NGWATHE LOCAL MUNICIPALITY

DISASTER RISK MANAGEMENT PLAN

VERSION 2

LEVEL 1

DRAFT

Prepared by:
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Free State

In collaboration with:
Free State Provincial Disaster Management Centre (PDMC)
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Preface

No.	Item	Description
a i)	The in page's listing	Developer's name
ii)	The in page's listing	Acknowledgements
ii)	The in page's listing	Approval
b	Forward Page	Forward
c	Executive Summary	Executive Summary
d	Table of Contents	Contents

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Ngwathe Local Municipality acknowledges the assistance provided both before and during the development process, including technical advice, capacity-building initiatives, and resource facilitation. Their collaboration significantly enhanced our ability to identify key disaster risks, implement risk reduction strategies, and establish effective response and recovery mechanisms.

The dedication of FDDM and PDMC in strengthening disaster resilience within our municipality is highly appreciated. We look forward to continued partnership in safeguarding our communities and enhancing disaster preparedness and response efforts.

Ngwathe Local Municipality
Disaster Management Centre

Approval	
Name: Dr. FP Mothamaha	**Signature:**
Title: Municipal Manager	**Date:** 30/06/26

FOREWORD

A Disaster Risk Management Plan is developed to provide a structured and coordinated approach to preventing, mitigating, preparing for, responding to, and recovering from disasters. It ensures that municipalities, government agencies, and stakeholders work together to minimize the impact of disasters on communities, infrastructure, and the environment.

The plan helps identify potential risks, such as floods, fires, accidents, and climate-related incidents, and outlines strategies to reduce vulnerabilities. It also establishes clear roles and responsibilities for disaster response and recovery, ensuring efficient resource allocation and timely interventions.

By developing a Disaster Risk Management Plan, municipalities can enhance resilience, improve early warning systems, strengthen emergency response, and protect lives and livelihoods. It aligns with legislative frameworks, such as the Disaster Management Act, ensuring compliance with national policies and promoting sustainable risk reduction practices.

The purpose of developing a Disaster Risk Management Plan is to establish a comprehensive framework for disaster risk reduction, preparedness, response, and recovery within a municipality or region. It aims to protect lives, property, infrastructure, and the environment by ensuring effective coordination among stakeholders before, during, and after disasters. The Disaster Management Plan aligns with national policies and legal frameworks, such as the Disaster Management Act, to ensure compliance and promote resilience within communities.

Key objectives of the plan include:

- Risk Identification and Reduction – Assessing potential hazards such as floods, fires, accidents, and climate change-related incidents to implement proactive mitigation measures.
- Preparedness and Early Warning – Establishing early warning systems, emergency response protocols, and public awareness programs to enhance disaster readiness.
- Effective Response and Coordination – Defining roles and responsibilities of government agencies, emergency services, and stakeholders to ensure a swift and organized disaster response.
- Resource Allocation and Management – Ensuring the availability and efficient use of resources, including personnel, equipment, and funding, during disaster events.
- Post-Disaster Recovery and Rehabilitation – Outlining strategies for rebuilding infrastructure, restoring livelihoods, and supporting affected communities in the aftermath of a disaster



Statement of Commitment by the Municipal Manager

As the Municipal Manager of Ngwathe Local Municipality, I reaffirm our unwavering commitment to disaster risk reduction, preparedness, response, and recovery through the implementation of our Disaster Risk Management Plan. This plan serves as a critical tool in safeguarding our communities, infrastructure, and natural environment from the devastating impacts of disasters.

Our municipality faces a range of disaster risks, including floods, fires, accidents, windstorms, drought, chemical spills, and other climate change-related incidents. The increasing frequency and intensity of these hazards demand a proactive and coordinated approach to disaster management. Emerging challenges such as rapid urbanization, resource constraints, and the growing impact of climate change further highlight the urgency of strengthening disaster resilience at all levels.

Through this plan, we aim to enhance early warning systems, improve emergency response capabilities, strengthen stakeholder collaboration, and integrate disaster risk reduction into sustainable development initiatives. We remain committed to working with government agencies, the private sector, non-governmental organizations, and communities to build a safer and more resilient Ngwathe Local Municipality.

We are committed to fulfil the Disaster Management functions as set out in the relevant statutory equipment, including, but not limited to its own Disaster Management Framework and shall always make sure that Disaster Management forms an integral part of the municipality's Integrated Development process. The municipality recognizes the issues of environmental impact and shall endeavour to fulfil the objective of section 24 of the South African Constitution. To contribute towards the 'safer city concept' through a disaster management service geared to prevent, mitigate, confine and manage hazards and disasters in an affordable, effective and efficient manner, in line with the District, Provincial and National disaster management frameworks.

The municipality is striving to have a fully-fledged Disaster Management Services that always ensure a uniform and integrated disaster management services within its area of jurisdiction, as well as ensuring the health and safety of its citizens by putting all pro-active measures in place to prevent, mitigate risks that make its citizens vulnerable to disasters.

In line with the vision of the municipality, Department of Community Services will contribute towards the vision Ngwathe Local Municipality through disaster risk management in offering high quality of life for all its citizens through sustainable development, resilient and inclusive economic growth.

I call upon all stakeholders to actively participate in the implementation of this plan and to join hands in ensuring the safety and well-being of our residents. Together, we can reduce disaster risks and create a future where our municipality is better prepared to withstand and recover from any emergency or disaster.

Dr. FP Mothamaha
Municipal Manager

EXECUTIVE SUMMARY

The draft of a level 1 Disaster Risk Management Plan is an extensive process and is a joint effort between the Local, District municipality, SALGA and PDMC. Ngwathe Local Municipality Integrated Disaster Management Plan serves as a strategic framework to enhance disaster preparedness, response, recovery, and mitigation across the municipality. This plan aligns with the Disaster Management Act, 2003 (as amended in 2015) and the National Disaster Management Framework, ensuring a coordinated and proactive approach to disaster risk management.

Ngwathe Local Municipality faces a variety of disaster risks, including floods, fires, road and industrial accidents, windstorms, drought, chemical spills, and other climate change-related incidents. These hazards threaten lives, livelihoods, infrastructure, and the environment, making effective disaster management a necessity.

Key Objectives of the Plan:

- Risk Assessment and Reduction – Identifying disaster-prone areas and implementing proactive measures to mitigate potential impacts.
- Preparedness and Early Warning – Strengthening early warning systems, emergency response planning, and public awareness programs.
- Emergency Response and Coordination – Defining clear roles and responsibilities for all stakeholders, including government agencies, emergency services, non-governmental organizations (NGOs), and local communities.
- Resource Management and Capacity Building – Ensuring adequate resources, personnel, and training for effective disaster management.
- Recovery and Rehabilitation – Establishing long-term strategies for post-disaster rebuilding, economic recovery, and support for affected communities.

Emerging Challenges Addressed.

- The increasing frequency and severity of climate-related disasters.
- Limited resources and infrastructure vulnerabilities.
- Rapid urbanization and its impact on disaster risk.
- The need for improved stakeholder collaboration and coordination.
- Lack of available land for settlement.

This plan provides a structured and integrated approach to reducing disaster risks and enhancing resilience across Ngwathe Local Municipality. The municipality is committed to working closely with government entities, private organizations, and communities to ensure effective implementation and continuous improvement of disaster management efforts.

By adopting this plan, Ngwathe Local Municipality reaffirms its dedication to protecting residents, minimizing disaster-related losses, and fostering a safe and sustainable environment for all.

Table of Contents

No.	Item	Description	Page Number
1	Figures	A List of Figures	8
2	Tables	A List of Tables	9
3	Maps	A list of maps	9
4	Acronyms	Acronyms	10
5	Definitions	Definitions	11 - 18
6	Chapter 1	Overview of Ngwathe LM	19
7	Chapter 2	Introduction to Plan, Constitutional, Legislative and Policy Mandates	20 - 38
8	Chapter 3	KPA 1: Integrated Institutional Capacity	39 - 41
9	Chapter 4	KPA 2: Disaster Risk Assessment	42 - 73
8	Chapter 5	KPA 3: Disaster Risk Reduction	74 - 105
9	Chapter 6	KPA 4: Response & Recovery	106 -108
10	Chapter 7	Enabler 1: Information Management and Communication	109 - 111
11	Chapter 8	Enabler 2: Education, Training, Public Awareness and Research	111 - 113
12	Chapter 9	Enabler 3: Funding Mechanisms	113 - 115
13	Chapter 10	Testing and Review of the Plan	115
14	Chapter 11	Contact Details	116
15	List of references	References	
16	Annexure A	Guidelines for Hazards Contingency plan	118 - 128
17	Annexure B	Guidelines for Formulation of Joint Operation Centre (JOC)	129 -131

A List of Figures, Tables and Maps

Figure Number	Description
1	Outline of Disaster Management Plan graphically depicts the recommended approach for preparing Disaster Management Plans
2	The recommended project approach, depicting the various steps in preparing Disaster Management plan
3	Ngwathe Local Municipality Risk Management Policy-making framework
4	Placement of Disaster Risk Management Function within the Structure of Ngwathe Local Municipality
5	Flood Hazard Areas
6	Accidents and fatalities by phase of flight
7	Ngwathe Local Municipality Disaster Risk Management Centre will have a representation in the Fezile Dabi District Municipality Disaster Risk Management Advisory Forum
8	Disaster Response and recovery
9	Process for the classification and declaration of the state of disaster
10	Model of the integrated information management and communication system for disaster risk management
11	Response to Disaster: JOC process

Tables

Table Number	Description
1	Hazard quantification
2	Hazard identification for Ngwathe Local Municipality
3	Classification of land cover used in the study
4	Fire risk index used to compile the veld fire map
5	List of Major Hazards
6	Level of risks
7	Ngwathe Local Municipality Contact list

Maps

Map Number	Description
1	Ngwathe Local Municipality Basemap
2	Flood prone areas
3	Ngwathe Local Municipality Ward 5: Flood prone grid
4	Ngwathe Local Municipality population distribution
5	Municipalities by veld fire risks
6	Fire Hazard map
7	Location of Dolomites
8	Hazmat routes as identified during workshop
9	Hazmat routes grid
10	Hazmat facilities
11	Hazard grid
12	Petronet pipe network
13	Air transport hazard
14	Air transport hazard grid
15	Fatality rate per 10 000 vehicles for the district council municipality
16	Dam Hazard profile
17	Air pollution identified during consultative workshops
18	Distribution of mining activities in Ngwathe Local Municipality
19	Drought Tendency of Ngwathe Local Municipality
20	Distribution of agriculture activities in Fezile Dabi District
21	Water pollution profile map
22	Land degradation hazard map
23	Land Degradation grid

1. ABBREVIATIONS AND ACRONYMS

CBO	Community based organisation
CSIR	Council for Scientific and Industrial Research
DMA	Disaster Management Act (Act No. 57 of 2002)
DMIS	Disaster Management Information System
DOC	Disaster Operations Centre
DRMAF	Disaster Risk Management Advisory Forum
DRMP	Disaster Risk Management Plan
FDDM RMC	Fezile Dabi District Disaster Risk Management Centre
FS DRMF	Free State Provincial Disaster Risk Management Framework
FSDRMC	Free State Provincial Disaster Risk Management Centre
GIS	Geographical Information Systems
GPS	Geographical Positioning System
IDP	Integrated Development Plan
JOC	Joint Operations Centre
KPA	Key Performance Area
MDRMC	Municipal Disaster Risk Management Centre
MFMA	Municipal Financial Management Act No. 56 of 2003
MPS	Maxim Planning Solution
NDMC	National Disaster Management Centre
NDMF	National Disaster Management Framework
NGO	Non-governmental organisation
NLM	Ngwathe Local Municipality
PDRMC	Provincial Disaster Risk Management Centre
PDRMF	Provincial Disaster Risk Management Framework
PFMA	Public Financial Management Act No. 1 of 1999
RIMS	Road Incident Management Systems
SDF	Spatial Development Framework

2. DEFINITION OF KEY TERMS

The following terminology (Source: Living with Risk: A Global Review of Disaster Reduction; Initiatives", International Strategy for Disaster Reduction (ISDR) Secretariat, July 2002) is used in this document:

Capacity: A combination of all the strengths and resources available within a community, society or organisation that can reduce the level of risk or the effects of a Disaster. Capacity may include physical, institutional, social or economic means as well as skilled personnel or collective attributes such as leadership and management.

Capacity building: Efforts aimed to develop human skills or infrastructures within a community or organization needed to reduce the level of risk. It may also include the development of institutional, financial, political and other resources, such as technology, at different levels and sectors of the society.

Category A areas: A municipality that has exclusive municipal executive and legislative authority in its area.

Contingency planning: The forward planning process for an event that may or may not occur, in which scenarios and objectives are agreed, managerial and technical actions defined, and potential response systems put in place to prevent or respond effectively to an emergency situation.

Climate change: refers to long-term shifts in temperatures and weather patterns, primarily driven by human activities like burning fossil fuels. It signifies a alteration in the Earth's climate system, causing global warning, rising sea levels and extreme weather.

Criteria: Standards, rules, guides or tests against which a judgment or decision is based.

Development Planning: Development planning is an integrated, multi-sectoral process through which governmental institutions streamline social, economic and spatial growth.

Disaster: A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses that exceed the ability of the affected community or society to cope, using its own resources.

Development: A process for improving human well-being through reallocation of resources that may involve some modification to the environment. It addresses basic needs, equity and the redistribution of wealth.

Disaster Operations Centre: A fully equipped dedicated facility within the Disaster management centre of a particular sphere. Such a facility must be capable of accommodating any combination of emergency and essential services representatives, including all relevant role players and stakeholders identified in response and recovery plans for the purpose of multidisciplinary strategic management of response and recovery operations, when a local, provincial or national Disaster occurs or is threatening to occur.

Disaster Risk Management: The systematic process of using administrative decisions, organisation, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological Disasters. This comprises all forms of activities, including structural and non-structural measures to prevent or to limit (mitigation and preparedness) adverse effects of hazards.

Disaster risk reduction: The conceptual framework of elements considered with the possibilities to minimise vulnerabilities and Disaster Risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development.

Early warning: Timely and effective information, through identified institutions, that allows individuals, households, areas and communities exposed to a hazard to take action to avoid or reduce the risk and prepare for effective response.

Early warning system: A system that allows for detecting and forecasting impending extreme events to formulate warnings on the basis of scientific knowledge, monitoring and consideration of the factors that affect Disaster severity and frequency. Early warning systems include a chain of concerns, namely: understanding and mapping the hazard; monitoring and forecasting impending events; processing and disseminating

understandable warnings to political authorities and the population; and undertaking appropriate and timely actions in response to warnings.

Elements-at-risk: Environmental, human, infrastructural, agricultural, economic and other elements that are exposed to a hazard and are at risk of loss.

Entity: A governmental agency or jurisdiction, private or public company, partnership, non-profit organisation, or other organisation that has Disaster Risk Management responsibilities.

Focal/nodal point for Disaster Risk Management: An individual responsible for coordinating the Disaster Risk Management responsibilities and arrangements of a national, provincial or municipal organ of state or a municipal entity. The term is also used to refer to an individual with similar responsibilities in an NGO or the private sector.

Geographic information system (GIS): Analyses that combine relational databases with spatial interpretation and outputs, often in the form of maps. A more elaborate definition is that of computer programmes for capturing, storing, checking, integrating, manipulating, analysing and displaying data related to positions on the earth's surface. Typically, GIS is used for handling maps. These might be represented as several different layers where each layer holds data about a particular kind of feature. Each feature is linked to a position on the graphical image of a map. Geographic.

Hazards: A potentially damaging physical event, phenomenon or human activity, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Hazard analysis: Identification, studies and monitoring of any hazard to determine its potential, origin, characteristics and behaviour.

Human-made hazards: Disasters or emergency situations that are caused directly or indirectly by identifiable human actions, deliberate or otherwise.

Joint Operations Centre: The sphere within a response management system where the combined or joint tactical co-ordination and management of a significant event or Disaster involving multi-agency operations takes place.

Line function: The departments that implement government policy.

Mitigation: Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards on vulnerable areas, communities and households.

Monitoring: A system of checking and observing to ensure that the correct procedures and practices are being followed.

Municipal entity: A company, co-operative, trust, fund or any other corporate entity established in terms of any applicable national or provincial legislation, and which operates under the ownership control of one or more municipalities, and includes, in the case of a company under such ownership control, any subsidiary of that company. The term can also refer to a service utility.

Municipal Infrastructure Grant (MIG): The Municipal Infrastructure Grant is a conditional grant mechanism to fund infrastructure programmes. The MIG is managed by DPLG.

Municipal organ of state: A municipality, a department or other administrative unit within a municipality or a municipal entity.

Natural hazards: Natural processes or phenomena, such as extreme climatological, hydrological or geological processes, that may constitute a damaging event. Hazardous events can vary in magnitude or intensity, frequency, duration, area of extent, speed of onset, spatial dispersion and temporal spacing.

Organ of state: Any state department or administration in the national, provincial or local sphere of government. It includes any functionary or institution exercising a power or performing a function in terms of the Constitution or a provincial constitution, or any functionary or institution exercising a public power or performing a public function in terms of any legislation.

Own revenue: Income raised by a municipality from tariffs and taxes.

Preparedness: Activities and measures taken in advance to ensure effective response to the impact of hazards, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations.

Prevention: Actions to provide outright avoidance of the adverse impact of hazards and means to minimise related environmental, technological and biological Disasters.

Primary agency/entity: The agency/entity tasked with primary responsibility for a particular Disaster Risk Management activity.

Priority Disaster risk: A risk identified as a priority through a scientific evaluative process in which different Disaster Risks are evaluated and ranked according to criteria determined by the broader socio-economic and environmental context in which the risk is located. The process of determining these criteria should be consultative, and involve scientific, civil society and government stakeholders.

Private sector: Refers to everything which is privately owned and controlled, such as business, banks and insurance companies, the stock exchange and private schools.

Preventative Measures: measures aimed at stopping a disaster from occurring or preventing an occurrence from becoming a disaster (KPA 3);

Priority Disaster risk: A risk identified as a priority through a scientific evaluative process in which different Disaster Risks are evaluated and ranked according to criteria determined by the broader socio-economic and environmental context in which the risk is located. The process of determining these criteria should be consultative, and involve scientific, civil society and government stakeholders.

Private sector: Refers to everything which is privately owned and controlled, such as business, banks and insurance companies, the stock exchange and private schools.

Provincial organ of state: A provincial department or a provincial public entity functioning within the provincial sphere of government (defined in section 1 of the PFMA).

Public awareness: The processes of informing the general population, increasing levels of consciousness about risks and how people can act to reduce their exposure to hazards. Public awareness activities foster changes in behaviour, leading towards a culture of risk reduction.

Rapid-onset Disasters: A Disaster caused by natural events, such as earthquakes, floods, storms, fires and volcanic eruptions. Although such events are more sudden, the impact can also be heightened by underlying problems associated with poverty.

Recovery: Decisions and actions taken immediately after a Disaster with a view to restoring or improving the pre-Disaster living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce Disaster risk. Recovery (rehabilitation and reconstruction) affords an opportunity to develop and apply Disaster risk reduction measures.

Relief: The provision of assistance or intervention during or immediately after a Disaster to meet the life preservation and basic subsistence needs of those people affected. It can include the provision of shelter, food, medicine, clothing, water, etc.

Resilience: The capacity of a system, community or society potentially exposed 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 social system is capable of organising itself to increase this capacity for learning from past Disasters for better future protection and to improve Disaster risk reduction measures.

Response: Measures taken during or immediately after a Disaster in order to provide assistance and meet the life preservation and basic subsistence needs of those people and communities affected by the Disaster. These measures can be of immediate, short-term or protracted duration.

Response management system: A system designed to provide a systematic approach to ensure the effective co-ordination and management of operational, tactical and strategic response efforts. It involves the combination of resources and procedures in a common organisational structure for the purpose of achieving rapid and effective response.

Risk assessment (Disaster risk assessment): A process to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend.

Risk (Disaster risk): 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. Conventionally risk is expressed as follows: Risk = Hazards x
Vulnerability. Some disciplines also include the concept of exposure to refer particularly to the physical aspects of vulnerability.

Risk: The probability of harmful consequences, or expected loss (of lives, people injured, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human induced hazards and vulnerable conditions.
Within this context, some terms are often used in this document, namely:

Risk Reduction: The adage "Prevention is better than cure" has never been more applicable than in the case of disaster management. Risk reduction is the science of reducing the risks to which vulnerable communities are being exposed. The Disaster Management Act consequently requires that Municipalities and Provinces should seek to mitigate or reduce the risk of disasters occurring in vulnerable communities as a first prize.

Significant event: An event which does not necessarily justify the classification of a Disaster but is of such a magnitude or importance that extraordinary measures are required to deal with it effectively. The term can also be applied to a situation where multiple single emergencies are occurring simultaneously within a given jurisdiction, placing undue demands on scarce resources. Together, these events may constitute a Disaster. A significant event can also represent a new or unexpected shift in hazard, vulnerability or risk patterns, calling for closer investigation in order to better anticipate future changes in Disaster risk.

Slow-onset Disasters: Disasters which result when the ability of people to support themselves and sustain their livelihoods slowly diminishes over time. Slow-onset Disasters usually take several months or years to reach a critical phase.

Support agency/entity: The agency/entity tasked with secondary responsibility for a particular Disaster Risk Management activity.

Technological hazards: Danger originating from technological or industrial accidents, dangerous procedures, infrastructure failures or certain human activities, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Threat: A physical event or process that contains the possibility of being damaging or causing harmful consequences or loss. A threat is less specific than a particular hazard or risk but may be reclassified as a 'risk' if it shifts from presenting merely the possibility of loss to a more certain probability of harm or damage. (See Risk)

Vulnerability: The degree to which an individual, a household, a community, an area or a development may be adversely affected by the impact of a hazard. Conditions of vulnerability and susceptibility to the impact of hazards are determined by physical, social, economic and environmental factors or processes.

CHAPTER 1

3. OVERVIEW OF NGWATHE LOCAL MUNICIPALITY

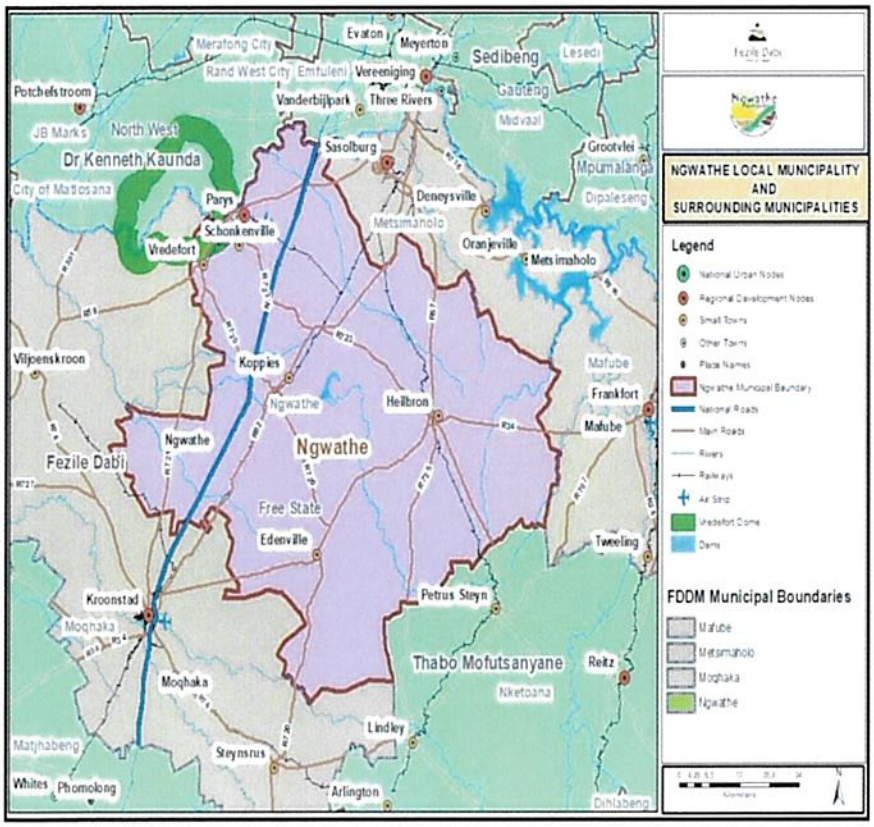
Ngwathe Local Municipality (FS203) in the Free State has a population of 134,962 people and 36,793 households. The municipality, which includes Parys, Heilbron, Koppies, Vredefort, and Edenville, covers 7,055 km² and showed a 1.10% annual population growth.

Census 2022 Key Demographic Stats:

- **Population:** 134,962
- **Households:** 36,793
- **Average Household Size:** 3.7
- **Annual Population Growth:** 1.10%
- **Population Density:** 19.13/km²

Population Composition & Age:

- **Age Structure:** 25.9% under 15, 64.2% aged 15-64, and 9.9% over 65.
- **Sex Ratio:** 88.8 males per 100 females.
- **Demographics:** Predominantly Black African (83.4%), followed by White (13.6%), Coloured (2.5%), and Indian/Asian (0.3%).
- **Languages:** Sesotho (68.6%), Afrikaans (13.4%), isiXhosa (8.5%), and isiZulu (3.4%) are the primary languages. [



CHAPTER 2

4. INTRODUCTION TO THE PLAN

The Constitution of the Republic of South Africa (Act 108 of 1996) places a legal obligation on the Government of South Africa to ensure the health (personal and environment) and safety of its citizens. In terms of section 41(1) (b) of the Constitution, all spheres of Government are required to "*secure the well-being of the people of the Republic*". Section 152(1) (d) also requires that local government "*ensure a safe and healthy environment*". In the light of the above, and the established understanding of Disaster Risk Management, the primary responsibility for Disaster Risk Management in South Africa rests with Government.

Section 26(g) of the Municipal Systems Act 32 of 2000 as well as sections 52 and 53 of the Disaster Management Act 57 of 2002 compels each municipal entity to develop a Disaster Risk Management plan as part of and an integrated part of their Integrated Development Plans. This plan establishes the arrangements for Disaster Risk Management within the Ngwathe Local Municipality (Local Municipality) and has been prepared in accordance with the requirements of the Disaster Management Act, 57 of 2002 (the Act) and section 26(g) of the Municipal Systems Act, 2000.

This Level 1 Disaster Risk Management plan for the Ngwathe Local Municipality has as much as possible been embedded in the current local reality of the municipality. Therefore, this brief description of the most salient features of the municipality is added to sketch this current local reality.

The disaster management plan for the municipality is compiled in terms of the Disaster Management Act (Act No 57 of 2002) as part of the Integrated Development Planning Process. After consultation with the local IDP Representative Structure as well as various relevant role-players, the local municipality developed a framework for disaster management that is set out below. The disaster management plan will be distributed to all districts, provincial and national disaster management centres as soon as it is adopted.

This Disaster Risk Management plan is in line with the National Disaster Management Framework and addresses Disaster Risks through four key performance areas (KPAs) and three Enablers:

- KPA 1: Integrated Institutional Capacity for Disaster Risk Management
- KPA 2: Disaster Risk Assessment
- KPA 3: Disaster Risk reduction
- KPA 4: Response and recovery
- Enabler 1: Information Management and Communication
- Enabler 2: Education, Training, Public Awareness and Research
- Enabler 3: Funding Arrangements for Disaster Risk Management

This plan provides a brief background study of the Ngwathe Local Municipality in line with its current Integrated Development Plan (IDP) and Service Delivery Budget and Implementation Plan (SDBIP). The Ngwathe Local Municipality Disaster Risk Management plan contains a macro–Disaster Risk assessment based on field research, observation, primary- and secondary data sources. The Ngwathe Local Municipality DMP has as far as possible been imbedded in the current reality of the municipality.

The macro–Disaster Risk assessment provides the foundation towards risk reduction planning based on the identified and prioritised Disaster Risks and vulnerabilities of the Ngwathe Local Municipality. This DMP for Ngwathe Local Municipality furthermore provides the municipality with a guiding framework for future Disaster Risk Management planning by the municipality as a whole as required by the Disaster Management Act 57 of 2002, Municipal Systems Act 32 of 2000, Municipal Structures Act 2000, Disaster Management Framework of 2005, Municipal Finance Management Act and subsequent legislation thereof.

The relationship between, and different roles and responsibilities of, the Fezile Dabi District Disaster Management Centre (DRMC) and the DRMC of the Ngwathe Local Municipality are alluded to. This plan also gives guidance in relation to the declaration of a local state of Disaster, Disaster classification and the institutional arrangement necessary for the successful implementation of the Act. Each section of this plan contains a number of

actions to be taken, which need to be considered and implemented in order for the Ngwathe Local Municipality to obtain the outcomes envisaged by this plan.

5. RECOMMENDED APPROACH TO PREPARE DISASTER MANAGEMENT PLANS

A Disaster management plan for a municipality must form an integral part of the municipality's integrated development plan.

- anticipate the types of Disaster that are likely to occur in the municipal area and their possible effects.
- place emphasis on measures that reduce the vulnerability of Disaster-prone areas, communities and households.
- seek to develop a system of incentives that will promote Disaster management in the municipality.
- identify the areas, communities or households at risk.
- consider indigenous knowledge relating to Disaster management; promote Disaster management research.
- identify and address weaknesses in capacity to deal with possible Disasters; provide for appropriate prevention and mitigation strategies:
- facilitate maximum emergency preparedness; and contain contingency plans and emergency procedures in the event of a Disaster, providing for-

  (i) the allocation of responsibilities to the various role-players and.

  (ii) prompt Disaster response and relief; co-ordination in the carrying out of those responsibilities.

  (iii) the procurement of essential goods and services.

  (iv) the establishment of strategic communication links.

  (v) the dissemination of information; and

  (vi) other matters that may be prescribed (in line with disaster related needs).

According to the NDMF, a Level 1 Disaster Risk Management plan applies to national or provincial organs of state or municipal entities that have not previously developed a coherent Disaster Risk Management Plan. It focuses primarily on establishing foundation institutional arrangements for DRM, putting in place contingency plans for responding to known priority risks as identified in the initial stage of the DRA, identifying key governmental and other stakeholders, and developing the capability to generate a Level 2 plan.

A Level 1 Disaster Risk Management plan for a Local Municipality should therefore have the following components:

- Explanation of the institutional Disaster Risk Management arrangements in the municipality.
    - Political forum for Disaster Risk Management.
    - Senior management forum for Disaster Risk Management.
    - Disaster Risk Management Centre (or equivalent).
    - Head of the Disaster Risk Management Centre (or equivalent).
    - Volunteer structures.
- The identification of key governmental and external role-players which needs to be consulted (typically through the senior management forum as above).
- A macro risk profile (hazard, vulnerabilities and capacities) for the area in question.
- Contingency plans for the prioritised risks (as per the macro risk profile).
- Evidence of the ability to generate a Level 2 Disaster Risk Management Plan.

5.1 The custodian of the plan

The Municipal Manager is the custodian of the Disaster Risk Management plan for the Ngwathe Local Municipality and is responsible to ensure the regular review and updating of the plan.

The Disaster Management Head of the Centre will ensure that copies of the completed plan as well as any amendments to the plan are submitted to:

- Fezile Dabi District Disaster Management Centre; (FDDM-DMC)
- Provincial Disaster Management Centre; (PDMC)
- The National Disaster Management Centre (NDMC).
- The Ngwathe Local Municipality Ward Disaster Risk Management structures; and
- Each of the neighbouring municipalities of the Ngwathe Local Municipality, which is:
    - Ngwathe Local Municipality
    - Metsimaholo Local Municipality
    - Mafube Local Municipality
    - Moqhaka Local Municipality
    - Nala Local Municipality (Lejweleputswa District Municipality.

In terms of Section 52 of the Disaster Management Act states that each municipal organ of state and any other municipal entity operating within council's organisational structure is responsible for the development and maintenance of the Disaster Risk Management plan for its functional area. Departmental plans and plans of other entities are an integral part of council's Disaster Risk Management plan and therefore the head of each department and of each entity must ensure that copies of the plan and any amendments to the plan are submitted to the Ngwathe Local Municipality Control Centre.

5.2 The purpose of the plan

The purpose of the Ngwathe Local Municipality Disaster Risk Management plan (DRMP) is to document the institutional arrangements for Disaster Risk Management planning which includes the assignment of primary and secondary responsibilities for priority Disaster Risks posing a threat in the Ngwathe Local Municipality. It further provides the broad framework within which the departments will implement the Disaster Risk Management planning requirements of the Act and other entities included in the organisational structure of the Ngwathe Local Municipality. It establishes the operational procedures for Disaster Risk reduction planning as well as the emergency procedures to be implemented in the event of a Disaster occurring or threatening to occur in council's area. It aims to facilitate an integrated and co-ordinated approach to Disaster Risk Management in its area of jurisdiction, which will ensure that the Ngwathe Local Municipality achieves its vision for Disaster Risk Management which is to build a resilient people in the Ngwathe Local Municipal area who are alert, informed and self-reliant by establishing risk reduction and resilience building as our core principles, and developing adequate capabilities for readiness; and effective and rapid, response and recovery

5.3 The Ngwathe Local Municipality Disaster Risk Management context

The Ngwathe Local Municipality is exposed to a diversity of hazards of natural and man-made origin including Hazmat transportation, deforestation, veld fires, severe weather events, hailstorms, windstorms, drought, floods, structural fires, motor vehicles accidents, diseases outbreak, bacteria and viruses. The Ngwathe Local Municipality is also exposed to a variety of technological hazards such as the interruption of services, and various forms of pollution.

The vulnerability in the Ngwathe Local Municipality that could be exploited by potential hazards is still rooted in profound poverty, lack of diversity in primary (e.g. agriculture) and secondary (e.g. industrial) products, and the lack of education and resources.

Despite the number of developmental projects underway in the Ngwathe Local Municipality, these are still numerous urban as well as rural communities, which are constantly exposed to conditions of vulnerability. As a result, their capacity to withstand, cope with and/or recover from the impact of such natural and anthropogenic risks is severely compromised. This plan will highlight some of the priority areas, which need an urgent developmental initiative to address this Disaster risk.

5.4 Background study for the Ngwathe Local Municipality

The following section aims to provide a more detailed description of the area and the situation in the municipal area relevant for the purposes of this plan. This baseline information can be found in the Ngwathe Local Municipality IDP.

5.5 Geographical location

Ngwathe Local Municipality is situated in the northern part of the Fezile Dabi District Municipality previously known as the Northern Free State, it is one of the four local municipalities within the district, the other three (3) being Moqhaka, Metsimaholo and Mafube LM. The geographical area of the municipality is 7055.0277 square kilometres, and it comprises of five towns which are: Parys, Heilbron, Koppies, Vredefort, and Edenville. The municipality covers 19 wards, structured along the different towns with the administrative and political head office located in Parys.

Ngwathe has a population of 120 520. Ngwathe municipality is facing numerous challenges, of which some stem as far back as the last twenty years, since its inception, ranging from structural, systemic and process challenges, that hinders council's ability to meet its constitutional and/or legislative mandate.

5.6 Recommended Approach to prepare Disaster Management Plans

The disaster management plan must be included in the IDP as a sector plan to ensure that the disaster management strategies form part of the municipal strategy and that funding can be made available to effectively implement the disaster management plan. This is very important because the only why disaster risk reduction can take place is through the IDP.

The following diagram provides a summary of the outline and relations of the various sections

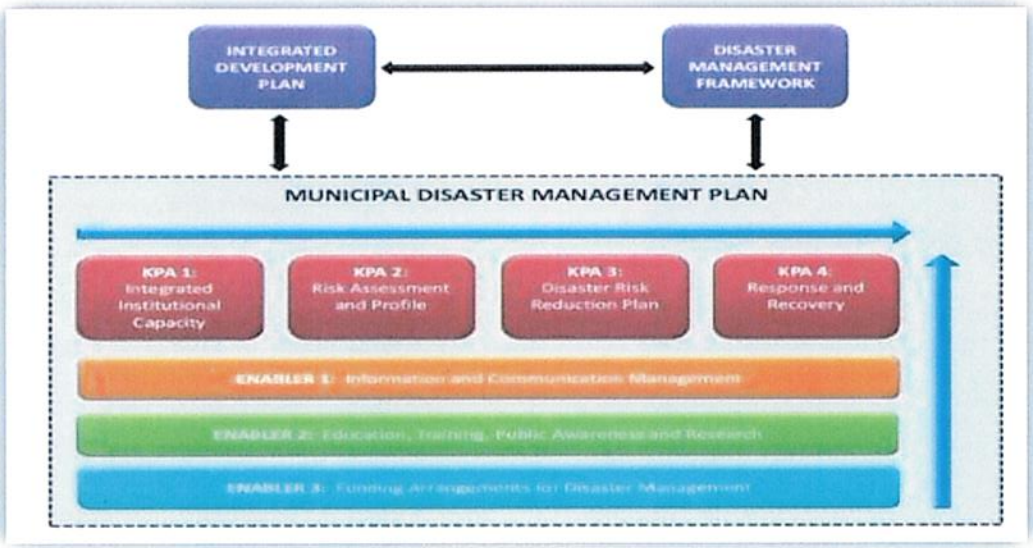


Figure 1: Outline of the disaster management plan

Figure 1 graphically depicts the recommended approach for preparing Disaster Management Plans.

It is suggested that this analysis follow a process of building on what was previously done which will allow the project team to verify the relevance, update what has changed since 2012 review and provide more detail and expand where required. The recommended actions for each of the phases are described below.

Phase 1 ~ Analysis Phase: In the first phase of the DMP process, as in the IDP process, communities and stakeholders are given the chance to analyse their potential risk areas

and determine their priorities, with inputs from Disaster Management. The outputs of this phase of the project will be a list of prioritised disaster risks.

Key actions and outcomes:

Review and update the list of hazards, risks and risk prioritisation and risk profile. Update the risk and vulnerability analysis, mapping and identification of vulnerable communities in Ngwathe Local Municipality.

Phase 2 ~ Disaster Risk Reduction Planning: The intolerably high risks are addressed in Phase 2 of the project. In this phase, Ngwathe Local Municipality will have to arrive at crucial decisions on the most appropriate ways to address the intolerably high risks, as well as, to ensure that concrete and sufficiently specified project proposals are designed, which can be used for implementation.

Key actions and outcomes:

Review the implementation status of the disaster management projects. Update project information and develop new projects for implementation which will provide the most benefit to the municipality and the communities.

Phase 3 ~ Disaster Preparedness Planning: The tolerable risks are addressed in Phase 3 of the project. In this phase, the municipality will have to arrive at crucial decisions on the most appropriate ways to address the tolerable risks, as well as, to ensure that concrete and sufficiently specified project proposals are designed, which can be used for implementation.

Key actions and outcomes:

Update the list of role players and their contact details. Review the communication protocols and make recommendations on improvements. Further develop contingency plans for priority risks. Review the institutional arrangements and its effectiveness.

Phase 4 ~ IDP Integration Phase: In this phase, the municipality have to make sure that the project proposals are in line with the objectives and the agreed strategies of their Council, with the resource frames (financial and institutional) and with legal requirements.

Key actions and outcomes:

Integrate all identified initiatives and risks into the IDP. Identify existing projects that have an impact on disaster risk reduction.

Phase 5 ~ IDP Approval Phase: This phase is about the feedback process on the Draft IDP that is supposed to result in a final approval/adoption of the plan by the Municipal Councils.

Key actions and outcomes:

Assist with the approval and adoption of the reviewed and updated disaster management plan.

Phase 6 ~ IDP Implementation Phase: The "Integrated Development Planning (IDP) Guidelines" (Source: http://www.dplg.gov.za/documents/Publications_b.htm) from the National Department of Provincial and Local Government does not specifically mention Phase 6 ~ Implementation Phase.

However, it is logical that once the Municipal Councils have approved the IDP's (with the budgets) that the municipal officials can commence with the implementation of their disaster management projects.

Key actions and outcomes:

Develop business plans and preliminary studies which can be used to source funding. Allocate of role players and teams to assist with the implementation. Implement and update the municipal disaster management information system and capture all disaster management information electronically.

Figure 2 represents an outlay of the proposed steps in implementing disaster management plan as discussed above.

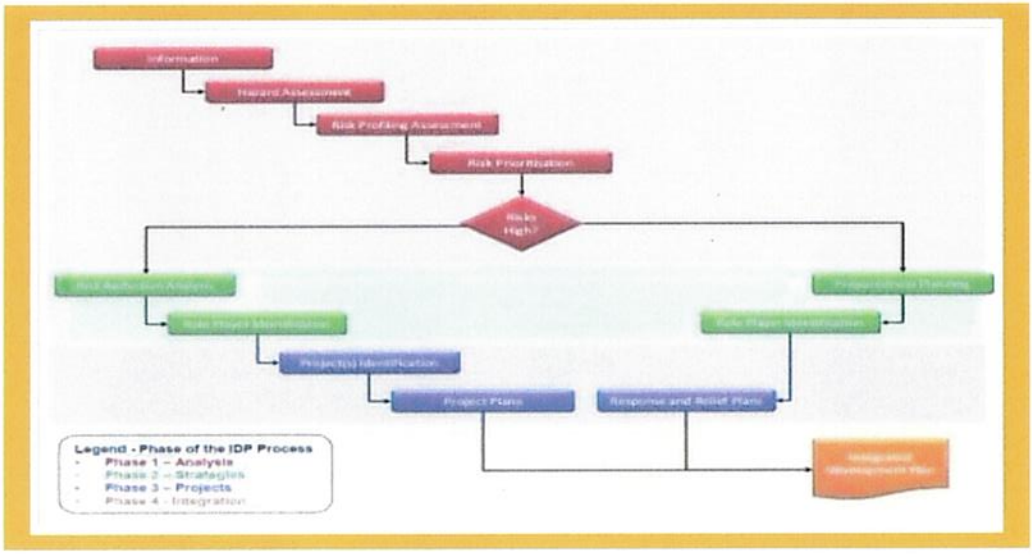


Figure 2: The recommended project approach, depicting the various steps in preparing a disaster management plan.

6. FINDINGS OF THE PLAN

6.1 Status of Disaster Management within Ngwathe Local Municipality

The Disaster Management Act highlights four key projects for disaster management. These projects include the establishment of a Disaster Management Centre, development of a Disaster Management Plan and Disaster Management Policy Framework as well as the establishment of a Disaster Management Advisory Forum. Ngwathe Local Municipality will embark on the process of implementing these projects.

6.2 Ngwathe Local Municipality Disaster Management Centre

Ngwathe Local Municipality does not have Disaster Management Centre, Disaster Management Centre must be placed in Parys for coordinating disaster management activities in the local municipality.

6.3 Fezile Dabi District Municipality Disaster Management Plan

The Disaster Management Plan has been finalized. The level 1 plan was approved by the Municipal Executive Committee in 2008 and is being implemented. The Plan was reviewed in 2010 which to ensure that it remains relevant to its course and also that it is aligned with the municipality's priorities as outlined in the IDP. Furthermore, the outcome of 2010 review was to transition the 2008 plan from a Level 1 to a Level 2 plan. The 2015 review will ensure that level 3 plan is reached. Below is a description of the different levels of plans to see if the plan is at a specific level.

6.4 Level 1 Disaster Risk Management Plan

A Level 1 Disaster Risk Management Plan applies to national or provincial organs of state and municipal entities that have not previously developed a coherent disaster risk management plan. It focuses primarily on establishing foundation institutional arrangements for disaster risk management, putting in place contingency plans for responding to known priority threats as identified in the initial stages of the disaster risk assessment, identifying key governmental and other stakeholders, and developing the capability to generate a Level 2 Disaster Risk Management Plan.

6.5 Level 2 Disaster Risk Management Plan

A Level 2 Disaster Risk Management Plan applies to national, provincial and municipal organs of state that have established the foundation institutional arrangements and are building the essential supportive capabilities needed to carry out comprehensive disaster risk management activities.

It includes establishing processes for a comprehensive disaster risk assessment, identifying and establishing formal consultative mechanisms for development of disaster risk reduction projects and introducing

6.6 Level 3 Disaster Risk Management Plan

A Level 3 Disaster Risk Management Plan applies to national, provincial and municipal organs of state that have established both the foundation institutional arrangements for disaster risk management and essential supportive capabilities. The plan must specify clear institutional arrangements for coordinating and aligning the plan with other governmental initiatives and plans of institutional role players. It must also show evidence of informed disaster risk assessment and on-going disaster risk monitoring capabilities as well as relevant developmental measures that reduce the vulnerability of disaster-prone areas, communities and households.

6.7 Ngwathe Local Municipality Disaster Management Policy Framework

The Disaster Management Policy Framework must be developed as part of the disaster management plan and must be adopted by council.

6.8 Disaster Management Advisory Forum

The disaster management forum must be established and sit quarterly or as in when required.

6.9 Status of Ngwathe Local Municipality Disaster Management Plan

Ngwathe Local Municipality must have Level 1 Disaster Risk Management Plan and be adopted by the council. The objective of the plan must be to document the institutional arrangements for disaster risk management planning which includes the assignment of primary and secondary responsibilities for priority disaster risks posing a threat in the Municipality.

It also must provide a framework within which the departments will implement the disaster risk management planning requirements of the Act, and other entities included in the organizational structure of the Municipality. It must establish the operational procedures for disaster risk reduction planning as well as the emergency procedures to be implemented in the event of a disaster occurring or threatening to occur in council's area. Its aim is to facilitate an integrated and coordinated approach to disaster risk management in the municipality which should ensure that the Local Municipalities achieve their vision for disaster risk management which is to capacitate resilient people in Ngwathe Local Municipality which are alert, informed and self-reliant by establishing risk reduction and resilience building as core principles, and developing adequate capabilities for readiness; and effective and rapid, response and recovery .

6.10 Institutional arrangements for integrated policy making, direction and the execution of policy and legislation

Objectives:

- To establish procedures for the development, approval and implementation of integrated Disaster Risk Management policy, including the making of by-laws, issuing directions and authorisations for the issuing of directives.
- To establish mechanisms which will provide clear direction and allocate responsibilities for the implementation of the Disaster Management Act 57 of 2002 (hereinafter referred to as "the Act").
- To develop a strategic plan for phasing in and maintaining the requirements of the Act and the national Disaster management framework; and
- To establish and maintain effective institutional arrangements to ensure adequate operational capacity for the implementation of the requirements of the Act and to enable stakeholder participation which will promote an integrated and co-ordinated approach to Disaster Risk Management in Council.

6.11 Arrangements for integrated policy

The Council

Council is responsible to ensure the implementation of the Disaster Management Act, 2002 for the area of the Ngwathe Local Municipality as a whole and makes all policy decisions in relation to Disaster Risk Management.

Ngwathe LM has primary responsibility in as far as disaster management is concerned as per Sections 55(1) (b) and 55(2) of the Disaster Management Act 57 of 2002.

1. Action to be taken:
The Ngwathe Local Municipality and the Fezile Dabi District Municipality must consult and determine primary responsibility as per sections 54 and 55 of the Disaster Management Act 57 of 2002 for the Ngwathe Local Municipality.

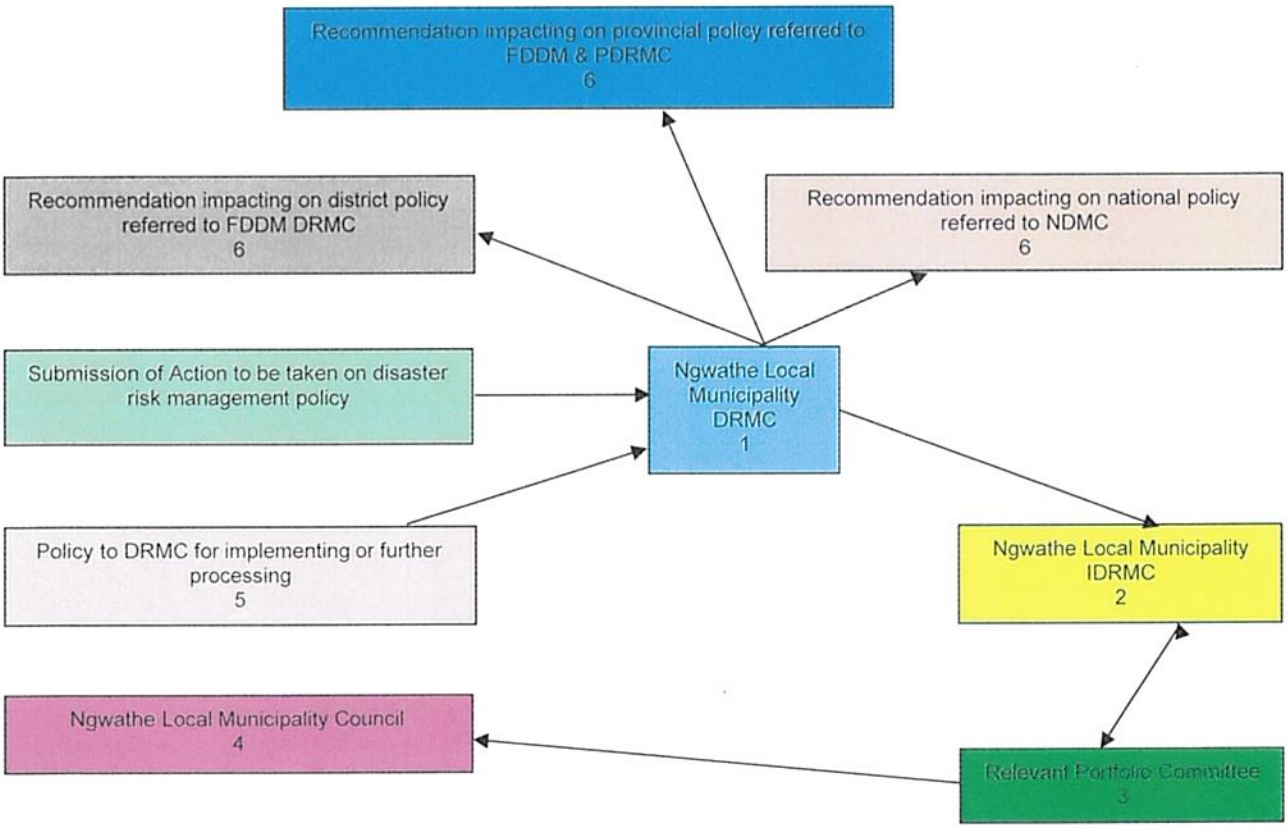
The policy making process

Action to be taken on matters relating to Disasters and Disaster Risk Management policy must be submitted to the Ngwathe Local Municipality DRMC for consideration. The DRMC will refer the Action to be taken to the Ngwathe Local Municipality Inter-Departmental Disaster Risk Management Committee (IDRMC) for consideration before submitting them to the relevant portfolio committee prior to submitting them to the Council. Policy adopted by Council will then be referred to the DRMC for implementation.

The Ngwathe Local Municipality DRMC must ensure that Action to be taken on policy include details of any financial, constitutional, human resource or interdepartmental implications before they are submitted to the relevant portfolio committee and the Council.

The following flow chart provides a diagrammatic view of the process for the submission Action to be taken relating to policy.

Figure 3: The Ngwathe Local Municipality Disaster Risk Management policy-making framework



2. Action to be taken:

The Ngwathe Local Municipality Council should agree on the above policy-making framework and pass a Council resolution in this regard. Arrangements for direction and execution of policy

The Ngwathe Local Municipality Call Centre (Ngwathe Local Municipality CC)

In line with the Disaster Management prescripts, a municipality should establish a functional Disaster Risk Management centre (DRMC). It is recommended in the national framework that all local municipalities identify appropriately qualified staff in their employ to serve as their Disaster Risk Management focal point. The framework further suggests that this person serves on the relevant IDP structures due to the inextricable relationship between Disasters and development.

In order to ensure continuous monitoring of progress with regard to the execution of the provisions of the Act the centre responsible for Disaster Risk Management (Disaster Risk Management Centre) within the municipality must also submit reports in an agreed format on its performance for consideration to every meeting of the Public Safety Portfolio Committee and the Fezile Dabi District DRMC.

Location of the Disaster Risk Management Centre within Council's administration:

In terms of section 45(1) (b) of the Act the district Disaster Risk Management centre exercises its powers and performs its duties in accordance with the *directions* of the municipal council and in accordance with the *administrative* instructions of the Municipal Manager. On this basis, it is recommended that the Ngwathe Local Municipality Call Centre be handled in a similar manner in line with Disaster Management prescripts.

The proposed location of the centre within Council's administration and reporting lines for direction and administrative purposes are illustrated in the chart below

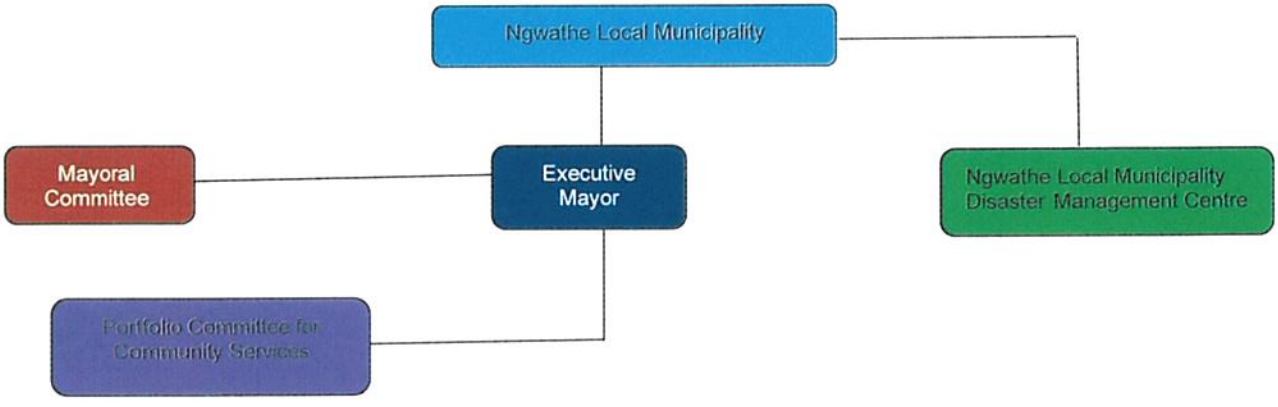


Figure 4: Placement of the Disaster Risk Management function within the structure of the Ngwathe Local Municipality

Key responsibilities of the Ngwathe Local Municipality DRMC

The key responsibilities of the Ngwathe Local Municipality DRMC will be as follows:

- Establish and maintain adequate institutional capacity to enable the implementation of the requirements of the Act which will promote an integrated and co-ordinated approach to Disaster Risk Management in Council's area.
- Implement measures to conduct comprehensive and progressive assessments which will contribute to the development of Disaster risk profiles which are current and relevant, and which will inform planning and the implementation of risk reduction strategies.
- Facilitate the development, implementation and maintenance of Disaster Risk Management plans, programmes and practices for strategic Disaster risk reduction which will ensure that individuals, households, communities, infrastructure and the environment in council's area are resilient to Disaster risk.
- Facilitate the development and implementation of contingency plans to ensure rapid, appropriate and effective Disaster response and recovery to Disasters which occur or are threatening to occur in council's area.
- Develop, establish and maintain a comprehensive information management system, an effective communication system and an accessible public awareness and information service.
- Make provision for accessible training, education and research opportunities for Disaster Risk Management stakeholders in the municipality.
- Make action to be taken regarding the funding for Disaster Risk Management in the council's area of jurisdiction and initiate and facilitate efforts to make such funding available.
- Develop, implement and maintain dynamic mechanisms for monitoring, evaluating and continuously improving Disaster Risk Management practice, projects and programmes.
- Commissioning the development and maintenance of a Disaster risk profile for council's area which is current and relevant.
- Ensuring the development, implementation and maintenance of comprehensive Disaster risk reduction planning and implementation for council's area by the relevant municipal organs of state and other municipal entities/departments within council's administration, and other municipal entities operating within council's jurisdiction.
- Identifying cross boundary Disaster Risks which pose a threat to council's area or to neighbouring jurisdictions and facilitating the development, implementation and maintenance of plans to manage such risks;
- Establishing and maintaining an information management system which includes the development and maintenance of a database linked to a Geographical Information System (GIS);

hazard maps and risk maps informed by the Disaster risk profile; a register of volunteers; a communication directory and a record of available resources.

- Serving as a conduit and repository for information concerning Disasters, impending Disasters and Disaster Risk Management in general.
- Acting in an advisory and consultative capacity on issues concerning Disasters and Disaster Risk Management in the area by the establishment of the Ngwathe Local Municipality Disaster Risk Management Advisory Forum.
- Establishing and maintaining ward Disaster Risk Management structures to deliver services in terms of all of the activities associated with Disaster Risk Management to communities in the areas of the twenty-five (25) wards; and to integrate them into the Disaster Risk Management arrangements for the municipality.
- Establishing and maintaining co-operative partnerships with multi-sectoral role players including the private sector in accordance with Chapter 3 of the Constitution and the Integrated Development Plan objectives.
- The establishment, management and maintenance of a unit of volunteers.
- Ensuring adequate capacity to deal with rapid, co-ordinated and effective Disaster response and recovery by:
    - facilitating the development, implementation and maintenance of contingency plans for Disasters which have been identified in the risk profile as priority risks for council's area.
    - facilitating the development and implementation of standard operating protocols and field operations guides for the various activities associated with Disaster response and recovery based on joint standards of practice amongst all relevant role players to ensure rapid and effective responses.
    - developing and maintaining a Disaster response and recovery plan incorporating the contingency plans, response and recovery protocols and field operations guides.
    - developing guidelines and the capacity to assess the magnitude and severity or the potential magnitude and severity when a Disaster occurs or threatens to occur and determining whether the event should be classified as a local Disaster.
    - developing guidelines and the capacity (including in communities known to be at risk to Disasters) for conducting initial assessments of damage and adverse effects and the immediate humanitarian needs of those affected.
    - mobilising the necessary resources to provide immediate humanitarian assistance and to restore or make temporary arrangements to maintain critical lifeline services, mission critical systems and business continuity during and immediately after a Disaster occurs or when a Disaster is threatening to occur; and
    - providing and co-ordinating physical support to communities and the mission critical systems on which they depend, in the event of those Disasters which are classified as local Disasters.

- Maintaining comprehensive records, documentation and reports of Disaster response and recovery operations.

The Internal departments (municipal organs of state) and other municipal entities within the administration of the Ngwathe Local Municipality

Each department and other municipal entity within Council's administration must, in terms of section 2 of the Act, assess any national legislation applicable to its function and must advise the Ngwathe Local Municipality DRMC on the state of such legislation.
Disaster Risk Management activities must be incorporated into the routine activities of each municipal department and of any other municipal entities and their substructures.

7.ASSIGNMENT OF RESPONSIBILITIES

The Disaster Manager and the heads of each department in council's organisational structure will serve as the assigned Disaster Risk Management nodal/focal point for the department and as such will represent the department on the Ngwathe Local Municipality Inter-Departmental Disaster Risk Management Committee (Ngwathe Local Municipality IDRMC) and will be responsible for all aspects of planning and operations relevant to the functional area in that department or entity.

7.1 The responsibilities of heads of department (HOD's) in this regard include:

- facilitating and co-ordinating the relevant department or entity's Disaster Risk Management planning and operational activities for risk reduction and for response and recovery.
- ensuring that the planning and operations are consistent with the requirements of the Act and Fezile Dabi District Disaster Risk Management framework.
- ensuring the integration and alignment of the entity's planning and operations with that of the district, provincial and national organs of state and other institutional role players.
- ensuring the integration of the risk reduction and response and recovery planning and operations with councils Integrated Development Planning process, the Spatial Development Framework and Environmental Management Framework.
- ensuring the regular review of plans and that planning remains dynamic and relevant in accordance with developmental changes taking place within, or which may impact on council's area; and
- Submitting a copy of the entity's Disaster Risk Management plan and any amendments thereof to the Disaster Risk Management centre for forwarding to the Disaster Risk Management centre of the Fezile Dabi District, Free State and to the National Disaster Risk Management Centre.

In terms of Sections 47 and 52 of the Act each municipal entity must establish its role and responsibilities in terms of the Act and must assess its capacity to fulfil those requirements. Where capacity is lacking it must be augmented by the sharing of resources between departments, organs of state in the other spheres of government and by entering into partnerships with the private sector, non-governmental organisations and community-based organisations. In this regard mutual assistance agreements and memorandum of understanding must be concluded in which the detail, extent and ramifications of such support are recorded.

3. Action to be taken:
The Ngwathe Local Municipality must provide clear guidelines as to the roles and responsibilities of municipal entities in Disaster Risk Management and sign appropriate mutual assistance- or service level agreements for this purpose.

Entities must ensure that their Disaster Risk Management plans are co-ordinated and aligned with those of other organs of state and institutional role players.

In order to give further effect to the requirements of Sections 47 and 52 of the Act, primary responsibility for the co-ordination and management of Disaster Risk Management planning and operations for the following functional areas in the Ngwathe Local Municipality is assigned as follows:

7.2 The Municipal Manager

The Municipal Manager is responsible to ensure the effective implementation of the requirements of the Disaster Risk Management Act, 2002 within the departments and other municipal entities within the Ngwathe Local Municipality and for the integration of Disaster Risk Management plans with the IDP Process.

7.3 The Director: Community Services

- is the Disaster Risk Management focal point for the department.
- will serve on the Ngwathe Local Municipality IDRMC; and
- is responsible for the co-ordination of all relevant aspects of Disaster Risk Management planning and operations in respect of matters related to fire, traffic, licensing, community service and security related matters.
- Is responsible for the co-ordination of all relevant aspects of Disaster Risk Management planning and operations in respect of waste management, and social related matters.

7.4 The Director: Technical Services

- Is the Disaster Risk Management focal point for the department.
- Will serve on the Ngwathe Local Municipality IDRMC; and
- Is responsible for the co-ordination of all relevant aspects of Disaster Risk Management planning and operations in respect of matters related to civil works and infrastructure.

- Is responsible for the co-ordination of all relevant aspects of Disaster Risk Management planning and operations in respect of matters related to emergency housing and reconstruction

7.5 The Director: Local Economic Development:

- Is the Disaster Risk Management focal point for the department.
- Will serve on the Ngwathe Local Municipality IDRMC; and
- Is responsible for the co-ordination of all relevant aspects of Disaster Risk Management planning and operations in respect of matters related to local economic development.

7.6 The Director: Corporate Services:

- Is the Disaster Risk Management focal point for the department.
- Will serve on the Ngwathe Local Municipality IDRMC; and
- Is responsible for the co-ordination of all relevant aspects of Disaster Risk Management planning and operations in respect of matters related to business continuity, legal services, and human resource management.

7.7 The Chief Financial Officer:

- Is the Disaster Risk Management focal point for the department
- Will serve on the Ngwathe Local Municipality IDRMC.
- Is responsible for the co-ordination of all relevant aspects of Disaster Risk Management planning and operations in respect of financial management and procurement

Action to be taken:

The Municipal Manager in consultation with the Directors and Heads of all Divisions and other municipal entities must identify all other statutory functionaries in each of the relevant

CHAPTER 3

8. KPA 1 ~ INTEGRATED INSTITUTIONAL CAPACITY

8.1 Shared responsibility for disaster management

The responsibility for reducing disaster risk, preparing for disasters and responding to disasters is shared among all departments and employees of Ngwathe Local Municipality and all departments and employees of the Ngwathe Local Municipality, all provincial and national organs of state operating within the municipality, all sectors of society within the municipality and, perhaps most importantly, all the residents of the municipality.

8.2 Nodal points for disaster management

Although the municipal department within Ngwathe Local Municipality is assigned with the Disaster Management function should direct and facilitate the disaster risk management process, it cannot perform the whole spectrum of disaster risk management activities on its own. Disaster risk management is everybody's business. Therefore, it is required that each municipal department assign a person or section within the department to be the nodal point for disaster management activities in that department. The same applies to national and provincial departments operating within the municipality. The disaster management activities to be performed within departments and local municipalities include participation in disaster risk reduction as well as preparedness and response.

8.3 Departments with primary responsibility for specific hazards and disaster risks

Where a department has primary responsibility for a specific hazard, the department's role in disaster risk management for that specific hazard will be more than mere participation: it will have to lead risk reduction as well as preparedness activities due to its expertise in the field. Ngwathe Local Municipality Disaster Risk Management can support such a department with advice, information, facilitation and coordination.

8.4 Assignment of responsibility to deal with specific disaster risks

Departments that are responsible for specific services in normal conditions will remain responsible for such services during disasters. The declaration of a state of disaster and the tighter coordination instituted during disasters does not absolve any agency of its assigned responsibilities. In order to reduce the size of this document a specific and detailed listing of all the disaster management responsibilities of each municipal head of department and those of other role players will not be supplied in the body of this document. Legislation assigns responsibility for most disaster risks to specific departments or functions. There are grey areas related to some disaster risks. In order to

ensure clear roles and responsibilities and enhance integrated disaster risk management efforts, such grey areas must be addressed and clearly assigned responsibilities must be confirmed. The risk profile of the Ngwathe Local Municipality will be considered and primary and supporting role players will be identified for each risk. Such allocation of primary and supporting roles will be done in consultation with all relevant role players, will be informed by existing legal frameworks, and assignment will be done on a consensus basis.

8.5 Corporate Disaster Risk Management Structure for Ngwathe Local Municipality

The Community Services Disaster Management structure for Ngwathe Local Municipality must deal with both proactive and reactive disaster management issues and encompasses more than the department which is responsible for the function. The structure will include the following elements:

8.6 Ngwathe Disaster Risk Management

A department within Ngwathe Local Municipality that has been assigned with the Disaster Management function. A local municipality is legally obliged to establish a Disaster Management Centre. The Disaster Management Centre of Ngwathe Local Municipality must aim to prevent or reduce the risk of disasters, mitigate the severity or consequences of disasters, prepare for emergencies, respond rapidly and effectively to disasters and to implement post disaster recovery and rehabilitation within the municipality by monitoring, integrating, coordinating and directing the disaster risk management activities of all role players.

8.7 Municipal Disaster Management Advisory Forum

District municipalities may establish municipal disaster management advisory forums as described in Section 51 of the Disaster Management Act. It is advantageous for a municipality to establish such a forum to coordinate strategic issues related to disaster management such as risk assessments and to approve and/or review the disaster management plan for the municipality before it is submitted to Council. Frequency of meetings: 2-4 times per year or as required. Leadership from local municipalities within the district should form part of the Forum.

8.8 Interdepartmental Disaster Management Committee

This is an internal coordination forum at manager level where instructions from the Advisory Forum can be implemented and tracked and serves as a coordination forum for disaster management issues within the municipality. This role can be performed by the top management team of the municipality, thus reducing the complexity of the disaster management structure. Top management from local authorities should form part of the Committee.

8.9 Departmental and local municipality planning groups

This element relates to planning groups that can be established within departments or local municipality to deal with internal disaster management issues such as the compilation of departmental or local municipal disaster management plans and contingency plans for facilities and services of the department or local municipality.

8.10 Risk reduction project teams

A multi-disciplinary project team convened to address and reduce a specific disaster risk. Convened by the primary role-player for the risk and supported by Disaster Management.

8.11 Preparedness planning groups

A multi-disciplinary planning group convened to ensure a high level of preparedness for a specific disaster risk.

Convened by the primary role-player for the risk and supported by Disaster Management.

8.12 Joint response & relief management teams

Mostly flowing from a preparedness planning group, a team that is mobilised to deal with the immediate response & relief required during or immediately after major incidents and disasters. Will normally convene in the Joint Operations Centre (see description below).

8.13 Recovery & Rehabilitation project teams

Project teams managing recovery and rehabilitation after disasters. Departments who are responsible for the maintenance of specific infrastructure are also responsible for the repair or replacement of such infrastructure after disasters. Disaster recovery and rehabilitation must focus on risk elimination or mitigation.

8.14 Ngwathe LM Emergency Control Centre/Group

This centre or group provide 24-hour emergency standby. Responsible for day-to-day emergency response by municipal departments and for the establishment of strategic communication links.

8.15 Ngwathe LM Joint Operations Centre (JOC)

A facility equipped to serve as command and coordination centre during disasters

CHAPTER 4

9. KPA 2 ~ RISK ASSESSMENT

9.1 Introduction

The report will document the main findings of a disaster risk assessment for Ngwathe LM and is part of reviewing the Disaster Management Plan.

Aspects that will be discussed in the report include:

- Challenges and solutions.
- Hazard identification and description and
- Disaster risk calculation and mapping and conclusions and recommendations.

9.2 Disaster Risk Assessment

; Projects and Management developed a method and tool to do disaster risk assessment. The assessment includes a ***hazard identification***, ***risk profiling assessment*** and a ***risk prioritisation*** for Ngwathe Local Municipality, involving the following action steps:

- **Step 1 ~ Information collection**: Information regarding hazards must be collected.
- **Step 2 ~ Hazard Assessment**: Once the basic data for an area, such as the forecast, has been collected, the ***potential hazards*** for the area must be assessed. The various hazards are generally grouped into a range of categories, called a ***Hazard Classification***.
- **Step 3 ~ Risk Profiling Assessment**: The ***Risk Profiling Assessment*** will take this a step further, to identify which communities or societies are vulnerable to what hazards (or risks).
- **Step 4 ~ Risk Prioritisation**: The Risk Profiling Assessment normally produces so many risks that must be addressed that the sheer volume of work tends to be overwhelming. Consequently, it is recommended that you ***prioritise the risks*** to be addressed.

9.2.1 Hazard Quantification

Hazards are quantified in terms of:

- **Probability**: The probability of a hazard occurring will be assessed and classified in three categories, namely:



~ hazards in this category will have a very high probability of occurring (rating = 3)

~ hazards in this category will have a normal probability of occurring (rating = 2)

~ hazards in this category will have an unlikely probability of occurring (rating = 1)

- **Severity**: The severity of the hazard, should it occur, will be accessed and the hazards will be classified into the following three categories:

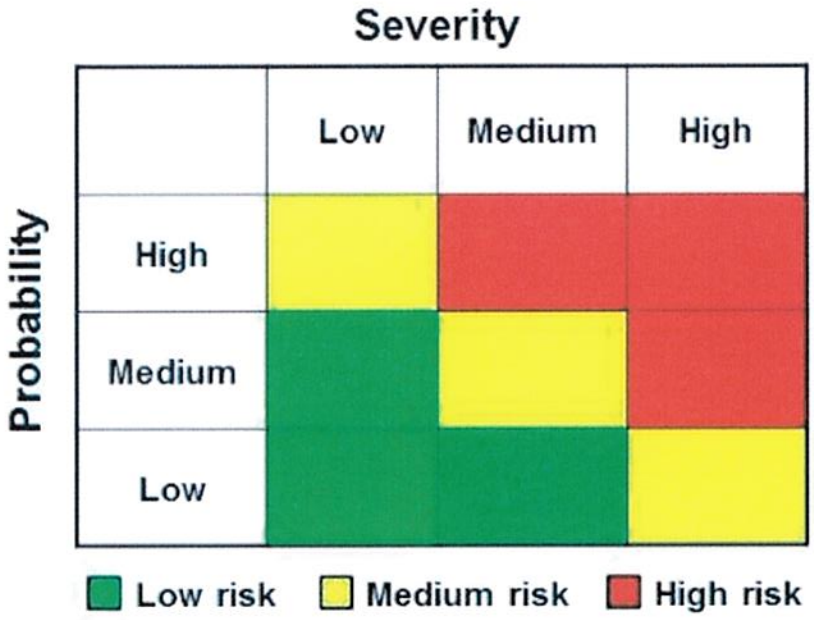
Extreme ~ hazards in this category will hold extreme consequences to a community. (Rating =3)

Moderate ~ hazards in this category will hold moderate consequences to a community. (Rating 2)

Insignificant ~ hazards in this category will hold Insignificant consequences to a community. (Rating = 1)

Total Hazard Rating = Probability x Severity

Table 1 Hazard quantification



During the consultative process, stakeholders are tasked with identifying hazards that are prevalent in their regions.

The list of hazards is supplied by the National Disaster Management Centre and is applicable to the whole of South Africa. Once the applicable hazards have been identified, each one gets rated according to the probability of it occurring and the severity of its resultant impacts. The hazard identification form below is used during the consultative process to identify hazards and to add hazards that may have been omitted.

9.2.2 Coping Capacity Quantification

This analysis focuses on determining the degree to which a community can intervene and manage the negative consequences of a hazard event.

The following topics were covered to determine the degree to which a community can intervene and manage the negative consequences of a hazard event:

Awareness: The over-all awareness of people living in a potential impact area of a hazard to that hazard is one of the factors that determine the risk manageability of a community. Rate the awareness of people in the primary impact area of a hazard to that particular hazard on a three-point scale (good = 3; modest =2; poor = 1).

- **Legislative Framework**: The legislative framework that governs a particular hazard event is one of the factors that determine the risk manageability of a community. Rate the legislative framework of a hazard occurrence on a three-point scale.
- **Early Warning Systems**: Rate the early warning system for a hazard event on a three-point scale.
- **Government Response**: Rate the response of your municipality and the provincial government to a hazard event on a three-point scale.
- **Government Resources**: Rate the resources available to your municipality and the provincial government for a hazard event on a three-point scale.
- **Existing Risk Reduction Measures**: Rate the existing risk reduction measures of the municipality and the

  Provincial government to a hazard event on a three-point scale.
- **Public Participation Measures**: Rate the existing public participation measures of the municipality and the provincial government to a hazard event on a three-point scale.
- **Municipal Management Capabilities**: Rate the over-all management capability of the municipality for a hazard event on a three-point scale.

A simple mathematical model (formula given below) can be utilised to quantify the degree to which a community can intervene and manage the negative consequences of a hazard event:

- **Coping Capacity Score ≥ 18**: Should the risk manageability score of a particular hazard event impacting on a community be higher than 18 that community has a very ***high*** level of manageability, and it is unlikely that the hazard event will impact negatively on the community.
- **8 < Coping Capacity Score < 18**: If the risk manageability score of a particular hazard event impacting on a community is between 8 and 18, that community has a ***modest*** level of manageability, and it is likely that the hazard event will impact negatively on the community.
- **Coping Capacity Score ≤ 8**: Risk manageability scores of a particular hazard event impacting on a community

Lower than 8 accounts for a community with a ***poor*** level of manageability and it is highly likely that the hazard event will impact negatively on the community.

9.2.3 Vulnerability Quantification

The ISDR defines vulnerability as the conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards. Vulnerability is an intrinsic predisposition to be affected by or to be susceptible to damage due to the impact of a hazard. To enable risk quantification the Vulnerabilities of the area should be calculated. The model assesses environmental, economic, societal and critical facilities (political and legal vulnerabilities may also be assessed).

The following scoring is used:

1= not vulnerable

2= moderately vulnerable

3=extremely vulnerable

These scores are captured during the consultative process by analysing each hazard and assigning a score for each vulnerability component associated with the hazard. A total vulnerability score (V_T), which is the sum of the Environmental (V_{ENV}), economical (V_{EC}), societal (V_S) and critical facility (V_{CF}) vulnerabilities can then be calculated for each hazard. These scores are then finalised using information gathered through the desktop analysis.

$$V_T = V_{ENV} + V_{EC} + V_S + V_{CF} (+V_L + V_P)$$

10 ≥ Vulnerability score ≥ 12: Should the vulnerability score of a particular hazard event impacting on a community be higher than or equal to 10, that community is extremely vulnerable to that hazard.

7 ≥ Vulnerability score ≥ 9: Should the vulnerability score of a particular hazard event impacting on a community be between or equal to 7 and 9, the community is moderately vulnerable.

Vulnerability score < 9: Should the vulnerability score of a particular hazard event impacting on a community be less than 7, the vulnerability is considered to be low.

9.2.4 Relative Risk Priorities

To ensure that all the parameters (Hazard Score; Vulnerability Score; Coping Capacity Score) required for calculating risk were equally weighted, all their respective scores were reclassified and rated from 1 to 3.

Calculate Relative Risk Priorities: The following simple mathematical model was used to calculate the relative priorities of the risks to which the communities in each region are exposed:

Relative Risk Priority Score = Hazard rating X Vulnerability rating / Capacity to Cope Score

Extremely High Risks *(Relative Risk Priority ≥ 7)*: Should the relative risk priority of a particular hazard event impacting on a community be higher than or equal to 7, that community faces a potentially ***destructive*** risk with a high probability of occurrence, for which they are ***unprepared***. This combination equates to an **extremely high risk** and is a disaster in the making. For these **extremely high risks** you must prepare **urgent risk reduction interventions.**

High Risks *(4.5 ≤ Relative Risk Priority < 7)*: If the relative risk priority of a particular hazard event impacting on a community is between 4.5 and 7, the risks to which these communities are exposed are potentially destructive, but the community is modestly prepared for the hazard event occurrence. This combination equates to a **high risk,** and you must prepare a combination of **risk reduction interventions** and **preparedness plans** for these risks.

Tolerable Risks *(2 ≤Relative Risk Priority < 4.5)*: Relative risk priorities of a particular hazard event impacting on a community between 2 and lower than 4.5 translate into an acceptable risk for a largely prepared community. This combination equates to a **tolerable risk,** and you must prepare **preparedness plans** for these risks

Low Risks *(Relative Risk Priority < 2)*: Relative risk priorities of a particular hazard event impacting on a community lower than 2 translate into a very small risk for a largely prepared community. This combination equates to a **low risk,** and **any hazard preparedness plans** are sufficient for these risks

9.2.5 Information collection

This phase requires that all available data and information relating possible disasters in the area are collected. This should be a continuous process and should include taking note of (and later planning for) major events that may occur in the area, such a major political gathering, elections, a major sports event or an outbreak of a non-endemic disease. Information is mainly collected through a desktop research process.

Some of the data used in hazard assessment include:

- Indigenous knowledge.
- River data from DWA and NGI.
- Road data from NGI.
- Demarcation data from Demarcation Board.
- Cadastral data from Surveyor General.
- The Environmental Potential Atlas, the environmental character maps depict geology, land types, soils, vegetation, and hydrology. The socio-economic factors consist of land cover, cadastral aspects and infrastructure, land use and culture.
- Town and settlement data from NGI and GAP
- Secondary information from various reports and other relevant sources.

The methodology used to identify hazards, map it, show and calculate vulnerability, calculate risk and prioritise hazards and create hazard and risk profile are as follows:

- Use indigenous knowledge captured during one-on-one interview with the community members to informed hazard identification and map it.
- Conduct hazard analysis using GIS techniques to identify and map hazards; o for example during interview roads were identified on which hazmat are transported. These roads were identified in available GIS data and mapped.

9.2.6 Hazard Assessment for Ngwathe Local Municipality

9.2.6.1 Hazard Identification

The following steps were taken to assess potential hazards for Ngwathe Local Municipality:

- Conduct interviews to collect relevant data and information.
- Analyse secondary sources of data to identify possible hazards.
- Transfer identified data and information regarding hazards to a GIS database.
- Use GIS techniques to do hazard assessment.

Table 2 shows the hazards identified for Ngwathe Local Municipality. It includes the hazard category, hazard and the possible affected area in the municipality.

Table 2: Hazards identified for Ngwathe Local Municipality

Hazard Category	Hazard
Hydro meteorological	Severe storms
	Floods
	Drought
Biological	Veld fires/wildfires
	Human epidemic disease
	Animal epidemic disease
Geological	Subsidence
Technological	Aircraft incident
	Rail incident
	Road incidents
	Fire structural (formal)
	Pipeline
	HAZMAT (fire / spill / leak/explosion)
	HAZMAT (spill) - road
	Dam failure / transfer tunnel failure
	Surface Water pollution /eutrophication
	Air pollution
	Land degradation

9.2.3 Natural Hazards

9.2.3.1 Hydro-meteorological hazards

Hydro-meteorological hazards is a wide variety of meteorological, hydrological and climate phenomena that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. This type of hazard refers to drought, thunderstorms, hailstorms, tornados, sandstorms, floods including flash floods, drought, heat waves and cold spells[1].

9.2.3.2 Floods

A flood is defined as the temporary inundation of normally dry land areas resulting from the overflowing of the natural or artificial confines of a river or other body of water, including groundwater[2].

Flooding occurs due to various contributing factors which form part of a complicated and integrated system. The following factors contribute to flooding events: Rapid urbanisation; Flow restrictions; inappropriate canalisation; In appropriate revetments; Deteriorating water quality; Uncontrolled floodplain in-filling; and Inappropriate land use.

A flood is a normal event for any river or stream that could occur over a period of time varying from several times a year to once in a few hundred years. Floods are caused when excess water from heavy rainfall, snowmelt or storm surge accumulates and overflows the river or stream's normal path onto its banks and adjacent floodplains. Several factors determine the severity of floods, including rainfall intensity and duration. A large amount of rainfall in a short time span can cause flash flooding. A small amount of rain can also cause flooding if the soil is saturated from a previous wet period, or if the rain is concentrated in areas where the surface is impermeable such as developed areas where most of the surface is covered with concrete, tar and other building materials (FEMA, 1999).

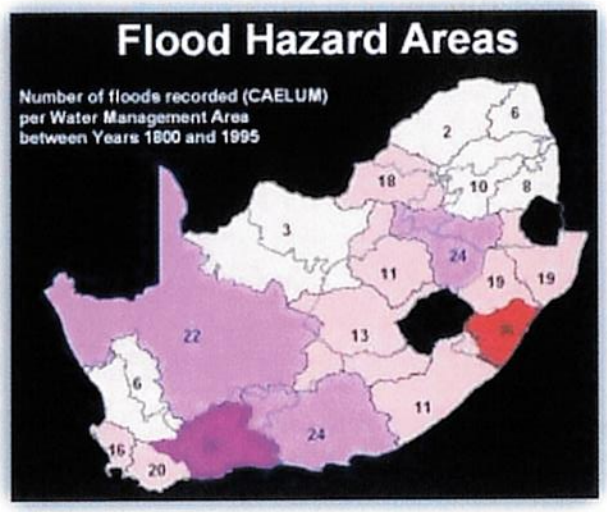


Figure 5: Flood Hazard Areas[1]

It is the responsibility of each municipality to determine the specific flood lines for rivers in their area. The main aim with floods assessment for this project is the identification of vulnerable areas and communities.

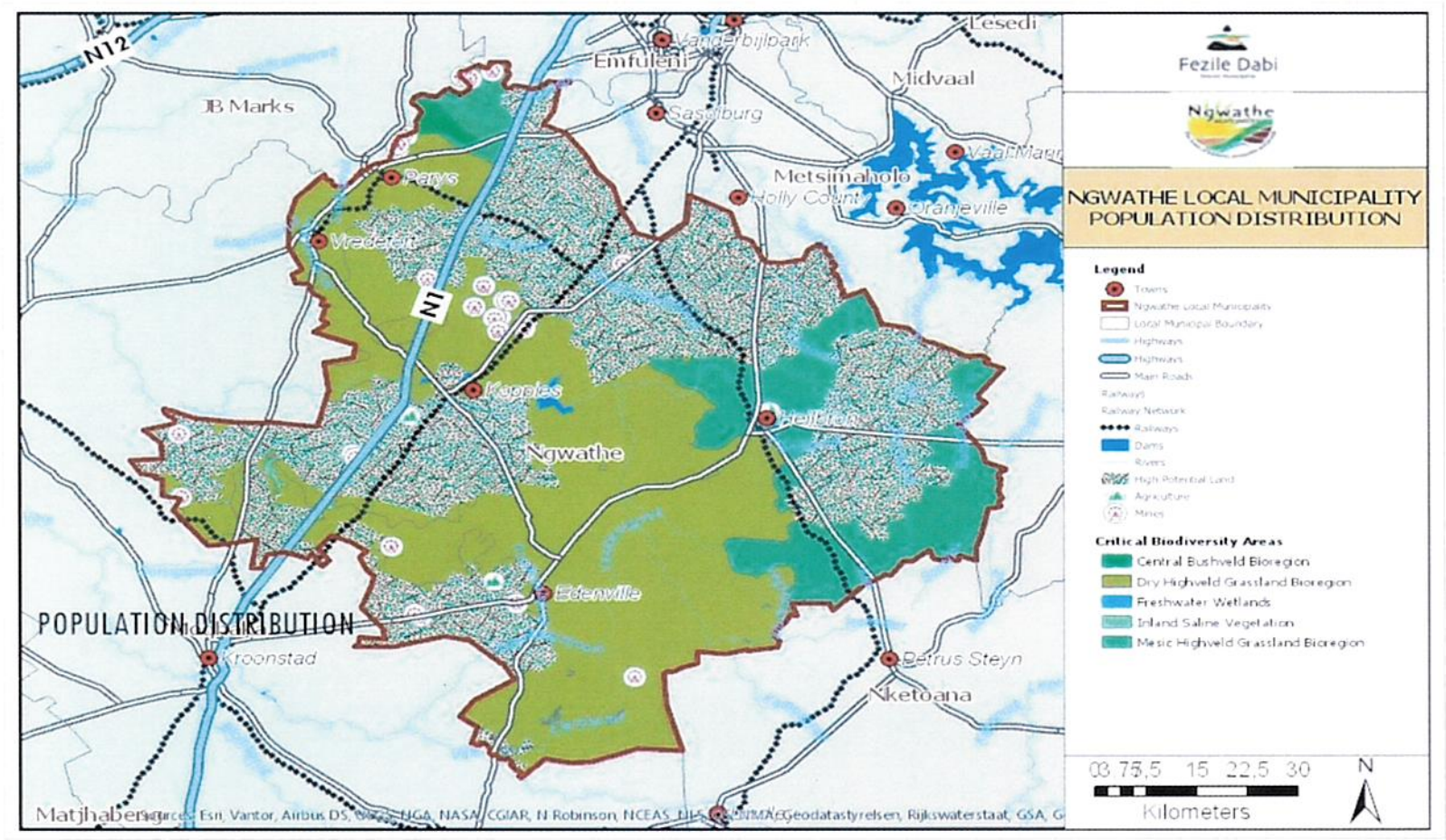
The method to do the identification is as follows:

- Identify perennial River databases from Department of Water Affairs were compared with 1:50 000 scale river vector data from National Geo-Spatial Information (Department of Rural Development and Land Reform (DRDLR)). A new set of geo-data was created using the 1:50 000 vector data as base and where the data from DWA indicated that it is a perennial river and the 1:50 000 a no perennial river, it was changed to perennial.

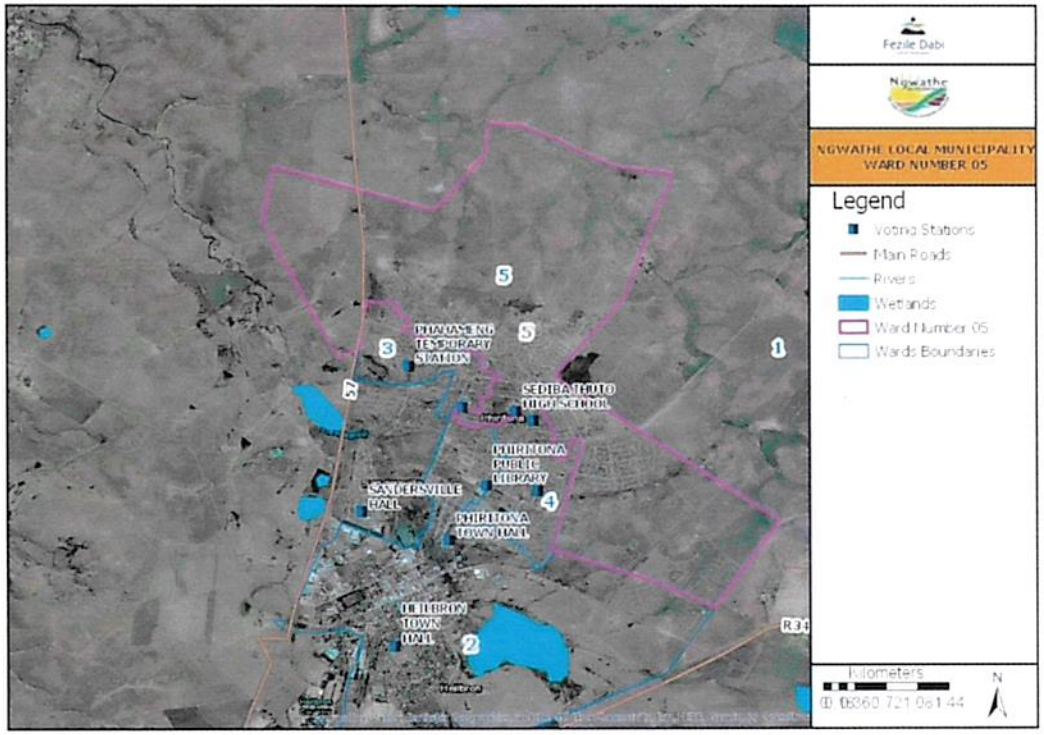
These rivers were also compared with the names of rivers provided during workshops.

- Identification of effected areas

See **Map 2** that indicates the flood prone areas for the Municipality



Map 2: Flood Prone

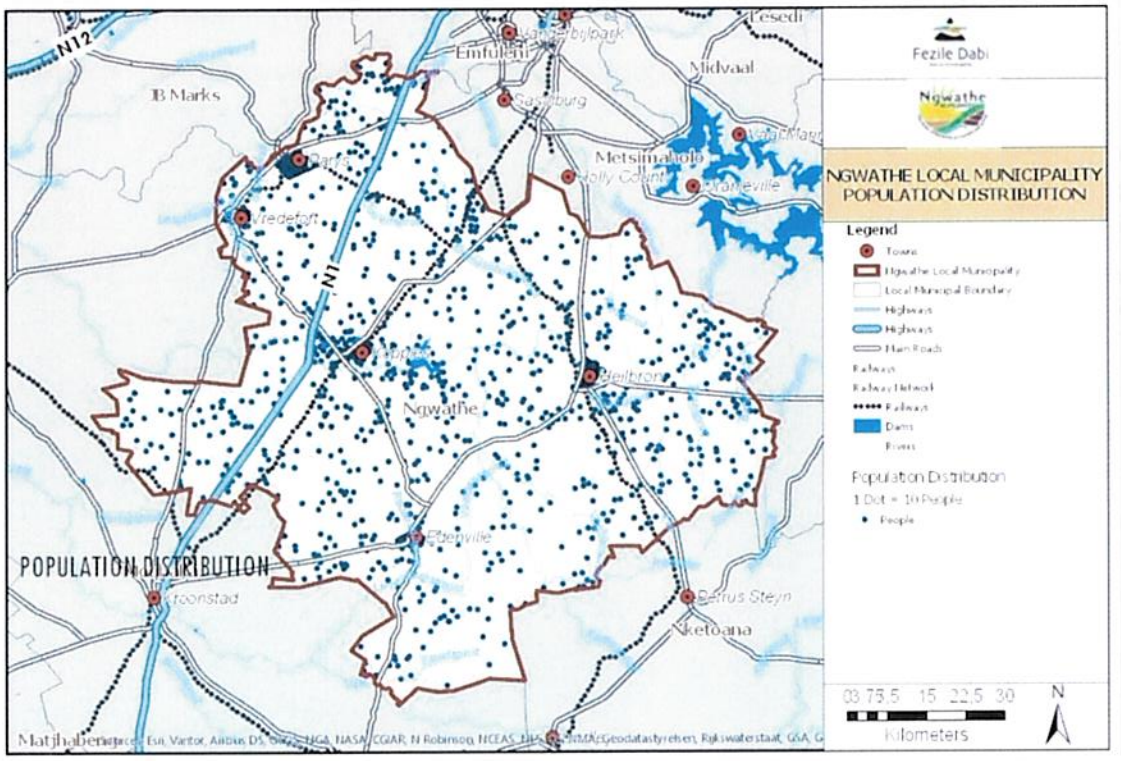


Map 3: Flood Prone Grid

The blue rivers and pink areas in Map 2 indicate the areas that **can** flood and have an impact on the communities.

9.2.3.3 Drought

Please visit http://www.weathersa.co.za/web/index.php/sclimate for up to date information regarding weather predictions. Map 3 shows the Standardised Precipitation Index



Map 4: Ngwathe Local Municipality Population Distribution

9.2.3.4 Strong Winds

Wind is air in motion; a weather element that may modify the effect of other weather elements. The speed and direction of wind is determined by atmospheric pressure and weather systems in a particular area. Strong winds were noted in the municipality's consultative workshops.

9.2.3.5 Thunderstorms and Lightning

The lightning flash density map was prepared by a CSIR Task Force on Lightning Flash Counters, which consisted of representatives of the Postal Services, Eskom, SABC, the Department of Transport, the Weather Bureau, Municipalities, the Department of Water Affairs, National and Provincial Parks Boards and individuals. The Task Force arranged for the purchase, installation and routine reading of nearly 400 flash counters throughout South Africa. The results were then used to

compile the flash density map with the aid of a computer program developed for this purpose. The eleven-year duration of the scheme made provision for possible variation in seasonal lightning density, and the information contained in the final chart may be taken as sufficient indication of the mean lightning activity of the area, within an error of about 40%. It is possible that unusually active lightning seasons may occur in the future (as happened in 1970/71), which may increase this margin of error in the long term. Map 2 indicates the average number of lightning strikes per square kilometre that could be expected in a calendar.

9.3.2.6 Severe Storms (hail and snow)

Severe storms are atmospheric disturbances usually characterized by a strong wind, frequently combined with rain, snow, sleet, hail, ice, and thunder and lightning. This includes unusual weather disturbances such as tornadoes, hurricanes, flash flooding or waterspouts[2]. The resulting hazards affect social and economic infrastructure and livelihoods, as well as impacting the natural environment and sensitive ecosystems.

9.2.3.7 Biological hazards

Biological hazards are naturally occurring substances such as bacteria and moulds or animals such as insects that are able to cause illness in humans and animals, although, as per the National Disaster Management Framework (Act 57 of 2002), veld fires have also been classified as biological hazards.

Unlike hazards such as geological hazards where the existing geological formations provide scientific clues to possible risks, biological hazards need not be habitually present in an area to give rise to an unexpected disaster. In the sphere of biological agents of risk, a survey of diseases that are habitually or usually present in a region does not adequately cover the possible (or even probable) risks posed by human and animal diseases. Disease-causing organisms (called pathogens) do not respect borders and can invade a region in so many ways that only a general overview of the pathways of disease transmission and examples of the pathogens involved can be given here. The categories of biological health hazards include much more than just the microbiological organisms causing human disease. It also includes, amongst others, animal diseases with an impact on human health or economic well-being, proliferation of pest plants or plant diseases causing crop failure, upsurge in the numbers of problem animals, etc. In this section the emphasis is placed on disease as an important primary cause of disaster events, but also as a very important secondary risk in the aftermath of disasters triggered by other causes such as floods, earthquakes, fires and the like.

9.2.3.8 Animal diseases

. Foot and Mouth Disease

Foot and Mouth Disease (FMD) is a highly contagious virus that affects cloven-hooved animals, such as cattle, pigs, sheep and antelope and the disease does not affect humans.

. African Swine Fever (ASF)

African Swine Fever (ASF) should not be confused with swine flu. It's endemic to Sub-Saharan Africa and affects only pigs and cannot be transferred to humans. ASF is a serious viral disease of pigs and is highly contagious and can spread very rapidly in pig populations by direct or indirect transmission or within a tick vector. This virus can persist for long periods in pig products and the environment[3].

9.2.3.9 Rabies (animals)

This sudden spread of rabies in dog populations can be attributed to a rapid spatial and numerical extension of human settlements and associated dog demographics. The increase in the spread and the speed of rabies in dog populations shows that rabies continues to pose a definite public health threat in South Africa and especially in:

9.2.3.10 Human diseases

The municipality experiences an easy proliferation of contagious diseases such as HIV/Aids, malaria and cholera. Human endemic diseases are the impairment of the normal state of a human being that interrupts or modifies its vital functions, affecting a disproportionately large number of people.

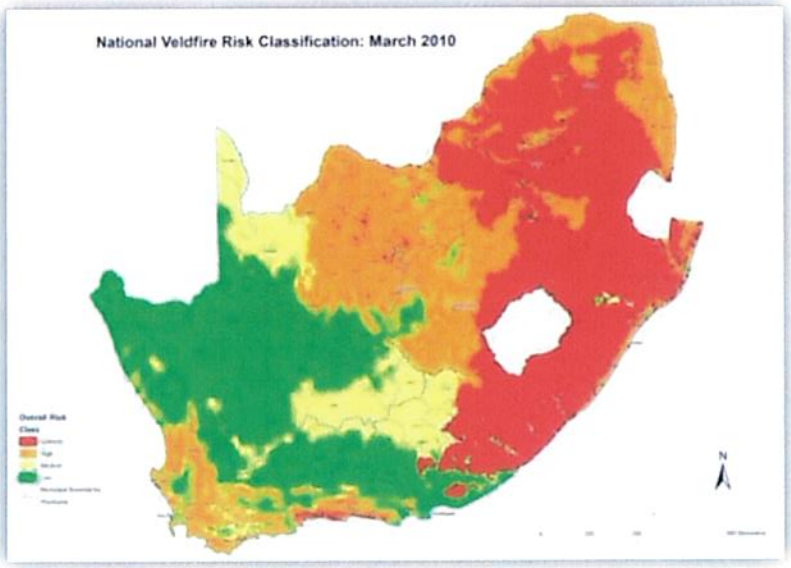
9.2.3.11 Veld fire risk

A veld, forest of mountain fire, is where 'veld' means the open countryside beyond the urban limit or homestead boundary. Veld fires are defined as a fire of any size that occurred in fynbos or other natural veld, plantations, crops, or invasive vegetation outside a built-up area[4]. The Department of Forestry has classified each metropole and local municipality according to classes of veld fire risk, as a national framework for the implementation of the National Veld and Forest Fire Act[5].

The risk assessment follows the international standard, as adapted for South Africa. The classification is therefore **preliminary but** is intended to serve as a **working guide** until further

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research improves the assessment in due course. A map which indicates veld fire risk areas are shown in Map 5.



Map 5: Municipalities classified by veld fire risk[6]

The risk classification is based upon available ecological information on the prevailing natural vegetation and readily available reports on the incidence, behaviour and consequence of veld fires. For each kind of vegetation, the likelihood of veld fires occurring in that vegetation, and the consequences that arise in modern times when such veld fires occur was established. This combination of likelihood and consequence allows the risk to be rated. Then, using geographical information, a risk class is assigned to each metropolis, municipality, or district management area.

In South Africa, fire is important for many natural ecosystems such as fynbos, grasslands and savannah. Veld fires are part of the natural ecological processes in most parts of the country. In many areas, large veld fires occur without necessarily posing a threat to life, property or the environment. In such cases, they are not real or potential disasters. Indigenous plant species are well adapted to fire and depend on the natural occurrence of fire for their survival. Lightning (also associated with severe storms) is a natural source of ignition in these areas. Prior to human occupation, the areas were ignited by lightning strikes that reached the ground. The frequency of these events has resulted in the vegetation adapting to the occurrences, in order to ensure the survival of their species. Invasive alien vegetation has a severe negative impact on fire dependant ecosystems as they increase the fuel loads, causing prolonged fire events and increasing the fire intensity.

Veld fires have the potential to affect power lines, water reticulation systems, agricultural areas and grazing land. Environmental change such as the spread of alien invasive plants, a process that can be accelerated by fire, causes the overall potential for disastrous veld fires to grow. Increasingly

more and more we have the situation where human settlement and development encroaches further into the natural environment, and veld fires therefore pose a growing threat to vulnerable properties and communities. Fire risks are most severe in extensive informal settlements, when overturned stoves, candles and lamps set the flammable construction materials of the shack-type housing alight. Common human-induced ignition sources are the burning of waste, leaving fires unattended in the veld and discarding of cigarette stubs. Disasters such as out-of-control fires raging over extensive areas can give rise to numbers of injured persons far more than the coping abilities of the local health services. In fire situations, burn wounds of varying severity and smoke inhalation are the most frequent injury types, with a smaller number of fall-related injuries as persons endangered by the fire try to escape.

The concept of "veld fire" is employed in this report and refers to veld, forest, mountain or bush fires (In South Africa 30,6% of the country is exposed to extreme veld fires and compared nationally). During 1988 South Africa passed the new National Veld and Forest Fire Act (Act 101 of 1988). The Act provides for the prevention of veldt, forest and mountain fires through the deployment of a National Fire Danger Rating System (NDFRS) (Section 3 of the Act).

The fire danger rating system must:

a) Consider the relevant peculiarities of each region, including-

- The topography.
- The type of vegetation in the area.
- The seasonal climatic cycle.
- Typical weather conditions.
- Were reasonably possible, current weather conditions.
- Forecasted weather conditions, and
- Any other relevant matter.

b) Incorporate the formula or formulae needed to-

- Take into account all factors affecting the fire danger for each region.
- Calculate the indicators needed to rate the fire danger and
- Rate the fire danger in each region for an appropriate period or periods.

This report provides an account of the process used to calculate the fire danger index employed in the calculating of the fire danger for the municipality. As required by the National Veldt Fire and

Forest Fire Act, the fire danger rating system will have the primary purpose of preventing and controlling wildfires. This prevention should come about through an ability to identify the conditions that could lead to fires. Fire danger is the result of both relatively constant (fuel, topography) and variable (weather) factors affecting the inception, spread, difficulty of control and potential to damage. As a point of departure, four different land cover categories were identified. In Table 14 the land cover was grouped according to fuel loads, fuel particle sizes, the distribution, compaction and moisture content of the different fuels.

Table 3: Classification of land cover used in this study

Land Cover	Class
Bare rock and eroded land	1
Bare rock and soil	1
Built-up land; Commercial	2
Built-up land; Residential	2
Cultivated grass	4
Cultivated land; commercial	3
Cultivated land; subsistence	3
Degraded; herb land	4
Degraded; Scrublands and low fynbos	4
Degraded; Thicket and bushveld	3
Degraded; Unimproved grassland	4
Exotic plantations	4
Grassland	4
Herbland	4
Indigenous forest	4
Mines and quarries	1
Scrublands/fynbos	4
Thicket and bushveld	3
Wetland	1
Woodland	3

Areas covered by grass and located on steep slopes are prone to fire and are classified as high hazard areas, compared to areas lying on moderate to flat slopes. This is because steep slopes significantly increase the forward spread rate of fires and modify the extent in which materials ahead are pre-heated. The combination of steep slopes and high fuel loads cause areas to be prone to fire compared to areas situated on moderate to flat slopes with lower fuel loads. Table 5 shows the risk associated with each set of conditions.

Table 4: Fire risk index used to compile the veldt fire map

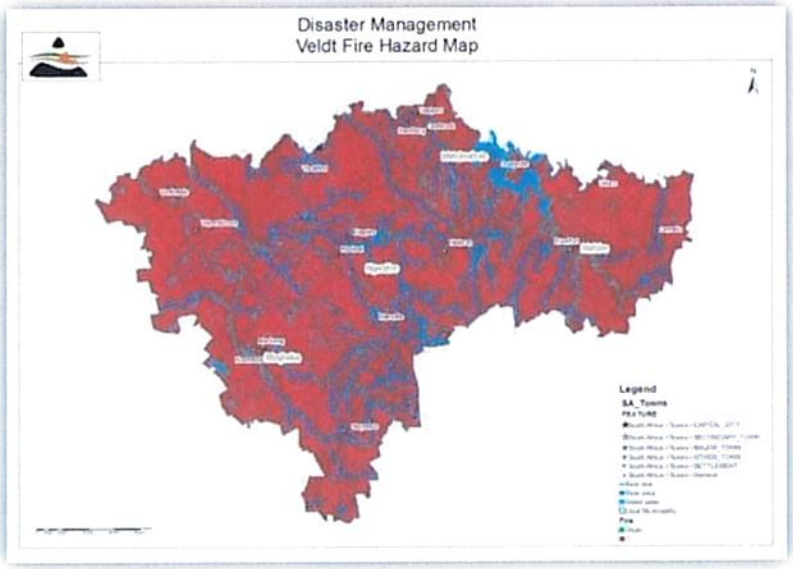
Class	Slope	Risk
1	Steep (15 – 25)	Medium
2	Steep (15 – 25)	Medium
3	Steep (15 – 25)	High
4	Steep (15 – 25)	High
1	Medium (9 – 15)	Low
2	Medium (9 – 15)	Medium
3	Medium (9 – 15)	Medium
4	Medium (9 – 15)	High
1	Low (0 – 9)	Low
2	Low (0 – 9)	Low
3	Low (0 – 9)	Medium
4	Low (0 – 9)	Medium

Table 4 indicates the fire hazard map and is clear that the type of land covered most parts of the region is classified as a medium possibility veldt fire risk in this area of jurisdiction.

Prevailing weather conditions, for example high air temperatures, low daytime relative humidity and strong gusting changeable winds ahead of an advancing cold front, exceeds the local community's capacity to respond when the fire spreads rapidly by growing quickly in size[7].

Map 6: Fire hazard map

Map 6 shows fire risk for the municipalities and indicates that the whole area has a medium to high risk. The red areas show where slope increase the risk.



Map 6: Fire hazard grid

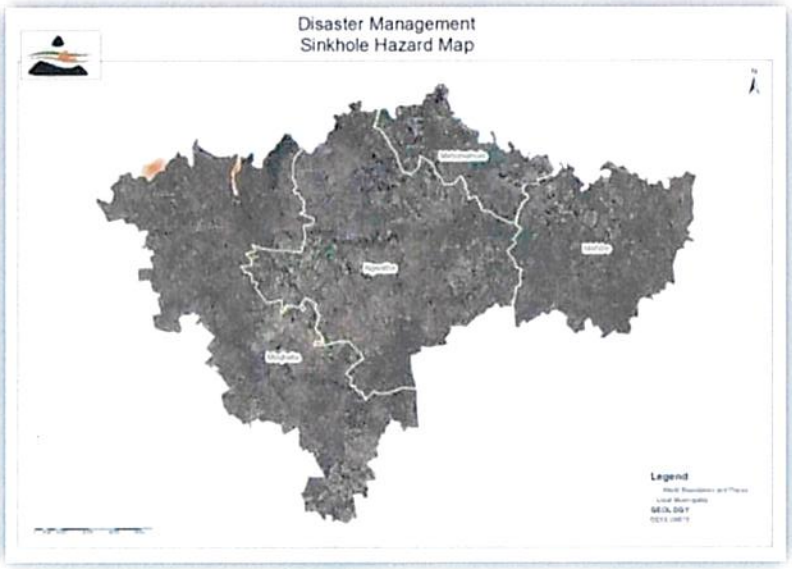
9.3 Geological hazards

A geological hazard is caused by geological conditions that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. Geological hazards include internal earth processes, such as earthquakes and related geophysical processes such as mass movements, landslides, rockslides, surface collapses, and debris or mud flows[8].

9.3.1 Sinkholes

To identify sinkholes, the assumption was made that those areas where dolomite is, can be at risk for sinkholes.

Map 7 shows the areas where dolomite is.



Map 7: Location of Dolomite

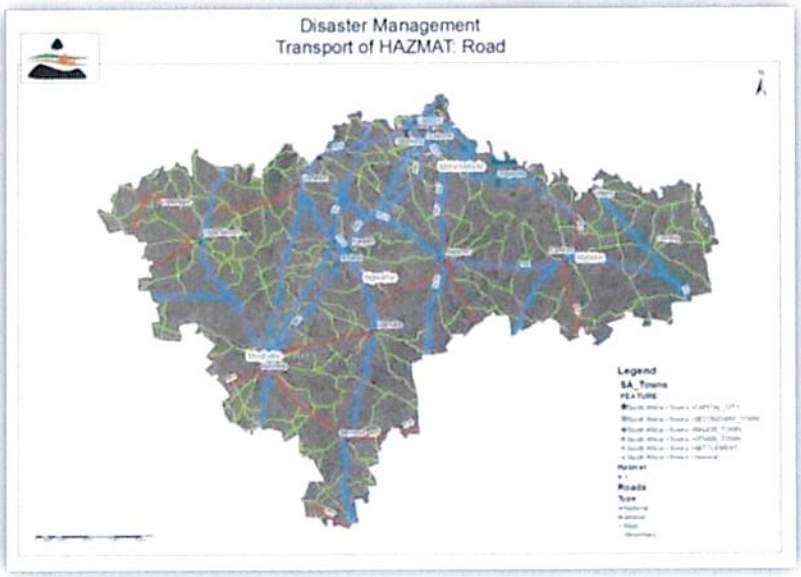
Map 7 shows the areas in red that can be at risk for sinkholes.

9.4 Technological Hazards

Technological hazards are defined as danger originating from technological or industrial accidents, dangerous procedures or certain human activities, which may cause the loss of life or injury, property damage, social and economic degradation.

9.4.1 Hazardous material transportation

During the workshops and as identified in previous risk assessments, roads were identified on which hazardous material are transported. These roads are shown in purple in Map 8.



Map 8: Hazmat Routes as identified during workshops and previous reports

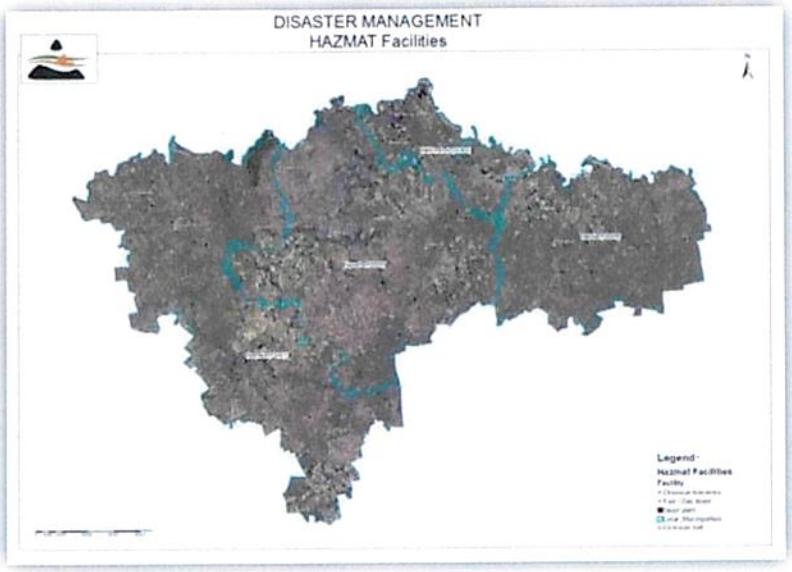
Data from these roads were transferred to the grid database and Map 7 was the result.



Map 9: Hazmat Routes Grid

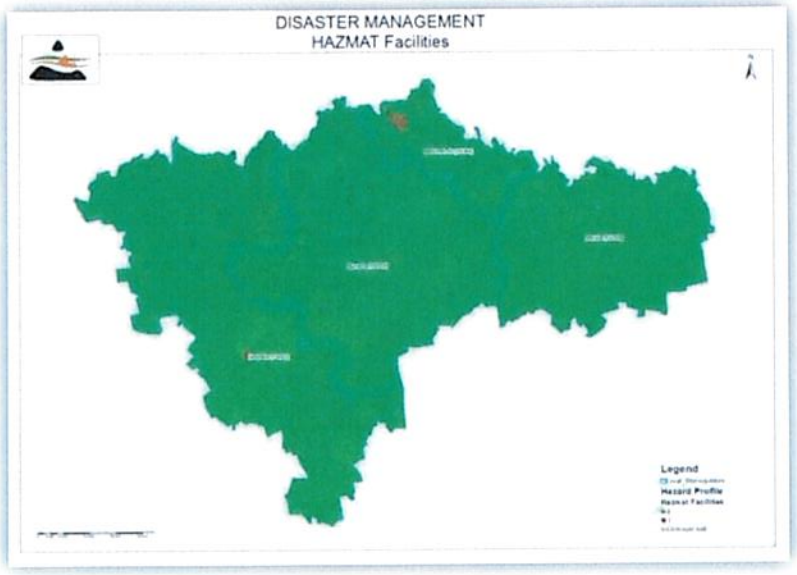
9.4.2 Hazmat Facilities

HAZMAT facilities were identified from data acquired during the previous disaster management project. Map 8 shows that the Sasol Plant, chemical industries and fuel and gas depots were map. These were mainly in Metsimaholo and Ngwathe LM.



Map 10: HAZMAT Facilities

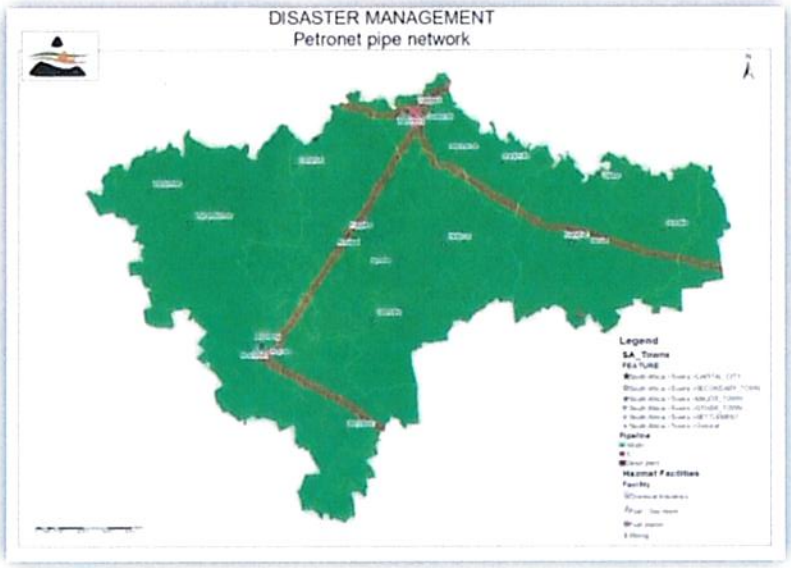
This information was transferred to the Disaster Risk Grid and Map 10 is the result.



Map 11: HAZMAT Facilities Hazard Grid

Map 12: Petronet pipe network

Map 12 shows the result when the location of the network is transferred to the disaster risk grid.



Map 12: Petronet pipe network grid

9.4.3 Transport accidents

Transport accidents in this context refer to an unexpected incident with potential for harm occurring through technological transport accidents. This form of disaster involves mechanised modes of transport. It comprises four disaster subsets: accidents involving air, boat, rail transport and motor vehicles on roads and tracks[9].

9.4.4 Aircraft accidents

An aircraft incident is the occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which (a) a person is fatally or seriously injured as a result or (b) the aircraft sustains damage or structural failure.

Aircraft crashes, often with serious consequences, are an ever-present danger in air travel. This is because of the unforgiving nature of flight, where a relatively insubstantial medium, air, supports a significant mass through dynamically active technological means. Should this support fail, there is limited opportunity for remedial action. Because of this, aircrafts are designed to minimise the chance of failure, and pilots are trained with safety as a primary consideration. Despite this, accidents still occur, though statistically flying is the safest form of transport. In fact, the relative rarity of incidents, coupled with the often-dramatic outcome, is one reason why they still make headline news.

Nevertheless, while the odds of being in a plane crash are nowadays distinctly low compared to other means of transportation, the chances of dying in such a disaster are notably higher. Approximately 80 % (Figure 5) of all aviation accidents occur shortly before, after, or during take-off or landing, and are often described as resulting from 'human error'; mid-flight disasters are rare but not entirely unheard of.

Among other things, the latter have been caused by bombs, mid-air collisions and structural failure.

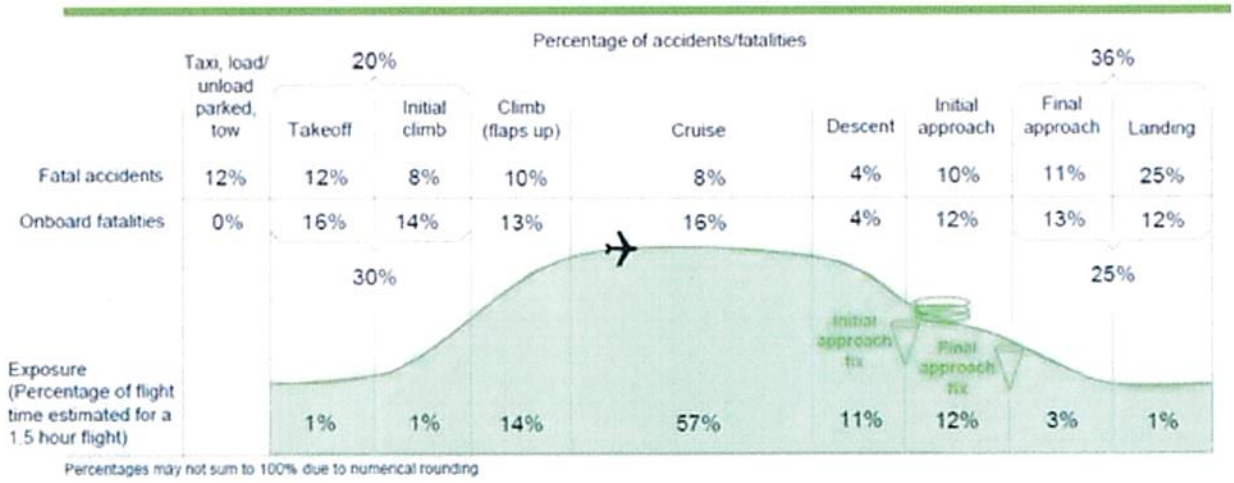


Figure 6: Accidents and fatalities by phase of flight

In the "***Annual Review of Aircraft Accident Data***" of the National Transportation Safety Board in Washington, D.C., it is mentioned that aircraft accidents typically occur at the following points:

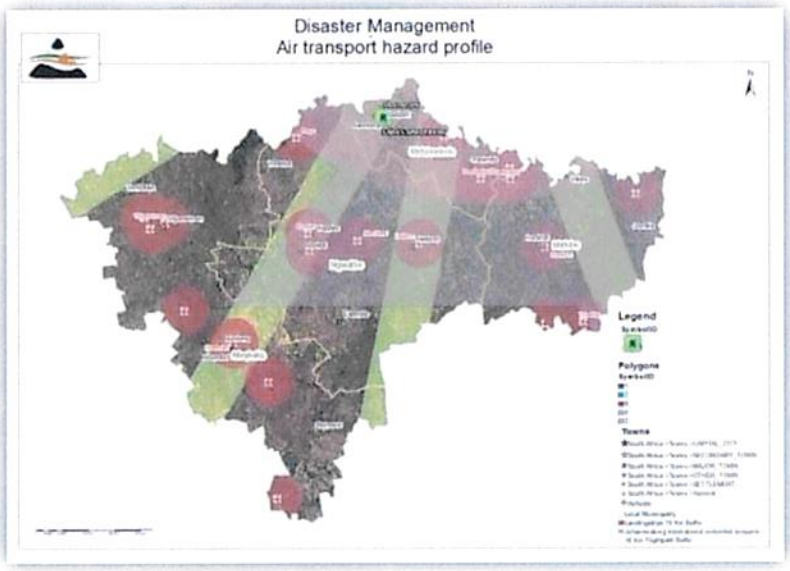
Airport / Airstrip: Accidents that occur on or near an airport or airstrip typically involve aircraft at relatively low altitudes and airspeeds that are taking off, landing, or manoeuvring to land;

En Route: Accidents that occur away from an airport typically include aircraft in the climb, cruise, manoeuvring, and decent phases of flight. They are typically at higher altitudes and higher airspeeds than aircraft in the immediate vicinity of an airport; and

High-Lying Areas: The same figure provides an indication of where there is a possibility of aircraft flying into high flying areas. Should an aircraft accident occur in these areas, rescue personnel might have to conduct rescue operations in very difficult terrain.

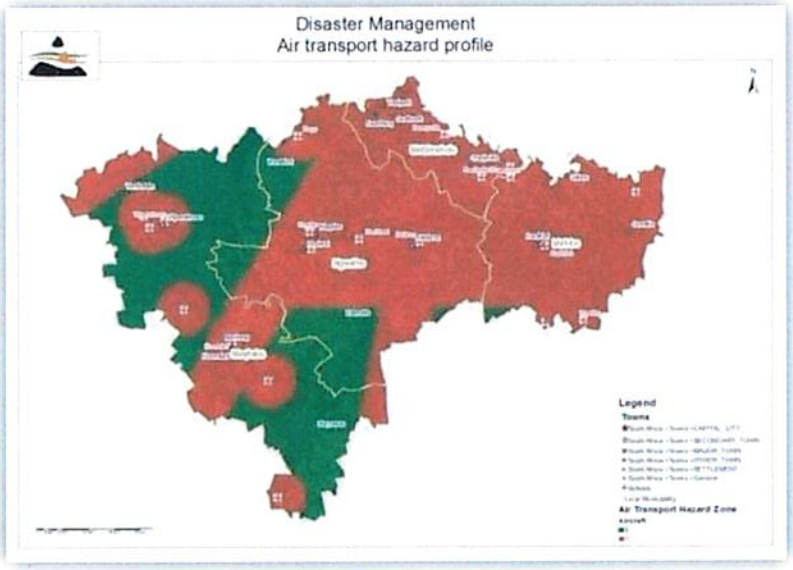
Table 6 lists the total number of incidents that have been reported to the civil aviation authority in South Africa between 1999 and 2004:

Map 13 shows airfields, flight paths and buffers around airfields and airports (OR Tambo International Airport).



Map 13: Air transport hazard map

Data from Map 13 were transferred to the grid database and Map 12 was the result.

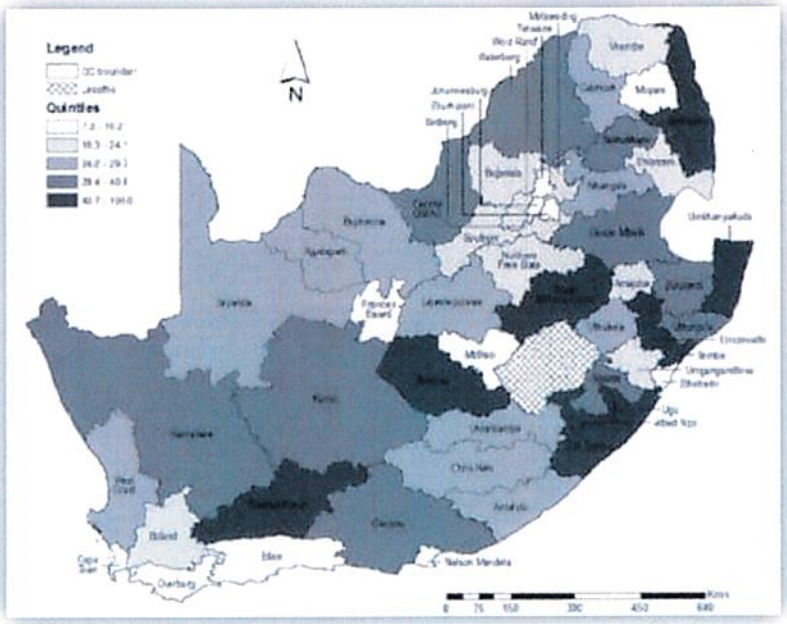


Map 14: Air transport hazard Grid

9.4.5 Vehicle Accidents

Factors contributing to the high fatality rate can often be attributed to higher travel exposure and poor injury recovery due to fast speeds and limited medical services in rural areas[10]. Map 15 shows

that fatality rate (2002 – 2006) as the result of vehicle accidents in Fezile Dabi is 16.3 to 24.1 per 10 000 vehicles.

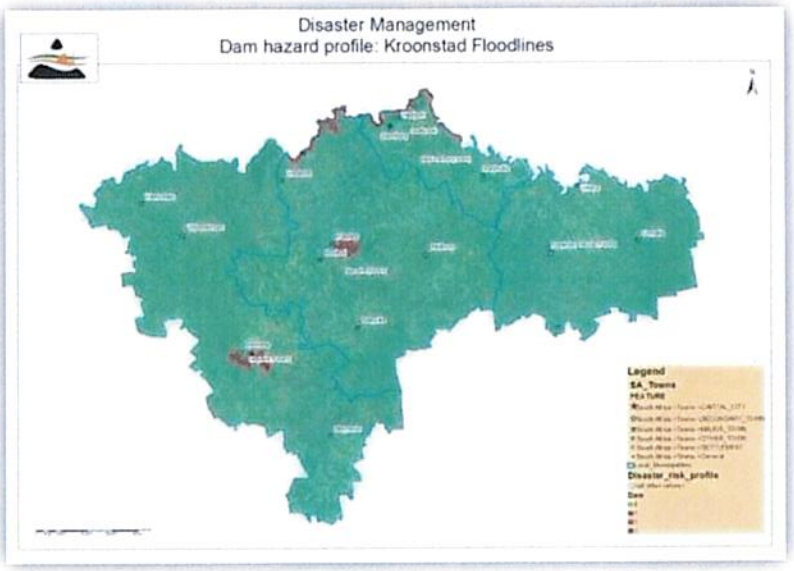


Map 15: Fatality rate per 10 000 vehicles for District Council Municipalities

9.4.6 Fire structural (formal and informal)

Fire structural (formal) is when fire involves the structural components of various residential buildings ranging from single-family detached homes and townhouses to apartments and tower blocks, or various commercial buildings ranging from offices to shopping malls. A structural fire in an informal settlement involves the temporary dwellings. A critical issue within informal settlements relates to risk of fire: the higher the density of the settlements and poorer the quality of building materials the greater the risk.

People living in informal settlements are vulnerable to the physical impacts of climate because of the current status of an already fragile economic structure that is sensitive to changes in climate as well as the low incomes that constrain their ability to adapt and their capacity to cope. Usually informal settlements are characterized by a dense proliferation of shelters built from diverse materials and they are located close to degraded local ecosystems. The nature of this set up makes the provision of basic services such as water, electricity and sanitation difficult roll out in a timely manner.



Map16: Dam hazard profile

9.5 Service Delivery Failure or Disruption

9.5.1 Sewerage and Drainage

Water backlogs have a direct impact on sanitation, health and well-being. Poor road infrastructure limits access to areas so there is a lack of organised waste management systems. Many landowners rely on their own informal or communal dumps, and this leads to increased numbers of illegal dumping and serious environmental hazards. Another challenge is the high level of the water table which is another factor which increases contamination from latrines.

Sewerage problems have been highlighted as a major hazard throughout the municipalities. The failure and lack of sewerage infrastructure has contributed to the outbreak of various water-borne diseases in the past. Sewage spills are contaminating the quality of safety of water.

9.5.2 Solid Waste Disposal and Refuse Removal Services

The municipalities faced with the challenge of the shortage of technical skills on developing their sanitation master plans.

The municipalities are wrought with illegal dumping. Many households still have no refuse removal services and must rely on their own dump for this purpose. In many areas, waste collection equipment is inadequate and old vehicles that are being used are expensive to maintain. The poor road infrastructure in low-cost housing areas and informal settlements limit access to these areas, thereby rendering these areas largely without any refuse removal services.

Yearly assessments of the ability of local municipalities to perform their refuse removal and disposal functions, which is undertaken by the Municipal Demarcation Board, show a growing inability of municipalities (in terms of staff, capacity, and budget) to deliver efficient waste-collection services. The municipalities require sustainable sanitation delivery particularly as statistical data revealed the extent of the current sanitation backlog.

9.5.3 Electricity Supply Disruption

The high demand for electricity is still a matter of great concern as the province is not adhering to the energy saving techniques that are continuously being taught by the Department of Minerals and Energy and Eskom. One of the major concerns is that some municipalities in the province are still struggling to settle their electricity bills from Eskom. The high increase of cable theft and other electrical equipment such as transformers is still a challenge that affects both Eskom and Local Municipalities.

9.5.4 Water Supply (rural/informal settlements)

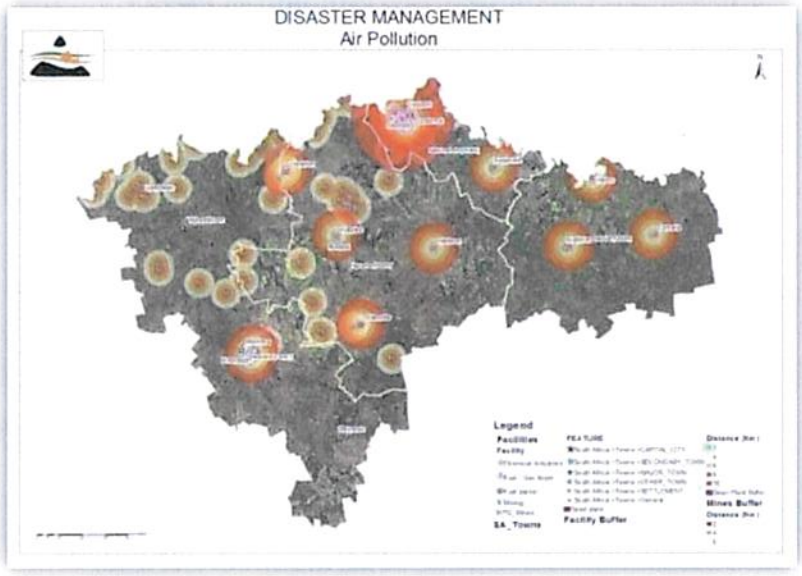
The current water and sanitation infrastructure has exceeded its designed lifespan, making it difficult to manage, as well as operate and maintain assets. Ways of improving this were identified and includes upgrading the asset database, which currently contains poor and insufficient information, posing a challenge for operation and maintenance.

9.5.5 Air Pollution

Air pollution occurs when the air contains gases, dust, fumes or odour in harmful amounts. That is, amounts which could be harmful to the health or comfort of humans and animals, or which could cause damage to plants and materials. The substances that cause air pollution are called pollutants. Both natural and anthropogenic sources of air pollution exist ranging from veld fires to industrial processes, agriculture, vegetation burning, mining activities, coal-fired power stations, petrochemical plants, steelworks, discarded coal dumps and vehicle use.

The high-pressure system results in subsidence, causing clear skies and pronounced temperature inversions that keeps the air pollutants trapped in lower atmosphere contributing to increasingly poor air quality. A lack of control over saw dust from sawmills, pressure from paper and pulp industries, easily erodible mine tailings, fossil fuel emission are some of the contributing air pollutants

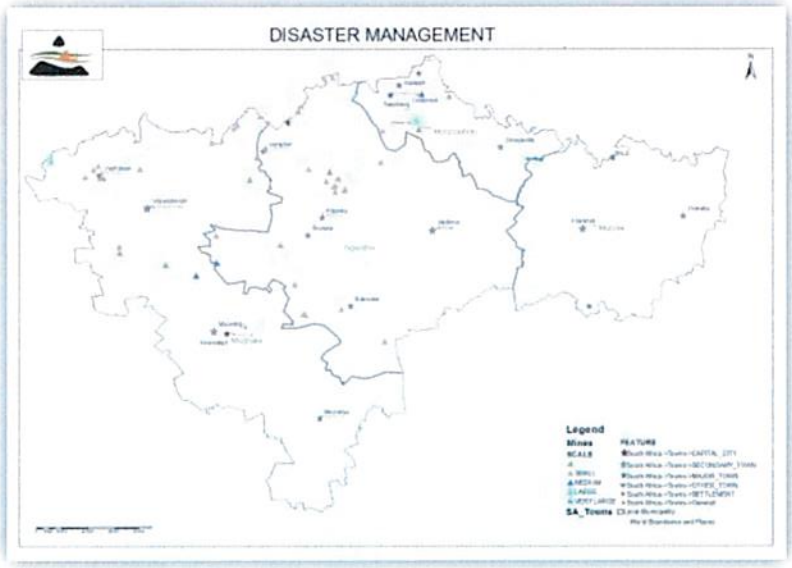
Map 17 identifies the areas in the municipality that are vulnerable to air pollution. The red areas show areas that were identified during the workshops and where mines can cause air pollution.



Map 17: Air pollution identified during consultative workshops

9.5.6 Water pollution

Various sources can cause water pollution. These include domestic sources, mines and agricultural sources. Map 17 shows the location of mining activities in the district as provided by CSIR.



Map 18: Distribution of mining activities in Ngwathe Local Municipality

Source: CSIR

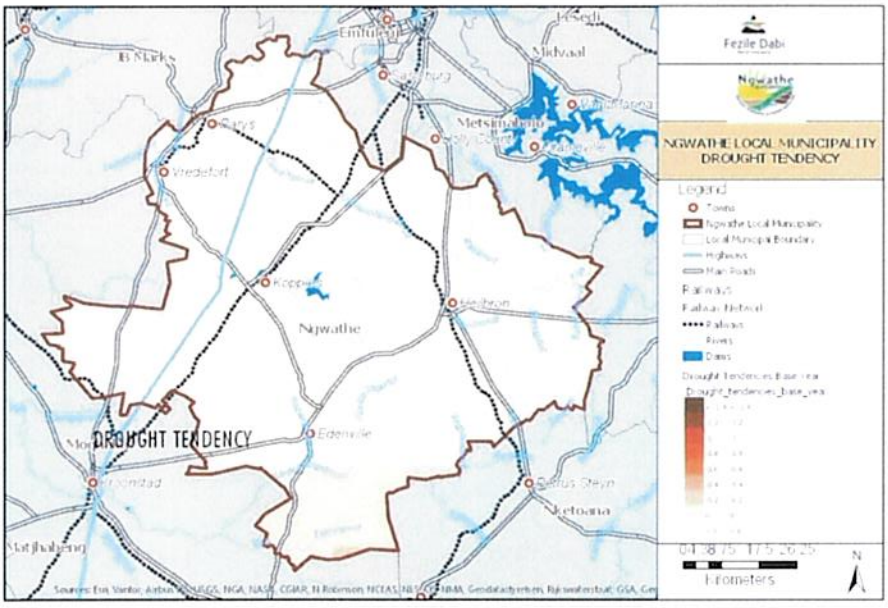
9.5.7 Domestic sources

Extensive use of unlined pit latrines and sewage spills are contaminating poses a potential health and environmental threat to the surface and ground water resources of the area.

Waste dumping is another significant contributor to water pollution. Many households still have no refuse removal services and must rely on their own dump for this purpose. Most residents have resorted to dumping their waste into the rivers and along the roadside. When rainfall or runoff comes into contact with waste, polluted water leaches into the ground, contaminating both surface and groundwater sources. Water treatment is also important in ensuring the supply of potable water. Poor infrastructure, operation and maintenance of such facilities have further health risk implications. The important pollutants present are biodegradable organic matter, coliforms and pathogens.

Settlements 2 Km from the rivers were selected using GIS techniques and the assumption was made that because of the vicinity of settlements near the river, the rivers can be polluted.

Map 19 shows the location shows drought tendency for Ngwathe Local Municipality



Map 19: Drought Tendency of Ngwathe Local Municipality

9.5.8 Agricultural sources

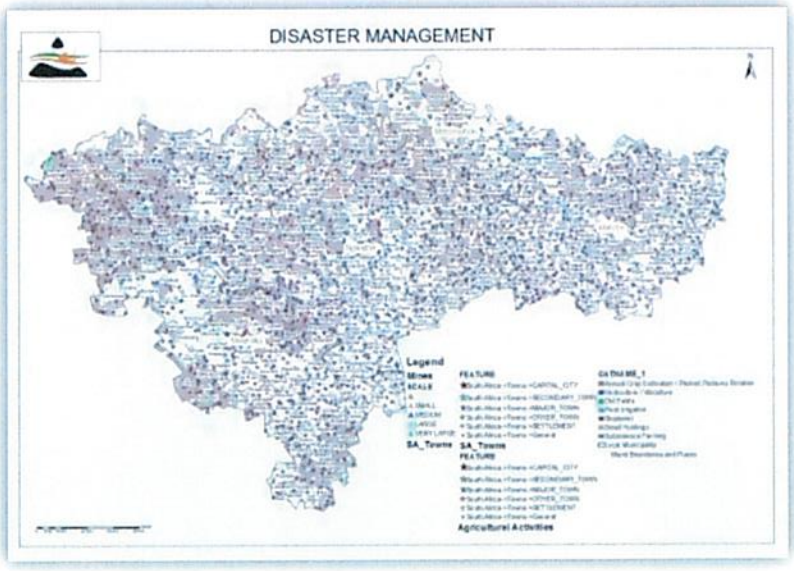
Pollutants discharged into water courses due to agricultural activities include:

- Soil and silt removed by erosion.
- Agricultural run-off.
- Synthetic fertilizers, herbicides and insecticides and
- Plant residue.

Receiving water bodies get fertilised with nutrients, thus resulting in Eutrophication. Some common insecticides in use are chlorinated hydrocarbons such as DDT (dichloro diphenyl trichloroethane), Aldrin, heptachlor, PCBs (polychlorinated biphenyl) etc. Most of the chlorinated hydrocarbons are persistent to degradation and hence remain in the environment for a very long time. Indiscriminate use of insecticides could make them an integral part of the biological, geological and chemical cycles of the earth. Measurable quantities of DDT residues may be found in air, soil and water several thousand kilometres away from the point where it originally entered the ecosystem.

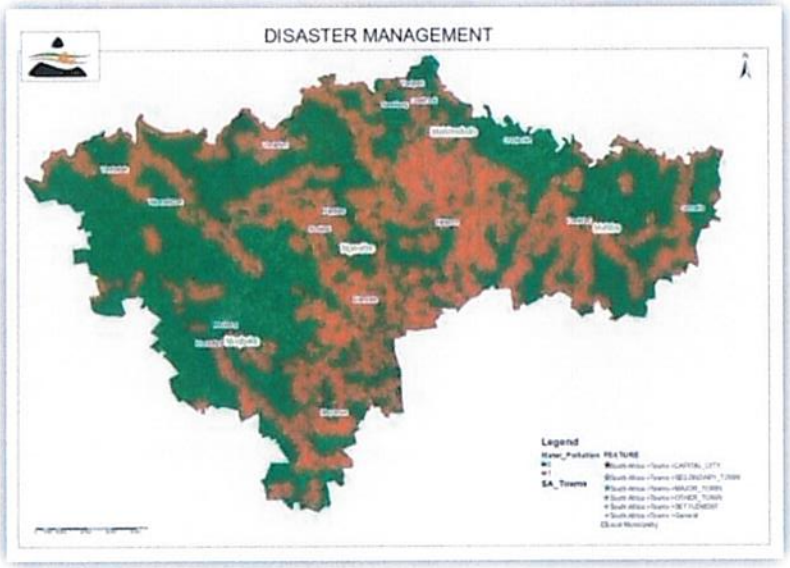
Subsistence farming is common practice, where livestock such as goats and cattle, roam the streets. This is typically referred to as urban farming. This type of farming has implications for health through direct exposure to faecal contamination and indirect contamination of water sources. The practice is unmonitored and is a cause for concern.

Agricultural activities were identified using field boundaries received from Department of Agriculture. These activities were mapped and analysed to identify possible areas where water can be polluted.



Map 20: Distribution of agricultural activities in Fezile Dabi District

Map 21 shows agricultural activities in the district (source Department of Agriculture)



Map 21: Water Pollution profile map

Map 21 is the combination of the mining, community and agricultural maps. The assumption is that the perennial rivers near mines, communities and agricultural activities can be subjected to water pollution. The red colour indicates these areas.

9.5.9 Land degradation

Environmental degradation is defined as the process induced by human behaviour and activities (sometimes combined with natural hazards), that damage the natural resource base or adversely alter natural processes or ecosystems.

There are six main degradation processes that have been identified by Hoffman et al. (1999)[11]:

1. **Loss of cover:** Largely as a result of grazing/overgrazing and trampling patterns caused by domestic livestock.

2. **Change in species composition:** Vegetation cover is lost due to frequent removal, also often caused by the selective grazing of domestic animals.

3. **Bush encroachment:** An increase in the cover of indigenous trees and shrubs.

4. **Alien plant** invasion.

5. **Deforestation:** The removal of trees and shrubs by people for energy or construction purposes.

6. **Other:** There are many other types of environmental degradation, although those causing severe alteration to landscapes include the clearing of land for planting agricultural crops or open cast mining.

A combination of factors of unsustainable agricultural practices, livestock production (over-cultivation, overgrazing, and deforestation), urbanization, and extreme weather events such as droughts and coastal surges accelerate land degradation globally and affect the biophysical environment. Land degradation includes a loss or change in vegetative cover, biodiversity and soil nutrients that threatens ecological processes, food security and livelihoods. Desertification is an associated process of land degradation

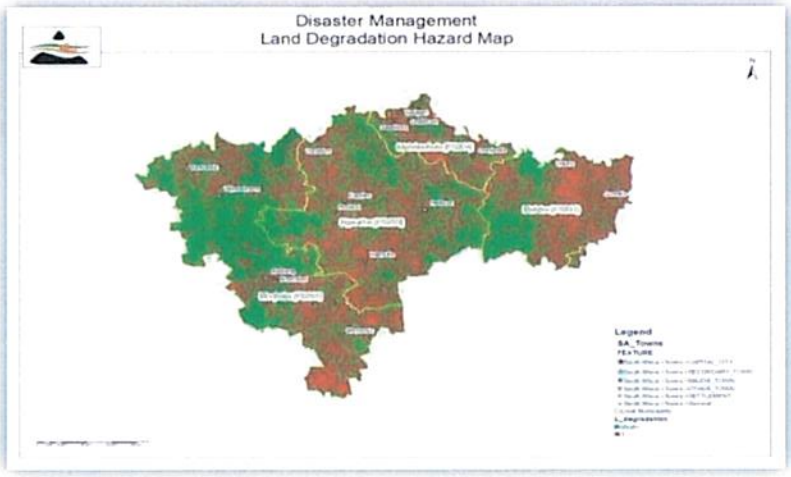
The 2002 "Social and Economic Conditions in Southern Africa Report" paints an alarming picture of how environmental degradation will hinder much needed economic growth in the region, if not urgently addressed. The report highlights that the exploitation of the natural environment in pursuit of achieving economic growth and poverty alleviation, does not come without consequence-adversely effecting land, water and soil quality and availability, pollution, desertification and forest cover levels. In addition, overexploitation not only results in environmental degradation, but also worsens poverty conditions - counteracting the very goal economic growth aims to achieve.

Land cover data of the Free State were acquired from Department of Tourism Environmental & Economic Affairs (Free State). Erosion (dongas), erosion (sheet) and degraded land were extracted from the land cover data set and is shown in Map. 21



Map 22: Land degradation hazard map

Degraded land was then transferred to the Disaster Risk Grid and Map 22 shows in red the result.



Map 23: Land degradation grid

9.6 Climate change

Climate change is a cross-boundary scientific reality that threatens the global community's shared carbon space. According to the IPCC[12] and Statistics South Africa's[13] results South Africa with an estimated population of 49,32 million will on average be 3,4°C degrees warmer in 2100. This implies that climate change is posing a serious risk to ecosystems, food security, economic development, disaster management and the realisation of sustainable development. It is against this backdrop that provincial and local governments are responsible for incorporating mandates that deliver on both

climate change adaptation and mitigation measures into their respective policy frameworks, and to develop appropriate strategies for which they are legislatively responsible[14].

9.7 Hazard Profile

After the completion of the hazard identification and mapping a hazard profile of the municipality were compiled. GIS layers of hazards were overlaid and summed, and Map 23 is the result. The map shows the number of hazards for a specific geographical area. For example, the red areas indicate that there are between 6 and 8 hazards for that area. Therefor the redder the area, the more hazards are present.

CHAPTER 5

10. KPA 3 ~ RISK REDUCTION PLANNING

Risk reduction plans providing for prevention and mitigation strategies have been compiled through a participative process and have not been vetted or submitted to feasibility studies. The risk reduction plans outlined in this document and its appendices which are implementable must be considered for inclusion within the IDP projects of the municipality and if included must be budgeted for in terms of the operating and capital budgets of the municipality. Each project should be evaluated to determine which municipal department can lead its implementation. When a lead department is assigned through consensus in the DMAF, such a lead department must manage all planning and budgeting process for the said project. The disaster management department of Ngwathe Local Municipality must assist in this regard. Where the proposed project falls outside the mandate of the municipality, the municipality should establish a lobbying and monitoring mechanism to motivate the need for the project in the correct governmental or societal sector and to track progress on the project. It is anticipated that many projects will need to be executed on a partnership level, and in such cases the department of the municipality responsible for the service delivery partnership should take the lead with support from Ngwathe Local Municipality Disaster Management Centre.

10.1.1 Disaster Risk Reduction Vision

The disaster risk reduction vision is for growth and development for the municipality that originates from Disaster Management and IDP process.

10.1.2 Risk Reduction Goals

Your risk reduction goals are:

- Protect people and structures.
- Reduce the adverse consequences of hazards to economic activities and social institutions.
- Reduce the costs of disaster response and recovery; and
    - Minimise disruption to the community, or region following a disaster.

10.1.3 Objective

- Ensure that all stakeholders develop and implement disaster risk management plans and risk reduction programmes.
- All stakeholder in the local disaster forum are requested to submit disaster plans to the disaster centre and ensure that they are aligned to the Disaster Centre's risk reduction plan.

10.1.4 Introduction

The successful implementation of the Municipal Disaster Management Plan and compliances with the Disaster Management Act crucially depends on the preparation and alignment of Disaster Management Frameworks and plans for all spheres of government. This KPA details the planning and implementation of disaster risk management plans within all spheres of government. The prevention and mitigation strategies used to develop the risk reduction projects and programmes are aligned with the requirements detailed in the framework.

10.1.5 Disaster risk management planning as a strategic priority

Disaster risk management planning is the strategic measure through which the disaster management plan is integrated across all spheres of government.

10.1.6 Disaster management framework

The Disaster Management Act requires that each and every metropolitan need to develop their own disaster management framework. The disaster management framework is the guiding policy which coordinates all spheres of government by ensuring an integrated and uniform approach to disaster risk management by all role players.

10.1.7 Disaster risk management plans

All municipal entities and other institutional partners identified as disaster management key role players are required to develop and implement disaster risk management plan. The disaster management plan developed by the municipality have to be incorporated into the IDP funding and implementation process.

10.1.8 Municipal disaster management centre

The municipal disaster management centre plays an integral part in the integration of the disaster management framework, disaster risk management plans and other activities between all spheres of government and the role players across sectors. The municipal disaster management centre must ensure that:

- The municipal disaster management framework is aligned with the national disaster management framework, provincial disaster management framework and the strategies and objectives identified in the municipal IDP.
- The municipal disaster management plan informs and are aligned with those of other role players and spheres of government.
- The disaster management advisory forum, or another appropriate forum, are consulted in the development of the disaster management plan.

10.1.9 Priorities for disaster management

The country and municipality are exposed to various disaster risks, however considering the current limitations and capacity constraints the priority risk need to be identified and addressed first. This approach requires careful identification on hazards, the consideration of priority risk and the most vulnerable areas, communities and households exposed to the risks. The disaster risk prioritisation process form part of the procedures undergone in KPA 2.

Ngwathe Local Municipality:

- Veld fires.
- Floods.
- Severe storms.
- Drought and
- Major roads accidents.

10.1.10 Strategic risk reduction planning:

The approach to reduce the disaster risks is aligned with the national disaster management framework strategy of reducing the likelihood of harmful losses or reducing the vulnerability of the communities and households as well as increasing the capacity to be more prepared for and enable timely response and recovery. By aligning the disaster risk reduction projects to the different strategies mentioned, it influences the risk management plans of the different organs of state to differ in their focus to either reduce the disaster risk or more on the operational response and increasing the capacity depending on the functional area. The core disaster risk reduction principles are related to prevention, mitigation and the manageability. It is sometimes difficult to distinguish between prevention and mitigation as they both reduce the disaster risk and could therefore be seen jointly as risk reduction measures. Preparedness planning differ from the above as the focus is more towards activities prior to a specific threat or disaster.

10.1.11 Inclusion of disaster risk reduction initiatives into other structures

As mentioned in the above sections, disaster risk reduction is driven by both hazards and vulnerability which should be included in the Spatial Development Framework (SDF). All information and observations gathered through the previous phases, or the risk assessment needs to be included in the SDF to inform other organs of state. Disaster risk reduction is a medium to long term initiatives incorporating a multi-sectoral approach to reduce the vulnerability and should thus be included in the IDP as part of ongoing projects, processes and programmes and structures. For effective implementation of disaster risk reduction initiatives, it is best planned and implemented for all spheres of government by incorporating them into the IDP.

10.1.12 Implementation and monitoring of disaster risk reduction measures

The monitoring and review of the disaster risk reduction measures specifically targeted at communities in a high-risk area must include quantitative and qualitative vulnerability reduction as an outcome. Project implementation should demonstrate a close relation to the goals, objectives, time frames and resource requirements set out in the planning stages of the project. The project plans should also be flexible to allow for adjustment when the unforeseen does happen. It is a requirement of the Act that the Disaster Management Centre must include all disaster risk reduction initiatives in their annual report and incorporate it into their information management system.

10.2 Risk Reduction Strategies

10.2.1 Risk reduction measures

The range of risk reduction measures can be classified into the following categories:

- Societal aspects.
- Physical planning.
- Economic measures.
- Engineering and construction aspects and.
- Management expertise and institutional memory.

10.2.2 Societal aspects

Risk reduction will occur when the broad community reaches consensus that it is desirable, feasible and affordable. Risk reduction planning should aim to develop a "safety culture" in which all members of society are aware of the hazards they face; know how to protect themselves; and will support the protection efforts of others, of society and of the local population.

Public education campaigns should aim to create this safety culture. Public awareness can be raised in a number of ways from short-term, high-profile campaign using broadcast, literature and posters, to more long-term, low-profile campaigns that are carried out through general education. Planning disaster awareness and disaster preparedness activities in isolation from people daily lives will rarely succeed. **Therefore, these programs are most effective when linked to ongoing and immediate daily community needs such as basic health care, water scarcity and probability, sanitation concerns, employment and community based first aid.**

The objective is to develop an everyday awareness of the possibility of hazard occurrence in which people take conscious precautions.

Their understanding should include an awareness of what to do in the event of a hazard; and a sense that their choice of house, the placement of a bed or stove and the quality of construction of a wall or fence around an outdoor work or play area all effect their safety.

Local awareness cam also be strengthened through regular practice drills, practice emergencies, quizzes and anniversary remembrance. In hospitals, school and large buildings, it is necessary to rehearse what the occupants should do in the event of a fire, earthquake or other hazard. This reinforce and develops automatic behavioural responses.

10.2.3 Physical planning

Careful location of new facilities – particularly community facilities such as schools, hospitals and infrastructure – plays an important role in reducing vulnerability. In urban areas, decentralisation of elements at special risk is an important principle. That is, service provided by one central facility are always more at risk than those provided by several smaller facilities. This principle also applies to population density: a denser concentration of people will always increase the potential for disaster compared to a more dispersed population.

10.2.4 Economic measures

Linkages between different sectors of the economy may be more vulnerable to disruption by a disaster that the physical infrastructure. Diversification of the economy is an important way to reduce risk. A strong economy is the defence against disaster. Within a strong economy, governments can use economic incentives to encourage individuals or institutions to take disaster mitigation actions. Disaster risk reduction is sorely in need of integration into mainstream economic planning in South Africa.

10.2.5 Engineering and construction aspects

Engineering measures range from large-scale engineering projects to strengthening individual buildings and small-scale, community-based projects. Codes of practice for disaster protection (such as building codes) are unlikely to be effective unless they are accepted and understood by the community and enforced by local authority. training local builders in techniques that incorporate better protection into traditional structure – such as buildings, roads, and embankments – are essential components of such measures.

10.2.6 Management expertise and institutional memory

Building disaster protection takes time. It needs to be supported by a programme of education, training and institution-building to provide the professional knowledge and competence required. This exercise should be meticulously documented and handing-over of responsibilities between officials with a vital period of overlap (wherever possible) should be essential elements of the programme.

10.3 Risk Reduction Projects

Ngwathe Local Municipality must be initiate the disaster management planning at a local level and develop guidelines to be followed. The identified strategies on risk identification, reduction and

measures, which resulted into prioritisation and implementation of the project on hazards identification and risk prioritisation. Emanating from the hazards identified projects towards mitigating the same are identified. It is important to note that Fezile Dabi district Disaster Centre is responsible to assist with the coordination of these risk reduction activities in its district.

DISASTER RISK MANAGEMENT IDP PROJECTS AND PROGRAMMES

KPA & Enabler	Objective	Strategy	KPI	Hazards
Institutional Arrangement for DRM (KPA 1)	Establish Institutional Capacity for Disaster Management	Establish an effective disaster management centre	-Install communication system (telephones, Fax facilities, Email facility, Internet facility). -Conference room. -Parking area -Back-up generator connection	
		-Development of Disaster Management Plan	-Developed Disaster Risk Management Plan adopted by council and be reviewed after every two years. - Develop & review FOG (Field Operation Guide	
		Establishment of Interdepartmental Committee for Disaster Management	-Functional ICDM that consists of representatives from all units within the municipal administration. -Quarterly meetings of the ICDM	
		Establishment of Municipal Disaster Advisory Forum	Established functional DRMAF consisting of stakeholders. Convene four quarterly meetings per financial year.	
		Development of Municipal DM Framework	-Adopted DM Framework by municipal council.	

			-The review programme of the framework.	
		Appointment of DM focal person	-Appointment of DM focal person. -Job description of DM focal person.	
		Establishment of volunteer structures.	-Trained and Insured Volunteer structures per municipality to respond to different hazards.	
		Municipal Joint Operation Structures	-Facilities to establish JOC • Conference room • Telephones. • Fax facilities. • Email facility. • Internet facility. • Back-up generator connection	
		Technical Task Team	-Establishment of Technical Task Teams per hazards within the area of jurisdiction.	
		Mutual Assistance Agreements	-MAA with relevant stakeholders signed off by Municipal Manager, HoC and adopted by Council. -MAA with neighbouring municipalities signed off by Municipal Manager, HoC and adopted by Council.	

Disaster Risk Assessment (KPA 2)	To assess all disaster risk within municipal jurisdiction	Identification of prevalent hazards (frequency, magnitude, speed of onset, affected area	Risk assessment conducted regarding risk within the communities	-Pandemics (Coronavirus). -Virus (HIV & AIDS) -Road infrastructure (potholes) -Water system infrastructure (burst water) -Sewerage infrastructure (burst pipes) -Pit lanterns toilets -Management of landfill sites. -Road accidents. -Chemical spillages. -Fire (veld fires and structural). -Floods.
		Identification of vulnerable communities, infrastructure (including homes and dwellings), services, economic activities, natural resources exposed to hazards.	-Develop ward-based risk assessment. -Conduct disaster risk assessment in critical facilities (hospitals; clinics; schools; places of detentions; old age homes etc).	-Pandemics (Coronavirus). -Virus (HIV & AIDS) -Water system infrastructure. -Road accidents. -Informal landfill site -Sewerage infrastructure. -Pit lanterns toilets -Structural fires -Floods
		Estimate likely losses resulting from hazards to evaluate likely impact.		-Pandemics (Coronavirus). -Virus (HIV & AIDS) -Road infrastructure (potholes) -Water system infrastructure (burst water) -Sewerage infrastructure (burst pipes) -Pit lanterns toilets -Management of landfill sites. -Road accidents. -Chemical spillages. -Fire (veld fires and structural). -Floods
		Develop risk profile		-Pandemics (Coronavirus).

				-Virus (HIV & AIDS) -Road infrastructure (potholes) -Water system infrastructure (burst water) -Sewerage infrastructure (burst pipes) -Management of landfill sites. -Road accidents. -Chemical spillages. -Fire (veld fires and structural). -Floods
Disaster Risk Reduction KPA 3	Develop and Implement disaster Prevention; Mitigation and Preparedness Strategies	Identification of prevalent hazards (frequency, magnitude, speed of onset, affected areas)		-Pandemics (Coronavirus). -Virus (HIV & AIDS) -Management of landfill sites. -Road accidents. -Chemical spillages. -Fire (veld fires and structural). -Floods
		Identification of vulnerable communities, infrastructure (including homes and dwelling), services, economic activities, natural resources exposed to hazards.		-Pandemics (Coronavirus). -Virus (HIV & AIDS) -Road infrastructure (potholes) -Water system infrastructure (burst water) -Sewerage infrastructure (burst pipes) -Pit lanterns toilets -Management of landfill sites. -Road accidents. -Chemical spillages. -Fire (veld fires and structural). -Floods
		Estimate likely losses resulting from hazards to evaluate likely impact.		-Pandemics (Coronavirus). -Virus (HIV & AIDS) -Road accidents. -Chemical spillages. -Fire (veld fires and structural). -Floods

		Develop risk profile		-Pandemics (Coronavirus). -Virus (HIV & AIDS) -Road accidents. -Chemical spillages. -Fire (veld fires and structural). -Floods
Disaster Response and Recovery KPA 4	Develop Response and Recovery Strategy	-Develop early warning system for disaster response. -Develop template for disaster assessment which is in-line with National and Provincial prescripts Develop Contingency plan for imminent hazards		-Pandemics (Coronavirus). -Virus (HIV & AIDS) -Road accidents. -Chemical spillages. -Fire (veld fires and structural). -Floods
Training and Awareness	Develop Education, Training and Awareness Strategy	Develop DM training and capacity building for municipal officials		-Pandemics (Coronavirus). -Virus (HIV & AIDS) -Road accidents. -Chemical spillages. -Fire (veld fires and structural). -Floods

Table 4: Disaster Management and IDP

10.3.1 For contingency planning and Disaster response and recovery:

- When a disastrous event occurs or is threatening to occur in the area of a municipality, on receipt of an activation alert from the Disaster Management co-ordinator (or designate), reporting immediately to the Disaster Management Centre (DMC);
- Conducting initial and specialist post Disaster assessments for the departments or entities' functional area.
- Ensuring that departments respond rapidly to Disasters.
- Ensuring efficient and co-ordinated Disaster response and recovery operations.
- Monitoring progress with, and ensuring that, post Disaster reconstruction and rehabilitation projects include measures to reduce risk to similar events in the future.
- Ensuring that regular reports on progress with Disaster recovery are continuously submitted to council as well as to the PDMC and NDMC via the Fezile Dabi DDMC; and
- Ensuring that all documentation and records relating to the Disaster are retained and placed in safe keeping for the purposes of post Disaster investigation, inquiry or review.

10.3.2 Project Teams and Planning Clusters

The IDRMC may convene project teams to address specific joint risk reduction priorities including post Disaster projects. Teams so convened will act as sub-committees of the IDRMC for the duration of their task and will determine their terms of reference and outcomes in consultation with the Head of the Centre and the IDRMC; will plan and manage such multi-disciplinary projects; and will report back to the IDRMC.

In the context of emergency preparedness, planning clusters will also be convened to address contingency plans for specific priority risks posed by hazards such as storms, floods, drought, fires, epidemics, transportation accidents, oil spills, hazardous material spills, Xenophobic attacks crowd related events. These contingency plans will include strategies and procedures to ensure the implementation of an incident management system, which will establish joint standards of practice and inter-disciplinary co-operation for rapid and effective Disaster response capabilities. Such plans will also be subject to consultation within the Ngwathe Local Municipality IDRMC.

10.3.3 Integration with the IDP Process

In order to facilitate the integration of Disaster Risk Management into the IDP process, the Disaster Management Co-ordinator must serve on both the IDP Steering Committee and IDP Representative Forum. All development projects must be referred to the Ngwathe Local Municipality IDRMC for comment and input before their submission to council for approval.

10.3.4 Key Performance Indicators

- The IDRMC is established and is operating effectively.
- A job description and key performance indicators for the Head of the Centre have been developed.
- The co-ordinator of the Disaster Management Centre is appointed in terms of a written contract, which includes key performance indicators.
- The Ngwathe Local Municipality Disaster Management Centre must be fully established, staffed and operating optimally.
- Provision to be made for the necessary funding to give effect to the arrangements.
- Accurate records of correspondence, proceedings, meetings and plans be maintained.

The Ngwathe Local Municipality DRMC is responsible ensure that the Office; the departments and other entities within the administration of council and the IDRMC, and any other decentralised structures conduct self-assessments and peer reviews at least twice a year. Assessment and review reports must be prepared in accordance with the reporting guideline to be developed by the Ngwathe Local Municipality DRMC. Copies of the reports must be submitted to the Fezile Dabi DRMC. Copies of the reports must be submitted to the DRMC of the Free State as well as the NDRMC.

10.3.5 Arrangements for stakeholder participation and technical advice

Objectives

To establish and cooperative with mechanisms, which will provide for the active participation of all role players and stakeholders, including technical experts, the community and the private sector in Disaster Risk Management planning and operations in the district.

The Ngwathe Local Disaster Risk Management Advisory Forum (NLM DRMAF)

The Disaster Risk Management focal point of the Ngwathe Local Municipality must serve as an active member on the FDDM DRMAF. The focal point must report to the on matters pertaining to the disasters.

Community/Ward participation

In terms of risk reduction, the local sphere is the first line of defence and in the event of a Disaster occurring (or threatening to occur) the community is in reality the first responder.

The Disaster Management co-ordinator is responsible to facilitate and co-ordinate the establishment of a Disaster Risk Management structure such as a committee or forum in each municipal ward to serve as the leadership and co-ordinating element for the purposes of Disaster Risk Management in the ward. This process is to be initiated and managed in consultation and co-operation with the Disaster Risk Management co-ordinating structure of the Ngwathe Local Municipality. Ward Disaster Risk Management structures will adopt a Ward Disaster Risk Management Constitution which will include terms of reference, the allocation of portfolios; operating protocols in terms of Disaster risk reduction planning; early warnings; emergency preparedness; emergency communication; data collection; Disaster response and recovery; and the recruitment and management of ward volunteers.

Ward DM structures will actively participate in and promote:

- awareness programmes amongst communities in the ward.
- to develop a culture of risk avoidance behaviour to commonly encountered hazards.
- the development of a Disaster risk profile, a strategic risk reduction strategy, contingency plans for priority Disaster Risks and a response and recovery operational guide for their ward; and
- Training and capacity building programmes for residents in the ward.

Ward Disaster Risk Management structures must also be capacitated to conduct initial assessments in accordance with the assessment guidelines when Disasters occur or are threatening to occur in their ward and to transmit such information to the Ngwathe Disaster Management Centre.

Disaster Risk Management Volunteers

In accordance with Sections 44(1) (g) and 58 of the Act, a Local Municipality might resolve to establish a unit of volunteers. The unit must be established in accordance with the regulations and the policy and procedures as set out in an operational guide pertaining to the recruitment, training and participation of volunteers.

Key Performance Indicators

- Ward structures have been established in the wards and are operating effectively.
- Minutes, records and reports of Ward structures' activities are prepared, maintained and submitted to the Ngwathe Local Municipality DRMC.
- The Unit of Volunteers has been established and is operating effectively.
- Provision has been made for the necessary funding to give effect to the arrangements.
- Minutes, records and reports of the activities of the volunteer reserve are prepared maintained and submitted to the Ngwathe Local Municipality DRMC.

Monitoring and evaluation

Monitoring, measuring performance and evaluating disaster management plans and prevention, mitigation and response initiatives.

A municipal Disaster management centre must-

(a) monitor-

(i) Progress with the preparation and regular updating in terms of sections 52 and 53 of Disaster management plans and strategies by municipal organs of state involved in Disaster management in the municipal area.

(ii) Formal and informal prevention, mitigation and response initiatives by municipal organs of state, the private sector, non-governmental organisations and communities in the municipal area. Including the integration of these initiatives with development plans: and

(iii) The compliance in the municipal area with key performance indicators envisaged by section 7(2) (m); and from time to time, measure performance and evaluates such progress and initiatives.

The Ngwathe Local Municipality DRMC is responsible to ensure that any established structures (e.g. Ward Forums and the volunteer unit) conduct self-assessments and peer reviews at least twice a year. Assessment and review reports must be prepared in accordance with the reporting guideline to be developed by the Ngwathe Local Municipality DRMC. Copies of the reports must be submitted to the Ngwathe Local Municipality DRMC. Copies of the reports of the Ngwathe Local Municipality DRMC must be submitted to the PDRMC of the Province of Northwest as well as the NDMC though the Fezile Dabi District DRMC.

Arrangements for local, provincial, national and international co-operation

Objective

To establish mechanisms to give effect to the principles of co-operative governance and to ensure the alignment of council's approach to Disaster Risk Management with that of the other spheres and with that of neighbouring authorities; and to establish international links for the purposes of joint standards of practice and keeping pace with global initiatives.

Co-operation with the district municipality:

The following diagrammatic representation indicates the mechanisms established to ensure that the provisions of the Act in terms of consultation and co-operation with the District Municipality are complied with.

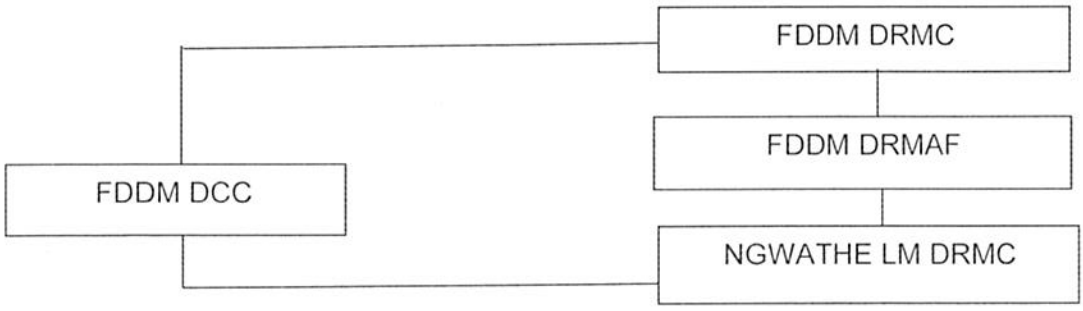


Figure 7: The Ngwathe Local Municipality DRMC will have representation on the FDDM DRMAF (see the FDDM DRMF) as well as the FDDM Disaster Risk Management Coordinating Committee (DCC).

Co-operation with the National Disaster Management Centre and the Disaster Risk Management Centre of the Free State and the Fezile Dabi District Disaster Risk Management Centre

In terms of the legislation, communication must be maintained at all times between council's Disaster Risk Management centre, the National Centre, the Disaster Risk Management Centre of the Free State and the Fezile Dabi District DRM Centre.

Council's responsibilities in this regard will be to assist the District, Provincial and National centre to:

- identify and establish communication links with Disaster Risk Management role players in the municipal area.
- develop and maintain an electronic database; and
- develop guidelines for the preparation of and regular review of Disaster Risk Management plans and strategies including contingency plans and emergency procedures and the integration of the concepts and principles of Disaster risk reduction with development plans and programmes

Submit to the Fezile Dabi District DRMC:

- a report at least annually, after the review of the IDP, containing the information as prescribed in Section 50 of the Act; and
- A copy of council's Disaster plan and any amendment thereto.
- Immediately inform the Fezile Dabi District DRMC of any Disaster which occurs or threatens to occur in council's area; provide information regarding the assessment of the Disaster and make Action to be taken regarding the classification of the Disaster as may be appropriate.

Joint co-operation with neighbouring authorities through the DRMAF and DCC

In order to facilitate joint co-operation between council and the neighbouring authorities of:

- Ngwathe LM
- Moqhaka LM
- Metsimaholo LM
- Dr K Kaunda District Municipality
- Lejweleputswa District Municipality
- Nala LM

Provision must be made for the representation on the Disaster Risk Management Advisory Forum as well as the DCC of the Fezile Dabi District for the purposes of:

- the identification of potential cross boundary threats.
- sharing information on Disasters and important risk reduction issues.
- participative Disaster risk planning.
- joint contingency planning.
- developing and establishing joint standards of practice.
- information sharing including Disaster Risk Management plans and the dissemination of early warnings.

- clear identification of roles and responsibilities in the event of cross boundary Disasters which occur as well as responsibilities for the issue of advisories or early warnings of the potential spread or progress of a significant event or Disaster into one or more neighbouring jurisdictions.
- concluding mutual assistance agreements, bilateral and multilateral agreements with clearly defined protocols for the purposes of shared risk reduction initiatives, emergency preparedness and cross boundary response and recovery efforts.
- sharing expertise and the development of Disaster assistance response teams.
- establishing strategic communication links, procedures and protocols; and
- Creating opportunities for conducting research.

Mutual Assistance Agreements

The Ngwathe Local Municipality, District municipalities, Municipal organs of state, and any other entities operating within the administrations of municipalities must assess their capacity to meet their responsibilities for Disaster risk reduction, emergency preparedness and response and recovery in terms of the Act. Where required they must enter partnerships and conclude mutual assistance agreements with other organs of state, the private sector, communities and non-governmental organisations to augment their capacity. Such agreements must be in accordance with the national guidelines.

Key performance indicators

- Arrangements for giving effect to the principles of co-operative governance are established and functioning effectively.
- Provision has been made for the necessary funding to give effect to the arrangements.
- Correct procedures and protocols are followed in establishing the arrangements.
- Mutual assistance agreements and memoranda of understanding, which conform to the national guideline, have been concluded.
- Maintaining accurate records of correspondence, proceedings, meetings and plans.

Monitoring and evaluation

The Ngwathe Local Municipality DRMC must conduct self-assessments and peer reviews at least twice a year to establish whether the key performance indicators in respect of the arrangements for local, provincial, national and international co-operation are being met. Assessment and review reports must be prepared in accordance with the reporting guideline to be developed by the Ngwathe Local Municipality DRMC. Copies of the reports must be submitted to the Fezile Dabi District DRMC.

Hazard and Risk Analysis

Purpose

- To identify what risks, present the greatest threat to Local municipal development planning.
- To develop an understanding of how best to manage existing, residual and future risks.
- To assign levels of risk

The Key Steps

- Identify and assess significant hazards
- Analyse the Disaster risk(s)
- Evaluate the Disaster risk(s)
- Monitor Disaster risk reduction initiatives and update and disseminate Disaster risk assessment information

(i) Risk Analysis

Table 5– List of Major Hazards

Hazard	Potential Consequences
Animal Disease	Most animal disease emergencies present little direct threat to human health; however, the cost in purely economic terms may be particularly significant. Many rural residents rely on their animals for subsistence, and there are a number of larger animal-based industries in the province.
Fire (Veld/ Structural)	Loss of life, (loss of breadwinner), severe injury, loss of homes, loss of crops, stock losses, of grazing land, loss of income, disruption of economy. Stretching of the emergency response capability.
Flood/Severe Storm, Rainfall and Landslides	Loss of life, (loss of breadwinner), severe injury, loss of homes, loss of stock loss of income, increased risk of disease.
Hazardous Material	Loss of life, (loss of breadwinner), severe injury, evacuation of large areas, fires, explosions, ground and air pollution. Road and rail transport travelling through the province carrying dangerous chemicals and corrosive substances poses the threat of a significantly dangerous accident.
Human Epidemic	Loss of life, (loss of breadwinner), extended illness, loss of employment because of absenteeism, over-taxing of the medical response capability.
Major Infrastructure Failure	Loss of electrical power, causing lack of heating; lack of refrigeration; limited fuel supplies; loss of employment through closures of industry. Loss of communications, leading to severe impact on the Provincial Disaster co-ordination ability. Loss of telephone, fax, computer (internet), automated teller machines, electronic sales.
Major Transportation	Loss of life, (loss of breadwinner), severe injury, loss of income, stretching of response and medical capability. Transport could involve aircraft, trains, tour coaches, school buses, taxis or heavy transport vehicles.

Terrorist Activity	Loss of life, (loss of breadwinner), severe injury, loss of income. Combination of the consequences from all other hazards, dependent upon the type of terrorist activity employed.
Water Contamination	Increased disease, loss of life, loss of stock, pressure on health facilities.
Heat wave	Excessive drought, loss of crops, diseases, loss of life
Extreme cold	Loss of livestock, loss of crops, diseases,
Hostage/ hijack incidents	Loss of human life, economic loss
Snow	Economic loss, loss of human life, livestock and infrastructure.

Table 6 Level of Risk –
Structural/Veld Fires

Hazard	Vulnerable Sector	• POTENTIAL RISK	Likelihood	Consequence	Level of risk	Risk evaluation
Structural/Veld Fires	People	▪ Informal settlements have an increased vulnerability to fire because of the close quarters and lack of access.	B	4	E	
	Economy	▪ Loss of stock	B	4	E	
	People	▪ Loss of roofing, rendering housing uninhabitable	B	3	H	
	People	▪ Pregnant women, young children the elderly and the disabled unable to evacuate in time	B	3	H	
	Economy	▪ Loss of crops	B	3	H	
	Economy	▪ Loss of grazing land	B	2	H	
	Infrastructure	▪ Power transmission lines/poles may be damaged or destroyed.	C	3	H	
	People	▪ Air pollution causing extra people to seek medical care	B	3	H	
	People	▪ Death / severe injury	B	3	H	
	Management	▪ Loss of communication lines/poles, affecting Disaster information and co-ordination	B	3	H	
	Infrastructure	▪ Power sub-stations may be damaged or destroyed	C	3	H	

	People	▪ Psychological well-being of the community will be affected as a result of the losses suffered.	B	3	H	
	People	▪ Psychological well-being of the community will be affected as a result of the losses suffered.	B	3	H	
	Natural Environment	▪ Ground erosion due to loss of grass/vegetation cover	C	3	H	
	Crime	▪ Loss of power will see an increase in criminal activity	C	2	M	
	Education	▪ Destruction of schools affecting continuing education	C	2	M	
	Infrastructure	▪ Smoke will block transport routes	C	1	L	

Flood, Storm Severe Rainfall, Landslide

Hazard	Vulnerable Sector	• POTENTIAL RISK	Likelihood	Consequence	Level of risk	Risk evaluation
Flood, Storm, Severe Rainfall, Landslide	People	▪ People will not be able to evacuate the area	B	4	E	
	Management	▪ Areas will be cut off by washed out roads, preventing access by response agencies.	A	3	E	
	People	▪ Informal settlement will be destroyed, leaving large numbers of people homeless.	B	4	E	
	People	▪ Sanitation and health problems.	A	3	E	
	People	▪ Women left to care for extended families with no means of transport out of the area.	A	4	E	
	People	▪ Death of breadwinner, causing long-term financial problems for the family.	C	4	E	
	Economy	▪ Significant stock losses.	C	4	E	
	People	▪ Loss of crops, affecting sustainability of subsistence food supply production	C	4	E	
	Economy	▪ Significant crop losses.	C	4	E	
	People	▪ Psychological well-being of the community will be affected as a result of the losses suffered.	A	3	E	

	Built Environment	▪ Buildings and facilities destroyed or damaged.	B	3	H	
	People	▪ Overcrowding of medical facilities will increase disease	B	2	H	
	People	▪ Overcrowding of people in evacuation centres may lead to further disease outbreaks	B	2	H	
	People	▪ Loss of income and assets.	C	3	H	
	Infrastructure	▪ Loss of power	B	2	H	
	Natural Environment	▪ Environmental damage, including due to inappropriate agricultural practices.	C	3	H	
	People	▪ Death or serious injury will occur from drowning, lightning strike, flying debris or structural collapse.	C	2	M	
	Infrastructure	▪ Transport facility damage including road and rail bridges, roads, airfields and railways.	C	2	M	
	Infrastructure	▪ Loss of communications.	C	3	H	

Snow

Snow	People	▪ People will not be able to evacuate the area	B	4	E	
	Management	▪ Areas will be cut off snow, preventing access by response agencies.	A	3	E	
	Economy	▪ Significant crop losses.	C	4	E	
	People	▪ Loss of crops, affecting sustainability of subsistence food supply production	C	4	E	
	Economy	▪ Significant livestock/game losses	C	4	E	
	People	▪ Psychological well-being of the community will be affected as a result of the losses suffered	A	3	E	
	Infrastructure	▪ Loss of communications ▪ Power failure	C	3	H	

Drought

Drought	People	▪ Sanitation and health problems	A	3	E	
	Economy	▪ Significant stock losses	C	4	E	
	People	▪ Loss of crops, affecting sustainability of subsistence food supply production	C	4	E	
	Economy	▪ Significant crop losses	C	4	E	
	People	▪ Psychological well-being of the community will be affected as a result of the losses suffered	A	3	E	
	People	▪ Loss of income and assets	C	3	H	
	Natural Environment	▪ Environmental damage, including due to inappropriate agricultural practices	C	3	H	

Major Infrastructure Failure

Major Infrastructure Failure	Water supply	▪ Water supply pumping facilities will be rendered inoperable.	A	2	H	
	Management	▪ Disaster communications facilities will be rendered inoperable.	A	2	H	
	People	▪ Fuel supply facilities will be rendered inoperable.	A	2	H	
	Management	▪ Telephone landline and cell communications will be rendered inoperable.	A	2	H	
	Management	▪ Base radio transmitter stations relying on power will be rendered inoperable.	A	2	H	
	Economy	▪ Electronic banking facilities will be rendered inoperable.	A	2	H	
	Infrastructure	▪ Business and industry refrigeration and cooling facilities will be rendered inoperable.	A	2	H	

	People	▪ Household refrigeration and cooling facilities will be rendered inoperable.	A	2	H	
	Economy	▪ Computer network facilities will be rendered inoperable.	A	2	H	
	Sewerage	▪ Sewerage pumping facilities will be rendered inoperable.	A	2	H	
	People	▪ Loss of power and communications facility will see an increase in crime.	C	2	M	

Human Epidemic

Human Epidemic	People	▪ Substantial loss of life.	A	4	E	
	People	▪ Low immunization rates in the province will increase the likelihood of an epidemic occurring.	A	4	E	
	People	▪ Psychological effects on the community.	A	4	E	
	Economy	▪ Loss of income within the province	B	4	E	
	People	▪ Vector/vermin contact will spread the epidemic throughout the Municipality and beyond.	B	3	H	
	Economy	▪ Stigma being attached to the province accompanied by a tourist and visitor downturn.	C	2	M	

Water Contamination

Water Contamination	People	▪ Contaminated water supplies will cause disease such as cholera and dysentery	A	4	E	
	People	▪ Shortages of potable water supplies will aggravate the situation	A	3	E	
	Management	▪ Resultant epidemics will place a great strain on	A	3	E	

		the District's health facilities				

Hazardous Material

Hazardous Material	Natural Environment	▪ Pollution of the water table.	B	4	E	
	Natural Environment	▪ Pollution of the soil.	B	4	E	
	People	▪ Human exposure to toxic chemicals resulting in serious harm or death.	B	2	H	
	Natural Environment	▪ Pollution of the atmosphere will occur from the release of hazardous material.	A	2	H	

Major transportation event

Major transportation Event	People	▪ Accidents involving aircraft, trains, coaches or taxi vehicles will result in death or serious injury to a large number of people.	A	3	E	
	People	▪ The bad mechanical condition of vehicles traversing Municipality roads will cause road accidents.	B	2	H	
	People	▪ Inappropriate driver behaviour will cause road accidents	A	2	H	
	People	▪ Deteriorating road conditions will cause road accidents.	B	2	H	

Animal Disease

Animal Diseases	Economy	▪ Loss of export capability.	C	4	E	
	Natural Fauna	▪ Cross contamination with indigenous wildlife will spread disease.	C	3	H	
	People	▪ Loss of production (income) will have a severe impact on the	C	3	H	

		economic viability of the rural population.				
	Economy	▪ Impact on the reputation of the area.	C	3	H	
	People	▪ Loss of production (income) will have a severe impact on the food supply of the rural population.	C	2	M	

(ii) Monitoring Disaster Risks

- Disasters/ risks are not static; they change seasonally and over time. Risk monitoring system involves: -
- Hazard tracking: hazard-tracking systems monitor the physical phenomena that can trigger Disaster events. They include systems that provide seasonal and early warning information on approaching adverse weather conditions.
- Vulnerability monitoring: this system tracks the ability of areas, communities, households, critical services and natural environments to resist and withstand external threats.
- Disaster event tracking: this system monitors changing patterns in Disaster risk.

Key Performance Indicators

- Utilise PDMC guidelines for the application of a uniform Disaster risk assessment methodology.
- Disaster risk assessments have been conducted and progressively integrated into the development plans of the Local Municipality and other role players.
- Mechanisms to consolidate, document, map and make accessible information on the Local Municipality priority Disaster Risks.
- Priority Disaster Risks of provincial significance have been identified and mapped by the PDMC.
- Sector departments with responsibilities for reducing and managing Disaster Risks specific to their functional areas have established clear and documented mechanisms for rapid accessing and updating of relevant hazard and vulnerability information and for rapidly making this information available to the PDMC.

HAZARD AND RISK REDUCTION STRATEGIES

HAZARD	POTENTIAL RISK	RISK REDUCTION STRATEGIES
Human epidemic	1. Substantial loss of life.	• Awareness programs: types of diseases e.g. malaria, cholera, HIV/AIDS, Disease surveillance, health programs, mobile clinics, Social Welfare programs • Ensure that service providers have contingency plans in place
	Low immunization rates in the province will increase the likelihood of an epidemic occurring	• Health awareness, medical effects of non-immunization e.g. polio, measles • Ensure that department of health has contingency plans in place.
	Psychological effects on the community	• Awareness programme: Sensitize communities on the effects of epidemics, counselling and rehabilitation. • Department of health to ensure contingency plans are in place.
	Loss of income within the province	• Identify potential industry /commercial risk • Awareness programs: address economic impact, train replacement employees. Promote good health practices Effects and treatment of epidemic outbreaks. • Contingency planning e.g. Streamlining services to meet budgetary constraints.
	Vector/vermin contact will spread the epidemic throughout the province and beyond.	• Awareness programs: identification of diseases, Monitoring and surveillance. Preventing measures in respect of vermin, pest control and good housekeeping: clear breeding sites etc.
	Stigma being attached to the municipality accompanied by a tourist and visitor downturn.	• Awareness: People need to know the affects and facts. Good public relations and marketing programs to be promoted.
HAZARD	POTENTIAL RISK	RISK REDUCTION STRATEGIES
Major infrastructure failure	Water supply pumping facilities will be rendered inoperable.	• Awareness: Maximum use of available recourses, water sanitation, personal hygiene and health awareness • Identify alternative safe water supplies e.g. bore holes, Farms dams, rivers and springs and ensure

		service providers have contingency plans in place. • Encourage installation of backup power.
	Disaster communication facilities will be rendered inoperable.	• Awareness programs: Identify alternative means of communication • Disaster Management and service providers to ensure that contingency plans are in place. (TELKOM, ESKOM, MTN, VODACOM AND CELL C) • Encourage installation of backup power • Identify vulnerable sectors high risk flood plain
	Fuel supply facilities will be rendered inoperable	• Awareness programme: Maximize use of available fuel resources e.g. rationing, encourage the use of public transport, rail etc. • Identify alternative suppliers • Encourage strategic suppliers to provide emergency backup systems
	Telephone landline and cell communication will be rendered inoperable.	• Service providers to have contingency plans in place for e.g. radio, satellite phones.
	Base radio transmitter stations relying on power will be rendered inoperable	• Awareness programs: Identify alternative means of communication e.g. telephone and cell communication • Service provider to have contingency plans
	Electronic banking facilities will be rendered inoperable	• Service provider to have contingency plans in place
	Business and industry refrigeration and cooling facilities will be rendered inoperable	• Awareness programs: contamination of foodstuffs • Identify high risk areas e.g. meat storage, mortuary's • Identify alternative refrigeration facilities e.g. mobile refrigeration • Maintain and upgrading of infrastructure
Major Transportation Incident	Accidents involving aircraft, trains, coaches or taxi vehicles will result in death or serious injury to a large number of people.	• Awareness/law enforcement e.g. regular safe inspections. Road and vehicle safety principles to be adopted by drivers and passengers. • Local Municipalities and service providers to have contingency plans

		in place Regular interaction between role players to identify risks. • Identify hospitals with the capacity and expertise to cope with such major incidents.

HAZARD	POTENTIAL RISK	RISK REDUCTION STRATEGIES
	The bad mechanical condition of vehicles traversing Municipality roads will cause road accidents.	• Awareness programs: Road and vehicle safety principles to be adopted by drivers and passengers. • Co-ordination /Implementation of law enforcement Road and vehicle safety principles to be adopted by drivers and passengers.
	Inappropriate driver behaviour will cause road accidents	• Awareness programs: Road and vehicle safety principles to be adopted by drivers and passengers. • Co-ordination /Implementation of law enforcement
	Deteriorating road conditions will cause road accidents	• Awareness e.g. Signage • Law enforcement to combat e.g. overloading • Planned Maintenance
Water Contamination	Contaminated water supplies will cause disease such as cholera and dysentery	• Awareness programs: Proper industrial and commercial water management procedures, good hygiene and sanitation practices, household water treatment options e.g. bleach • Responsible agencies DWAF department of environmental affairs, Health and water affairs to have contingency plans in place. • Regular monitoring and surveillance • Identify alternative of water.
	Shortage of potable water supplies will aggravate the situation	• Awareness e.g. purification of alternatives water resources. Encourage rainwater harvesting. • Department of water affair/water authority to have contingency plans in place. • Identify alternative potential water resources e.g. boreholes, dams (database) spring protection.
	Resultant epidemics will place a great strain on the district's health facilities	• Department of Health to have contingency plans in place e.g.

		identify district health facilities and call support from other agencies
Animal Disease	Loss of export capability.	• Awareness programs e.g. State controlled diseases, symptoms of animal disease • Ensure that Vet nary services have contingency plans in place. • Identify disposal sites and guard disposal sites
	Cross contamination with indigenous wildlife will spread disease.	• Awareness programs e.g. Proper fencing, quarantine procedure • Ensure that Vet nary services have contingency plans in place. • Monitoring/Surveillance
	Loss of production (income) will have a severe impact on the economic viability of the rural population	• Awareness programs e.g. Type of service available Knowledge of symptoms

HAZARD	POTENTIAL RISK	RISK REDUCTION STRATEGIES
	Impact on the reputation of the area.	• Awareness programs e.g. Facts and Effects of the disease, avoid panic, Refer tourists to alternative resorts • Positive marketing
	Loss of production (income) will have severe impact on the food supply of the rural population.	• Ensure that Department of Agriculture to have contingency plans in place (Recruitment of Vet nary personnel) • Support from Department of Welfare/Vet nary services • Awareness Programs: Encourage insurance • Ensure proper staffing provision of Recruitment of enough staff • Mutual assistance agreements with other provinces.
Drought	Reduction or loss of natural or reticulated water for human and stock consumption	• Awareness programs e.g. do not cultivate or drain wetlands and Vlei Area's. Control of alien vegetation i.e. bug weed, wattle, lantana and paraffin weed. Protect springs. Encourage rainwater harvesting and investment in water tanks • Planning (IDP) for alternative reliable water sources e.g. Dams, covered reservoirs, boreholes and springs

		• Continuous maintenance of natural and reticulated water sources • Departments of Agriculture and DWAF to have contingency plans in place
	Loss of crops	• Awareness programs: Good farming practices, contour ploughing, minimum tillage, crop rotation. Encourage planting drought resistant varieties. • Identify responsible agency and ensure to have contingency plans in place
	Loss of grazing	• Awareness programs: Good farming practices e.g. back burning, fire breaks, crop rotation and prevention of soil erosion. Identify alternative grazing. • Proper clearing of encroaching alien vegetation e.g. Back burning
	Loss of livestock	• Awareness programs: e.g. Fire breaks, good grazing practice e.g. Designated areas for grazing • Make provision in IDP for designated communal holding areas to supplement feed and water

HAZARD	POTENTIAL RISK	RISK REDUCTION STRATEGIES
Fire	Informal settlements have an increased vulnerability to fire because of the close quarters and lack of access.	• Establish fire services. • Awareness programs: Good House Keeping E.g. Encourage proper spacing, use of electrical equipment, use of cooking apparatus and storage of flammable liquid. Proper clearing of encroaching vegetation and disposal of refuse. Encourage specialized institution to present safety audits. Provide firefighting training for volunteers and basic equipment • Proper policing to avoid further influx • Plan alternative accommodation e.g. include development of housing as priority in the IDP
	Loss of stock and game	• Awareness programs: e.g. Agriculture advice to be give fire

		breaks, good grazing practice e.g. Designated areas for grazing • Training of firefighting volunteers
	Loss of roofing., thatch, rendering housing uninhabitable	• Awareness programs: Encourage good building practices e.g. use of proper roofing materials • Proper clearing encroaching vegetation e.g. Back burning. • Training of fire volunteers
	Pregnant women, young children the elderly and the disable unable to evacuate in time.	• Awareness programs: Fire behaviour e.g. Reading wind direction and evacuation procedures. • Early warning systems e.g. Media broadcast, pamphlets and load halers • Identification of places of safety. • Identify alternative access routes • Training of firefighting Volunteers
	Loss of crops	• Awareness programs: Good farming practices e.g. Back burning, fire breaks and crop rotation • Training of firefighting Volunteers
	Loss of grazing land	• Awareness programs: Good farming practice e.g.
	Destruction of industrial areas, industrial job losses, economic losses	• Establishment of FPAS (Fire Protection Associations) • Maintenance of gas pipes, Awareness campaigns fire protection systems contingencies plan for industries
Flood, Storm, Severe Rainfall, Landslip	People will not be able to evacuate the area	• Identify vulnerable sectors informal/formal • Awareness programs: Pre-identified high ground shelter, leave unnecessary item. Take food etc. • Consider relocation of informal temporary shelter • Pro-active measures of mitigation (gabion baskets) • Early warning systems Pre-identify alternative accommodation • Include in IDP for future development

HAZARD	POTENTIAL RISK	RISK REDUCTION STRATEGIES
	Areas will be cut off by washed out roads, bridges etc., preventing access by response agencies.	• Identify vulnerable sectors informal/formal • Awareness programs (proper drainage ext.) • Identify alternative routes • Planning, positioning and quality of roads • Pre-identify alternative resources in terms of access (Rubber duck ext.) for floods only • Include IMS protocol in conjunction with department of transport • Include IDP
	Building (Public and Private) and informal settlements will be destroyed, leaving large number of people homeless.	• Awareness in terms of building codes in rural areas. (Quality of homes) and (management of household possessions) • Pre-identify alternative accommodation/Maintain database of resources. (Food distribution plan) • Include re-housing in development programme. (IDP)
	Sanitation and health problems.	• Awareness programs: Promote the treatment of available water resources and good personal hygiene practices. Prevention of water born disease. e.g. (Malaria, Cholera and diarrhoea) • Identify responsible and ensure contingency plans in place
	Women left to care extended families with no means of transportation out of the affected area	• Identify vulnerable sectors informal/formal • Identify alternative routes • Resources in terms of access
Hazmat Incidents	Pollution of the water table	• Awareness programs: the effect of various chemical and precautionary measures, identify specialized and alternative treatment facilities and places of safety • Local Authority, Environmental affairs/DWAF to have contingency plans in place. • Identify Hazmat Task Team
	Pollution of the soil	• Awareness programs: the effect of various chemical and precautionary

		measures, identify specialized and alternative treatment facilities and places of safety • Local Authority, Environmental affairs/DWAF to have contingency plans in place. • Identify Hazmat Task Team
	Human exposure to toxic chemical resulting in serious harm or death.	• Awareness programs: the effect of various chemical and precautionary measures, identify specialized and alternative treatment facilities and places of safety • Local Authority, Environmental affairs/DWAF to have contingency plans in place. • Identify Hazmat Task Team
	Pollution of the atmosphere will occur from the release of hazardous material.	• Awareness programs: the effect of various chemical and precautionary measures, identify specialized and alternative treatment facilities and places of safety • Local Authority, Environmental affairs/DWAF to have contingency plans in place. • Identify Hazmat Task Team
Snow	People will not be able to evacuate the area	• Identify vulnerable sectors informal/formal • Awareness programs: Pre-identified high ground shelter, leave unnecessary item. Take food etc. • Consider relocation of informal temporary shelter • Pro-active measures of mitigation (gabion baskets) • Early warning systems Pre-identify alternative accommodation • Include in IDP for future development
	Areas will be cut off by washed out roads, bridges etc., preventing access by response agencies.	• Identify vulnerable sectors informal/formal • Awareness programs Identify alternative routes • Planning, positioning and quality of roads • Pre-identify alternative resources in terms of access Include IMS protocol in conjunction with department of transport

		• Include IDP

10.4 Integration of Disaster risk reduction with spatial development planning

Provincial and municipal Disaster management centres must establish mechanisms in association with spatial planners in both spheres to ensure that relevant spatial information informs Disaster risk reduction planning.

10.4.1 Incorporation of Disaster risk reduction planning into Integrated Development Planning

Disaster risk reduction efforts are medium to long-term multi-sectorial efforts focused on vulnerability reduction and must be incorporated into on-going IDP projects, processes, programs and structures.

Key Performance Indicators

- Risk related information has been incorporated into spatial development frameworks.
- Projects and initiatives that include a focus on Disaster risk reduction have been included in IDPs.

CHAPTER 6

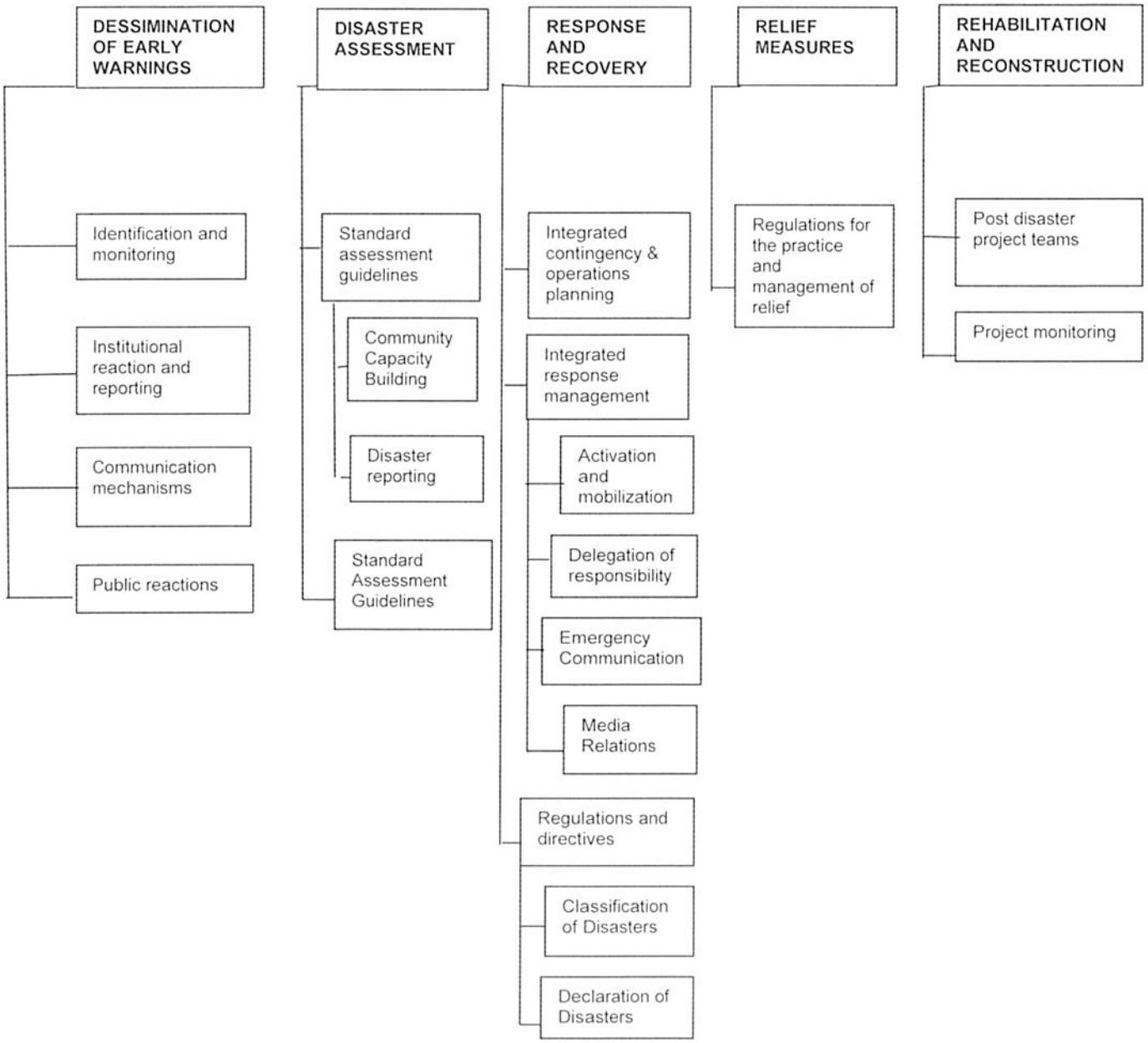
11. RESPONSE AND RECOVERY

11.1 Objective

To ensure effective and appropriate Disaster response and recovery by:

- Implementing a uniform approach to the dissemination of early warnings.
- Averting or reducing the potential impact in respect of personal injury, health, loss of life, property, infrastructure, environment and government services.
- Implementing immediate integrated and appropriate response and relief measures when significant events or Disasters occur or are threatening to occur.
- Implementing all rehabilitation and reconstruction strategies following a Disaster in an integrated and developmental manner.

FIG 8. DISASTER RESPONSE AND RECOVERY



PROCESS FOR THE CLASIFICATION AND DECLARATION OF STATE OF DISASTER

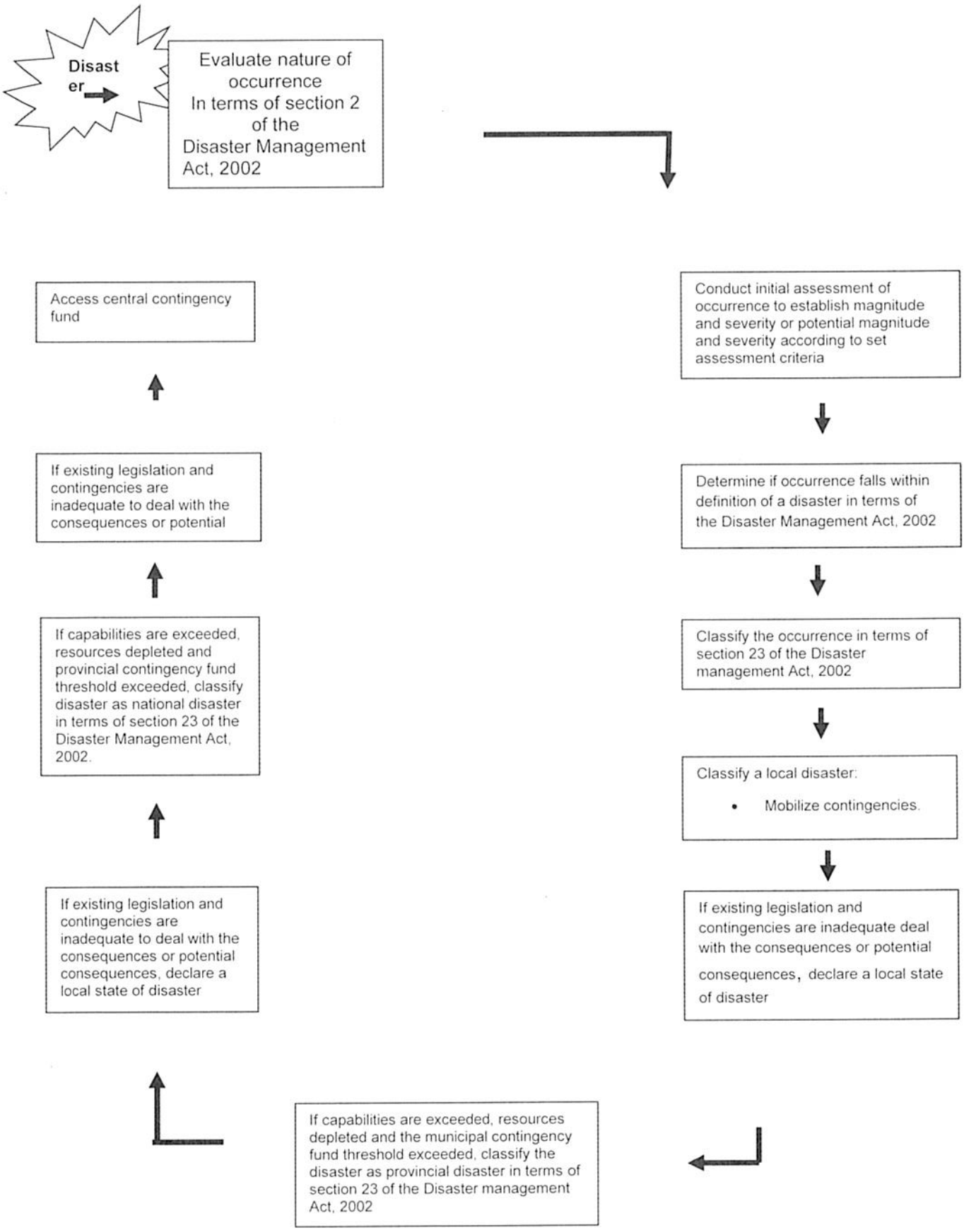


Figure 9: Process for the classification and declaration of state of disaster

11.1.2 Early Warnings

Early warnings are designed to alert areas, communities, households and individuals to an impending or imminent significant event or Disaster so that they can take the necessary steps to avoid or reduce the risk and prepare for an effective response.

11.1.3 Major Role Players in integrated early warning:

- South African Weather Services - climate forecast, satellite information.
- Department of Water Affairs & Forestry - flood warnings, dam and river levels, water supplies.
- Department of Agriculture - crop forecasts, staple food quality, forage availability, water irrigation and livestock.
- Department of Health – epidemics and diseases.
- Municipal Communications – Crisis/Emergency Communication Plan

Disaster Assessment

On-site assessment includes establishing what resources are necessary to ensure the delivery of immediate, effective and appropriate response and relief measures to affected areas and communities and to facilitate business continuity.

Response and Recovery

The operational plans and guidelines of the various response agencies that contribute to field operations must be considered when allocating responsibilities for response and recovery. Primary and secondary responsibilities will be allocated for each of the operational activities associated with Disaster response e.g. evacuation, shelter, search and rescue, emergency medical services and firefighting.

Relief Measures

Relief operations following significant and/or events classified as Disasters will be coordinated. Relief assistance and donations will be equitably distributed.

Rehabilitation and Reconstruction

The organ of state tasked with primary responsibility for known hazard will facilitate the establishment of project teams.

Key Performance Indicators

- Post Disaster project teams for rehabilitation and reconstruction have been established and operate effectively.
- Mechanisms for the monitoring of rehabilitation and reconstruction projects have been established and regular progress reports are submitted to the NDMC.
- The provincial and municipal Disaster management centres have established and documented clear procedures for accessing, interpreting and disseminating early warnings of both rapid and slow onset hazards.

CHAPTER 9

ENABLER 1: INFORMATION MANAGEMENT AND COMMUNICATION

12.1.1 Objective

To guide the development of a comprehensive information management and communication system and establish integrated communication links with all Disaster Risk Management role players.

12.1.2 Establishing an Information Management and Communication System

The information management and communication system will include the establishment of communication links, which will enable the receipt, transmission and dissemination of information between Disaster management centres and those likely to be affected by Disaster Risks as well as other role players and role players and stakeholders involved in Disaster Risk Management. The design of the system will take into account the lack of technological infrastructure in areas and communities most at risk, as well as telephonic system failures during Disasters. This will require the use of a dedicated two-way provincial emergency radio communication network.

12.1.3 Integrated Information Management and Communication Model

An integrated information management and communication system must be established to achieve the objectives of the KPAs, and enablers outlined in the national Disaster management framework.

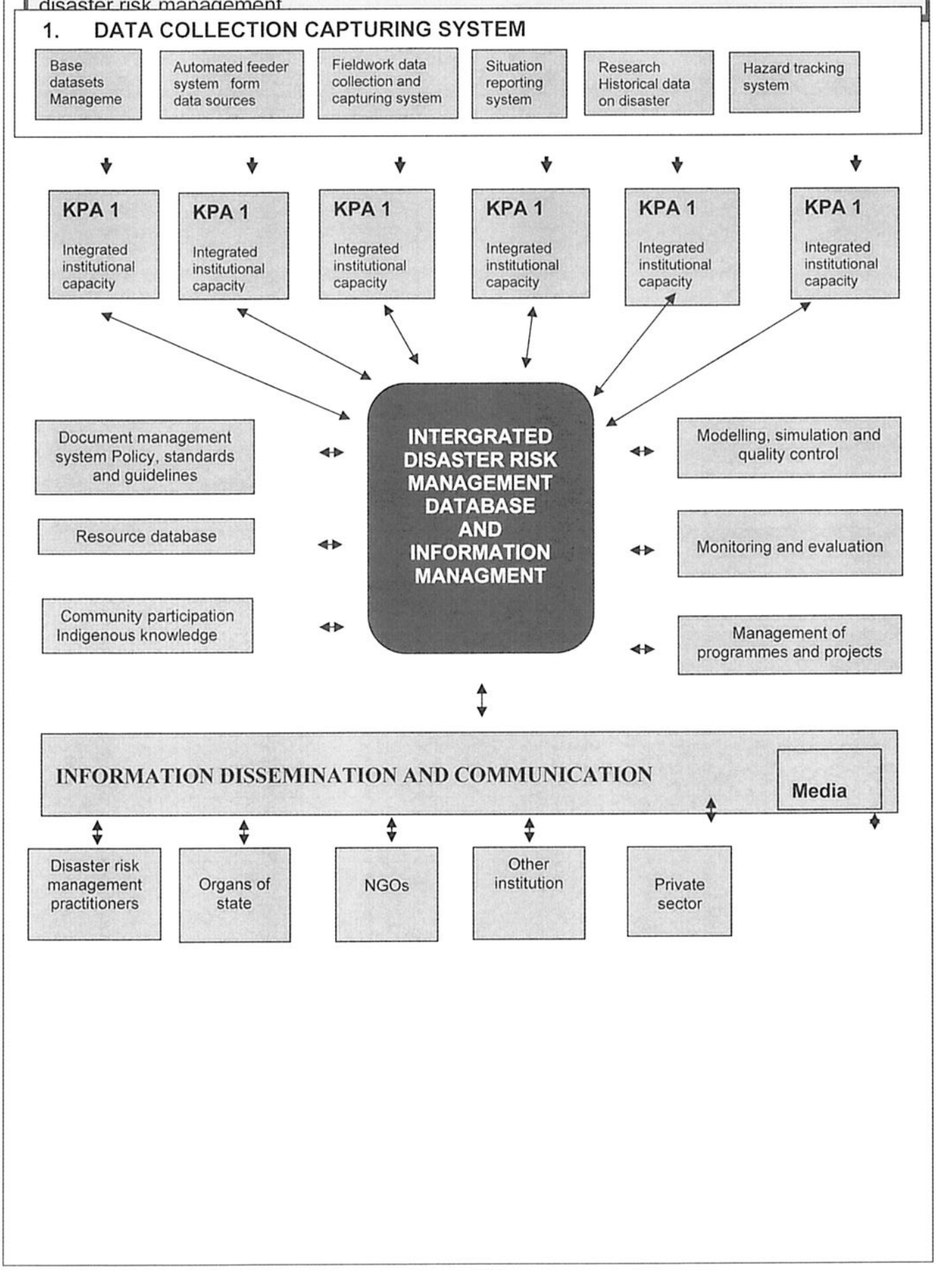
12.1.4 Data Acquisition (Data Collection and Capturing)

The process will identify both the inputs and data sources (data custodians) that will be required to ensure effective support for the implementation of the Act and the Framework.

The following types of data, among others, will be required: -

- Base data (e.g. topographical, census, land cover, infrastructure, deeds, environmental)
- Dynamic data (e.g. contact and other relevant details of all role players)
- Field data (e.g. features of buildings, infrastructure)
- Situational reporting system (e.g. incidents, local conditions)
- Hazard tracking (e.g. weather conditions, flood, fire hazard conditions, droughts)
- Early warnings

Figure 10: Model of an integrated information management and communication system for disaster risk management



12.1.5 Key Performance Indicators

- Data needs have been defined by the PDMC.
- Data sources have been identified by the PDMC.
- Data collection and capturing methodologies have been developed and implemented.
- The responsibilities of the respective data custodians have been defined and assigned.
- Agreements with identified data custodians have been negotiated to ensure availability, quality and reliability of data.

CHAPTER 8

13. ENABLER 2: EDUCATION, TRAINING, PUBLIC AWARENESS & RESEARCH

13.1 Objective

To promote a culture of risk avoidance among stakeholders by capacitating role players through integrated education, training and public awareness programmes informed by scientific research.

13.2 EDUCATION AND TRAINING

13.2.1 School Programmes

The NLM will seek to establish links with existing awareness creation programmes in schools for the purpose of disseminating of information on Disaster Risk Management and risk avoidance. The municipality will play an active part in engaging schools to ensure a practical approach to awareness programmes.

13.2.2 Dissemination and Use of Indigenous Knowledge

It is imperative that traditional leaders, as custodians of indigenous knowledge, play an active role at the local, district and provincial levels. The indigenous knowledge is an integral part of Disaster Risk Management.

13.3 Training Programmes for Government Officials and Policy Makers

Training programmes for government officials and policy makers will embrace the multidisciplinary and interdisciplinary dimensions of Disaster risk reduction, which will include the following:

- Development planning
- Hazard identification and assessment
- Communicable diseases
- Dry land agriculture
- Participatory rural appraisal
- Applied climate science and GIS

13.3.1 Community Training Programmes

Training programmes for communities will focus on Disaster risk awareness, Disaster risk reduction, volunteerism and preparedness. Communities will be given the opportunity to modify and enhance training programmes through the inclusion of indigenous knowledge, practices and values, and the incorporation of local experience of Disasters and Disaster Risk Management.

13.4 PUBLIC AWARENESS

13.4.1 Public Awareness Strategy

To inculcate risk avoidance behaviour by all stake holders, public awareness campaigns aimed at raising consciousness about Disaster Risks will provide information on how to reduce vulnerability and exposure to hazards. These campaigns will include:

- Organized and planned awareness programmes
- Imbizo meetings
- Annual recognition and celebration of World Disaster Risk Reduction Day
- Rewards, incentives, competitions and recognition schemes to enhance awareness of and participation in risk reduction activities
- Dissemination of information to all role players

13.4.2 Communication through the Media (Communication Unit)

The role of the media during Disasters must be defined and managed through a consultative process involving the media, role players involved in response and recovery efforts, and communities routinely affected by Disasters or impending Disasters. The municipality will establish and manage on-going relations with relevant local and national media.

13.5 RESEARCH

The PDMC, through a process of consultation, will develop a strategic Disaster risk reduction research agenda to effectively inform Disaster Risk Management planning and implementation in the province. Research initiatives will also be linked to the IDP processes of municipalities.

The PDMC will facilitate:

- Consultation and engagement between the communities of Disaster risk scientists and professionals in the province.
- A process for auditing existing research initiatives and programmes.
- Consultation with appropriate national and international agencies and foundations that support research.
- The development of an integrated Disaster risk reduction research agenda and programme.

Key Performance Indicators

- Training programmes have been developed and implemented.
- Approved service providers have been registered and are offering training services and products.
- Facilitators, instructors and presenters have become qualified and have been accredited.
- Widespread community-based Disaster Risk Management training is taking place.
- Awareness of Disaster Risk Management is promoted at schools and in communities known to be at risk.
- Disaster risk reduction is the focus of all Disaster Risk Management awareness programmes.
- There is widespread evidence of balanced media reports and coverage on hazards, Disasters and Disaster Risk Management issues.
- Disaster risk reduction is included as a standard agenda item for consideration at executive meetings of all role players and stakeholders.
- A strategic Disaster risk research agenda linked between scientific research and policies, which is accessible to stakeholders, has been established.

CHAPTER 9

14. ENABLER 3: FUNDING ARRANGEMENTS FOR DISASTER RISK MANAGEMENT

14.1 Objective

- It is to establish a mechanism for funding Disaster Risk Management in the province.

14.2 Recommended Funding Arrangements.

- Table below provides an overview of the recommended funding mechanisms for each of the five Disaster Risk Management activities.

Activity	Funding source	Funding mechanism
Start-up activities (KPA 1, Enabler 1)	National government	Conditional grant for local government – district and metropolitan municipalities, where necessary
		Conditional grant for provinces with counter-funding component1
		Budget of national departments
Disaster Risk Management on-going operations (KPAs 3 and 3)	National and provincial government	Own departmental budgets
	New assignment to local government	Increase in the (Institutional) component of the equitable share of local government
	National departments	Own budgets

Disaster risk reduction (KPAs 2 and 3)	Provincial departments	Own budgets but can be augmented by application for funding to the NDMC for special national priority risk reduction projects
	District /local municipalities	Own budgets but can be augmented by application for funding to the NDMC for special national priority risk reduction projects
	In the case of low-capacity, resource-poor municipalites2	Additional funding released from the NDMC targeted at these categories of municipalities
Response, recovery and rehabilitation and reconstruction efforts (KPA 4)	National government	Own budget for those departments frequently affected by Disasters
		Access to central contingency funds
		Reprioritize within capital budgets for infrastructure reconstruction
	Provincial government	Own budget. Particularly for those departments frequently affected by Disasters
		Conditional infrastructure grants
		Access to central contingency fund once threshold is exceeded on a matching basis
		Reprioritize within capital budget for infrastructure reconstruction.
	Local government	Access to central contingency fund once threshold is exceeded
		Conditional infrastructure grant, i.e. Municipal Infrastructure Grant (MIG)
Education, training and capacity-building programmes (Enabler 2)	All sphere of government	Own budgets and reimbursement through SETAs
		Public awareness programmes and research activities can also be funded through the private sector, research foundations, NGOs and donor funding

Key Performance Indicators

- The cost of Disaster risk assessment is included in the budgets of Provincial organs of state.
- The costs of Disaster risk assessments have been estimated and are included in the budgets of MDMCs.
- The minimum requirements for provincial and municipal Disaster management centres have been costed.
- Capital budgets for the province and district municipalities clearly reflect the cost of Disaster risk reduction.
- Response, recovery, rehabilitation and reconstruction efforts are funded through a combination of own budgets, reprioritization, budgeted threshold allocations and conditional grants.
- The conditions of the MSIG have been extended to cater for Disaster Risk Management education and training programmes.

- Partnerships between municipal organ of state and the private sector, NGOs and CBOs exist for the purpose of funding public awareness programmes and projects.

CHAPTER 10

15. MONITORING AND UPDATING OF PLAN

Section 34 of Disaster Management Act (Act No. 57 of 2002) stipulates that:

- A provincial Disaster management centre must:

- Monitor progress with the preparation and regular updating of Disaster management plans and strategies by provincial and municipal organs of state involved in Disaster management in the province.
- Monitor formal and informal prevention, mitigation and response initiatives by provincial and municipal organs of state, the private sector, non-governmental organizations and communities, including the integration of these initiatives with development plans.
- Monitor the compliance in the province with key performance indicators in respect of the various aspects of Disaster management.
- Measure the performance and evaluate such progress and initiatives from time to time.

CHAPTER 11

16. CONTACT DETAILS

Table 7: Ngwathe Local Municipality

Institution	Personnel	Contacts
Ngwathe Local Municipality	**Executive Mayor:** Mrs Victoria Mthombeni	078 562 5650
	MMC Community Service: Ms Noma Moloi	078 705 0586
	Municipal Manager: Dr Futhuli Mothamaha	072 152 0147
	Director Community Services: Mrs Mojabeng Makibinyane	078 443 9239
	Director LED: Dr S. Dintsi	083 715 3836
	Disaster Manager: Mr Sphiwe Caleni	078 422 6084
	Public Safety Manager: Mr Pola Chochoe	067 193 4258
	Communications Manager: Mr Steve Naale	071 680 4700
	Ngwathe LM Control: Fire Service	082 909 3464/ 056 816 2800
Fezile Dabi District Municipality	**Director Environmental Health & Emergency Services:** Mrs Grace Phoofolo	082 776 0374
	Head of Centre Emergency Services: Mr Mohapi Mathibe	082 779 0553
	Deputy Manager: Mrs Tshidi Lemeko - Mogoera	082 924 8443
	Control Room Attendant: Ms Fola Makgene	076 084 4193
Provincial Disaster Management Centre	**Head of Centre:** Mr Markers Butler	066 487 4896
	PDMC Fezile Dabi region: Mrs Pumla Nkosi	081 424 7392
	PDMC Fezile Dabi region: Ms Tebello Mokoena	066 256 1806
Road incident Management Systems (RIMS)	**RIMS Chairperson:** Ms Debbie Prinsloo	083 559 0674
Ngwathe Police Station (SAPS)	**Station Commander**	
South African Redcross	**Provincial Manager:** Mrs Claudia Mini	061 194 2052
Gift of the Givers	**Manager:** Mr Clifford	072 757 3860
SALGA: Disaster Management	**Manager:** Mr Tilden Mosha	081 813 3338
Dept of Agriculture	**Fezile Dabi Region: Ms Nthabiseng Nyathi**	072 712 0294
SASSA	**Fezile Dabi Region:** Ms Khanye Nkosi	071 505 9730
Local Hospital and Clinic	Mr Modiko	083 395 3803
Ambulances	Mrs I Nienaber	060 985 6088
Dept of Education	Mr Chuta	079 503 5964

17. REFERENCES

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5. CSIR Greenbook. 2024
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Annexure A

INTRODUCTION

The prompt and efficient response to incidents/ Disasters leads to the saving of lives and protection of property, without which there would be unprecedented human and economic losses. Disaster Risk Management, being a multi-sectoral and multi-disciplinary process of planning and implementation, calls for an integrated approach to Disaster management by different role players. Captured in this document are the different hazards that are prevalent in the province and the specific response role that each stakeholder plays. The aim of this exercise is to prevent uncertainty, confusion and duplication of roles in the event of response to Disasters.

1. FLOODS

1.1 RELEVANT LEGISLATION

- National Water Act, Act No.36 of 1998.
- Disaster Management Act, Act No 57 of 2002.

1.2 LEAD DEPARTMENT AND ITS RESPONSIBILITIES

Department of Water and Sanitation (DWS)

- Monitor and regulate dam levels.
- Provide early warnings.
- Draw contingency plans for all major dams.

1.3 OTHER ROLE PLAYERS AND THEIR RESPONSIBILITIES

Disaster Management Centre

- Coordinate all stakeholders.
- Establish the Joint Operation Centre (JOC).

Department of Health

- Emergency Medical Services – Provide emergency medical services.
- Communicable Disease Control – Prevent the spread of communicable diseases, e.g. cholera.
- Environmental Health – Assessment of water quality.

Department of Agriculture

- Assess Stock and Crop losses.
- Provide Relief Funding.

Department of Public Works Roads and Transport

- Assess damage to roads and infrastructure.
- Repair damaged roads and infrastructure.

Department of Social Development

- Assess community needs.
- Provide food aid.

South African Red Cross Society

- Provide food, clothing and blankets.

Department of Safety and Security

- Provide search and rescue.
- Provide safety and security at evacuation centres.
- Provide Security to victim's property.

Telkom and ESCOM

- Repair telecommunication lines.
- Repair power lines.

South African Weather Services

- Provide early warning systems.

    - South African National Defence Force.

- Search and rescue.
- Air support.

Department of COGTA

- Emergency housing.

1.4 PREVENTION MEASURES

- Reforestation.
- Building of catchments areas.
- Site improvement.
- Flood forecast & early warning systems.
- Public awareness.
- Monitoring of dam levels.4095115

2 FIRES

2.1 RELEVANT LEGISLATION

- Fire Brigade Service Act, Act No. 99 of 1987.
- Local Government: Municipal Structures Act, Act No.117 of 1998, Section 84(J).
- National Veld and Forest Fire Act, Act No.101 of 1998.

2.2 LEAD DEPARTMENTS AND THEIR RESPONSIBILITIES

Municipal Fire Department

- Provide Fire Brigade services.

Department of Environment, Forestry and Fisheries (DEFF)

- Establishment of Fire Protection Associations.
- Working on Fire teams.
- Provision of Air support.

2.3 OTHER ROLE PLAYERS AND THEIR RESPONSIBILITIES

Disaster Management Centre

- Coordinate all stakeholders.
- Establish the Joint Operation Centre (JOC).

Department of Health

- Emergency Medical Services – Provide emergency medical services.

Department of Agriculture

- Assess Stock and Crop losses.
- Assess damage to property and the environment.
- Provide Relief Funding.

Department of Public Works Roads and Transport

- Traffic control

Department of Social Development

- Assess community needs.
- Provide food aid.

South African Red Cross Society

- Provide food, clothing and blankets.

Department of Safety and Security

- Provide search and rescue.
- Provide safety and security at evacuation centres.
- Provide Security to victim's property.
-

Telkom and ESCOM

- Repair telecommunication lines.
- Repair power lines.

South African Weather Services

- Provide early warning systems.

South African National Defence Force

- Search and rescue.
- Air support.

Department of COGTA

- Emergency housing.

2.3 PREVENTION MEASURES

- Fire breaks.
- Establishment of Fire Protection Associations.
- Training and Awareness Campaigns.
- Using safe building material.
- Upgrading fire services.

3 DROUGHT

3.1 RELEVANT LEGISLATION

- National Water Act, Act No.36 of 1998Disaster Management Act, Act No 57 of 2002.
- Conservation of Agriculture Resource Act, Act No.43 of 1983.

3.2 LEAD DEPARTMENTS AND THEIR RESPONSIBILITIES

Department of Water and Sanitation (DWS)

- Monitor and regulate dam levels.
- Provide early warnings.
- Draw contingency plans for all major dams.
- Provide emergency water supply funding (boreholes and trucking).

Department of Agriculture

- Monitor drought conditions (grazing and crops).
- Monitor water levels (dams and boreholes).
- Provide drought relief funding.
- Declare Disasters in drought-stricken areas.

3.3 OTHER ROLE PLAYERS AND THEIR RESPONSIBILITIES

Disaster Management Centre

- Coordinate all stakeholders.
- Establish the Joint Operation Centre (JOC).

Department of Health

- Emergency Medical Services – Provide emergency medical services.
- Communicable Disease Control – Prevent the spread of communicable diseases, e.g. cholera.
- Environmental Health – Assessment of water quality.

Department of Social Development

- Assess community needs.
- Provide food aid.
- Provide emergency relief funding.

South African Red Cross Society

- Provide food, clothing and blankets.

South African Weather Services

- Provide early warning systems.

3.4 PREVENTION MEASURES

- Deforestation of alien vegetation.
- Drought forecast early warning systems.
- Veld management.

4. STORMS (WIND, HAIL, SNOW)

4.1 RELEVANT LEGISLATION

- Disaster Management Act, Act No 57 of 2002.

4.2 LEAD DEPARTMENT AND ITS RESPONSIBILITIES

Department of Local Government and Housing

3.3 Evaluate the extent of damages.
3.4 Establishment of the Joint Operation Centre.
3.5 Emergency Housing.

4.3 OTHER ROLE PLAYERS AND THEIR RESPONSIBILITIES

Department of Agriculture
Snow and Hailstorm
Responsibilities:

- Monitor stock, crop and game losses.
- Provide relief funding.

Department of Health

- Emergency Medical Services – Provide emergency medical services.

Department of Social Development

- Assess community needs.
- Provide food aid.
- Provide emergency relief funding.

South African Red Cross Society

- Provide food, clothing and blankets.

South African Weather Services

- Provide early warning systems.

Department of Safety and Security

- Provide search and rescue.
- Provide safety and security at evacuation centres.
- Provide Security to victim's property.

Telkom and ESKOM

- Repair telecommunication lines.
- Repair power lines.

South African National Defence Force

- Search and rescue.

Department of Public Works Roads and Transport

- Assess damage to roads and infrastructure.
- Repair damaged roads and infrastructure.
- Traffic control.
- Removal of snow from the road surface.

4.2 PREVENTION MEASURES

Snow

- Early warnings.

Windstorm

- Windbreakers.
- Building according to specifications.

5 HAZMAT

5.1 RELEVANT LEGISLATION

- National Road Traffic Act, Act 93 of 1996 Regulation 273-283.
- Explosives Act, Act 26 of 1956.
- Environmental Conservation Act, Act 73 of 1989.
- Hazardous Substance Act, Act 15 of 1973.
- National Environmental Management Act, Act 107 1998

5.2 LEAD DEPARTMENT AND ITS RESPONSIBILITIES

Department of Local Government and Housing

Establishment of the Joint Operation Centre.

Department of Public Works, Roads and Transport

Control the transportation and storage of hazardous material.

Control traffic.

5.3 OTHER ROLE PLAYERS AND THEIR RESPONSIBILITIES

Department of Health

- Emergency Medical Services – Provide emergency medical services.

South African Weather Services

- Provide wind strength and direction.

Department of Safety and Security

- Cordoning and securing the scene.

Department of Environmental Affairs and Tourism

- Monitor impact on the environment (soil and water tests).
- Rehabilitation of the environment.

Cleaning Companies/ Hazmat Spillage

- Cleaning hazardous spillages on road surfaces.

5.4 PREVENTION MEASURES

- Road safety awareness.
- Public awareness.
- Regular maintenance of haulers.
- Hazard mapping.

6 TREMOR/SEISMIC MOVEMENTS

6.1 RELEVANT LEGISLATION

- Disaster Management Act, Act No 57 of 2002.

6.2 LEAD DEPARTMENT AND ITS RESPONSIBILITIES

Department of Minerals and Energy

- Monitoring mining operations.
- Securing mining sites.
- Monitoring seismicity in mining areas.
- Proto rescue teams

6.3 OTHER ROLE PLAYERS AND THEIR RESPONSIBILITIES

Disaster Management

- Establishment of the JOC.

Department of Health

- Emergency Medical Services – Provide emergency medical services.

Department of Safety and Security

- Cordoning and securing the scene.

6.4 PREVENTION MEASURES

- Avoid building on unstable mining surfaces.
- Evacuation awareness campaigns.

7. HUMAN EPIDEMICS

7.1 RELEVANT LEGISLATION

- National Health Act.
- Free State Health Act.

7.2 LEAD DEPARTMENT AND ITS RESPONSIBILITIES

Department of Health

a) Public awareness.
b) Immunization.
c) Control of communicable diseases (prophylactic medication, immunization, vector control and sanitation.
d) Quarantine and Isolation
e) Surveillance and confirmation of diagnosis.
f) Treatment.
g) Emergency Medical Services

7.3 OTHER ROLE PLAYERS AND THEIR RESPONSIBILITIES

Department of Safety and Security

- Coordinating and securing the scene.

Department of Home Affairs

- Border Control.

7.4 PREVENTION MEASURES

- Immunization.
- Public education.
- Pest control.
- Quarantine and Isolation.
- Water purification.

8 ANIMAL EPIDEMICS

8.1 RELEVANT LEGISLATION

- Animal Diseases Act, Act No.35 of 1984

8.2 LEAD DEPARTMENT AND ITS RESPONSIBILITIES

Department of Agriculture

- Cordon off the affected area.
- Manning of roadblocks.
- Collect and test blood samples.
- Culling of infected animals.
- Reimburse affected farmers.

8.3 OTHER ROLE PLAYERS AND THEIR RESPONSIBILITIES

Disaster Management

- Establishment of the Joint Operations Centre.

Department of Safety and Security

- Cordoning and securing the scene.
- Manning of roadblocks.
- Provide equipment for setting up roadblocks.

Department of Public Works, Roads and Transport

- Traffic control.

South African National Defence Force

- Manning of roadblocks.

8.4 PREVENTION MEASURES

- Setting up roadblocks.
- Quarantine areas.
- Immunization.

9 MAJOR ROAD ACCIDENTS

9.1 RELEVANT LEGISLATION

- The Constitution of South Africa, Act 108 of 1996.

9.2 LEAD DEPARTMENT AND ITS RESPONSIBILITIES

Department of Public Works, Roads and Transport

- Warning and traffic control at the scene of an accident.
- Closing of roads.
- Emergency transport of victims to their destinations.

9.3 OTHER ROLE PLAYERS AND THEIR RESPONSIBILITIES

Department of Health

- Provide emergency medical services.
- Provide on-scene medical attention to casualties.
- Transportation of the injured to Hospitals.

Department of Safety and Security

- Cordoning and securing the scene.
- Transportation of corpses to government mortuaries.
- Salvage victims' belongings.
- Facilitate the process of identifying the deceased.

Disaster Management

- Establishment of the Joint Operations Centre.

Department of Home Affairs

- Keep records of immigrants.
- Liaise with foreign embassies.

Department of Social Development

- Provide counselling to the victims.
- Provide food parcels to the victims.

Tow-in Services

- Clearing wreckage from accident scenes.
-

9.4 PREVENTION MEASURES

- Regular maintenance of roads.
- Visible signage on roads.
- Road safety awareness campaigns.
- Roadworthiness of vehicles.
- Observation of traffic rules.
- Strict and consistent law enforcement by traffic officers.

10 AIRCRAFT ACCIDENTS

10.1 RELEVANT LEGISLATION

- Civil Aviation Regulations.
- International Civil Aviation's Regulations.
- Customs and Excise Act 91of 1964.
- The Constitution of South Africa, Act 108 of 1996.

10.2 MAIN ROLE PLAYER AND ITS RESPONSIBILITIES

Airport Authority/ Local Authority

- Activate response teams.
- Establish the number of fatalities and injuries.
- Establish the extent of damage.
- Carry out investigations with regard to accidents.
- Arrange financial support.
- Provide emergency medical services.
- Provide on-scene medical attention to casualties.

10.3 OTHER ROLE PLAYERS AND THEIR RESPONSIBILITIES

Department of Safety and Security

- Cordoning and securing the wreckage scene.
- Transportation of corpses to government mortuaries.
- Salvage victims' belongings.
- Facilitate the process of identifying the deceased.

Disaster Management

- Establishment of the Joint Operations Centre.

South Africa National Defence Force

- Provide medical services.

Department of Health

- Provide medical services.

10.4 PREVENTION MEASURES

- Public Awareness.
- Upgrading of radar equipment

11. JOINT OPERATIONS CENTRE (JOC)

11.1 DEFINITION

It is a centre comprising of all relevant role players to be activated for the coordination and execution of activities during a specific event, emergency or disaster.

11.2 AIM

It is to ensure continuous coordination and cooperation between the relevant role players for the duration of the situation.

11.3 ESTABLISHMENT OF A JOC

The nature of an incident/Disaster will determine the levels of JOCs to be established.

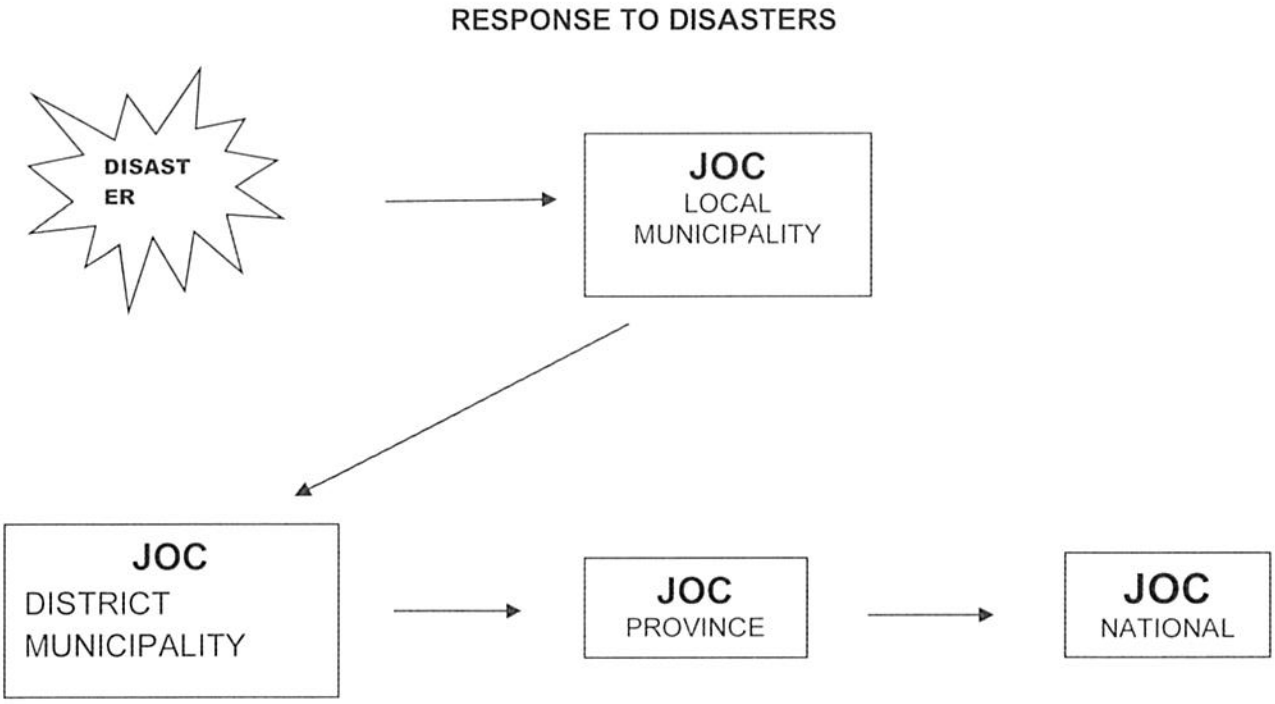


Figure 11: If the local JOC cannot cope with the situation using only its own resources it must call on the district JOC for assistance. The same applies to other levels of JOCs.

11.4 EQUIPMENT IN JOC

- Relevant computer equipment and systems.
- Fax machine.
- Telephones.
- Radio equipment (to be provided by each role player).
- Television set and radio.

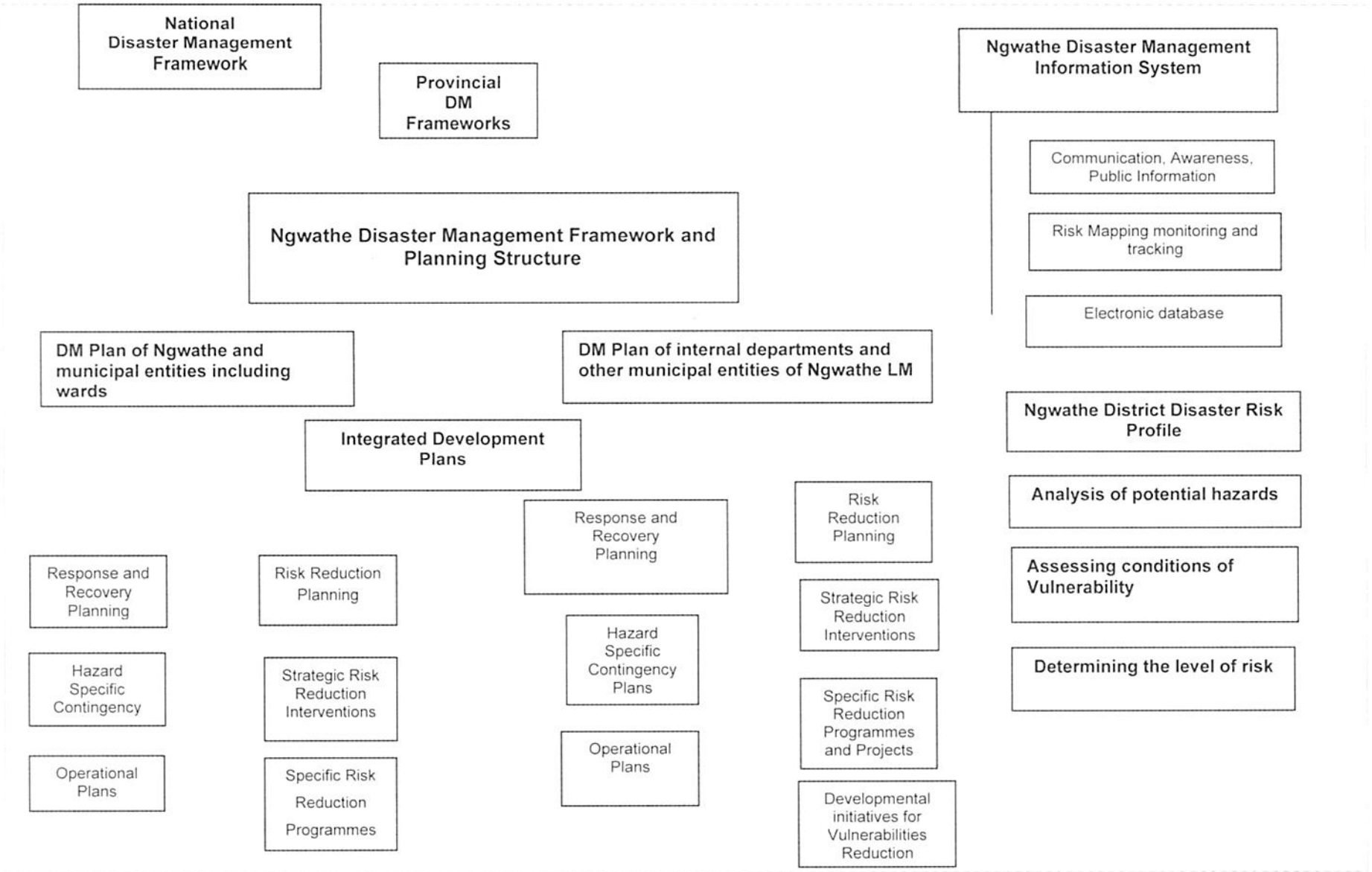
- Note boards.
- Flip charts.
- Contact data of relevant role players.
- Provision for rest rooms, food and beverages for members must be ensured.

11.5 FUNCTIONS OF A JOC

- To ensure continuous coordination and cooperation between role players.
- To serve as an information and communication nodal point.
- To render guidance and assistance to the operational functionaries at the incident.
- To promote communication and decision making between relevant role players.
- To ensure that all joint instructions are communicated to the relevant role players.
- To maintain complete administrative recording of all activities during the situation.
- To update and inform relevant higher levels of command and management on relevant activities and incidents.
- The nature of event, emergency and Disaster will determine the role player, composition of the JOC and the JOC commander (coordinator).
- For security related incidents, the SAPS will assume command of the JOC whilst with non-security related incidents the responsibility will rest with Disaster Management Unit of that respective level.
- The role of the JOC Commander will be to coordinate and ensure unity in command without assuming command over line functionaries of different departments/role players.
- Each role player will be responsible to delegate a senior official to the JOC who will assume coordination and command pertaining the specific functional and operational activities for that specific discipline.
- The representative in the JOC will issue these instructions after coordination, deliberation, decision making and on request of the JOC Commander.

11.6 MEDIA LIAISON

- It is essential that only one common communication channel should be utilized for external and media communication and liaison to ensure that one uniform message is carried.
- The role players in the JOC must collectively decide on one individual who will be responsible for coordination of all relevant information, external communication, media liaison and media releases.
- This person will coordinate with all the different role players to ensure integrated media releases.
- All such communication and media releases must first be deliberated and consulted with representatives of all the relevant departments and be approved by the JOC Commander, before such information or media releases can be made available.
- Only factual confirmed information may be provided to the media.


National Disaster Management Framework
Provincial DM Frameworks
Ngwathe Disaster Management Information System
Communication, Awareness, Public Information
Risk Mapping monitoring and tracking
Electronic database
Ngwathe Disaster Management Framework and Planning Structure
DM Plan of Ngwathe and municipal entities including wards
DM Plan of internal departments and other municipal entities of Ngwathe LM
Ngwathe District Disaster Risk Profile
Integrated Development Plans
Analysis of potential hazards
Assessing conditions of Vulnerability
Determining the level of risk
Response and Recovery Planning
Risk Reduction Planning
Response and Recovery Planning
Risk Reduction Planning
Hazard Specific Contingency
Strategic Risk Reduction Interventions
Hazard Specific Contingency Plans
Strategic Risk Reduction Interventions
Operational Plans
Specific Risk Reduction Programmes
Operational Plans
Specific Risk Reduction Programmes and Projects
Developmental initiatives for Vulnerabilities Reduction