires.

Veld fires are any fire that happens outside an area with buildings or houses and runs the risk of running out of control. Veld fires usually occur during the dry season (summer) when it is hot and windy. It is also fueled by dry leaves, wood, dead plants and grass.

Informal settlement fires are fires, which happen randomly within informal settlements, and run the risk of becoming out of control. There are many reasons why informal settlement fires happen but they are usually caused by people who knock over a candle in their shack, or leave their fires unattended.

Here are some important **fire tips** to help you and your family:

1. **Stay alert:**
   - Fires and cooking stoves should never be left unattended.
   - Put out candles and lamps before you go to sleep or leave your home.
   - Build homes at least three metres apart to prevent fires from spreading.

2. **Plan ahead**:
   - Keep a bucket of water and a bucket of sand ready to put out small fires before they spread.

3. **Calling for help:**
   - Know your emergency numbers for outside the City of Cape Town 10177 (landline) and 112 (cell phone)
   - When you phone, give the full address and a landmark such as a shop or school close to the fire to enable fire fighters to find you quickly.

What is a flood?

A flood is when there is a rise in water level in the same area until there is too much water for that area to absorb. Floods can be caused by either too much rain in a short space of time, ongoing rain in the same area, blocked rivers and streams from rubbish, failure in dam walls, storm surges (waves being driven ashore by strong winds) or too much water from dams and lakes being released.

Here are some important **flood tips** to help you and your family:

1. **Stay alert:**
   - Head for higher ground and stay away from floodwaters.
   - Never try to walk, swim, drive, or play in floodwater.

2. **Plan ahead**
   - Develop an evacuation plan.
   - Talk about floods with your family.

3. **Calling for help:**
   - Emergency numbers for outside the City of Cape Town: Landline: 10177
     From a cell phone: 112
   - Listen to the radio or television for updated emergency information. Local stations provide you with the best advice.

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Paraffin Safety Association

Appendix 13: English Adult Pamphlet (Front Back)

How To Use A Candle Safely In The Home

Fill a recycled glass bottle half way up with sand and push half a candle into it.

As shown in the picture, if the candle gets knocked over, the sand will put out the flame.

Provincial Disaster Management Centre
Emergency numbers in areas outside of the City of Cape Town
From a landline: 10177
From a cell phone: 112
www.capegateway.gov.za/pdmc

Paraffin Safety Association
Southern Africa

PROVINCIAL DISASTER MANAGEMENT CENTRE

CapeNature

Fire and Flood Awareness Campaign

Provincial Disaster Management Centre
Emergency numbers in areas outside of the City of Cape Town
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Appendix 14: English Adult Pamphlet (Inside)

1) PARAFFIN AND FIRE SAFETY

"Don't start fires you can't stop".

- Keep paraffin, paraffin appliances, matches and anything that can burn, HIGH UP, and on a steady surface where children cannot reach them.
- Let fresh air into the room when you are using a paraffin appliance or when cooking or heating. Fresh air clears the bad fumes.
- Store paraffin in its own special bottle; avoid storing it in milk cartons or cool drink bottles.
- Turn appliances off and put out all flames when you leave home or go to sleep.
- Be aware that water will not put out a paraffin fire, and will only make matters worse by spreading the flames. Paraffin fires can only be extinguished using sand or a fire extinguisher. Therefore, always keep a bucket of sand in your house or nearby when using paraffin stoves or lamps.
- Children must be supervised at all times especially where there are open flames.
- If a child accidentally swallows paraffin, do not give them anything to eat or drink. Get the child medical attention as soon as possible.
- Never try to cause someone who has drunk paraffin, to vomit. This could force the paraffin into the lungs and cause serious damage.

2) HOUSE FIRE

- Get out of the house and stay out! Crawl on your hands and knees under the smoke. Hot smoke will kill. Call fire brigade services!!
- Avoid fire risk - plan for safety while you are in a calm and sober state of mind. If a fire breaks out:

1. Do not try to gather photo albums, passports or important papers - just get out !
2. Find an exit - a window, door or any opening. Even if you have to wrap yourself in a duvet and throw yourself through your bedroom window - do it! Your number one priority is to get out.
3. Once outside, never try to go back into the house get a pet or anything else. The chances of coming back out are slim to NONE.

If your clothes catch fire:

- STOP! – Do not run
- DROP DOWN - and then cover your face with your hands.
- ROLL OVER - and over to put out the flames.

If someone else is on fire:

- Roll them in a blanket or jacket. This will prevent air getting to the fire and will extinguish it.
- If someone has been burned, pour cold water onto the burn very gently and get him or her to a doctor, clinic or hospital immediately.
- If the burn is over a large area keep the person warm as there is a serious risk they will go into shock. Get them medical attention as quickly as possible.

3) FIRE AND FLOOD SAFETY TIPS

Fire

Do's

- Do report the location and type of fire accurately
- Do have a fire safety plan in your home
- Do get rid of hot ash or coal in a safe place
- Do cover an open fire with sand to smother it
- Do ensure that electrical appliances are correctly wired
- Do keep the area around your home clear of material that can burn, such as firewood, kindling & garbage
- Farmers should join / establish a local Fire Protection Association
- Take care when using fire to smoke out honey

Don'ts

- Don't throw cigarette butts out of the window
- Don't leave open fires unattended
- Don't burn rubbish on a hot or windy day
- Don't play with matches
- Don't make veld fires without the permission of your local fire services
- Don't drive through smoke as you could end up in the fire

Flood

Be aware of the emergency flood plan in your area. It is important to learn about your community's emergency plans, warning signals, evacuation routes, and locations of emergency shelters.

Stay tuned. During inclement weather, keep informed by listening to your local radio or television stations. This way, you'll stay up-to-date on possible flood warnings and reports of flooding in progress.

Be prepared to quickly evacuate. Flooding can happen fast, so it is important to have all the necessary items gathered in advance.

Head for higher ground. Whether you are outside or within your home, if a flood occurs, you should always look for higher ground.

Avoid flood waters. If you are driving and come upon a flooded road, turn around and drive the other way.

Be careful in the dark. When evacuating in the evening, there is additional danger because flood hazards may be hard to see.

Use caution when cleaning up after a flood. While flood safety is paramount during a flood, you should also be cautious of electricity and animals in standing water.

Invest in flood insurance coverage. Many homeowners are unaware that their home insurance policies don't cover flood damage.