



uMGUNGUNDOVU
UMASIPALA WESIFUNDA
DISTRICT MUNICIPALITY
DISTRIK MUNISIPALITEIT

District Disaster Management Plan

Final draft:

Prepared by the Disaster Management Unit





Preface

The uMgungundlovu District Municipality is located in the KwaZulu-Natal Midlands. Collectively uMgungundlovu District Municipality is comprised of seven Local Municipalities. According to Statistics South Africa Community Survey 2007, uMgungundlovu District Municipality has a total population of 988 837 residents divided unevenly across the seven Local Municipalities.

The District is facing unprecedented disaster risks. Our communities are being exposed to more frequent and severe hazards. While hazards may be increasing in frequency and severity, their impacts are exacerbated by a series of dynamic processes including population growth, increasing levels of poverty and marginalization, environmental degradation, poor planning and preparedness and the impacts of climate change. Climate change is likely to increase the frequency and severity of such disasters.

Disasters affect poor communities and poor people the most. Disasters put development at risk. Development should consider future disaster risks. Each community should be aware of the hazards they are exposed to, recognize the potential risks and plan interventions to reduce the impacts of the hazards.

I wish to take this opportunity and thank the Disaster Management Unit for taking the initiative of drafting this document internally, Mthokozisi Mthembu for leading the team that consulted and drafted the plan, my colleagues from the Disaster Management Advisory Forum for their inputs and comments and the Provincial Disaster Management Centre. I also wish to thank the family of Municipalities within the area of jurisdiction of uMgungundlovu District Municipality for their support and all other stakeholders who contributed towards the document.

Working together we can develop interventions that can help to address not only the impacts but the factors that can turn a hazard into a disaster.

Thank you.

TLS Khuzwayo

Chairperson: uMgungundlovu District Disaster Management Advisor

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1. Foreword

Disaster management aims to reduce the impact of disasters. The earliest and still predominate approach is for agencies to provide relief to those affected once a disaster has happened. Rescue assistance, medical support and food supply are vital for saving lives which prevent further harm. However, responding to a disaster can only do so much and a level of loss is almost inevitable before a rescue operation can even arrive.

Rather than waiting to respond, disaster management should have both pro-active and re-active measures. Proactive measures can include a range of activities such as hazard, exposure and sensitivity reduction strategies, impact reduction strategies, and capacity building for resilience.

A house with a lightning rod is less sensitive to being struck by lightning during a thunderstorm. A house away from the river bank may still be sensitive to flooding but its low exposure makes it less vulnerable to flood.

If individuals and their properties are close to a river bank, their exposure to flooding is higher than those further away or on higher ground.

Together we need to build resilient communities. Collectively let us look at various options through which we could reduce damaging strength of hazard and moderate the impacts of disasters through preventive, response and recovery measures.

*Reducing our vulnerability to natural disasters is the best way to implement sustainable development strategies We must ensure that natural hazards, which are inevitable, do not necessarily turn into major economic and social disasters" **The Hyogo Framework for Action 2005 – 2015: Building the Resilience of Nations and Communities to Disasters.***

His Worship, the Mayor, Cllr Y Bhamjee

2. Disaster Management Legislative Context

The South Africa constitution states that:

24. Everyone has the right:

- (a). to an environment that is not harmful to their health and well-being; and
- (b). to have the environment protected for the benefit of the present and future generations, through reasonable legislative and other measures.

The Municipal Systems Act, 32, of 2000, section 2 (i) stipulates that the Council of a Municipality has the duty to promote a safe and healthy environment in the municipality.

Preparation of disaster management plans by municipal entities

According to section 52, subsection (1) of the Disaster Management Act of 2002, Act no.57, each Municipal entity indicated in the national or the relevant provincial or municipal disaster management framework must-

- (a) Prepare a disaster management plan setting out-
 - (i) The way in which the concept and principles of disaster management are to be applied in its functional area;
 - (ii) Its role and responsibilities in terms of the National, Provincial or Municipal Disaster Management frameworks;
 - (iii) Its role and responsibilities regarding emergency response and post disaster recovery and rehabilitation;
 - (iv) Its capacity to fulfill its role and responsibilities;
 - (v) Particulars of its disaster management strategies; and
 - (vi) Contingency strategies and emergency procedures in the event of a disaster, including measures to finance these strategies;
- (b) Co-ordinate and align the implementation of its plan with those of other organs of state and institutional role-players; and
- (c) Regularly review and update its plan.

Phases in the management of disasters
There are four essential phases in the management of disasters:
1. Warning phase
2. Emergency phase
3. Rehabilitation Phase
4. Recovery Phase

Disaster

The American Red Cross defines a disaster as follows:

A disaster is an occurrence such as hurricane, tornado, storm, flood, high water, wind-driven water, tidal wave, earthquake, drought, blizzard, pestilence, famine, fire, explosion, volcanic eruption, building collapse, transportation wreck, or other situation that causes human suffering or creates human needs that the victims cannot alleviate without assistance.

Events such as earthquakes, floods, and cyclones, by themselves, are not considered disasters. Rather, they become disasters when they adversely and seriously affect human life, livelihoods and property.

Disasters are sometimes classified according to whether they are "natural" disasters, or "human-made" disasters. For example, disasters caused by floods, droughts, tidal waves and earth tremors are generally considered "natural disasters." Disasters caused by chemical or industrial accidents, environmental pollution, transport accidents and political unrest are classified as "human-made" or "human-caused" disasters since they are the direct result of human action.

Disaster Management

The Disaster Management Act of 2002, Act no 57 makes provision for emergency preparedness, rapid and effective disaster response and recovery, and the participation of volunteers.

The Disaster Management Act define the disaster management as a continuous and integrated multi-sectoral, multi-disciplinary process of planning and implementation of measures aimed at-

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

One of the key features of the Disaster Management Act is that it recognizes that the job of disaster risk reduction cannot be done by government alone. It requires co-operation and collaboration on the part of all spheres of government, civil society and the private sector.

However, the Disaster Management Act also acknowledges that the involvement of such adversity of role players and stakeholders brings with it the challenge of achieving consistency in approach. In order to address this and other challenges, the Disaster Management Act prescribes a National Disaster Management Framework to provide a coherent, transparent and inclusive policy on disaster risk management for South Africa as a whole.

The Disaster Management Act also mandates each Province, District Municipality and Metropolitan Municipality to establish and implement a policy framework which is consistent with the National Disaster Management Framework and is aimed at ensuring an integrated and uniform approach to disaster risk management in its area.

National Disaster Management Framework, 2005

The Disaster Management Act stipulates two main provisions for the contents of the National Disaster Management Framework. These are:

1. That the framework must be consistent with international best practice in disaster risk reduction; and
2. That it must provide a coherent, inclusive and transparent policy on disaster risk management for South Africa.

The framework is organized into four key performance areas (KPA), each with a specific objective. The four Key Performance Areas are supported by three performance enablers. These were necessary in order to achieve the objectives of the KPAs. The four Key Performance Areas are:

KPA 1: Integrated institutional capacity for disaster risk management;
KPA 2: Disaster risk assessment;
KPA 3: Disaster risk reduction; and
KPA 4: Response and recovery.

The three enablers are:

Performance Enabler 1: Information management and communication;
Performance Enabler 2: Education, training, public awareness and research (knowledge management); and Performance Enabler 3: Funding arrangements for disaster risk management.

3. Definitions of concepts related to disasters

Hazards: A *hazard* refers to the potential occurrence, in a specific time period and geographic area, of a natural phenomenon that may adversely affect human life, property or activity to the extent of causing a disaster. A hazard occurrence (the earthquake, the flood, or the cyclone, for example) becomes a disaster when it results in injuries, loss of life and livelihoods, displacement and homelessness and/or destruction and damage to infrastructure and property.

Risk: Risk may be defined as the expected damage or loss caused by any hazard.

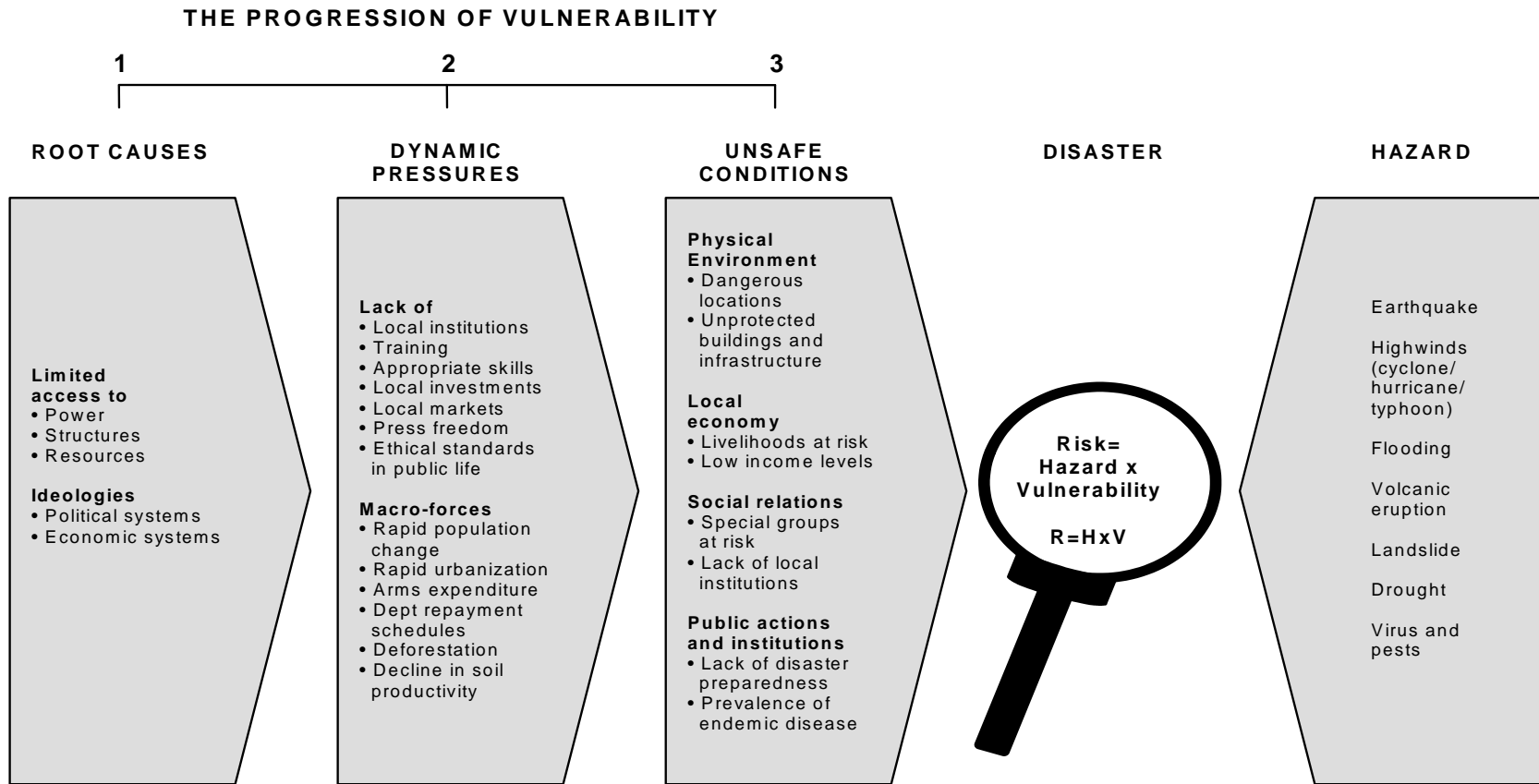
Disaster risk reduction: is defined as the concept and practice of reducing disaster risks through systematic efforts to analyze and manage the casual factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and environment, and improved preparedness for adverse effects. Disaster risk reduction concerns activities more focused on a strategic level of management, whereas disaster risk management is the tactical and operational implementation of disaster risk reduction.

Incident is a relatively minor occurrence or event (that leads to a public crisis)

Disaster risk management: is defined as the systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and their possibility of disasters.

Vulnerability: No matter where one is located, whether in an urban or rural environment, one's chances of experiencing a disaster are usually strongly linked to one's vulnerability to the event. The more vulnerable a community, the greater the physical costs, economic costs and emotional costs of a disaster. Vulnerability, then, is the degree to which an individual, family or community region is at risk of experiencing misfortune following extreme events. Conditions of vulnerability to the impact of hazards are determined by political, economic, social, physical/technological, environmental and legal factors or processes (PESTEL):

- **Political factors:** Legal aspects (e.g. legislative restrictions or the lack of legislative protection), the general political situation and stability;
- **Economic factors:** include the effect of the economy (e.g. job opportunities) on the community;
- **Social factors:** include demographic change (changes in proportion of age groups), changes in social habits and educational changes;
- **Technological factors:** affecting infrastructure and services available to the community;
- **Environmental factors:** include environmental sensitive areas and all "green" issues that could lead to vulnerability of a community;
- **Legal aspects** included in Political above.



Source: according to Wisner et al. 2004: 51

VULNERABILITY + HAZARD = DISASTER

VULNERABILITY: People living on steep hillsides or in areas prone to floods are particularly vulnerable during periods of intense rainfall.

+

HAZARD: Hazards caused by extremes in natural processes are exacerbated if they occur in areas where the vulnerability and risk to such events is high.

=

DISASTER: When vulnerability is high and an extreme event occurs then, depending on management and preparation for such an event, a disaster may result.

RISK = HAZARDS X VULNERABILITY

Recent developments include the concepts of capacity, in the calculation of disaster risk as follows:

$$\text{Disaster risk} = \text{Hazard} \times \frac{\text{Vulnerability}}{\text{Capacity}}$$

Structural or physical vulnerability is the extent to which a structure is likely to be damaged or disrupted by a hazard event.

Human vulnerability is the relative lack of capacity of a person or community to anticipate, cope with, resist and recover from the impact of a hazard. Factors that increase human vulnerability to disasters include rapid urbanization, population growth, and lack of knowledge about how to effectively resist the effects of disasters and poverty.

Capacity can be defined as the ability of an element at risk, e.g. community, to cope with hazards and their impacts. Capacity may include physical, institutional, social or economic means as well as skilled personnel or collective attribute such as leadership and management.

Resilience is the capacity of a community or society potentially exposed or vulnerable to hazards to adapt by resisting or changing in order to reach and maintain an acceptable level of functioning and structure. This is determined by the degree to which the community or society is capable of organizing itself to increase this capacity for learning from past disasters for better future protection and to improve disaster risk reduction measures.

Emergency is a sudden and usually unforeseen event that calls for immediate measures to minimize its adverse consequences or potential threat to health and safety, the environment, or property.

Disaster risk: The NDMF defines **disaster risk** as the probability of harmful consequences or expected losses (deaths, injuries, property, livelihoods, disrupted economic activity or environmental damage) resulting from interactions between natural or human-induced hazards and vulnerable conditions. Conventional disaster risk is expressed as follows:

4. Introduction

The preparation of a District Disaster Management Plan was an extensive process and a joint effort between uMgungundlovu District Municipality and its family of Local Municipalities. The plan will require revision at least one per year and on an ongoing basis. Through this process, new projects should be identified and existing projects reviewed.

This plan should be considered by the municipality in conjunction with all other sector plans when developing and reviewing their Integrated Development Plan. It is recommended that the Disaster *Manager* familiarize him/herself fully with the content of this document.

Summary of Key steps towards the preparation of the Disaster Management Plan:

Step 1	<ul style="list-style-type: none"> ➤ Set long-term and short-term objectives within the context of municipal plans and objectives ➤ Ensure disaster management plan is integrated with all 3 spheres of government ➤ Ensure disaster management plan is integrated with other local plans particularly the integrated development plan
Step 2	<ul style="list-style-type: none"> ➤ Involve all sectors of the community in the Plan ➤ Secure commitment to the plan from all the people that can make it happen
Step 3	<ul style="list-style-type: none"> ➤ Investigate local social, economic and environmental conditions and issues – get assistance from all departments eg GIS, social welfare, IDP
Step 4	<ul style="list-style-type: none"> ➤ Identify the hazards. Use all information available about hazards from locals, experts, government agencies.
Step 5	<ul style="list-style-type: none"> ➤ Identify sectors of the community 'at risk' from hazards ➤ Describe how severely each sector could be affected.
Step 6	<ul style="list-style-type: none"> ➤ This is when you prioritize your strategies based on the highest risk. ➤ Establish a consequence rating for each sector ➤ Determine the likelihood of each event occurring and establish a likelihood rating ➤ Combine the consequence rating with the likelihood rating to develop a risk rating - this will help to develop and prioritize strategies
Step 7	<ul style="list-style-type: none"> ➤ Develop strategies for prevention, preparation, response and recovery ➤ Link strategies to objectives
Step 8	<ul style="list-style-type: none"> ➤ Assess resources available/needed ➤ Document the actions to be taken, the time for completion and who will be responsible for their completion and for monitoring progress. ➤ Review the success of the plan in meeting the objectives i.e. has prevention, preparation, response and recovery from disaster improved? ➤ Evaluate the success of the plan in meeting the longer-term outcomes, i.e. has the plan improved social, economic and environmental well-being?

The Disaster Management Unit would like to acknowledge information from these sources, namely:

- Understanding disaster management in practice – with reference to Nepal – <http://www.forestrynepal.org/publications>
- Getting started with Disaster Management – some useful hints for local government – <http://devplan.kzntl.gov.za/ASALGP/Resource/Documents>
- Guidelines for preparing District Disaster Management Plan – Islamic Republic of Afghanistan – <http://saarc-sdmc.nic.in/pdf/afghanistan>
- uMshwathi Municipality Annual Report 2010-2011
- Msunduzi Municipality Annual report 2010-2011
- uMngeni Municipality Annual report 2010-2011
- uMgungundlovu – Draft Integrated Waste Management Plan

In addition, the Disaster Management Unit would like to acknowledge the support received from the following establishments:

- The uMgungundlovu District Municipality (GIS and ICT Units);
- Jeffares and Green - for developing Disaster Risk Assessment Tool;
- The family of Municipalities within the area of jurisdiction of uMgungundlovu;
- Provincial Sector Departments ;
- The Ward Committee Members and Ward Councillors;
- The Community Development Workers;
- Local Clinics; and
- Farmers Associations

5 Plan Objectives

The objectives of the District Disaster Management Plan are:


- To plan and implement risk reduction and risk reduction activities in the district.
- To have effective disaster preparedness, and effective emergency response for saving of lives.
- To provide relief and humanitarian assistance.
- To enable faster recovery through comprehensive reconstruction and rehabilitation.
- To conduct trainings and capacity building for effective prevention, mitigation and response for disasters.
- To undertake information, education and communication activities to create awareness amongst the communities and the general public.

6. uMgungundlovu District

General information on the population and socio-economic conditions of the District

uMgungundlovu District Municipality



	Impendle Local Municipality		uMshwathi Local Municipality
	uMngeni Local Municipality		Msunduzi Local Municipality
	Mpofana Local Municipality		Mkhambathini Local Municipality
		Richmond Local Municipality	

DEMOGRAPHIC PROFILE

Table 6.1 Population Distribution

The Table indicating Population and Gender Distribution, Area, and Number of Wards							
District and local municipalities	Area	No of Wards	No of households	Population (Census 2001)	Population (Community Survey 2007)	Male	Female
uMgungundlovu	9 189.53	81		927 846	988 837	479 943	512884
uMshwathi	1 924.55	11	23 732	108 422	113 054	52486	60566
uMngeni	1 568.30	11	20 849	73 896	84 781	41550	43233
Mpofana	1 679.37	4	9599	36 820	31 518	15187	16336
Impendle	947.90	4	7335	33 569	39 401	18185	21212
Msunduzi	649.79	37	130 385	552 837	616 730	298410	318319
Mkhambathini	766.00	7	12 550	59 067	46 570	22045	24525
Richmond	1 133.62	7	12 537	63 223	56 772	28080	28693

Source: Statssa 2007

6.2 Table indicating Age Distribution in the District

Population group	As a percentage of the total population
Children (0-14 years)	31%
Youth (15-34 years)	34%
Adults (35-64 years)	30%
Elderly (65 and above years)	5%

These figures represent the most reliable statistics currently available. The census 2011 results will be released later in the year. The population of uMgungundlovu makes up 9.45% of the provincial population and 1.98% of the National population structure. Msunduzi is the most populated local Municipality in the uMgungundlovu District Municipality. It constitutes about 60% of the District population and 5.67% of the provincial population. The Municipality accounts for the highest growth in population. This is attributed to the economic dominance of Msunduzi in the District. The declaration of Pietermaritzburg as the KwaZulu Natal Provincial capital significantly boosted the local economy.

Furthermore, Pietermaritzburg is nationally renowned for its educational institutions including the internationally acclaimed university of KwaZulu Natal attracting a significant population for a significant period of the year.

The remaining local municipalities harbor 40% of the District population. uMshwathi has the second largest population making up 11.4% of the District population. All the other Municipalities contribute less than 10% to the District population with Impendle holding the least number of people at 2.9% of the District population.

Msunduzi is the most urbanized Municipality while uMshwathi is a predominantly rural municipality accounting for 81% of rural households in the District. However, Impendle and Mkhambathini are the most rural in nature of all the Municipalities in the District.

7. Hazard, risk and vulnerability profile

Disaster risk assessment is the first step in planning an effective disaster risk reduction programme. It examines the likelihood and outcomes of expected disaster events. It is critical that disaster risk assessments should be ground-truthed (that is, based on the actual situation 'on the ground'), with field consultations in areas and communities most at risk.

Disaster risk assessment must be undertaken to anticipate and plan for known hazards or disasters to prevent losses and limit endangering impacts. Disaster risk assessment, as a process it is generally agreed that it includes:

- Identifying the nature, location, intensity and probability of a threat (hazard);
- Determining the existence and degree of vulnerability and exposure to those threats (hazards);
- Identifying the capabilities and resources available to address or manage threats; and
- Determining acceptable levels of risk.

Assessment is a crucial disaster risk management task, which contributes directly to effective decision-making, planning and control of the organized response.

Disaster risk assessment process: The NDMF describes disaster risk assessment as a process that determines the level of risk by:

- Identifying and analyzing potential hazards and/or threats;
- Assessing the conditions of vulnerability that increase the chance of loss for particular elements-at-risk (that is, environmental, human, infrastructural, agricultural, economic and other elements that are exposed to a hazard, and are at risk of loss);
- Determining the level of risk for different situations and conditions; and
- Helping to set priorities for action.

Stages of a disaster risk assessment: The general process for assessing disaster risk involves the following stages, namely:

Stage 1: This initial stage involves identifying the specific disaster risk to be assessed.

Identify and describe the hazard with respect to its frequency, magnitude, speed of onset, affected area and duration. Describe and quantify vulnerability to determine susceptibilities and capacities.

Stage 2: The second stage involves analyzing the disaster risk concerned.

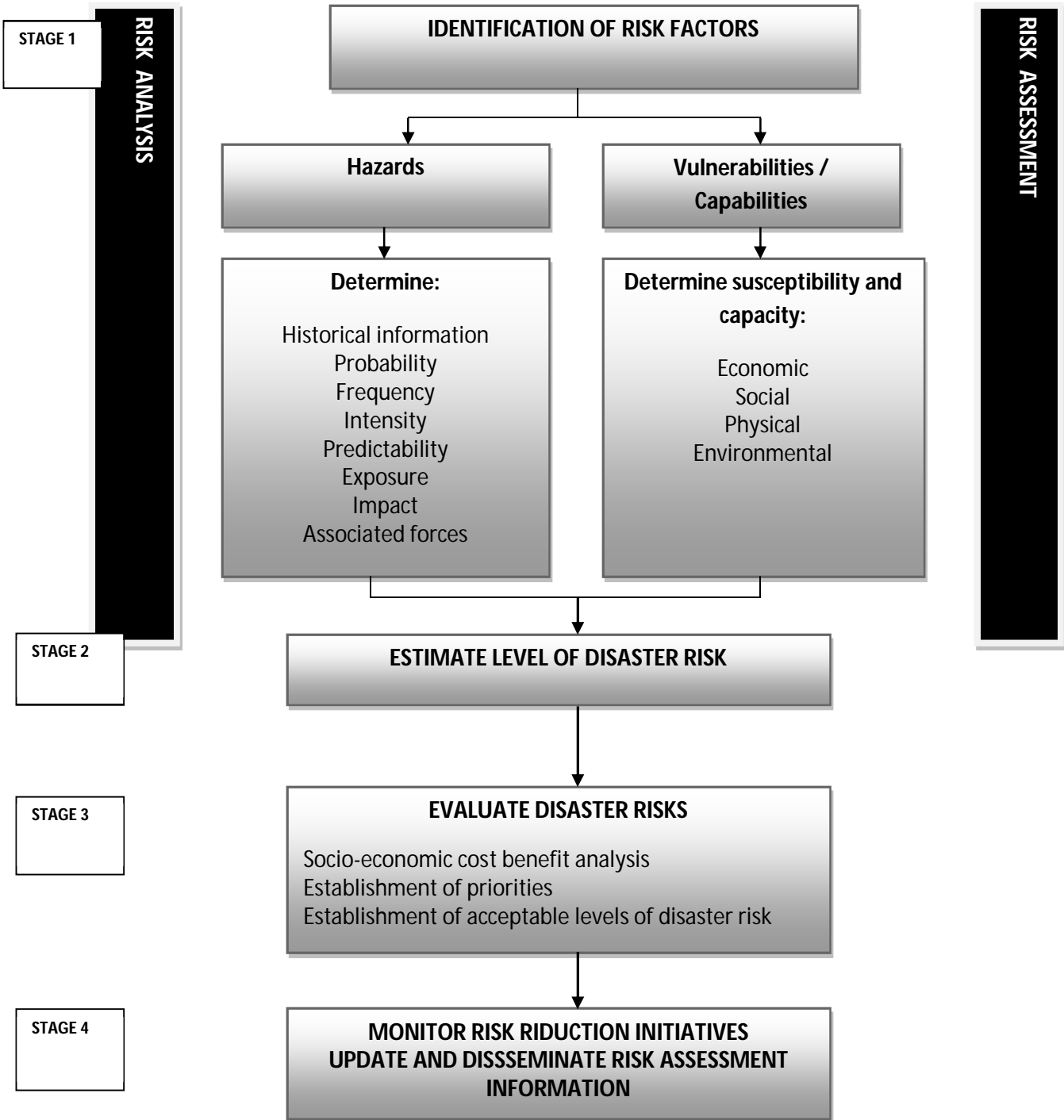
Estimate the level of risk associated with a specific threat to determine whether the resulting risk is a priority or not.

Stage 3: The third stage requires an evaluation of the disaster risk being assessed - usually in relation to other risks. It involves undertaking much more comprehensive assessments of specific threats and establishes priorities or action.

Stage 4: The fourth stage is required to inform ongoing disaster risk assessment and planning. It involves monitoring disaster risks and the effectiveness of risk reduction initiatives. It also involves updating disaster risk assessment information and disseminating this information to all stakeholders.

The disaster risk assessment was conducted using a staged approach: See figure 1 below

Figure: 1 BASIC STAGES OF A DISASTER RISK ASSESSMENT



Methodology

A participatory approach was used in developing the Disaster Management Plan. This was done in order to involve and receive feedback from the persons living in the targeted areas. Their involvement became central in identifying and prioritizing problems, as well as brainstorming to arrive at practical and local realistic solutions.

Risk assessment tools / templates and questionnaire were developed. Hazard and threats were identified. The formalized process of Disaster Risk Assessment was implemented with the following 3 steps:

7.1 Preparation phase

The quality of the Disaster Risk Assessment is determined by the ability of the assessor to firmly establish the foundation of the assessment. The preparation phase involves the following:

- Facilitating stakeholder and organizational arrangements – Consultation included series of risk assessment workshops and telephone discussions with local representatives / Councillors, in order to gain relevant information. The involvement of local government entities helped to gain support and encouraged localized buy-in.
- Research and groundwork – It is important to understand the dynamics of the community in terms of the area's history, risk profile and the socio-demographic perspective.
- Information sources – In order to produce a risk profile a fair amount of information need to be gathered. Information sources included Local Municipalities; articles; copies of IDPs; and online sources.
- Visual materials – Spatial maps with settlements (formal and informal); District borders; roads; infrastructure; and wards
- Arrangement for administrative and logistical success – A number of logistical arrangements should be confirmed before the risk assessment session is held.
- Selecting participants
- Preparation scheduling
- Dates and duration

7.2 Hazard and Vulnerability assessment phase

The risk assessment workshops/information gathering sessions were aimed at identifying the hazards, sectors of the community 'at risk' from hazards and to describe how severely each sector could be affected.

7.3 Capacity assessment

The capacity assessment becomes a tool for highlighting various resources that exist from a social, economic, political or environmental orientation. One of the methods that were used to determine capacity was transect walk(s). A transect walk is a tour across a pre-determined route through a settlement in order to view and observe various conditions including hazard exposure to determine if the conditions contribute to or decrease risks. It is a means of observing coping strategies and clues.

Levels of vulnerability

A simple way of defining the vulnerability levels for a specific geographical area or zone is by using the categories of very high, high, medium, low or no, as shown in the table below:

Table 7.1

Vulnerability Level	Characteristics
No	➤ No risk or threats to life. The hazard is not applicable in this instance.
Low	➤ A particular hazard/threat is generally recognized. The affected population is aware of its characteristics and possible occurrence during a particular period of time. ➤ There is a high level of both organizational preparedness and response capacity for a possible disaster.
Medium	➤ Although threats are not easily identified, there is some level of awareness of the risk, coupled with weak organizational and response capacities. ➤ Management responsibility must be specified. Action should be prioritized in medium term.
High	➤ Those exposed to hazards/threats may know of them, but pay them little or no attention. They are unaware of which warning and preparedness actions to implement. ➤ Senior Management attention needed. Action required. Budget to be allocated.
Very high	➤ Those exposed to a particular hazard/threat have insufficient response capacity or resilience ➤ Catastrophe imminent. Senior Management attention needed. Urgent action required. Discretionary budget to be allocated.

Likelihood Scoring Scale - Qualitative and quantitative indicators of likelihood i.e. the likelihood that a specific fire risk scenario would come to reality – Table 7.2

Level	Likelihood Rating	Indicative frequency	Description
1	Almost certain	once in 2 years	Is expected to occur. Likely to or may occur/recur every 5 years or less; high level of recorded incidents and/or strong anecdotal evidence.
2	Likely	once in 5 years	Will probably occur. Likely to or may occur/recur every 5 – 7 years;
3	Possible	Will probably occur	Might occur at some time; as likely as not
4	Unlikely	Might occur at some time; as likely as not	Could occur at some time
5	Rare	May only occur in exceptional circumstances	May only occur in exceptional circumstances

Impact Scoring Scale – Qualitative Indicators

Table 7.3

Level	Descriptor	Categories of Impact	Description of Impact
1	Insignificant	Human Welfare	<ul style="list-style-type: none"> • No fatalities, injuries or impact on health. • No persons displaced and no personal support required. • No damage to properties. • No disruption to community services or infrastructure.
		Environment	No impact on environment.
2	Minor	Human Welfare	<ul style="list-style-type: none"> • Small number of people affected (<10), no fatalities, and small number of minor injuries with first aid treatment. • Minor displacement of people for <6 hours and minor personal support required. • Minor localized disruption to community services or infrastructure <6 hours.
		Environment	- Minor impact on environment with no lasting effects.
3	Moderate	Human Welfare	<ol style="list-style-type: none"> 1. Limited number of people affected (11 - 50), no fatalities, but some hospitalization and medical treatment required. 2. Localized displacement of small number of people for 6 – 24 hours. Personal support satisfied through local arrangements. 3. Localized damage that is rectified by routine arrangements. 4. Normal community functioning with some inconvenience.
		Environment	- Some impact on environment with short-term effects or small impact on environment with long-term effects.
4	Significant	Human Welfare	<ol style="list-style-type: none"> 1. Significant number of people (51-100) in affected area impacted with multiple fatalities, multiple serious or extensive injuries and significant hospitalization. 2. Large number of people displaced for 6 - 24 hours or possibly beyond. External resources required for personal support. 3. Significant damage that requires external resources. 4. Community only partially functioning, some services unavailable.
		Environment	- Significant impact on environment with medium to long-term effects.
5	Catastrophic	Human Welfare	<ol style="list-style-type: none"> 1. Very large number of people (>100) in affected area(s) impacted with significant numbers of fatalities, large number of people requiring hospitalization with serious injuries with long term effects. 2. General and widespread displacement for prolonged duration and extensive personal support required. 3. Extensive damage to properties in affected area requiring major demolition. 4. Serious damage to infrastructure causing significant disruption to, or loss of key services for prolonged period. Community unable to function without significant support.
		Environment	- Significant long-term impact on environment and/or permanent damage.

uMgungundlovu District Municipality - Overview

The disaster risk assessment exercise conducted throughout the District revealed that the main hazards faced by the District are floods, house fires, veld fires, snow, epidemic human diseases, environmental pollution, transport accidents, severe storms and lightning and thunderstorm.

Climate change projections show that extreme events such as flooding and severe storms are expected to increase in frequency and intensity. This is of particular concern to the uMgungundlovu District Municipality, as the District has experienced these events in the past. It is important to take note of the projected increases in these events, and to implement appropriate response measures so that future losses can be avoided.

Greenhouse gases are emitted, for example, when we burn fossil fuels like coal, oil, petrol, diesel and natural gases. When we chop down forests (deforestation) it reduces the earth's natural ability to absorb greenhouse gases. Climate change will have a serious impact on biodiversity. Another greenhouse effect is the increase in diseases such as cholera which are associated with extreme weather events, particularly flooding.

A climate-resilient and low-carbon economy and society must build resilience to the effects of climate change and reduce greenhouse gases by planting indigenous trees, recycling, saving electricity, switching to energy-saving light-bulbs and changing the way we travel.

Floods are among the most common and destructive natural hazards causing extensive damage to infrastructure, public and private services, the environment, the economy and devastation to human settlements. Recurring flood losses has a potential to handicap the economic development within the District. Floods are usually caused by intense storms that produce more runoff than an area can store or a stream can carry within its normal channel.

The frequency and intensity of floods is high in the District. This could be attributed to increased encroachment of flood plains. This trend demand better preparedness to make sure that appropriate and effective response measures are taken during flood emergency to minimize the loss of lives and properties. The District needs a better and effective flood mitigation system to ensure the safety of its people and economy. Flood mitigation strategies that can be undertaken:

Structural Measures:

- Timely cleaning, de-silting and deepening of natural water reservoir and drainage channels.

Non Structural Measures:

- Flood plain zoning: Flood plain zoning, which places restrictions on the use of land on flood plains, can reduce the cost of flood damage.

Mountainous terrain, remoteness of villages, poor transportation facilities, poor road conditions, inadequate health facilities and rapid urbanization characterizes the District. People from certain wards have to walk long distances to reach the health facilities for treatment.

The frequency and intensity of house fires is high in the District. Below are some common fire hazards in the District:

- Electrical systems that are overloaded, resulting in hot wiring or connections, or failed components
- Combustible storage areas with insufficient protection
- Combustibles near equipment that generates heat, flame, or sparks
- Candles
- Smoking (Cigarettes, cigars, pipes, lighters, etc.)
- Flammable liquids
- Heating appliances – paraffin stoves, portable heaters
- Electrical wiring in poor condition
- Personal ignition sources - matches, lighters

Fire prevention programs may include visiting schools to review key topics with the students.

Public health services are rendered within this district through a network of Primary Health Care (PHC) clinics (fixed / mobile), Community Health Centres, 2 District Hospitals. A District / Regional, Regional /Tertiary (Combo Hospitals) and specialized hospital are also part of the District, creating unique opportunities for service delivery. There are 4 Community Health Centres in the District in different levels of development.

The HIV & AIDS are serious public health problems which have socio economic, employment and human rights implications. HIV thrives in an environment of poverty, rapid urbanization, violence and destabilization. Women particularly are vulnerable to infection in culture and economic circumstances where they have little control over their lives. According to the United Nations – World Health Organization (WHO) the rate of HIV infection in South Africa remains high at 12.5% of the entire population. uMgungundlovu District Municipality registered a decrease in the HIV and AIDS prevalence rate between 2007 and 2009 (DoH, 2010).

The uMgungundlovu District Aids Council has developed a strategic plan to deal with HIV and AIDS. This strategy is premised on the understanding that the fight against the spread and impact of HIV and AIDS call for multi-sectoral collaboration. This strategy recognizes the local initiatives by different stakeholders.

A characteristic of outbreak of plant or animal diseases is that they often transcend boundaries. Animal and plant diseases have huge economic impacts. Horse flu, for example, counts for huge financial losses the horse business. Rabies virus can be transmitted to humans, commonly through the bite of an infected dog.

The Farmers have to contend with many challenges in raising the crop and animals under South African conditions. The uMgungundlovu District pine plantations, for example, are vulnerable to *Sirex noctilio*. *Sirex noctilio* is a wood wasp currently threatening commercial pine plantations in South Africa. The tomato-production areas in South Africa are considered potentially at risk of infection by tomato curly stunt virus (ToCSV). Sugarcane is vulnerable to *Eldana saccharina*. According to Dr Mbizeni (State Veterinarian) the following are dominant animal diseases in the District:

- Tick borne diseases e.g. heart water. Heart water is an important, often fatal, tick-borne disease of domestic ruminants (mainly goats and sheep) in the District;

- Babesia (umbendeni) is known to be a serious illness for domesticated animals, especially cattle;
- Rift Valley fever (Cattle, sheep and goats) is a viral zoonosis that primarily affects animals. Infection can cause severe disease in both animals and humans. The disease also results in significant economic losses due to death and abortion among RVF-infected livestock. Last occurred 2-3 years ago;
- Lumpy skin diseases. Last occurred 2010, 2011 and 2012;
- Rabies – Occur yearly; and
- Africa horse sickness

Report on the status of sanitation services in South Africa (research weekly e-alert 20 April 2012)

Findings of the report by the Department of Performance Monitoring and Evaluation (DPME) in collaboration with the departments of Human Settlements and Water Affairs on *“the Quality of Sanitation in South Africa”*.

The report revealed that about 1.4 million households have no sanitation services at all. Furthermore, 3.2 million households are at risk of service failure and/or are experiencing service delivery breakdowns. The report acknowledges that the country has already achieved the Millennium Development Goal (MDG) of halving the number of people without access to sanitation in 2008; however, the rate of delivery is not sufficient to achieve the target the country has set of universal access by 2014.

Key findings of the study: From a national perspective of sanitation needs, the startling finding is that while access to sanitation is increasing (albeit at less than an optimal pace). However, from a functionality and adequacy point of view, approximately 11% of households or 1.4 million households (Formal townships– no services and Informal settlements – no services) still have to be provided with sanitation services. These households have never had a government supported sanitation intervention.

Apart from the 11% that have no services, as many as 26% or about 3.2 million households are at risk of service failure and/or are experiencing service delivery breakdowns. Their sanitation services do not meet the standards due to the deterioration of infrastructure caused by a lack of technical capacity to ensure effective operation, timely maintenance, refurbishment and/or upgrading, pit emptying services and/or insufficient water resources.

The areas with high levels of infrastructure maintenance needs are located within Limpopo, KwaZulu-Natal, Free State, Mpumalanga, Northern Cape and the Eastern Cape. So far, a total of 1 674 informal settlements have been identified across the country by the Department of Human Settlements. About 714 (highest) are in Kwazulu-Natal and more than 90% of the identified informal settlements in the province are situated in Durban.

Challenges in the sanitation Sector: In addressing the sanitation service backlogs and the provision of ongoing adequate sanitation services, several challenges surfaced. Of particular concern is **the status of bulk sanitation infrastructure** in the country. This mainly relates to the communities served with waterborne sewerage systems, where the maintenance, refurbishment and/or upgrading of collection and treatment infrastructure has been neglected over the years.

The general assessment of the status of wastewater treatment works carried out annually by the Department of Water Affairs shows a negative trend in the quality of the wastewater treatment services. The assessment known as

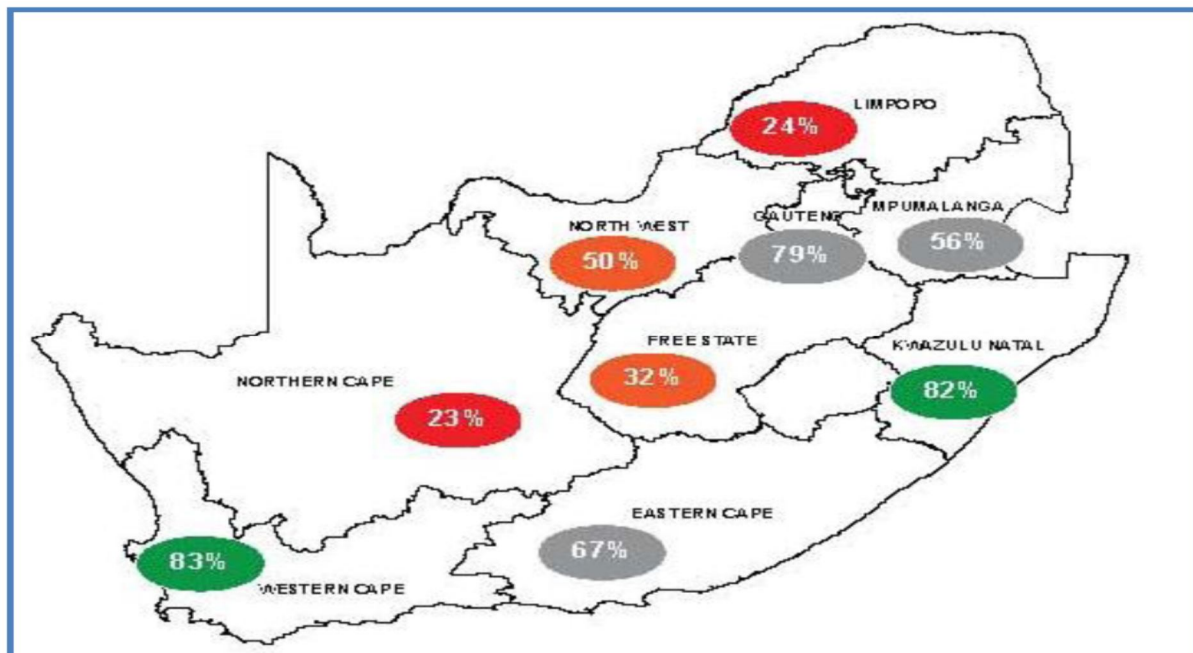
the Green Drop Certification Programme is an incentive-based form of regulation to encourage municipalities to achieve excellence in the area of wastewater quality management.

The Department of Water (DWA) is, however, implementing appropriate clean-up programmes such as the Blue Drop and the Green Drop Certification Programmes. These flagship innovations were instituted in 2008 by the DWA as an incentive-based form of regulation to encourage municipalities to achieve excellence in the areas of water and wastewater quality management.

The latest-Green-Drop Report indicates a low rate of achievement of standards with only 40 out of 826 works assessed achieving Green Drop status. The results of the 2011 survey indicate that:

- 317 WWTWs require urgent attention
 - 143 WWTWs have a high risk of failure
 - 20% of WWTWs are running over their design capacity
- 90% of WWTWs are non-compliant on more than 3 effluent determinants

The average green drop status per province is indicated in the following map:



Overall, the 2011 Green Drop report showed a negative trend in the quality of the wastewater treatment services, with the number of systems that scored more than 50% having decreased from 49% in 2009 to 44% in 2011. About 20 of 33 systems lost their previous Green Drop status and a total of 26 Green Drop statuses were for systems that were awarded the status for the first time. Only 14 of 33 Green Drop statuses for previous year retained them.

Systemic failures ranging from gaps in critical technical and management skills, neglect of operation and maintenance, poor revenue management and under-spending on capital budgets at municipal government level are also major factors. One of the key contributors to the parlous state of existing infrastructure is the under-capacity of water service authorities to plan, implement and manage the infrastructure effectively. The majority of WSAs are reported to be in the level of vulnerability.

Focusing on the criteria for assessing the technical and financial capacity for water and sanitation service delivery, the number of Water Services Authorities (WSAs) falling into the “very high vulnerability” classification increases to approximately 80% of all WSAs. This is of significant concern, and although programmes have been instituted to boost the capacity of WSAs, these have generally taken the form of short-term interventions that did little to transfer skills and build and retain capacity within the WSAs.

Research indicates that the civil engineering capacity (expressed as civil engineering professionals per 100 000 people) in local government is too low to deliver, operate and maintain local government infrastructure in a sustainable manner. Whereas in 1994, there were 20 engineers per 100 000 people, this has now dropped to 3 per 100 000 people, a ratio that is clearly indicative of a crisis.

Another key factor affecting the poor progress in the provision of sanitation services cited by the report is the **insufficient financial planning and management** which leads to inadequate budget allocations for maintenance by municipalities (e.g. from equitable share) and/or inappropriate use of allocated funds (e.g. funds channelled to roads at end of financial year to facilitate quick expenditure) as well as weak revenue management. Current estimations are that an amount of R44.75 billion is required to provide basic services to the un-served (R13.5bn) and to refurbish and upgrade existing infrastructure (R31.25bn). This excludes financing for bulk infrastructure requirements for the provision of new services, as well as to address the upgrading of households in informal settlements.

The key conclusions arising from this study are the following:

- There is a need for improved service delivery planning at national, provincial and local levels, including the development of sanitation master plans, capital and finance plans as part of the Integrated Development Plan (IDP) process and aligned to municipal Comprehensive Infrastructure Plans (CIP).
- There is a need to boost capacity at local government level in particular, especially in the fields of technical and financial management, through an interim intervention and through longer term capacity building initiatives. Where it is unlikely that capacity can be developed in the foreseeable future, alternative mechanisms will need to be put in place so that service delivery to the poor does not suffer.
- There is a need to improve the effective utilisation and management of funding allocated for sanitation service delivery and to ensure adequate funding of O&M.
- The challenge of institutional fragmentation needs to be addressed as a matter of urgency, including clarification of roles and responsibilities; regulatory and monitoring and evaluation (M&E) activities.
- Performance monitoring and reporting needs to be significantly improved through a well-coordinated M&E framework with KPIs enabling relevant, enhanced assessment and control of service delivery.

Recommendations

Key requirements to improve the quality of sanitation provision in South Africa are as follows:

- The establishment of a single unit responsible for policy formulation, oversight, monitoring, regulation and support of the entire sanitation service value chain and its linkages with water resource management and water service delivery within **DWA** (as the custodian of water resources in South Africa) with sufficient capacity to support planning, and ensure effective regulation and monitoring (which is to include an early warning mechanism). This is expected to address the constraints affecting the provision of sanitation services, including the fragmentation of responsibilities for sanitation at national, provincial and local levels.
- Legislative amendments to resolve oversight, planning, financial allocations and accountability.
- Improved and coordinated support programmes to municipalities at national and provincial level.
- Upgrading of municipal staff skills (and/or the interim establishment of a municipal infrastructure support agency (national or 9 provincial).
- Support for basic service delivery planning in municipalities where backlogs are most acute through sector-based service delivery management structures.

The findings from this study are to be presented to Cabinet for discussion and action, including resolving the problems with current institutional arrangements.

The uMgungundlovu District Municipality is a Water Services Provider and Water Services Authority (WSA) for the Impendle, Mpofana, uMngeni, Richmond, Mkhambathini and uMshwathi Local Municipalities. Water Quality Performance South African National Standards (SANS 241) for drinking water quality requires a 97% microbiological compliance and a minimum of 85% chemical compliance.

Table 7.4 Performance of water supply systems - May 2010 to April 2011

Water Supply System	% Compliance with SANS 241	
	Chemical	Microbiological
Mpofana	100	92.8
Richmond	100	97.1
Lidgetton	100	100
Nzinga	94.4	83.3
Gomane Boreholes	100	86.3
Umgeni bulk water supply	100	99.9
Mtulwa	-	100
Makeni	100	40
Rosetta	94.3	100
Ndaleneni	100	100
Ntanzi	-	100
Appelsbosch	88.9	81.8
Impendle spring	100	81.8

Note: No chemical determinants were analyzed for Mtulwa and Ntanzi for this period as these schemes were not operational during the period of taking samples as per full SANS 241.

Microbiological noncompliance with SANS 241 requirements were either due to electric supply interruption to the water supply scheme, faulty or failure of dosing pumps, low chlorine residual at the reservoirs and

lack of chlorination system in place for boreholes and springs. When these failures are picked up, treatment processes would be optimized and water from contaminated reservoirs would be flushed out. Impendle spring and Gomane boreholes have now been installed with chlorination systems and are monitored on a daily basis.

The uMgungundlovu is in charge of 6 wastewater treatment works, namely Mpofana, Howick, Richmond, Camperdown, Cool Air and Appelsbosch. Samples collected from these wastewater treatment systems are analysed by the accredited laboratory. According to Green Drop requirements, effluent quality with a score of 90% and above is seen as compliance.

Table 7.5 Performance of wastewater treatment systems - May 2010 to April 2011

Wastewater treatment works	% Compliance
Mpofana	79.3
Howick	91.7
Richmond	98.2
Camperdown	91.7
Cool Air	97.9
Appelsbosch	98.5

The noncompliance at Mpofana wastewater works was due to discharges from the industry and accumulated sludge in the system. In response to the situation, the district has held meetings with industry which is now implementing process changes that will ensure that the waste it discharges to municipal treatment system does not compromise the operation of Mpofana wastewater treatment system. At present, the district is in a process of installing a sludge dewatering system which is expected to improve the final effluent discharged.

Table 7.6: Sanitation

Sanitation MUNICIPALITY	Share of households with Hygienic toilets (%)
KZN - DC22 uMgungundlovu District Municipality	67.6%
KZN221: uMshwathi Local Municipality	39.8%
KZN222: uMngeni Local Municipality	72.5%
KZN223: Mooi Mpofana Local Municipality (including Highmoor/Kamberg Park)	80.9%
KZN224: Impendle Local Municipality	19.6%
KZN225: The Msunduzi Local Municipality	74.4%
KZN226: Mkhambathini Local Municipality	75.8%
KZN227: Richmond Local Municipality	42.7%

Source: Global Insight 2011

Table 7.7: Water

Share of households with piped water at or above RDP-level (%)2009		
District municipalities (2005-12 boundaries)		
DC22	KZN - DC22 uMgungundlovu District Municipality	82.4%
Local Municipalities (2005-12 boundaries)		
D221	KZN221: uMshwathi Local Municipality	73.8%
D222	KZN222: uMngeni Local Municipality	83.8%
D223	KZN223: Mooi Mpofana Local Municipality (including Highmoor/Kamberg Park)	79.4%
D224	KZN224: Impendle Local Municipality	65.2%
D225	KZN225: The Msunduzi Local Municipality	88.2%
D226	KZN226: Mkhambathini Local Municipality	62.0%
D227	KZN227: Richmond Local Municipality	64.7%

Source: Global Insight 2011

Integrated Waste Management

Table 7.8

Status	Projects
The Integrated waste management plan was completed in July 2011	<p>The following projects were identified in the plan:-</p> <ul style="list-style-type: none"> • Obtain environmental authorization and permit to develop a District Landfill Site. • Feasibility study into the development of the operation of material recovery facilities, biological treatment facilities with the District • Upgrade Richmond landfill site • Installation of a weighbridge in Curry's Post Landfill Site • Installation of a weighbridge at New England Road Landfill Site • Rehabilitation and upgrade of Mpofana Landfill Site • Construct a material recovery facility at New England Road landfill • Support to Small Recyclers within the District • Develop a Climate Change Risk Assessment and Mitigation Strategy for the District • Obtain environmental authorization to develop a new Richmond Cemetery • Obtain environmental authorization to develop a New Mpofana Cemetery

The vulnerabilities or risk factors of the District include the following:

Table 7.9

Physical factors	Economic factors
<ul style="list-style-type: none"> • Electricity overload • Sewerage system resulting to health risk • Poor water drainage system increase accidents • Unsafe pedestrian crossing • Presence of animals on the roads • Oil and chemical spills mainly along the N3 • High accident risk/rate, particularly along the N3 route • Water contamination • Poor building standards • Building in flood plains • Building next to railway lines • Power failure due to systems • Fallen trees and debris • Wetland destruction • Ageing infrastructure – Waster water works, asbestos cement pipes • Environmental degradation • Lack of appropriate spatial planning • Poor road infrastructure (unmarked, potholes etc) 	<ul style="list-style-type: none"> • Lack of economic diversification • Lack of economic growth potential • Lack of skilled • Lack of economic investment • Unstable social environment • Growth of unemployment • Lack of suitable and affordable land
Social factors	Prevention and mitigation strategies
<ul style="list-style-type: none"> • Rapid urbanization • Lack of basic infrastructure (in some parts no electricity, no clean water supply, no water borne sewerage systems and poorly constructed or no toilets in some schools) • Increase in communicable diseases • Uncontrolled pollution • Substance abuse • Low literacy • low awareness • Theft/burglaries • TB • HIV and AIDS and STIs prevalence remains unacceptably high • Malnutrition • Children abuse • Rape • Bee stings, snake bites and dog bites • Urbanization 	<ul style="list-style-type: none"> • Develop early warning system on natural disasters such as floods, hailstorm & drought • Prevent forest fires by having fire breaks • LED programs • Upgrade and maintenance of infrastructure • Develop protocols for specific risks • Road sidewalk maintenance • Upgrade and Maintenance of landfill sites • Public awareness campaigns • Replacement of old vehicles and machinery • Establish Rehabilitation Centres • Develop poverty alleviation strategies • Develop job creation programs i.e. cleaning campaign • Implementing of regular patrol <p>NB: These are addressed through the Municipality's Integrated Development Plans which have inputs from Sector Departments.</p>

Findings: uMswathi Local Municipality:

uMshwathi Municipality covers an area of approximately 1,811 square kilometers and is located towards the north eastern section of the uMgungundlovu District Municipality. The major urbanized areas are located in New Hanover and Wartburg which are also the administrative and economic nodes of the Municipality. The Municipality has the second largest population after Msunduzi Municipality, however, uMshwathi has a much higher contingent of rural households. The Municipality shares a common boundary with the Msunduzi, uMngeni, Mpofana and Mkhambathini Local Municipalities of the uMgungundlovu District. It also shares a boundary with eThekweni Metro and the Ndwedwe and uMvoti Local Municipalities.

Key challenges facing the uMshwathi Local Municipality with regard to waste management are the under-resourced operational controls and institutional challenges relating to waste minimization and the fact that there are households in the Municipality that do not have access to refuse collection services. Although there are no public recycling projects run by the Municipality, there are a few known private recyclers in the area. uMshwathi is the only Local Municipality that uses the service of a private contractor for the full refuse collection service.

The municipality renders a service for street sweeping and litter picking. Waste is collected from the public litter bins and street sweeping is collected, bagged and set aside for collection by the contractor. The Municipality has one of the highest rural components in the District with rural households constituting approximately 81% of the total number of households in uMshwathi. There is no refuse service provided to rural residents as the population is usually scattered over a large area.

Urban households are serviced under the terms of the contracted waste management provider. Coverage is extended to approximately 3,800 households out of a total of 4,475 urban households in five wards. Domestic refuse servicing to urban areas are fairly well established, however the municipality has admitted to difficulties with garden refuse (green waste). The New Hanover, Dalton and Wartburg CBDs are serviced once a week by the service provider. A twice weekly service is offered but must be requested by the customer. General solid waste collected by the contractor from residential and commercial sectors is transported to the New England Road Landfill Site in Msunduzi for final disposal. There is no landfill site within the Municipal area. Illegal dumping is a problem on vacant plots in Cool air as well as littering in Dalton CBD - abuse of litter bins by business in the area – using public bins for commercial waste (uMgungundlovu Integrated Waste Management Plan – 2009 update).

The frequency and severity of severe storms and flooding is very high in ward 1, 2, 3, 4, 5, 7, 8, 9, 10, 12 & 13. Many houses in rural areas are of poor standard. The houses are built on steep hillsides in rural areas such as Ward 4, Emahlanzeni. These conditions make these areas vulnerable to floods and severe storms. The elements that are most at risk to flooding and severe storms are people, animals, agriculture, roads, drinking water and houses.

The frequency of house and veld fires is high in rural areas. This can be attributed to the fact that many of these houses have thatched roofs. Makeshift structures in informal settlements are densely located. Again there is a shortage of fire hydrants or water filling points in many wards. New Hanover Fire Station is under-

resourced. Another cause of house fires is lack of information and overloading of electricity. These conditions make these areas vulnerable to house and veld fires.

The frequency of transport accidents is high during the festive season along R33 and R614. Roads in many wards are in poor conditions. The traffic unit of the uMshwathi Local Municipality does not have sufficient capacity or resources.

Agriculture is the dominant economic sector in uMshwathi. It is estimated that there are more than 250 farmers and that 2 million tons of sugar cane is processed annually within the area of jurisdiction of uMshwathi Local Municipality. The risk level of animal and plant diseases is low.

People are economically and socially vulnerable because of a lack of economic growth potential and high level of unemployment and poverty.

Water and Sanitation projects at different phases of development – Table 7.10

Water	Sanitation
<ul style="list-style-type: none"> • uMshwathi Regional Bulk Water Supply • Bruyns Hill Pipeline • Bruyns Hill Reservoir upgrage • Mbhava & Mpethu Water Supply • Lindokuhle, Mpolweni Water Supply 	<ul style="list-style-type: none"> • Swayimane Ward 11 • Trustfeed Sanitation • Human Settlement Development (Dalton/Cool Air 437 units and uMshwathi Slum 3000 units)

Findings - uMngeni Local Municipality:

uMngeni Municipality covers an area of approximately 1,564 square kilometres¹. Howick and Hilton are the major urban nodes of the municipality. The main economic activities in uMngeni revolve around agriculture, with farming in timber, dairy and beef products and vegetables. uMngeni also has a notable tourism industry as the Midlands Meander also falls within the municipal boundaries. The municipality has close ties with the neighbouring municipalities of Mpofana, Impendle and uMshwathi in terms of agriculture and with Msunduzi Municipality which is the hub of economic activity in the uMgungundlovu District.

uMngeni Municipality provides a free refuse service, which includes collection and disposal as part of free basic services. Street cleaning and litter picking are also carried out by Municipal staff on a weekly basis. uMngeni Municipality has a higher urban population than most of the Local Municipalities. The Municipality provides a refuse collection service to urban and peri-urban household in the area. Its coverage is estimated at 63 %7 of the households. Service provision in uMngeni in terms of waste removal is fairly good, with most of the urban areas receiving a refuse removal service. The Local Municipality faces a challenge in extending their services to rural areas. uMngeni Municipality has the second largest landfill site in the District. Curry’s Post G.S.B+ Landfill site is permitted to accept commercial and domestic waste, dry industrial refuse, builders’ rubble and garden refuse.

The Municipality collects waste from the businesses located in the CBD on a daily basis. Businesses in other areas are serviced twice weekly. The Municipality also attends to street cleaning and litter picking on a daily basis in the CBD area and twice weekly in other areas. There are three municipal-run drop-off centres situated in Howick and Hilton. A drop-off centre is a facility where recyclable materials are delivered

by residents who place them into bins for the respective categories, without receiving payment for the materials.

Field work was carried out to verify places used as illegal dumping sites in the Municipality. The area most affected is Mpophomeni which is on the western side of uMngeni. Mpophomeni does receive a refuse collection service but dumping continues, regardless of this fact. In most cases the dumping sites are situated on vacant plots of land which are directly adjacent to houses. Informal interviews were held with people who were in the area during the time of the field work. Illegal dumping may simply be due to bad behaviour of people (uMgungundlovu Integrated Waste Management Plan – 2009 update).

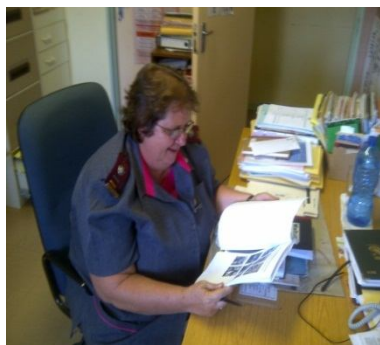
There is high level of poverty, substance abuse, water contamination and theft in Skomplaas, Zuzokuhle "Zoo" and Shiyabazali. These informal settlements are characterized by poor sanitation system and lack of access to regular refuse removal and dumping sites near the houses. The Skomplaas informal settlement is built on flood plain. The low cost housing unit called Siphumelele is build 100 meters from the edge of Umgeni River. There is always a possibility of water contamination resulting from failing sanitation.

The semi-rural township of Mpophomeni lies in a valley about 12km south of Howick. Mpophomeni Township is characterized by overloaded sewerage system. According to Duzi uMngeni Conservation Trust (DUCT) significant risks in Mpophomeni include drains that are often blocked and, illegal dumping and broken sewerage pipes that are left unattended. The possibilities of water contamination are very high because of filth that flow to the water system.

Duzi uMngeni Conservation Trust (DUCT) has been appointed to conduct sanitation education amongst school children and other members of the community. DUCT is also undertaking daily monitoring of pollution hotspots and reporting these to the Municipal staff in order to reduce the time taken to fix leaking sewer pipes. At the same time DUCT educate the residents on pollution hotspots and on appropriate use of sanitation infrastructure.

The frequency and severity of transport accidents is high along the N3. This problem is prevalent in the Tweedie, Howick West, Merrivale and Cedara areas. Residents in the above areas utilize the N3 to cross over for various reasons and this in-turn is the cause of a number of collisions / accidents where pedestrians are either killed or motorists involved in collisions.

A one-on-one session was conducted with the Operational Manager on 23 February 2012: Howick Clinic,



Sr MF Van Niekerk. Howick Clinic is located in the Howick Town. The majority of the people who attend Howic Clinic as per the clinic attendance register come from these areas: Haza, Curry's post, Karkkloof, Lidgeton, Mpophomeni, Shiyas, Emafakatini, Jabavu, Mathandubisi, Sweetwaters, Tweedie, Mthulini, Lions River, Impendle, Howick South, Mgwagwa, Mashingeni, Cedara, Tumble Weed, Dargle, Nottingham and Balgowan.

The general public attends the clinic mainly to access these services: antenatal and postnatal clinic, chronic illnesses (asthma, epilepsy, diabetics and hypertension), child health, minor ailments, HIV counseling and testing, sexual transmitted

illnesses, TB, psychiatric, integrated management of childhood illnesses (IMCI), emergency and family planning. There is capacity (nursing staff) of 1 Operational Manager, 6 Professional nurses and 2 Staff Nurses employed by uMngeni Municipality. There is additional capacity (nursing staff) seconded by the Provincial Department of Health to the Clinic in the form of 1 Chief Professional Nurse: Psychiatric, 1 Enrolled Nurse for TB, 1(one) TB Tracer servicing the entire municipal area, 2 Professional Nurses: CDC, 2 HIV Counselors.

There was a high TB case load in the Howick Clinic during the 2010/2011 financial year. This is due to the fact that all positive TB cases from the Communicable diseases clinic are referred to the Howick Clinic. These are patients who are being prepared to go on to Anti-Retroviral treatment. The management and treatment of TB cases is under continuous review. The following were achieved:-

- All positive cases were put on treatment and followed up.
- Laboratory collects sputums daily and results are back within seven (7) days.
- All positive TB cases were initiated on TB treatment.
- All defaulters are followed up by a TB tracer.

HIV/AIDS Programme (Howick Clinic): This programme is aimed at reducing the vulnerability to HIV infection. Achievements:-

Daily counselling and testing is available

- 4911 people were counselled and tested.

Sexually Transmitted Infections (Howick Clinic): Achievements:-

- All patients that present at the clinic are treated, counselled and given health education.
- Condom availability at various outlets in Howick – given to TAC members and Community Care Givers to distribute in the community.
- Abstinence is still encouraged and for people to delay their first sexual encounter.

Prevention of transmission of HIV from mother to child (Howick Clinic): Achievements:-

- All patients presenting for Ante Natal Clinic are counselled and tested.
- If found to be HIV positive, further tests are done and they are initiated on Dual Therapy of HAART (Anti-retroviral Therapy)
- Babies with mothers who are HIV positive have a PCR test done at 6 weeks. The success of the programme is babies testing negative.
- Most of the babies tested in this year of review had negative tests.
- Babies who are breastfed by HIV positive mothers were put on to Nevarapine syrup to further prevent HIV transmission.

Child Health – Under 5's (Howick Clinic): Achievements:-

- A successful expanded programme of immunisation was carried out on children less than 5yrs.
- All children under 5yrs are weighed and assessed in the year under review.
- Children under 5yrs are seen under the IMCI Programme when they are sick. They are assessed with certain criteria and treated, or referred accordingly.

Chronic Diseases (Howick Clinic): Achievements:-

- New cases for Diabetes, Epilepsy, Asthma and Hypertension are diagnosed and put on to relevant treatment and followed up (uMngeni Municipality – Annual report 2010 – 2011).

Clinic Statistics: Table 7.11

Headcount Howick	73 444
Headcount Howick West	3 779
Chronic Patients	17 230
Sexually transmitted infections	1 722
VCT Counselling	4 911
Testing	4 911
HIV positive Cases	1 191
Tuberculosis Patients	2 741

Source - Annual report 2010/2011 – uMngeni Municipality

Attendance: Clinic Statistics: Table 7.12

Month /Year	Headcount Howick	Headcount Howick West
Feb 2012	5244	246
Jan 2012	6912	264
Dec 2011	6998	130
Nov 2011	6288	222
Oct 2011	5882	329

Interview with Operational Manager – 23 February 2012

Water and Sanitation projects at different phases of development - Table 7.13

Water	Sanitation
<ul style="list-style-type: none"> • Hilton N3 Corridor development • Mpophomeni waste water works • Khayelisha housing 	<ul style="list-style-type: none"> • KwaChief and Enguga water supply • Haza Ward 9 Sanitation • Human Settlement Development (Khayelisha housing 1575 units and Cedara 1000 units)

Findings - Mpofana Local Municipality:



Mpofana Municipality is located in the northern region of the uMgungundlovu District and covers an area of approximately 1810 square kilometres. The economic and administrative centre of the Municipality is located around the Town of Mooi River. The main economic activities in Mpofana are cattle, dairy and stud farming as well as potato and cash-crop farming.

Key challenges facing the Mpofana Local Municipality in terms of waste management are the institutional challenges relating to an inability to find staff for management positions, lack of planning and budgeting, the under-resourced operational controls and lack of environmental controls and cost recovery at the Mpofana landfill. There is also a lack of service to many households in the municipality and no waste minimization initiatives.

There are no formal recycling initiatives run by the Mpofana Municipality. The Mpofana landfill site, like most other landfills, has informal waste pickers on site. They are mainly women from the poorer community of Bruntville. The municipality does not have any drop-off centres for recyclable materials. The Municipality offers a free refuse removal service to the residents of Mpofana. The Municipality renders a service for street sweeping and litter picking. Street cleaners collect refuse from public bins and sweepings which are bagged and collected once a week. Like the other six Local Municipalities, Mpofana has not extended the refuse removal coverage to rural areas. Urban households in the Rosetta, Bruntville, Mooi Village and Mooi Town areas are serviced by the municipality once a week. Not all formal housing areas are covered by the municipality which has led to the problem of illegal dumping of green waste and domestic waste in township areas. Shops and businesses receive a collection service but this is limited to domestic waste only.

The Municipality has difficulties with the amount of illegal dumping that takes place. The area which is worst affected is the township of Bruntville, east of Mooi River. Mpofana has a communal landfill site located to the west of Bruntville (uMgungundlovu Integrated Waste Management Plan – 2009 update).

The main hazards faced by the Mpofana Municipality are floods, house fires, veld fires, environmental pollution, transport accidents, epidemic human diseases, snow, severe storms and lightning and thunderstorm. The risk rating of severe storms and flooding is very high. It is possible or almost certain that one can expect flooding or severe storms to happen in all the wards. The houses in rural areas such as Ward 4, Muden area are of poor standards. These conditions make these areas vulnerable to floods and severe storms.

The risk level of house fires is high. This could be attributed to the lack of information. The risk level of lighting and thunderstorm is high. People are economically and socially vulnerable because of a lack of economic growth potential and high level of unemployment and poverty. Road accidents happen frequently along N3. Roads in many wards are in poor conditions.

There is a Bruntville Community Health Care Centre located within Ward 3 of Mpofana Local Municipality. The Wards that comprise Bruntville CHC catchment area Ward 1, Ward 2, Ward 3 and Ward 4. The CHC is not fully functional; it operates more or less like a Primary Health Care (PHC). The population of Bruntville CHC catchment area is 31 517.

The people attend the CHC mainly for these services: antenatal and postnatal clinic, chronic illnesses (asthma, epilepsy, diabetics and hypertension), child health, minor ailments, HIV counseling and testing, sexual transmitted illnesses, integrated management of childhood illnesses (IMCI), emergency and family planning. People from certain wards have to walk long distances to reach the health facilities for treatment. Bruntville CHC attends on average 8000 people a month. There is capacity of 15 Professional nurses, 8 enrolled nurses, 4 Nursing Assistants, 8 Lay Councilors, 1 site Mentor and 1 TB Tracers.

Water and Sanitation projects at different phases of development - Table 7.14

Water	Borehole massification programme	Sanitation
<ul style="list-style-type: none"> • Craigieburn Housing – Bulk Water Supply Scheme • Muden Ward 4 Water Supply Scheme • Mpofana Bulk Supply 	<ul style="list-style-type: none"> • Ephofeni Boreholes • Muden Water Supply • Vavonye • Boschhoek 	<ul style="list-style-type: none"> • Muden Sanitation • Human Settlement Development (Craigieburn housing 850 units, Vrystaat Farm 100 units and Sierra Ranch/Ekujabuleni 120 units)

Findings - Impendle Local Municipality:



Impendle is located on the south-western boundary of uMgungundlovu District. The Municipality is mostly rural in nature. Impendle has close ties with uMngeni Municipality in terms of agriculture and potential tourism due to the Midlands Meander route as well as with Msunduzi in terms of it being the economic centre of the District. The majority of the population lives in traditional dwellings.

Key challenges facing the Impendle Local Municipality in terms of waste management are the institutional challenges relating to the small size and remoteness of the municipality and an inability to afford more staff for management positions, the under resourced operational controls and lack of environmental controls at the Impendle landfill. There is also a lack of service to many households in the municipality and no waste minimization initiatives. Impendle does not have by-laws relating to refuse removal. The municipality is also required to appoint a Waste Management Officer, increase penalties for noncompliance on waste activities and provide guidance on incentive mechanisms.

There are no formal recycling initiatives run by the Impendle Municipality. The distance from Impendle to the larger municipalities where recycling companies are actually located is a negative factor in getting recycling ventures running properly. The Municipality does not have any drop-off or buy-back centres for recyclable materials. The Municipality collects refuse from approximately 136 formal households and 50 informal households in the urban areas on a twice weekly basis, an estimated volume of 20 m³ per week. There is no formal collection of garden refuse. Collection from the commercial sector of the municipality is limited to the ±9 shops that are in Impendle and waste is collected twice per week. Health care risk waste from the one clinic is collected by a private contractor. Impendle has a communal landfill site which is used for the disposal of waste generated in the area. The site does not have a permit to operate. Littering is a problem in town, especially after pension days (uMgungundlovu Integrated Waste Management Plan – 2009 update).

The frequency of house and veld fires is high. This is attributed mainly to thatched roofs. It is almost certain that one can expect flooding and severe storms to happen in wards 1, 2, 3 and 4. The services that are likely to be interrupted by these hazards are electricity provision and transportation. The elements that are most vulnerable to these hazards are people, animals, crops, water and roads. Houses of poor standards and dwellings on steep hillsides make these areas vulnerable to floods and severe storms. The vulnerabilities of Impendle Local Municipality include low literacy level, unemployment, poor building standards, high poverty level, low awareness and poor transportation facilities. There is a shortage of resources and personnel at Impendle Fire Station.

Water and Sanitation projects at different phases of development - Table 7.15

Water	Sanitation
<ul style="list-style-type: none"> • Smilobha, Phindangene, Ntokozweni, Lindokuhle and Fikesuthi Water Supply • KwaNovuka Water Supply Phase A • Enguga, Entshayabantu & Macksam Water Supply Phase 4 / Swampo • Impendle Bulk Water Supply 	<ul style="list-style-type: none"> • Smilobha Ward 3 Sanitation • Macsam – Enguga & Entshayabantu sanitation • Gomane sanitation • Human Settlement Development (Impendle Village housing development)

Findings - Msunduzi Local Municipality:



The Msunduzi Municipality is located along the N3 at a junction of an industrial corridor from Durban and Pietermaritzburg and an agro-industrial corridor stretching from Pietermaritzburg to Estcourt¹. In terms of the geographical area, the municipality accounts for approximately 649 km² of the uMgungundlovu District's 8,943 km². The capital of KwaZulu-Natal, Pietermaritzburg, is situated in Msunduzi and is considered to be the economic hub of the District region. Regionally, the municipality is identified at the cross section of the N3 corridor and Greytown Road corridor to

the north, a tourist route to the Drakensberg and Kokstad Road to the South.

In terms of Section 11 of the Water Services Act (108 of 1997), every Water Services Authority has a duty to ensure the adequate sustainable access to water and sanitation to all consumers within the area of jurisdiction. Msunduzi provided at most 87% of informal households with basic sanitation with the installation of Ventilated Improved Pits (VIP's). The Municipality was awarded Blue Drop status for Drinking Water Quality and Compliance (Msunduzi Municipality Annual report 2010-2011).

The problems that need to be addressed, which solicit unfavorable comments are enforcement of our by-laws and waste management. There is dysfunctional financial planning and budgeting for waste management and an inability to account for the waste management function, insufficient support for waste minimization initiatives, an ageing and inefficient waste collection fleet, poor revenue recovery for waste services particularly at the landfill. A significant proportion of households in the municipality do not have access to refuse collection services. Commercial and industrial areas receive a waste collection service at least once a week. General domestic waste is also collected on a weekly basis from hospitals and clinics in Msunduzi. The municipality also attends to street cleaning and litter picking on a daily basis in the CBD area and twice weekly in other areas.

Public waste bins are provided around the CBDs and public areas. Msunduzi has a problem dealing with the amount of illegal dumping that takes place. The New England Road landfill site is the largest in the District (uMgungundlovu Integrated Waste Management Plan – 2009 update).

The Municipality has been able to ensure that a minimum manning standard is complied with in an effort to fight or extinguish a fire and rescue of life or property from a fire or other danger: The Fire Prevention Officers ensure that all new building development applications are in compliance with the Building Regulations and SANS 0400 codes of practice for fire safety in buildings. Existing infrastructure is also subject of daily scheduled and ad-hoc inspections for fire safety compliance. Attention is also given to fire safety compliance at sports and recreational events in compliance with the requirements of the Safety at Sports and Recreational Events Act 2 of 2010.

The Fire Prevention Officers undertake regular scheduled training with hospitals, commerce and industry in order to impart basic fire safety training in the use of first aid firefighting equipment.

The Public Education Section engages schools and communities (especially informal settlements) in a drive to ensure basic fire and life safety awareness and skills are imparted at a rudimentary scale. Whilst this basic intervention is not enough it is imperative that communities are aware of the fire service and services it offers, how to access these services, and what it is that they can do to provide basic fire safety protection to themselves.



A one-on-one session was conducted with Imbalenhle CHC Management. The wards that comprise Imbalenhle CHC catchment area are 10, 13, 14, 15, 16, 17, 18, 19, 21, 22 and 23. The general public attends the CHC to access mainly these services: antenatal and postnatal clinic, chronic illnesses (asthma, epilepsy, diabetics and hypertension), child health, minor ailments, HIV counseling and testing, sexual transmitted illnesses, TB, integrated management of childhood illnesses (IMCI), emergency and family planning. Imbalenhle CHC attends on average \pm 22 000 people a month.

The staff complement at Imbalenhle CHC is 126. There is capacity of 1 Community Health Facilitator, 44 Professional nurses, 6 enrolled nurses, 6 Nursing Assistants and 1 HIV & AIDS Councilor.

Findings - Mkhambathini Local Municipality:

Mkhambathini Municipality is located on the south-eastern border of uMgungundlovu District and covers an area of approximately 917 km. Secondary areas which play an important role in the agricultural sector are the Opokweni and Eston areas, providing commercial and social services to communities and farmers. The



dominant land use in the Municipality is agriculture. The economy is based mostly on agricultural and manufacturing industries.

Key challenges facing the Mkhambathini Local Municipality with regard to waste management are the under-resourced operational controls, institutional challenges relating to waste minimization and the fact that there are of households in the municipality that do not have access to refuse collection services. There are no by-laws relating to refuse removal and no waste minimization or recycling initiatives in Mkhambathini Municipality. There are no Municipal-run recycling centres, however there is a buy-back centre operated by a private

individual located in Umlaas Road that will pay for glass, plastic and paper. Refuse is collected from residential areas on every Tuesday of the week.

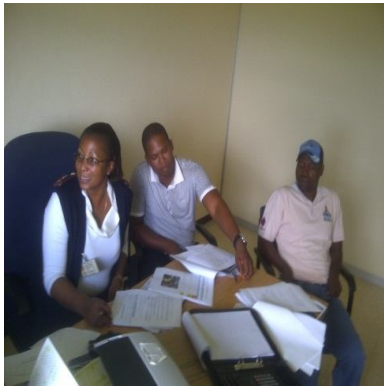
There are only two-hundred-and thirty urban households in Mkhambathini Municipality, which constitutes approximately 1.8% of the total number of households (uMgungundlovu District Municipality 2008/9 IDP). Commercial collection is limited to once-weekly basis and primarily to shops in the CBD area. There is no

major industry to speak of with the exception of poultry farms which make use of private contractors for the collection and disposal of their refuse. Mkhambathini use the New England Road Landfill Site for the disposal of waste. Illegal dumping is a problem at the old site used for waste disposal by the Municipality in the past.

The frequency and intensity of flooding or severe storms is high ward 1, 2, 3, 4, 5 and 7. The services that are likely to be interrupted by these hazards are electricity provision and transportation. The elements that are most vulnerable to these hazards are people, animals, crops, water and roads. Houses of poor standards and dwellings on steep hillsides make these areas vulnerable to floods and severe storms. The vulnerabilities of Mkhambathini Municipality include low literacy level, unemployment, poor building standards, high poverty level, low awareness and poor transportation facilities.

The community members visit the local clinics for treatment against diarrhea, minor ailments, hypertension, diabetes mellitus, epilepsy, injuries resulting from stick fighting, snake bites, dog bites etc.

There is a Community Health Care Centre in Ward 7 (Embo CHC). The areas that comprise Embo CHC catchment area are Mpangisa, Gulube, Iqgulu, Madlanyoka, Okhalweni, Othiyeni, Ismont, Dwengu, Sdingani, Esigodini, Jilafohla, Mgwenyu, Ngilanyoni. The CHC is not fully functional; it operates more or less like a PHC. The population of Embo CHC catchment area is ±23 279. The services offered by the Embo CHC include, but not limited to antenatal and postnatal clinic, chronic illnesses, IMCI, minor ailments, HIV management, emergency and family planning. Embo CHC attends ± 5000 people a month. People from certain areas have to walk long distances to reach the health facilities for treatment.



There is capacity of 7 registered nurses, 5 enrolled nurses, 1 HIV & AIDS Councilor and 19 CCGs at Embo CHC. There are 42 CCGs within the area of jurisdiction of Mkhambathini.

Water and Sanitation projects at different phases of development - Table 7.16

Water	Sanitation
<ul style="list-style-type: none"> • Maqongqo bulk Water Supply • Ogageni Water Supply Scheme phase 2 • KwaMacalaGwala Water Supply Scheme • Ukhalo Water Supply Scheme • Emakholweni Water Supply Extension • Greater Eston Bulk Pipeline • Manyavu Water Scheme 	<ul style="list-style-type: none"> • KwaChief and Enguga Water Supply • Haza Ward 9 Sanitation • Human Settlement Development (Khayelisha housing 1575 units and Cedara 1000 units)

Findings - Richmond Local Municipality:

Richmond Municipality covers an area of approximately 1,232 square kilometres and is located along the southern boundary of the uMgungundlovu District. The Municipality has a high contingent of rural households. Richmond has an active and diverse agricultural sector which provides the major contribution to the economy of the area. Activities include cultivation of timber, sugar-cane, tea, citrus, peaches, maize and market vegetables, dairy, poultry, pig and cattle farming, and game farming.



Key challenges facing the Richmond Local Municipality with regard to waste management are the under-resourced operational controls and lack of cost recovery at the Richmond Landfill. There are also institutional challenges relating to waste minimization and the fact that there are of households in the municipality that do not have access to refuse collection services.

There are no formal recycling initiatives run by the Municipality. Private recycling does take place on an informal basis. Richmond Municipality provides refuse collection as a free basic service, which is funded by the National Treasury Department. There are approximately 5,300 formal households in the municipality but it is not certain if the refuse service is reaching all of the formal households in the urban areas. Richmond does not service rural areas. The municipality has had to withdraw the garden refuse service that used to be offered to residents as the task had become too burdensome.

The municipality collects general and industrial waste from commercial areas twice weekly. Domestic waste is also collected from the hospital and clinic. Street cleaning takes place daily in the CBD but there are not enough refuse bins provided in public areas, and this leads to littering. The Municipality does have a problem with illegal dumping, particularly in the areas of KwaMagoda, Ndaleni and some areas of Richmond. The waste being dumped is generally domestic waste with some builder's rubble. The Richmond landfill site was officially opened in 2005. The site needs better access control and security.

The main hazards faced by the Richmond Local Municipality are floods, house fires, epidemic human diseases, veld fires, environmental pollution, transport accidents, severe storms and lightning and thunderstorm. The risk factors or vulnerabilities of Richmond Municipality include low literacy level, poverty, low awareness, inadequate health facilities and poor transportation facilities. The frequency of severe storms is high in all the wards. The severity of severe storms is high in ward 4 and 5. The services that are likely to be interrupted by these hazards are electricity provision and transportation. The elements that are most vulnerable to these hazards are people, animals, crops, water and roads. It is likely that house fires will occur in ward 2, 5 and 7.

Water and Sanitation projects - Table 7.17

Richmond pipeline	Water	Sanitation
<ul style="list-style-type: none"> • Pipe supply contract • Pipe lay contract • Lilliefontein 5M1 concrete reservoir • Pump station – Civil & Building Works • Pump Station – Mechanical & Electrical Works 	<ul style="list-style-type: none"> • Embuthweni Water Supply Scheme Phase 1, 2 & 3 • Nhlazuka Water Supply Scheme Phase 1 & 2 • Phatheni Water Supply • Gengeshe Water Supply • Indaleni Reticulation Extension • The Gengeshe Water Reticulation Scheme 	<ul style="list-style-type: none"> • Richmond Waste Water Treatment Works and Reticulation • Hopewell Ward 4 Sanitation

Some past disasters that occurred in the District are given in the following tables:

There seems to be no shortage of reminders that the reduction of human induced disasters must be given the highest priority.

Table 7.18

Date	Location	No of vehicles	Fatalities	Injuries	Category	Source
11 Mar 2012	Near Albert Falls Dam	3	6		Major fatal crash	www.news24.com
1 Mar 2012	N3, near Ashburton	1 bakkie overturned	Nil	6		www.arrivealive.co.za
27 Feb 2012	N3, Ashburton off-ramp	1 vehicle went down an embankment	Nil	1		www.arrivealive.co.za
26 Feb 2012	Pietermaritz and Chapel Street intersection, Pietermaritzburg	A taxi and car have collided into one another	Nil	16		www.arrivealive.co.za
16 Feb 2012	Manning road, Pietermaritzburg	1 vehicle knocked down a woman	Nil	1		www.arrivealive.co.za
15 Feb 2012	N3, PMB bound, near Lynnfield Park	1 delivery vehicle ejected a driver and his passenger	Nil	2		www.arrivealive.co.za
12 Dec 2011	Giant castle, Mooi River	1 LDV	5	4	Major fatal crash	www.arrivealive.co.za
19 Nov 2011	N3, Durban bound	1 BMW overturned	Nil	1		www.arrivealive.co.za
30 Sep 2011	Near Pietermaritzburg	2	14	3	Major fatal crash	www.arrivealive.co.za
29 May 2011	N3, - just after market road Pietermaritzburg	2, collision	1	1		www.news24.com
25 May 2011	District road, Fort Nottingham area	1 truck overturned	2	3		www.news24.com
15 May 2011	N3, near Lions River Bridge	1, truck overturned	3	1		www.news24.com
5 March 2011	N3, near Midmar dam	1 – roll over	1	3		www.arrivealive.co.za

NB: A Major Fatal Crash is determined by the Road Traffic Management Corporation (RTMC) using the following criteria:

- a crash in which **five (5)** or more persons are killed;
- **a fatal** crash in which five (5) or more vehicles are involved; or
- **a fatal** crash in which vehicles carrying hazardous substances are involved;
- any **high profile crash** that the Corporation feels necessary to investigate

According to the Road Traffic Management Corporation the most vulnerable road user groups are pedestrians and public transport passenger. The most vulnerable ages are 19 – 29. Most fatal crashes occur on Thursday evening, Friday, Saturday and Sunday. The urban and peri-urban (unmarked tar) are the most common road types for crashes. Sharp bend, poor road surface and visibility are top three road factors. The following have been found to have been among the most common causes of the crashes:

- Speeds too high for conditions, especially, during inclement weather and at night;
- Dangerous, reckless and/or inconsiderate driving, particularly barrier line infringements;
- Abuse of alcohol by drivers and pedestrians;
- Fatigue, especially amongst public passenger drivers;
- Vehicle fitness, particularly tyre failure and defective brakes, and
- Pedestrian negligence (jay walking, walking on freeways, not visible at night and drunken walking).
- The non-wearing of seatbelts, whilst not a contributor to crashes has been found to have been a major contributor to fatal or serious injuries following a crash.

A review of notable events which have affected the uMgungundlovu District in recent history can be found in Table 8.21 below. These events were sourced from CAELUM, a South African Weather Service publication which documents notable weather events in South Africa⁹. These events have resulted in loss of life and millions of rands worth of damage to homes, infrastructure and crops within the district.

Table 7.19 - Extreme events in and around the uMDM (1978 – 2007)

Date	Event	Location	Description
12 February 1978	Thunderstorm	Pietermaritzburg	At least ten people were killed and hundreds left homeless after a severe thunderstorm. Damage was estimated at R 1 million at the time. Some reports suggest a tornado may have accompanied the thunderstorm.
1 April 1978	Tornado	Mooi River	Two schools were damaged as a result of a tornado.
15 January 1979	Tornado	Impendle	A tornado hit a farm, leaving a 300 m path of damage.
29 January 1979	Tornado	Mooi River	A tornado was followed by a hailstorm and heavy rain.
24 November 1983	Tornado	Impendle	9 people were killed and 38 seriously injured as a result of a tornado.
18 January	Tornado	Impendle	3 km damage was caused on a farm in Impendle.
6 March 1984	Tornado	Howick	A tornado moving over Midmar Dam caused damage to boats and homes. The tornado was followed by a severe hailstorm.
14 June 1984	Snow	Midlands	Heavy snow fell in the Natal Midlands.
4 January 1985	Tornado	Impendle	A tornado hit a farm in Impendle.
20 December 1985	Tornado	Nottingham Road	23 sheep were lost during a tornado.
4 February 1986	Tornado	Pietermaritzburg	A tornado advanced from Pietermaritzburg to Ixopo.
26 October 1986	Tornado	Cato Ridge	Several buildings were damaged by a tornado
15 March 1987	Cloudburst	Pietermaritzburg	More than 90 mm of rain fell within a short period, resulting in mud slides at Worlds View in which two people were killed.
22 March 1987	Floods	Pietermaritzburg	Heavy rains in Pietermaritzburg caused flooding between the city and Durban.
27 September 1987	Floods	KwaZulu-Natal	Floods described as the worst disaster ever to have struck KZN, leaving an estimated 388 people dead and 65,000 homeless. Areas that were especially hard hit were Umzimkulu, Pietermaritzburg, Pinetown, Verulam, and Greytown. Entire province declared a disaster area, with the total damage estimated at R 1,500 million.
30 October 1989	Hailstorm	Pietermaritzburg	The hail destroyed fruit and vegetable crops to the value of R 5 million
28 November 1989	Hailstorm	Richmond	Hail, heavy rain and flooding across KZN caused damage to farms, road and railways and resulted in lives being lost.
13 November 1991	Tornado	Crammond	A tornado caused significant damage to homes, roads and bridges.
27 December 1993	Thunderstorm	Impendle	Five people were killed by lightning.
21 June 1994	Fire	Pietermaritzburg	60 grass and bush fires were reported in the Pietermaritzburg area.
27 June 1994	Fire	Midlands	Runaway fires burned thousands of hectares of grazing and maize crops.
29 July 1994	Snow	Boston/Bulwer	Snow knee-deep in Boston and Bulwer.
24 December 1994	Tornado	Impendle	60 people injured and 2,000 left homeless. Impendle declared a disaster area.
6 August 1995	Snow	South Africa	A cold spell felt across South Africa resulted in snow falling in KZN, Western and Eastern Cape, Free State and Gauteng.
25 December 1995	Floods	Pietermaritzburg	60 mm of rain fell in 30 minutes, causing the Msunduzi river to burst its banks, drowning over 130 people. The region was declared a disaster area
July 1996	Cold spell	South Africa	Large areas of the country experienced cold weather during July, leading to several deaths as a result of exposure.
4/5 August 1996	Cold spell	South Africa	Cold spell felt across South Africa.
23 January 1997	Thunderstorm	Pietermaritzburg	The storm uprooted trees and damaged electricity and telephone cables.
18 February 1997	Tornado	Donnybrook	The tornado left a 4 km long, 200 m path of damage.
20 April 1997	Floods	Pietermaritzburg	At least 100 people were left homeless in the Pietermaritzburg area.
10 June 1997	Snow	KwaZulu-Natal	A cold spell resulted in unusually heavy snowfall in the Eastern Cape and KZN interior.
2 February 1999	Floods	Pietermaritzburg	Informal settlements were flooded and two people drowned.
25 September 1999	Fire	Rietvlei	500 ha of timber plantations were burned between Rietvlei and Greytown.
15 November 1999	Floods	Mpophomeni	200 families were left homeless and at least one person drowned.
24 August 2000	Fog	Pietermaritzburg	33 people were injured when 21 vehicles were involved in an accident as a result of the dense fog on N3 between Pietermaritzburg and Durban.

District Disaster Management Plan

Date	Event	Location	Description
15 September 2001	Snow	Mooi River	Several roads were closed in Mooi River and Nottingham Road due to snow.
22 December 2001	Hail storm	Mooi River	Hail the size of tennis balls between Mooi River and Estcourt left over 3,000 people homeless.
9 January 2003	Floods	Richmond	Houses and crops were damaged as a result of the torrential rain.
23 August 2003	Fire	KwaZulu-Natal	Veld fires across KZN caused the deaths of 6 people.
December 2003	Drought	Summer rainfall region ¹¹	Above-normal temperatures and below-normal summer rainfall caused widespread drought over most of the summer rainfall region.
11 January 2004	Heat wave	Pietermaritzburg	A number of people reportedly suffered from dehydration and heat exhaustion and were hospitalised.
16 January 2004	Drought	South Africa	Following the extreme dry conditions, the following provinces were declared disaster areas: KZN, North West, Mpumalanga, Free State, Eastern Cape, and Northern Cape.
16 February 2004	Floods	Dalton	One person drowned and another went missing as a result of floods.
10 September 2004	Snow	KwaZulu-Natal	50 schools and a number of roads were closed as a result of the snow.
22 November 2004	Hailstorm	Pietermaritzburg	Buildings and crops were damaged by the golf-ball size hailstones.
25 December 2004	Hailstorm	Pietermaritzburg	80 families were left homeless after a hailstorm in Pietermaritzburg.
26 December 2004	Thunderstorm	Elandskop	A woman was killed and two were injured when lightning struck their home.
3 January 2005	Thunderstorm	Pietermaritzburg	Strong winds blew roofs off buildings and uprooted trees.
23 September 2005	Fire	KwaZulu-Natal	Veld fires were reported across KZN, Free State and Limpopo.
18 December 2005	Thunderstorm	Richmond	Three people died when a lightning strike burned down their home.
27 January 2007	Hailstorm	KwaZulu-Natal	Heavy rain and hail was experience across the KZN interior.
17 February 2007	Heat wave	Summer rainfall region	Drought conditions prevail after a prolonged hot and dry summer season.
25 June 2007	Fire	Howick	Millions of Rands of damage were caused by veld fires which burned 59,000 ha of agricultural land between Curry's Post and Howick.
27 June 2007	Snow	KwaZulu-Natal	Several roads were closed and many areas were without electricity.

Hazard, risk and vulnerability profile of uMgungundlovu District is given in the following tables.

uMshathi Local Municipality: Table 7.20

Workshops were conducted on 14, 15 and 16 February 2012 with community representatives to identify hazards and complete risk assessment tables.

Potential Hazards or Hazardous Events	Category	Peak Season	Vulnerability	Likelihood	Rating	Consequence	Rating	Risk Rating	Risk Profile
Flooding	Natural	Summer	high	Likely	4	Moderate	3	12	High
House fires	Man-induced	Winter	medium	Possible	3	Minor	2	6	Medium
Veld fires	Man-induced	Winter	medium	Possible	3	Minor	2	6	Medium
Severe storms	Natural	Summer	high	Likely	4	Moderate	3	12	High
Landslide	Natural	Summer	high	Unlikely	2	Minor	2	4	Low
Transport accident	Technological	All year	medium	Possible	3	Minor	2	6	Medium
Env pollution	Civil	All year	medium	Possible	3	Minor	2	6	Medium
Hazmat	Technological	All year	high	Rare	1	Minor	2	2	Low
Animal and plant disease	Biological	All year	medium	Possible	3	Minor	2	6	Medium
Epidemic human disease	Biological	All year	medium	Possible	3	Moderate	3	9	Medium
Drought	Natural	Summer	high	Rare	1	Minor	2	2	Low
Lighting and thunderstorm	Natural	Summer	medium	Rare	1	Minor	2	2	Low
Tornados	Natural	Summer	high	Possible	3	Minor	2	6	Medium

uMngeni Local Municipality: Table 7.21

Workshops were conducted on 05 May 2012, 11 May 2012 and 15 May 2012, 14, 15 and 16 February 2012 with community representatives to identify hazards and complete risk assessment tables.

Potential Hazards or Hazardous Events	Category	Peak Season	Vulnerability	Likelihood	Rating	Consequence	Rating	Risk Rating	Risk Profile
Flooding	Natural	Summer	medium	Likely	4	Moderate	3	12	High
House fires	Man-induced	Winter	medium	Likely	4	Moderate	3	12	High
Veld fires	Man-induced	Winter	medium	Likely	4	Moderate	3	12	High
Severe storms	Natural	Summer	medium	Likely	4	Moderate	3	12	High
Landslide					0		0	0	0
Transport accident	Technological	All year	medium	Likely	4	Minor	2	8	Medium
Env pollution	Man-induced	All year	medium	Possible	3	Moderate	3	9	Medium
Hazmat	Technological	All year	medium	Possible	3	Moderate	3	9	Medium
Animal and plant disease	Biological	All year	medium	Possible	3	Minor	2	6	Medium
Epidemic human disease	Biological	All year	medium	Possible	3	Minor	2	6	Medium
Drought					0		0	0	0
Lighting and thunderstorm	Natural	Summer	high	Possible	3	Minor	2	6	Medium
Tornados	Natural	Summer	high	Possible	3	Minor	2	6	Medium
Snow	Natural	Winter	medium	Likely	4	Minor	2	8	Medium

Mpofana Local Municipality: Table 7.22

A workshop was held on 30 November 2011 with community representatives to identify hazards and complete risk assessment tables.

Potential Hazards or Hazardous Events	Category	Peak Season	Vulnerability	Likelihood	Rating	Consequence	Rating	Risk Rating	Risk Profile
Flooding	Natural	Summer	high	Likely	4	Moderate	3	12	High
House fires	Man-induced	Summer	medium	Likely	4	Minor	2	8	Medium
Veld fires	Man-induced	Spring	medium	Possible	3	Moderate	3	9	Medium
Severe storms	Natural	Summer	high	Likely	4	Moderate	3	12	High
Landslide					0		0	0	No
Transport accident	Technological	All year	medium	Possible	3	Minor	2	6	Medium
Env pollution	Man-induced	All year	medium	Possible	3	Minor	2	6	Medium
Hazmat	Technological	All year	medium	Possible	3	Minor	2	6	Medium
Animal and plant disease	Biological	All year	medium	Possible	3	Minor	2	6	Medium
Epidemic human disease	Biological	All year	medium	Possible	3	Minor	2	6	Medium
Drought	Natural	Summer	medium	Possible	3	Minor	2	6	Medium
Lighting and thunderstorm	Natural	Summer	medium	Possible	3	Minor	2	6	Medium
Tornados	Natural	Autumn	medium	Possible	3	Minor	2	6	Medium
Snow	Natural	Winter	Medium	Possible	3	Moderate	3	9	Medium

Impendle Local Municipality: Table 7.23

A workshop was held on 14-15 December 2011 with community representatives to identify hazards and complete risk assessment tables.

Potential Hazards or Hazardous Events	Category	Peak Season	Vulnerability	Likelihood	Rating	Consequence	Rating	Risk Rating	Risk Profile
Flooding	Natural	Summer	high	Likely	4	Moderate	3	12	High
House fires	Man-induced	All year	medium	Likely	4	Minor	2	8	Medium
Veld fires	Man-induced	Winter	medium	Likely	4	Minor	2	8	Medium
Severe storms	Natural	Summer	medium	Almost certain	5	Minor	2	10	High
Landslide	Natural	Summer	high	Unlikely	2	Minor	2	4	Low
Transport accident	Technological	All year	medium	Unlikely	2	Minor	2	4	Low
Env pollution	Man-induced	All year	medium	Possible	3	Minor	2	6	Medium
Hazmat	Man-induced	All year	high	Unlikely	2	Insignificant	1	2	Low
Animal and plant disease	Biological	All year	medium	Possible	3	Moderate	3	9	Medium
Epidemic human disease	Biological	All year	medium	Possible	3	Moderate	3	9	Medium
Drought	Natural	Summer	high	Rare	1	Minor	2	2	Low
Lighting and thunderstorm	Natural	Summer	high	Possible	3	Minor	2	6	Medium
Tornados	Natural	Autumn	high	Possible	3	Minor	2	6	Medium
Snow	Natural	Winter	high	Possible	3	Minor	2	6	Medium

Msunduzi Local Municipality: Table 7.24

Workshops were conducted on 19 March 2012, 02 April 2012, 25 April 2012 and 10 May 2012 with community representatives to identify hazards and complete risk assessment tables.

Potential Hazards or Hazardous Events	Category	Peak Season	Vulnerability	Likelihood	Rating	Consequence	Rating	Risk Rating	Risk Profile
Flooding	Natural	Summer	high	Likely	4	Moderate	3	12	High
House fires	Man-induced	Winter	medium	Likely	4	Moderate	3	12	High
Veld fires	Man-induced	Winter	medium	Likely	4	Minor	2	8	Medium
Severe storms	Natural	Summer	high	Likely	4	Moderate	3	12	High
Landslide	Natural	Summer	high	Unlikely	2	Minor	2	4	Low
Transport accident	Technological	All year	medium	Possible	3	Minor	2	6	Medium
Env pollution	Man-induced	All year	low	Possible	3	Moderate	3	9	Medium
Hazmat	Man-induced	All year	medium	Possible	3	Minor	2	6	Medium
Animal and plant disease	Biological	All year	medium	Possible	3	Moderate	3	9	Medium
Epidemic human disease	Biological	All year	medium	Possible	3	Moderate	3	9	Medium
Drought	Natural	Summer	high	Rare	1	Minor	2	2	Low
Lighting and thunderstorm	Natural	Summer	high	Possible	3	Minor	2	6	Medium
Tornados	Natural	Autumn	high	Possible	3	Minor	2	6	Medium
Snow	Natural	Winter	high	Possible	3	Minor	2	6	Medium

Mkhambathini Local Municipality: Table 7.25

A workshop with community representatives was held on 21-22 November 2011 to identify hazards and complete risk assessment tables

Potential Hazards or Hazardous Events	Category	Peak Season	Vulnerability	Likelihood	Rating	Consequence	Rating	Risk Rating	Risk Profile
Flooding	Natural	Summer	high	Likely	4	Moderate	3	12	High
House fires	Civil	All year	medium	Possible	3	Major	4	12	High
Veld fires	Civil	Spring	medium	Rare	1	Minor	2	2	Low
Severe storms	Natural	Summer	high	Likely	4	Moderate	3	12	High
Landslide	Natural	Summer	high	Possible	3	Minor	2	6	Medium
Transport accident	Technological	All year	medium	Likely	4	Moderate	3	12	High
Env pollution	Civil	All year	medium	Possible	3	Minor	2	6	Medium
Hazmat	Technological	All year	medium	Likely	4	Minor	2	8	Medium
Animal and plant disease	Biological	All year	medium	Possible	3	Minor	2	6	Medium
Epidemic human disease	Biological	All year	medium	Possible	3	Minor	2	6	Medium
Drought	Natural	Summer	medium	Possible	3	Minor	2	6	Medium
Lighting and thunderstorm	Natural	Summer	high	Possible	3	Minor	2	6	Medium
Tornados	Natural	Autumn	high	Possible	3	Minor	2	6	Medium
Snow					0		0	0	No

Richmond Local Municipality: Table 7.26

A workshop with community representatives was on 30 Jan and 7 Feb 2012 to identify hazards and complete risk assessment tables

Potential Hazards or Hazardous Events	Category	Peak Season	Vulnerability	Likelihood	Rating	Consequence	Rating	Risk Rating	Risk Profile
Flooding	Natural	Summer	high	Likely	4	Moderate	3	12	High
House fires	Civil/Political	All year	medium	Likely	4	Minor	2	8	Medium
Veld fires	Civil/Political	All year	medium	Likely	4	Minor	2	8	Medium
Severe storms	Natural	Summer	high	Likely	4	Moderate	3	12	High
Landslide	Natural	Summer	low	Rare	1	Minor	2	2	Low
Transport accident	Technological	All year	medium	Possible	3	Minor	2	6	Medium
Env pollution	Civil	All year	medium	Possible	3	Minor	2	6	Medium
Hazmat	Natural	All year	medium	Possible	3	Minor	2	6	Medium
Animal and plant disease	Biological	All year	medium	Possible	3	Moderate	3	9	Medium
Epidemic human disease	Biological	All year	medium	Possible	3	Moderate	3	9	Medium
Drought	Natural	Summer							Medium
Lighting and thunderstorm	Natural	Summer	high	Possible	3	Minor	2	6	Medium
Tornados	Natural	Summer	low	Unlikely	2	Minor	2	4	Low
Snow	Natural	Winter	low	Unlikely	2	Minor	2	4	Low

Definition of ratings

Very High Risks: These risks are classed as primary or critical risks requiring immediate attention. They may have a high or probable likelihood of occurrence and their potential consequences are such that they must be treated as a high priority. This may mean that strategies should be developed to reduce or eliminate the risks and that mitigation in the form of (multi-agency) planning; exercising and training for these hazards should be put in place and monitored on a regular basis. Consideration should be given to *specific* planning to the risk rather than generic.

High Risks: These risks are classed as significant. They may have high or low likelihood of occurrence, however their potential consequences are sufficiently serious to warrant appropriate consideration, after those risks classed as 'very high' are addressed. Consideration should be given to the development of strategies to reduce or eliminate the risks, and that mitigation in the form of (multi-agency) generic planning, exercising and training should be put in place and monitored on a regular basis.

Medium Risks: These risks are less significant, however may cause upset and inconvenience in the short-term. These risks should be monitored to ensure that they are being appropriately managed and consideration given to their management under generic emergency planning arrangements.

Low Risks: These risks are both unlikely to occur and not significant in their impact. They should be managed using normal or generic planning arrangements and require minimal monitoring and control unless subsequent risk assessments show a substantial change, prompting a move to another risk category.

Listed below are the hazards found to be significant

High risk hazards

- Floods
- Severe storms

Medium risk hazards

- House fires
- Veld / Forest fires
- Transport accidents
- Lighting and thunderstorm
- Snow
- Tornados
- Epidemic human diseases
- Environmental pollution

Low risk hazards

- Landslides
- Hazmat
- Drought
- Animal plant diseases

The vulnerabilities of the District include mountainous terrain, low literacy level, high poverty level, low awareness, inadequate health facilities, and remoteness of villages and poor transportation facilities. Vulnerability of various elements to different hazards is shown in the following table: Table 7.28

Vulnerability of various elements to different hazards within the area of jurisdiction of uMgungundlovu District Municipality									
Potential Hazards or Hazardous Events	Elements								
	populace	Animals	Agriculture	Drinking water	Roads	River	Hospitals	Houses	Schools
Flooding	High	High	High	High	High	High	Low	High	Low
House fires	High	No	No	No	No	No	No	High	No
Veld fires	Low	High	High	No	No	No	No	No	No
Severe storms	High	High	High	High	High	High	Low	High	Low
Landslide	Low	Low	Low	Low	Low	Low	Low	Low	Low
Transport accident	Medium	No	Low	No	No	No	No	No	No
Env pollution	Medium	Medium	Medium	High	No	Low	Low	Low	Low
Hazmat	Medium	Medium	Medium	Medium	Low	Medium	Low	Low	Low
Animal and plant disease	Low	Medium	Medium	No	No	No	No	No	No
Epidemic human disease	Medium	No	No	No	No	No	Medium	No	No
Drought	Medium	Medium	Medium	Medium	No	Medium	No	No	No
Lighting and thunderstorm	Medium	Medium	No	No	No	No	No	Medium	No
Tornados	Medium	Medium	Medium	No	No	No	Low	Medium	Medium
Snow	Medium	Medium	Medium	Low	Medium	No	No	Medium	Low

The following table shows the likelihood and impact of different hazards:

Table 7.28

Identified hazards	Likelihood	Impact
Floods	Likely	Moderate
House fires	Possible	Minor
Veld / Forest fires	Possible	Moderate
Severe Storms	Likely	Moderate
Landslides	Unlikely	Minor
Transport accidents	Possible	Minor
Environmental pollution	Possible	Moderate
Hazmat	Unlikely	Minor
Animal plant diseases	Possible	Minor
Epidemic human diseases	Possible	Moderate
Drought	Unlikely	Minor
Tornados	Possible	Moderate
Lighting and thunderstorms	Possible	Moderate
Snow	Possible	Moderate

8. Stakeholders and Roles

The roles of various stakeholders for disaster management in the district are listed in the following table. Table 8.1

Agency	Role
Head: Disaster Management	Coordinate disaster management within the District, Local Municipalities, Sector Departments and other agencies. Provide strategic direction on issues of disaster risk management in the District and provide linkage on district disaster operations with the Provincial Disaster Management Centre. Co-ordinate Volunteer Teams to support the district.
District Disaster Advisory Forum	Advisory body which consult one another and co-ordinate their actions on matters relating to disaster management in the municipality. Provide policy directions and integration of Disaster Management programmes.
International Agencies/NGOs	Provide relief, coordinate with Government Departments, conduct awareness and capacity building programmes, preparedness activities at community level, assist in reconstruction and rehabilitation
Department of Agriculture, Environmental Affairs and Rural Development	Co-ordinate agricultural related incidents or disaster such as drought, animal epidemics and many others. Be the primary agency responsible for pest attacks, cattle epidemics, assessment of agriculture crops, livestock damage and food needs, provide seeds for early recovery.
Department of Social Development	Provide social relief of Distress during disaster related incident to the victims and provide counseling to the victims. Assist with profiling of social welfare special cases as and when need arise during disaster assessments.
Department of Health	Be the primary agency responsible for biological disasters and epidemics, first aid, health and medical care, ambulance arrangements, preventive steps for other diseases, record of dead persons, mobile clinics and supply of medicines.
Department of Transport	Provide road traffic management during disaster related incidents. Logistics, transfer of relief material and relocation of affected people, road repairing, alternate routes
Department of Public Works	Maintenance of public infrastructure, search and rescue, identify safer places, assess physical damage, identify safer routes, provide necessary equipments for search and rescue, reconstruction and rehabilitation
Department of Water Affairs	Be the primary agency responsible for floods, dam failures, flash floods, landslides and mud flows. Drought and flood management, watershed management, enforcement of land-use plan, evacuation from low-lying areas, identification of safer places, construct embankments, arrangement of boats and pump sets, swimmers and divers. Strengthening of river banks.
South African Police Services	Be the primary agency responsible security, evacuation, emergency assistance, search and rescue, law and order, communication, setting up of emergency evacuation centers, shifting of people to relief camps, traffic management.
Department of Human Settlements	Develop appropriate national building codes and their proper implementation. In the post disaster phase, the Department will take adequate steps to undertake building damage assessment and promote reconstruction.

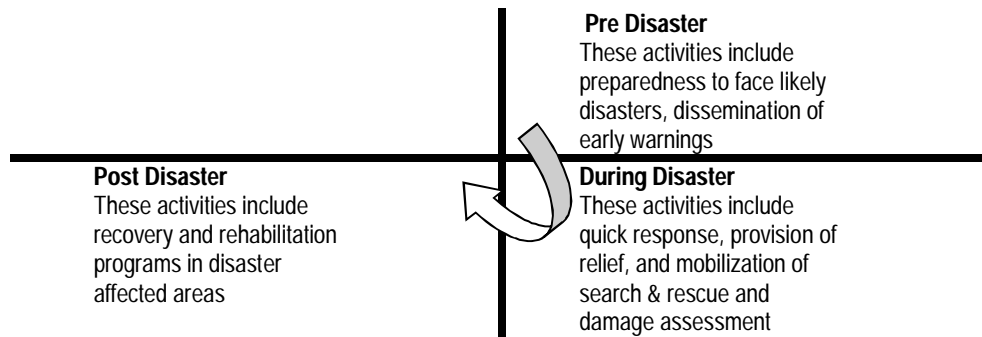
9. Levels of Disaster

Levels of disaster can be defined as district level, province level, and national level as follows:

District level Disaster	A disaster within the capabilities of the District Administration to deal with
Province Level Disaster	A disaster within the capabilities of the Provincial Government to deal with
National Level Disaster	A disaster requiring major direct intervention of the National Government

10. Disaster Cycle

The activities of disaster management will be considered in three stages of disaster, namely, pre disaster, during disaster and post disaster as follows:



Pre disaster

- Set up institutions, governance and functioning mechanism;
- Update past disaster events and analyze reasons and root causes for the disaster;
- Assess hazards, exposure, sensitivity, coping capacity and vulnerability to different disasters;
- Review human resources, equipment, fund and other resources situation available and required;
- Plan mitigation activities for short and longer terms to reduce underlying risks for individual hazards such as check dams, bridges, water supply, fire prevention measures;
- Plan preparedness, rescue and relief activities, and the resources and technologies needed;
- Raise awareness and train volunteers, communities and planners in the required skills and capabilities;
- Prepare relief materials, emergency shelters, rescue tools and equipment and operating mechanism;
- Establish early warning systems and communication mechanism that reach vulnerable communities;
- Organize preparedness meetings, orientations, and rehearsal exercises for rescue and relief; and
- Start contingency planning

During Disaster

- Inform vulnerable communities, mobilize volunteers and activate communication channel to inform as much as relevant stakeholders;
- Search and rescue, bring affected to shelter, organize treatment;
- Mobilize health workers maintain security, distribute relief material, provide counseling;
- Manage dead bodies (handing over to the relatives), document losses;
- Survey and assess situation of needs, supplies and manage resources to fill the gaps;
- Manage temporary shelter (include ensuring clean and accessible water and sanitation);
- Review situation and effectiveness of rescue and relief operation; and
- Keep record of lives lost during each operation and as well as effectiveness of the operation for future review

Post Disasters

- Survey in detail the losses, causes and future impacts, review pre and during disaster activities;
- Health and livelihood support to disaster victims;
- Resettlement and restoration of livelihoods of affected families;
- Reconstruct physical infrastructure like bridges, culverts and roads;
- Review of disaster management plans, strategies and policies where necessary; and
- Mitigation and preparedness activities for likely future events

11. Implementation Mechanisms

11.1 *District Disaster Advisory Forum*

Disaster preparedness activities will be planned and decided upon by the District Disaster Advisory Forum. The District Disaster Advisory Forum comprises the following district authorities:

Head: Disaster Management

Members

1. South African Police Services
2. Department of Transport
3. Department of Health
4. Department of Transport
5. Department of Water Affairs
6. Department of Public Works
7. Department of Agriculture, Environmental Affairs and Rural Department
8. Department of Social Development
9. Department of Human Settlements
10. Representatives of Local Municipalities
11. Non-Governmental Organizations

The meetings of the District Advisory Forum will be held on quarterly basis, when a disaster or major incident occurs, the district will activate all members of the forum to convene for a special meeting. Those members will form a Joint Operations Committee (JOC) to assess the situation and make prompt decision on provision of rapid and effective response to normalize the lives of the victims.

The communities pass on information on the likely occurrence of a disaster to the respective authorities or JOC. The magnitude of the incident will determine whether there is a necessity to convene a special JOC. The Head: District Disaster Management will coordinate the meeting and other logistics required for the committee to execute its tasks diligently.

During established disaster prone phases in the year, the Forum will meet as a preparedness measure and will oversee preparedness activities being implemented on the ground.

Once the Joint Operations Committee (JOC) deems magnitude of the incident to be beyond its management and capability, the committee shall activate the Provincial Disaster Management Centre (PDMC) and forward the report to the Provincial Disaster Management Centre (PDMC) to seek immediate support and appropriate provincial/national intervention.

On verification of the magnitude of the disaster, and the scale of response required, the Provincial Disaster Management Centre (PDMC) will mobilize resources to support the district, if the magnitude of the incident is beyond its management and capacity.

The Provincial Disaster Management Centre (PDMC) shall coordinate and facilitate with National Disaster Management Centre (NDMC) for classification and declaration with the intent to invoke Section 4 chapter 41 of the Disaster Management Act 57 of 2002. A comprehensive report about the incident will be submitted to National Disaster Management Centre (NDMC) for Classification and Declaration of Disaster.

The National Disaster Management Centre (NDMC) will have to confirm, classify and declare the incident whether it is a local, district & provincial disaster. This administrative process is crucial for the activation of disaster contingency funding to fast track response and recovery.

The role of various departments of the District is given under "Standard Operating Procedures". The Departments will keep in close contact and will coordinate their activities with those of their parent Departments at the provincial level and will keep the parent Departments informed of the situation and actions taken in case of District level disasters.

11.2 **Standard Operating Procedures**

The key to preparedness planning is to have clarity and an agreement on the roles and responsibilities of relevant stakeholders such as the government line departments, disaster management organizations, voluntary groups as well as community members. Such an arrangement is possible by forming reaching an agreement on a set of standard operating procedures (SOPs) defining what actions to be taken before, during and after floods.

The Standard Operating Procedures (SOP) for various stakeholders in the District has been prepared with the objective of making the concerned persons understand their duties and responsibilities regarding disaster management at all levels.

All Departments and agencies shall prepare their own action plans in respect of their responsibilities, under the standard operating procedures for efficient implementation. The Standard operating procedure shall be followed during normal times, warning stage, disaster stage and post disaster stage. Standard Operating Procedures for the relevant departments at the District level are listed below:

Head: Disaster Management

In the event of emergency situations, the Head: Disaster Management will coordinate among District level Officers of different Departments and non-governmental agencies. The Head: Disaster Management will perform the following duties:

These are a set of standard procedures that “operationalizes” the disaster response and/or contingency plans. In other words, SOPs specify the way in which individuals or units will carry out their functions under the plan (e.g. deploying assessment teams and carrying out the assessment process). The SOPs set out what should be done, how it should be done, who is responsible for implementing what, and specifies available resources

Normal Times

- Prepare District Disaster Management Plan and disseminate to different departments, agencies, volunteers and community groups.
- Ensure basic facilities for personnel who will work at district level for disaster response.
- Review the preparedness level in the district twice a year and advice corrective steps in case of any weakness.
- Ensure preparation and maintenance of updated inventory of personnel, aid material and equipment.
- Ensure training of teams of volunteers for disseminating disaster warnings to the field level and also for assessment, evacuation, search, rescue, relief and rehabilitation operations.
- Ensure availability of communication and transport facilities for delivery of warnings and relevant material to field personnel.
- Ensure that adequate budget provision is made available to implement disaster management operations.
- Ensure drills on disaster preparedness by the people of disaster prone areas for acquiring knowledge and consciousness of such preparedness in coordination with concerned departments and agencies.
- Identify high risk areas and populations and prepare vulnerability profiles, resource profiles and contingency plans for them.
- Organize survey of buildings and installations for using as shelters/relief centres during disaster times.
- Ensure state of readiness and operational status of facilities designated to serve as shelters.
- Help Local Municipalities with additional resources for disaster preparedness, if necessary.

<ul style="list-style-type: none"> ➤ Arrange sufficient medical assistance for post-disaster medical treatment and control of contagious diseases and ensure stock of essential medicines.
<p>Alert and Warning stage</p>
<ul style="list-style-type: none"> ➤ Maintain contact with forecasting agencies and gather all possible information regarding the alert. ➤ Ensure that all concerned in areas likely to be affected by imminent disaster receive warning signals and respond accordingly. ➤ Inform members of District Disaster Advisory Forum. ➤ Maintain contact with Provincial Disaster Management Centre. ➤ Instruct all concerned to remain in readiness for responding to the emergency. ➤ Advise concerned officials to carry out evacuations where required, and to keep transport, relief and medical teams ready to move to the affected areas at a short notice.
<p>During Disaster</p>
<ul style="list-style-type: none"> ➤ Convene meeting of District Advisory Forum. ➤ Conduct Rapid Assessment and launch Quick Response. ➤ Keep Provincial Disaster Management Centre informed of the situation.
<p>After Disaster</p>
<ul style="list-style-type: none"> ➤ Organize initial and subsequent technical assessments of disaster affected areas and determine the extent of loss and damage and volume and nature of relief required. ➤ Keep the District Disaster Advisory Forum and the Provincial Disaster Management Centre informed of the situation. ➤ Ensure supply of food, drinking water, medical supplies and other emergency items to the affected people. ➤ Request Provincial Government for assistance if the District Disaster Advisory Forum deems the situation to be beyond the capacity of the District to manage. ➤ Visit, coordinate and implement of various relief and rehabilitation programmes. ➤ Coordinate the activities of NGOs in relief and rehabilitation programmes.

Department of Agriculture, Environmental Affairs and Rural Development

The Department of Agriculture, Environmental Affairs and Rural Development has a role in assessment of damage to agricultural crops and livestock, and impact of possible locust attacks. Their main role is to provide seeds and necessary planting material and other inputs to assist in early recovery.

Normal Times
<ul style="list-style-type: none"> ➤ Designate a focal point for disaster management within the Department. ➤ Identify areas likely to be affected. ➤ Organize distribution of seeds, seedlings, fertilizer and implements to the affected people. ➤ Arrange for keeping stock of seeds, fertilizers and pesticides. ➤ Select and earmark highlands for use as shelter for livestock during flash floods. ➤ Programme for vaccination for protection of livestock against contagious diseases. ➤ Prepare schemes for supplementary arrangements for rehabilitation of livestock and recouping their loss. ➤ Take up schemes for procurement of animal feed on emergency basis for distribution in the affected areas. ➤ Establish fodder bank schemes as security against fodder shortage for livestock due to disasters.
During Disaster
<ul style="list-style-type: none"> ➤ Monitor damage to crops and identify steps for early recovery. ➤ During floods arrange for the quick vaccination and treatment of livestock and poultry at shelter places. ➤ During prolonged droughts arrange for sustainability of livestock population.
After Disaster
<ul style="list-style-type: none"> ➤ Quantify the loss and damage within the quickest possible time and finalizes planning of agriculture rehabilitation. ➤ Ensure availability of adequate supply of seeds, seedlings, fertilizers, pesticides and agricultural implements. ➤ Arrange a rapid survey to assess the loss. ➤ Form and dispatch Veterinary teams with appropriate equipment and medicines to aid affected livestock. ➤ Arrange for disposal of dead bodies of animals. ➤ Implement all schemes for rehabilitation of livestock.

Department of Transport

During disaster situations, the Department of Transport will take steps to arrange for sending personnel and relief material to the disaster affected area, and relocate the affected people.

Non Disaster Times
➤ Designate one Liaison Officer of the Department as the Focal Point and inform all concerned.
Alert and Warning stage
➤ Identify and make inventory of transport vehicles, and ensure that they are all in good working condition.
➤ Ensure availability of fuel, recovery vehicles and equipment.
➤ Take steps for arrangement of vehicles for possible evacuation of people
During Disaster
➤ Take steps for transportation of relief personnel and material to affected areas.
➤ Take steps for movement of affected people to safer areas.
➤ Collate and disseminate information regarding fuel availability etc. to personnel operating in the field.
➤ Launch recovery missions for stranded vehicles.
After Disaster
➤ Assess damage to transportation vehicles.
➤ Take steps to ensure speedy repair and restoration of transport facilities.

Department of Public Works

The Department of Public Works has a vital role in provision and maintenance of public infrastructure.

<p>Normal Times</p> <ul style="list-style-type: none"> ➤ Designate one Liaison Officer in the Department as the Disaster Preparedness Focal Point. ➤ Take precautionary steps for the protection of government property against possible loss and damage during disaster. ➤ Formulate guidelines for safe construction of public works. ➤ Prepare list, with specifications and position, of heavy construction equipment in the province. ➤ Organize periodic training of engineers and other construction personnel on disaster resistant construction technologies.
<p>Alert and Warning stage</p> <ul style="list-style-type: none"> ➤ Instruct all officials at construction sites to keep manpower and materials prepared for protection and repair of public works.
<p>During Disaster</p> <ul style="list-style-type: none"> ➤ Provide assistance to the damage assessment teams for survey of damage to roads infrastructure. ➤ Take steps to clear debris and assist search and rescue teams. ➤ Provide sites for rehabilitation of affected population. ➤ Collate and disseminate information regarding operational and safe routes and alternate routes, fuel availability etc. to personnel operating in the field. ➤ Launch repair missions for damaged critical infrastructure and routes. ➤ Take steps for prompt removal of uprooted trees on the roads.
<p>After Disaster</p> <ul style="list-style-type: none"> ➤ Carry out detailed technical assessment of damage to public works. ➤ Assist in construction of temporary shelters. ➤ Organize repairs of buildings damaged during the disaster. ➤ Prepare detailed programmes for rehabilitation of damaged public works. ➤ Arrange technical assistance and supervision for reconstruction works as per request. ➤ Assess damage to transportation infrastructure. ➤ Take steps to ensure speedy repair and restoration of transport links.

Department of Human Settlements

The Department of Human Settlements will prepare its own contingency plan for the maintenance of public infrastructure and identify safer places for relocation. The Department also plays an important role in developing appropriate national building codes and their proper implementation. In the post disaster phase, the Department will take adequate steps to undertake building damage assessment and promote reconstruction.

Normal Times
<ul style="list-style-type: none"> ➤ Designate one Liaison Officer as the Disaster Preparedness Focal Point. ➤ Take precautionary steps for the protection of property against possible loss and damage during disaster. ➤ Periodic training of engineers and other construction personnel on safe construction. ➤ Identify and plan for rehabilitation locations for those living in disaster vulnerable areas. ➤ Prepare building regulations for safe construction.
Alert and Warning stage
<ul style="list-style-type: none"> ➤ Coordinate with other development agencies for possible assistance in disaster affected areas.
During Disaster
<ul style="list-style-type: none"> ➤ Provide vital information to the Disaster Advisory Forum and relevant agencies in the field regarding status of available infrastructure that can be of use during relief operations.
After Disaster
<ul style="list-style-type: none"> ➤ Coordinate with concerned agencies for all reconstruction activities under rehabilitation programmes. ➤ Arrange technical assistance and supervision for reconstruction works as per request.

Department of Social Development

The Department of Social Development will provide necessary help and assistance for socio-economic rehabilitation.

Normal Times
<ul style="list-style-type: none"> ➤ Designate a liaison officer as a focal point and inform all concerned. ➤ Prepare special projects for socio economic uplifting the public towards disaster risk reduction. ➤ Organize training programs for the public to cope with disaster situations. ➤ Assist in provision of drinking water facilities near settlements.
During Disaster
<ul style="list-style-type: none"> ➤ Provide necessary help and assistance for social relief and socio-economic rehabilitation. ➤ Establish relief camps for the public and ensure the fulfillment of basic needs of the District Communities in relief camps. ➤ To take steps for safety of the affected population in general and women and children in particular, in disaster affected areas. ➤ Provide counseling to the victims.
After Disaster
<ul style="list-style-type: none"> ➤ Prepare special programmes for the rehabilitation of affected Communities.

Department of Water Affairs

The Department is involved in disaster mitigation in relation to drought and floods, as they affect agricultural production, irrigation systems and water supply and management. Some of these mitigation activities include rehabilitation and management of watersheds and water catchment areas and enforcement of land use patterns. The role of the Department is critical for improving and expanding irrigation systems to cope with drought situations and manage flood problems.

<p>Normal Times</p> <ul style="list-style-type: none"> ➤ Designate one Liaison Officer in the Department as the Disaster Management Focal Point. ➤ Promote Watershed Development Programs ➤ Develop Schemes for restoration/conservation of spring systems. ➤ Ensure efficient management of flood forecasting and warning centres and improve procedure of flood forecasts. ➤ Operate Flood Information Centre in the flood season every year. ➤ Collect all the information on weather forecast, water level of all principal rivers flowing through the province. ➤ Inform all concerned about daily weather news and issue regular press bulletins. ➤ Take steps for strengthening of flood protection works and rivers before the flood season
<p>Alert and Warning stage</p> <ul style="list-style-type: none"> ➤ Alert District Disaster Advisory Forum. ➤ Since flash floods get triggered within short time-spans, take steps to alert all through telephone and wireless according to needs. ➤ Mount watch on flood protection.
<p>During Disaster</p> <ul style="list-style-type: none"> ➤ Open the Control Room in the Department. ➤ Launch emergency repair operations for critically damaged flood protection works.
<p>After Disaster</p> <ul style="list-style-type: none"> ➤ Take up sustained programmes for rehabilitation of flood protection works and springs.

Department of Health

The Department of Health has a responsibility in the reduction and prevention of suffering during natural and man-made disasters, as well as in the investigation and response to outbreak of communicable diseases.

<p>Normal Times</p> <ul style="list-style-type: none"> ➤ Carry out and disseminate a risk evaluation of the population. ➤ Develop a district plan on emergency preparedness and response within the health sector. ➤ Develop policy framework for the department. ➤ Ensure adequate availability of Emergency Health Kits in high risk areas ➤ Train volunteers on emergency preparedness programmes such as first aid and preventive measure against diseases in disaster prone areas. ➤ Prepare a list of medical and paramedical personnel in disaster prone areas and disseminate it to concerned administrators. ➤ Establish and operate an early warning system for health threats based on the routine health information and in collaboration with other departments.
<p>Alert and Warning stage</p> <ul style="list-style-type: none"> ➤ To ensure pre-positioning of Emergency Health Kits and Personnel. ➤ Assess likely health impacts and share with District Disaster Advisory Forum for planning purpose
<p>During Disaster</p> <ul style="list-style-type: none"> ➤ Mobilize medical teams and paramedical personnel to go to the affected areas as part of the Rapid Assessment and Quick Response Teams. ➤ Provide medical assistance to the affected population. ➤ Carry out technical assessment on health infrastructure availability and need.
<p>After Disaster</p> <ul style="list-style-type: none"> ➤ Remain vigilant about outbreak /possibility of any epidemics and take effective steps against them. ➤ Send report of health related activities in affected areas to the province for planning purpose.

South African Police Services

The South African Police Service is the representative of the South African Police Services in the District. This is one of the main departments to provide support to the Governor in dealing with disaster situation.

<p>Normal Times</p> <ul style="list-style-type: none"> ➤ The Chief Police Commander shall be the Focal Point for the Department. ➤ Impart training to the members of Police Force in first aid, evacuation, rescue and relief operations. ➤ Identify the 'High Risk' and 'Risk' areas for different disasters and instruct the existing police installations located in those areas for keeping themselves in readiness for undertaking emergency rescue, evacuation relief operations. ➤ Coordinate the wireless frequency of Police with the wireless network of other departments. ➤ Train volunteers from among citizens and voluntary organizations.
<p>Alert and Warning stage</p> <ul style="list-style-type: none"> ➤ Establish the Disaster Control Room at District level. ➤ Arrange drills for fire extinguishing, rescue, evacuation and transportation of injured persons and prepare coordinated Action Plans in cooperation with concerned local agencies. ➤ Maintain communications with the police installations in the areas likely to be affected by disaster. ➤ Instruct all concerned to accord priority to disaster related wireless messages if required by appropriate officials. ➤ On receipt of directives from the District Head of Department for evacuation - organize personnel and equipment for evacuation and undertake evacuation operations.
<p>During Disaster</p> <ul style="list-style-type: none"> ➤ Carry out search & rescue operations. ➤ Set up emergency evacuation shelters and transport affected people to the shelters. ➤ Maintain law and order, especially during relief distribution. ➤ Keep close watch for any criminal and anti-state activity in the area.
<p>After Disaster</p> <ul style="list-style-type: none"> ➤ Arrange security of government property and installations damaged in a disaster. ➤ Participate in damage and need assessment. ➤ Coordinate with other offices of South African Polices Services for traffic management in and around damaged areas. ➤ Assist the local administration in putting a stop to theft and misuse in relief operation.

12. District Resources Mapping

During a disaster, all resources available with the government, as well as outside the government, shall be made available to the District Municipality for search, rescue and relief activities.

A compilation of available medical facilities, search and rescue facilities and evacuation centres within the District is given below.

Resource inventory is useful in quick retrieval of vital information regarding availability and sources of rescue and relief material and personnel during times of emergency. An inventory will be prepared and maintained through regular updating. Inventories will include the following basic elements, and other locally relevant information:

- Contact details of all personnel and organizations concerned with emergency management
- List, with specifications and availability procedures of all equipment that may be used for responding to an emergency. This will include communication equipment, transport vehicles, earth moving equipment, cranes, and tools etc. that are available from various agencies within the jurisdiction of uMgungundlovu District Municipality

13. Mitigation Activities Planning

Mitigation activities actually eliminate or reduce the probability of disaster occurrence, or reduce the effects of unavoidable disasters. A precursor to mitigation is the identification of risks.

Disaster mitigation planning will comprise all activities that can be done for risk reduction. Mitigation measures can be structural or non-structural. Structural measures use technological solutions like flood levees. Non-structural measures include legislation and land-use planning.

Such activities that need to be undertaken by each Department should be identified and compiled. These activities can be planned after ascertaining the condition and status of infrastructure, equipment and manpower at the disposal of each department. The activities may include creation of any new infrastructure facility for risk reduction, repair, retrofitting or upgrading of existing infrastructures, procurement, hiring, or repairing of equipment; recruitment, hiring, and training of volunteers.

The detailed planning of the above activities will lead to the preparation of budget for disaster mitigation activities.

The following activities need to be taken up for reducing the future impact of disasters:

- Roads and bridges or culverts
- Flood control measures
- Disaster awareness campaigns
- Upgrade and maintenance of landfill sites
- Upgrade and maintenance of waste water treatment works
- Road sidewalk maintenance
- Prevent forest fires by having fire breaks

14 Preparedness Activities Planning

Disaster preparedness is a broad concept that describes a set of measures that minimizes the adverse effects of a hazard including loss of life and property and disruption of livelihoods.

Preparedness can take the form of ensuring that strategic reserves of food, equipment, water, medicines and other essentials are maintained in cases of national or local catastrophes.

Preparedness activities will comprise all activities that should be done to meet the response and immediate relief requirements in the event of a disaster. Such activities that need to be undertaken by each Department should be identified and compiled.

Preparedness actions may include

- Training, mock drills, pre-positioning of relief materials, etc.
- Hazard, risk and vulnerability assessments
- Planning for seasonal threats, such as heavy rainfall, flooding, strong winds, veld fires and house fires
- Defining in advance clear communication processes and protocols for different emergency situations.
- Specifying evacuation procedures, routes and sites in advance of expected emergencies.
- Information management
- Establishing clear information dissemination processes to alert communities at risk of an impending seasonal threat, such as a potential outbreak of cholera during the rainy season.
- Resource mobilization
- Community-Based disaster preparedness

The detailed planning of the above activities will lead to preparation of budget for preparedness activities.

All planning and implementation of disaster preparedness measures should be based on an assessment and prioritization of the hazards and risks that people face, as well as their ability or inability to cope with and withstand the effects of those hazards. The benefits of the preparedness planning are many and some of them are listed:

- Systematic arrangement and deployment of resources to reduce the impact of disaster;
- Vulnerable communities to get access to crucial information, such as timely flood forecasts and warnings;
- The provision of basic needs, such as shelter and medical care, clean water, sanitation and food during disasters such as floods;
- Continued access to livelihoods, in order to minimize disruption of economic activities;
- Effective coordination among disaster management agencies to ensure efficient emergency response during floods;
- Urgent restoration of critical infrastructure.

15 Emergency Response and Recovery Planning

The aim of emergency response is to provide immediate assistance to maintain life, improve health and support the morale of the affected population. Such assistance may range from providing specific but limited aid, such as assisting refugees with transport, temporary shelter, and food, to establishing semi-permanent settlement in camps and other locations. It also may involve initial repairs to damaged infrastructure. The focus in the response phase is on meeting the basic needs of the people until more permanent and sustainable solutions can be found. Humanitarian organizations are often strongly present in this phase of the disaster management cycle.

The aim of the recovery phase is to restore the affected area to its previous state. It differs from the response phase in its focus; recovery efforts are concerned with issues and decisions that must be made after immediate needs are addressed. Recovery efforts are primarily concerned with actions that involve rebuilding destroyed property, re-employment, and the repair of other essential infrastructure.

The Departments should have detailed response plan in place for each type of disaster. The actions to be taken at different times and the responsible person within the District should be identified in the response plan. The response actions for such disasters that can be forewarned (e.g. flood) will start from 72 hours before the occurrence. The response actions for such disasters that cannot be forewarned (e.g. Earthquake) will start immediately after the occurrence of the disaster. The response planning should be prepared for each type of disaster.

16 Risk reduction activities

Vulnerability to natural disasters of the people living in the District pose a great challenge to the government machinery and underscores the need for a comprehensive plan for disaster preparedness and mitigation. While natural hazards cannot be controlled, the vulnerability to these hazards can be reduced by planned mitigation and preparedness measures. There needs to be concerted efforts towards reducing the vulnerability of the community to disasters.

Taking into consideration the value of development gains which are wiped out through disasters and the huge quantum of funds required for post disaster relief and rehabilitation, any investment in disaster mitigation will yield a higher rate of return than any other development project. Also considering the developmental gains, which are wiped out because of disasters, all development schemes/projects will need to incorporate disaster assessment and vulnerability reduction as critical components in order that the development process be sustainable. Therefore, a paradigm shift has now taken place with the shift in focus from reactive to proactive i.e. from relief to prevention and mitigation of disasters.

Efforts should be made to ensure that the risk reduction activities that have been identified are approved and integrated into the IDP so that they get funded. These plans should be incorporated into the sector plans / strategic plans in order to ensure improved service delivery. Possible risk reduction projects have been identified through analysis of information collected during consultations with various stakeholders and community members.

Improved capacity within the Municipality will ensure more effective and coordinated response during the fire incidents. Awareness amongst the vulnerable communities is vital because most of the occurrence of these incidents stem from the lack of knowledge or negligence.

Structural (or passive) fire protection measures provide inherent protection against fire. With the emphasis on fire prevention and protection, building inspections will ensure that fire safety is built into the design of all new and refurbished commercial buildings. Passive fire protection maintain the stability of a building's structure during fire and keep escape routes safe - so people have time to get out - and fire officers have time to get in.

Structural measures such as fire hydrants improvement program will be undertaken to prevent or reduce the likelihood of a fire that may result in death, injury, or property damage, or to reduce the damage caused by a fire.

Training, capacity building and public awareness campaigns will be important instruments of disaster reduction and recovery. Volunteer Units are not an enforceable legislative requirement. Volunteer Units serves as a great link between the Municipalities and Communities. The lack of Volunteer Units therefore limits the cooperation between the Municipalities and the Communities in terms of Disaster Management. An adequate amount of trained staff is needed to realize the objectives put forth by the disaster management legislation.

Identified areas of skills shortage

Emergency response and Disaster Management Topic	Professional Fire Fighting skills
	Victim Management Skills
	Disaster risk assessment
	Radio Communication
	Contingency Plan development
	Safety planning at Live Events
	Disaster Operation Centre Management Skills and Procedures
Administrative Topics	Report Writing
	Project Management

In order to carry out its legal mandate, the disaster risk management structures require adequate equipment and facilities. Motor vehicles, Emergency response equipment, recovery equipment, technological devices and administrative equipment are essential in fulfilling the primary needs.

Equipment necessary for disaster risk management function to be carried out effectively within the District

Category	Equipment needed
Vehicles	Firefighting trucks / Fire Engines
	Water truck
	Off road vehicles
	Caravans
Technology	Two way radio
	Information and Communication system
	Early warning system
	Call Centre equipment
	Digital cameras
	Multimedia Unit
Emergency equipment	Backup generators
	Fire Extinguishers
	Jaws of life
Recovery	Tents
	Mattresses
	Blankets
	Relief packs
Administrative	Storage space
	Access to emergency funds for purchasing food for victims
	Office space
	Office equipment (faxes and laptops)

The District risk reduction activities are given in the following tables. Table 16.1

Project Name	Create awareness and improve capacity in order to reduce community vulnerability	
Project statement	The frequency and severity of severe storms and floods is very high in many rural areas of the District There seems to be a lack of awareness in terms of the usage and dangers of fires. Those exposed to a severe storms, floods, house fires and veld fires have insufficient response capacity or resilience	
Strategic Objective	To establish institutional capacity, create awareness and take effective action during disasters in order to minimize the adverse effects of hazards including loss of life and property and disruption of livelihoods.	
Target groups	Communities within the area of jurisdiction of uMgungundlovu District Municipality with high flooding/severe storms and fire incident rates.	
Task Team	Fire Services and Disaster Management Unit	
Restructured Projects		Responsible Agency
1. Training of Disaster Management Practitioners		Emergency Services
2. Review Disaster Management Plan		Emergency Services
3. Establish Volunteer Unit and provide training and uniform to Disaster Management Volunteers		Emergency Services
4. Maintenance of strategic reserve of relief material / equipment (tents, blankets, plastic sheets) to assist in cases of local disasters		Emergency Services
5. Awareness campaigns on floods and other significant risks (2 months prior the peak flood season)		Emergency Services
6. Lease/Purchase off road vehicles for response and recovery		Emergency Services
Project outputs	Budget estimate	Source of finance
1. Capacitated Disaster Management Officials	R42 000	Internal funding
2. Hazard, risk and vulnerability profile compiled and the Disaster Management Plan adopted	R150 000	Internal funding
3. Trained and capacitated volunteers	R110 000	Internal funding / Provincial Disaster Management Centre (Cogta)
4. Emergency relief in place	R500 000	Internal funding / Provincial Disaster Management Centre (Cogta)
5. Increased community awareness and capacity to respond to disasters	Catering R30/person, = 60 000 R80/VIP = 8 000 Marquee, chairs, stage and generator R35 000 Sound system R20 000 Mobile toilets R10 000 Ambulance R2 000	Internal funding / Provincial Disaster Management Centre (Cogta)
6. Emergency response equipment in place necessary for disaster risk management function to be carried out effectively within the District	4 X off road vehicles R1000 000	Internal funding
Remarks		
The budget allocated to the project will influence the number of people trained.		

NB: The implementation of these projects as a complete unit might not be possible, hence they can be restructured in such a way that smaller project within the larger scope of a project can be identified and implemented.

Project Name	Create fire awareness and reduce community vulnerability	
Project statement	The frequency and severity of house and veld fires is high in the District. Table 8.16 above give a picture of the likelihood and impact of different hazards. Those exposed to a particular severe storms, floods, house fires and veld fires have insufficient response capacity or resilience	
Strategic Objective	To protect and save lives and property from fire and other threatening hazards.	
Target group s	Communities within the area of jurisdiction of uMgungundlovu District Municipality with high fire incident rates.	
Task Team	Fire Services and Disaster Management Unit	
Restructured Projects		Responsible Agency
1. Awareness campaigns regarding dangers of uncontrolled fires and other significant risks		Emergency Services in partnership with outside Agencies e.g. Working On Fire
2. Provide training for Fire Services personnel		Emergency Services
3. Educate learners on the dangers of fires and ways to be safe around fires and floods		Emergency Services
4. Provide enough fire hydrants at accessible strategic points		Emergency Services
5. Building inspections and presentations		Emergency Services
6. Lease/Purchase Fire Engines for firefighting and rescue		Emergency Services
Project outputs	Budget estimate	Source of finance
1. Increased community awareness and capacity to respond to disasters	Catering R30/person, = 60 000 R80/VIP = 8 000 Marquee, chairs, stage and generator R35 000 Sound system R20 000 Mobile toilets R10 000 Ambulance R2 000	Internal funding / Working on Fire
2. Trained and equipped Fire Fighters		Internal funding
3. Increased response capacity or resilience	Course material R70/person	Internal funding
4. Fire hydrants improvement program	R22 000 per installation of new hydrant (incl. costs related to water supply)	Fire Protection Associations / Internal funding
5. Inspect buildings for violations of the Fire Code and conduct presentations		Internal funding
6. Eemergency response equipment in place necessary for disaster risk management function to be carried out effectively within the District	4 X Fire Engines R1 800 000	Internal funding
Remarks		
The budget allocated to the project will influence the number of people trained.		

NB: The implementation of these projects as a complete unit might not be possible, hence they can be restructured in such a way that smaller project within the larger scope of a project can be identified and implemented.

17 Review and updating of the plan

The District Disaster Management Plan will be reviewed and updated by the Disaster Management Unit. The plan will be reviewed every year.