

ULUNDI MUNICIPALITY DISASTER MANAGEMENT

SECTOR PLAN

" The City of Heritage "



DATE: 28 MAY 2021 (2ND DRAFT)



TABLE OF CONTENT

1.	Introduction	Error! Bookmark not defined.
2.	Background And Legislative Mandate	3
3.	New Approach To Disaster Management.....	7
4.	Status of Municipal Institutional Capacity	11
5.	Disaster Risk Assessment	18
	5.1. List Of Priority Risks (Hazards)	18
6.	Disaster Risk Reduction.....	28
	6.1. Alignment/Integration Between The Idp And Dmp	28
	6.1.1. Activities To Be Implemented To Reduce The Vulnerability:	28
	6.1.2. Disaster Management Programmes	29
7.	Disaster Response And Recovery	33
	7.1. Municipal Capacity In Terms Of Response And Recovery	33
8.	Information Management And Communication	38
	8.1. Information Management And Communication System Model	38
	Receive And Convert All Emergency Calls, By:	38
	Record All Relevant Information In Incident Book, By:.....	38
9.	Education, Training And Public Awareness.....	39
10.	Funding Arrangements For Disaster Risk Management.....	40

ULUNDI LOCAL MUNICIPALITY

MUNICIPAL DISASTER RISK DISASTER MANAGEMENT PLAN

The municipal Integrated Development Plans (IDPs) are reviewed and updated annually to ensure relevance. Each unit, sector or municipal entity is required to give its input to a broader IDP to be implemented during a particular financial year in terms of planned programmes, targets and the budget thereof. Hence this document outlines the input from the Ulundi Disaster Management Section, mainly focusing on Disaster Risk Reduction (DRR) programmes and strategies planned for the financial year 2021/2022, as well as the response and recovery mechanisms.

1. MUNICIPAL LEGISLATIVE MANDATE

Section 53 of Disaster Management Act No. 57 of 2002 “DM Act” requires each municipality to prepare a Disaster Management Plan according to the circumstances prevailing in its area. Besides requirements of the DM Act, Section 26 (g) of the Municipal System Act No. 32 of 2000 also requires Municipal Disaster Management Plans to form an integral part of the municipality’s Integrated Development Plan (IDP).

The Disaster Management Act No. 57 of 2002 requires the Ulundi Disaster Management Section to take the following actions:

- To prepare a Municipal Disaster Management Plan for its area according to the circumstances prevailing in the area and incorporating all municipal entities as well as external role-players.
- To co-ordinate and align the implementation of its Municipal Disaster Risk Management Plan with those of other organs of state, institutional and any other relevant role-players; and
- To regularly review and update its Municipal Disaster Management Plan (refer to Disaster Management Act No. 57 of 2002 - Section 48).

The Municipal Disaster Risk Management Sector Plan should:

- Form an integral part of the municipal IDP so that disaster risk reduction activities can be incorporated into its developmental initiatives,
- Anticipate the likely types of incidents or disasters that might occur in the municipal area and their possible effects,
- Identify the communities at risk,
- Provide for appropriate prevention, risk reduction and mitigation strategies,
- Identify and address weaknesses in capacity to deal with possible disasters,
- Facilitate maximum emergency preparedness,
- Establish the operational concepts and procedures associated with day-to-day operational response to emergencies by municipal Departments and other entities. These Standard Operation Procedures (SOPs) will also form the basis for a comprehensive disaster response.
- Incorporate all special Hazard / Risk-specific and Departmental Plans and any related emergency procedures that are to be used in the event of an incident or disaster. These will provide for :
 - a) The allocation of responsibilities to the various role players and co-ordination in the carrying out of those responsibilities.
 - b) Prompt disaster response and relief.
 - c) Disaster recovery and rehabilitation focused on risk elimination or mitigation.
 - d) The procurement of essential goods and services.
 - e) The establishment of strategic communication links.
 - f) The dissemination of information.

The Municipal Disaster Management Sector Plan is designed to establish the framework for implementation of the provisions of the Disaster Management Act No. 57 of 2002 and Disaster Risk Management Policy Framework of 2005, as well as the related provisions of the Municipal Systems Act No. 32 of 2000.

The identified disaster risk reduction activities must be integrated and aligned with the main activities contained in the municipal IDP. Hence the purpose of this Disaster Management

Sector Plan is to outline approach and procedures for an integrated and co-ordinated disaster risk management that focuses on:

- Preventing or reducing the risk of disasters.
- Mitigating the severity of disasters.
- Emergency preparedness.
- Rapid and effective response to disasters; and
- Post-disaster recovery.

This Disaster Risk Management Sector Plan is intended to facilitate multi-departmental, multi-agency and multi-jurisdictional co-ordination in both disaster and disaster risk management interventions.

1.1 Introduction and Background

The Disaster Management Act No. 57 of 2002 requires the Ulundi District Disaster Risk Management to take the following actions:

- To prepare a Municipal Disaster Risk Management Plan for its area according to the circumstances prevailing in the area and incorporating all municipal entities as well as external role-players.
- To co-ordinate and align the implementation of its Municipal Disaster Risk Management Plan with those of other organs of state, institutional and any other relevant role-players; and
- To regularly review and update its Municipal Disaster Risk Management Plan (refer to Disaster Management Act No. 57 of 2002 - Section 48).

The Municipal Disaster Risk Management Sector Plan should:

- Form an integral part of the Municipality IDP so that disaster risk reduction activities can be incorporated into its developmental initiatives. Anticipate the likely types of disaster that might occur in the Municipality area and their possible effects, Identify the communities at risk, at a ward level.

- Provide for appropriate prevention, risk reduction and mitigation strategies, Identify and address weaknesses in capacity to deal with possible disasters, facilitate maximum emergency preparedness, establish the operational concepts and procedures associated with day-to-day operational response to emergencies by municipal Departments and other entities. These Standard Operation Procedures (SOPs) will also form the basis for a more comprehensive disaster response.
- Incorporate all special Hazard / Risk-specific and Departmental DRM Plans and any related emergency procedures that are to be used in the event of a disaster. These will provide for:
 - The allocation of responsibilities to the various role players and co-ordination in the carrying out of those responsibilities.
 - Prompt disaster response and relief; o Disaster recovery and rehabilitation focused on risk elimination or mitigation.
 - The procurement of essential goods and services.
 - The establishment of strategic communication links.
 - The dissemination of information.

1.2 Purpose

The Municipal Disaster Risk Management Sector Plan is designed to establish the framework for implementation of the provisions of the Disaster Management Act No. 57 of 2002 and Disaster Risk Management Policy Framework of 2005, as well as the related provisions of the Municipal Systems Act No. 32 of 2000. Fundamentally, the identified disaster risk reduction activities must be integrated and aligned with the main activities contained in the municipal IDP. Hence the purpose of this Disaster Risk Management Sector Plan is to outline approach and procedures for an integrated and co-ordinated disaster risk management in the district that focuses on:

- Preventing or reducing the risk of disasters.
- Mitigating the severity of disasters.
- Emergency preparedness.
- Rapid and effective response to disasters; and
- Post-disaster recovery.

This Disaster Risk Management Sector Plan is intended to facilitate multi-departmental, multi-agency and multi-jurisdictional co-ordination in both disaster and disaster risk management interventions.

1.3 New Approach to Disaster Management

Until recently, the approach to Disaster Management has been reactive and relief centric. A paradigm shift has now taken place from the relief centric pattern to holistic and integrated approach with emphasis on prevention, mitigation, and preparedness.

Since 1994 the South African government's approach to dealing with disasters has changed significantly (NDMC, 2008). The change in legislation governing disasters prior 1994 was driven by several factors. One of the main reasons was the need to bring the law into the modern era so that it would be in line with international best practice in the field of disaster risk management. In addition, the government intended to systematically mainstream disaster risk reduction into developmental initiatives at national, provincial and municipal levels.

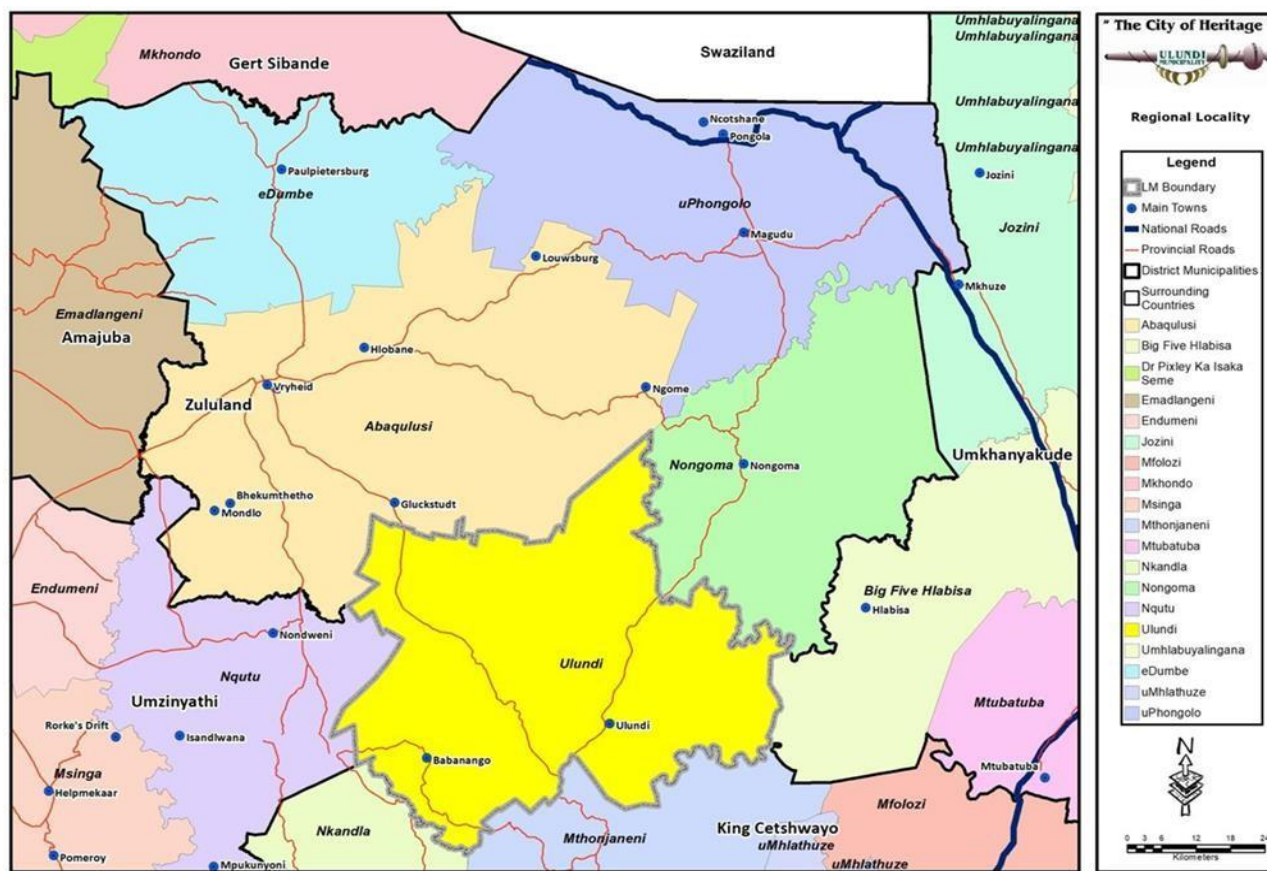
The Ulundi Municipality's approach to disaster and disaster risk management activities is primarily based on ethos of the Disaster Management Act No. 57 of 2002 and relevant policy frameworks.

The focal point of all in disaster risk management lies in the Fire and Disaster Emergency Centre which falls under the Director of Protection Services. Ulundi Municipality Risk Management Centre is the custodian of the Fire and Disaster Emergency Centre so as the Municipal Disaster Risk Management Plan. Individual Services / Directorates, Departments and other role-players / entities are responsible for the compilation and maintenance of their own Service's / Entity's

Disaster Management Plans. Along with the various specific Hazard DRM Plans, the Service / Entity Disaster Risk Management Plans will be considered as integral parts of the Municipal Disaster Risk Management Plan.

1.4 Spatial Location of Ulundi Municipality

Map-1:- Spatial location of Ulundi Municipality



Source: Ulundi Municipality IDP 2021/2022

Ulundi Municipality is one of five local municipalities within the administrative boundaries of Zululand District Municipality. The other four local municipalities include:

- eDumbe LM (KZ 261)
- Abaqulusi LM (KZ 263)
- The uPhongolo LM (KZ 262)

- Nongoma LM (KZ 265)

The municipality is located on the southern boundary of the Zululand District Municipality in the north eastern edge of Kwa-Zulu Natal and covers approximately 3,250Km² in extent. It consists of towns and settlements of Ulundi, Nqulwane, Mahlabathini, Babanango, Mpungamhlophe and Ceza. There are also traditional authority areas of Buthelezi (KwaPhindangene & KwaNondayana), Buthelezi (Empithimpithini) Mbatha, Mpungose, Ndebele, Ntombela, Ximba, Zungu, Zulu (KwaNsimbi). Ulundi Town is the main town and urban centre services the surrounding rural settlements. Approximately 50% of the municipality consists of commercial farms and is supportive of a substantial agricultural community.

1.5 Demographic Profile

Table-1:- Ulundi Demographic Profile

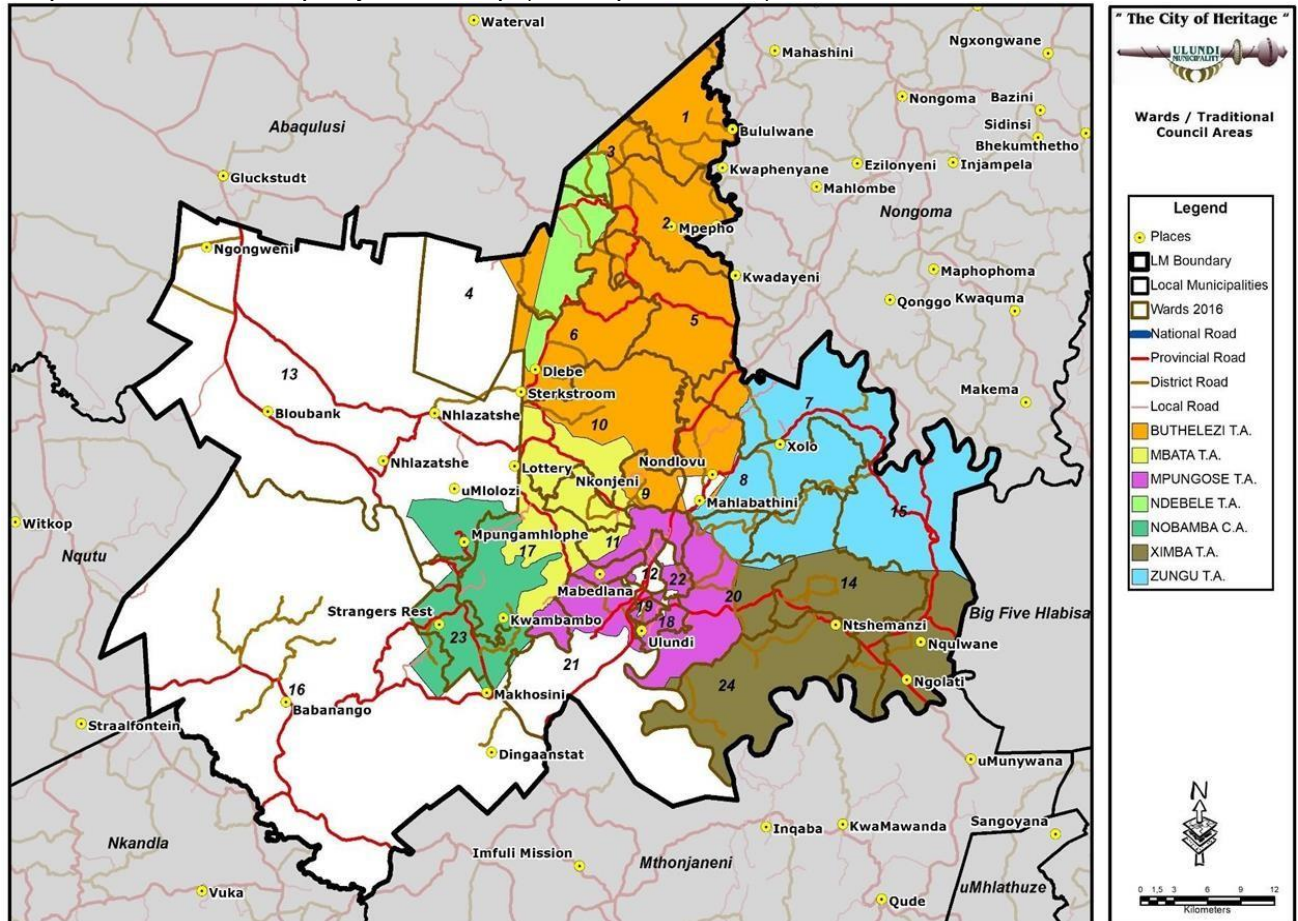
INDICATOR	ULUNDI MUNICIPAL AREA
Area	3 250 km ²
Population (2016)	205 762 people
Households	38 553
People per Household	5.1
Gender breakdown	Males 45.17 % Females 54.83 %
Age breakdown	0 – 14 40.15 % 15 – 64 55.21 % 65 + 4.63 %

Source: Ulundi Municipality IDP 2021/2022

According to 2016 Community Survey, the total population of the Ulundi Municipality is estimated at 205 762 while in 2011 it was at 188 585 people. The population size is unevenly distributed amongst 24 municipal wards. The majority of the rural settlements are situated on the eastern portion of the municipal area and lack infrastructure and service provision. This is one of the district's setback as Zululand is considered one of the poorest districts in South Africa. The municipal area is heavily relying on agriculture and tourism in as far as economic growth is concerned within the Zululand District.

1.6 Wards and Traditional Council Areas

Map-2: Ulundi Municipality Ward Map (Municipal Context)



Source: Ulundi Municipality IDP 2021/2022

Ulundi Municipality consists of 24 wards with 47 Councillors. The eastern part of the Municipal area consists of scattered rural settlement in seven Traditional Council Areas, namely:

- Buthelezi, Mbatha, Mpungose, Ndebele, Ntombela, Ximba, and Zungu.

KEY PERFORMANCE AREA 1

2. STATUS OF MUNICIPAL INSTITUTIONAL CAPACITY

2.1 Status of Municipal Disaster Management Centre

Ulundi Municipality has a functional Municipality Fire and Disaster Emergency Centre which is established in terms of the Disaster Management Amendment Act No. 16 of 2016. The Fire and Disaster Emergency Centre is a focal point where all disaster risk management lies and is required to fulfil a number vital disaster risk management functions such as planning, institutional capacity, capacity building, response and recovery and funding. The disaster management and fire services are strategically placed under the fire station to meet all the requirements as they are the first responders.

The Fire and Disaster Management Services Unit falls under the responsibility of Director Protection Services who is reporting to the Municipal Manager. Currently, the unit has the following employees:

Table-2:- Employees for Fire & Disaster Emergency Centre

Employee Position	No. of Employees	Employed Permanently/Contract
Director-Protection Services	1	Permanent
Manager-Disaster Management Centre	1	Permanent
Disaster Management Officer	1	Permanent
Fire fighters or Firemen.	9	Permanent

2.2 Status of Fire and Rescue Services

The municipality has a fire and rescues services in place and is fully operational. The vehicle, fire truck and entry tools have already been procured.

2.3 Status of Municipal Disaster Management Policy Framework

The Disaster Management Policy Framework is in place and was drafted in terms of section 42 of the Disaster Management Act, (Act 57 of 2002), in line with the National Disaster Management Framework of 2005. The purpose of the framework is to ensure an integrated and uniform approach to disaster management within the municipality by:

- Providing guidance, facilitation of development and implementation of disaster management in Ulundi.
- Creation, preventing and mitigating disaster incidences within Ulundi area.
- Facilitate cross- functional and multi-disciplinary co-operation:
 - Between role-players regarding disaster management in the municipal area.
 - With the district, provincial as well as national disaster management centers.
 - Recording all role players in disaster management and specify roles and responsibilities. Facilitating:
 - Co-ordination and facilitation of sector engagement of government, non-governmental organizations, traditional authorities, technical experts and private sector.
 - Community participation and awareness.
 - Public –private partnership regarding the disaster risk reduction.
- Facilitating and engendering disaster management capacity building within the municipality.
- Guide the development of a disaster management information system.
- Consider research and indigenous knowledge regarding disaster management and where disasters have occurred such knowledge be applied whenever necessary.
- Provide a framework within which funding of all disaster management efforts can take place.

- Providing key performance areas and indicators to effectively monitor disaster management efforts and thus engendering a spirit of continuous improvement.

Based on the abovementioned information, an assessment must be conducted and be applicable to Ulundi Municipality prevailing circumstances and requirements. The Disaster Management Framework, acts as a policy foundation for **what** needs to be addressed through the disaster management efforts in the municipal area and the disaster management plan and its contingencies will specify in more details **how** these requirements and policies will be implemented.

2.4 Status of Municipal Disaster Management Plan

As required by the Disaster Management Act No.57 of 2002, Ulundi Municipality drafted the Municipal Disaster Management Plan that was approved and adopted by the Council. Ulundi Disaster Management Sector Plan Level 1 was drafted inand this is a review plan that will be submitted to the Council for approval and adopting in May 2021. An implementation of the approved sector plan will be effected in 2021/2022 financial year. The review process and this plan has considered the MEC-CoGTA, IDP comments and recommendations based on 2020/2021 IDP, KwaZulu-Natal COGTA Guidelines for the development of Disaster Management Sector Plan as well as Covid-19 pandemic.

The hazards and disaster risks are dynamic hence various methods have been used to ensure that the accurate risk profile of the municipality is known. Capturing and keeping of incidents or disaster data is one of the methods that have been employed to ensure that the spatial location of prevailing hazards and risks are well known particularly at a ward level.

The municipality has used this scientific method to understand and spot the spatial or geographic locating of hazards and associated risks and for the purpose of designing specific disaster risk reduction activities that are targeting affected communities.

2.5 Municipal Disaster Management Inter-Departmental Committee

The Inter-Departmental Committee on disaster management is in the process of being established. Currently, the municipality awaiting the approval of the report and terms of reference for the establishment of the committee which has been presented to the Portfolio Committee, EXCO and Council for adoption. This committee will have a representative from each department internally. The municipal/department portfolio committee is fully operational and meets monthly. At this portfolio committee, it is where disaster management issues are discussed.

2.6 Municipal Disaster Management Advisory Forum

The Ulundi Disaster Management Advisory Forum has been established and is fully operational. The forum meetings are held quarterly and as in when required as recommended by the Disaster Management Act No.57 of 2002. The Forum has approved and adopted terms of reference that guides its operations. A forum envisaged by Act is a body in which a municipality and relevant disaster management role-players in the municipality consult one another and co-ordinate their roles and responsibilities.

2.7 Disaster Management & Fire Services Swot Analysis

Table-3-: SWOT Analysis

	Helpful to achieving the objective	Harmful to achieving the objective
Internal origin (attributes of the system)	<p>Strengths</p> <ul style="list-style-type: none"> ▪ Leadership and management support and political stability ▪ Approved Disaster Management Sector Plan in place will all risks identified. 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Lack of understanding of disaster management as a function by key stakeholders, • Unreliable emergency call centre, • Limited budget to respond on disaster,

	<ul style="list-style-type: none"> ▪ Established organisational structure of Disaster Management ▪ Active participation by all role players in the disaster management committees and forums (including Government, None-Governmental Organizations, Traditional Authorities and the Private Sector) work together to prevent and/or mitigate the occurrence of disasters ▪ Budget for social relief, ▪ Disaster Management Advisory Forum is in place ▪ We are having a Fire engine that is full equipped, with rescue tools. ▪ All our staff is trained with firefighting and disaster management. ▪ Dedicated emergency number ▪ Fire Prevention activities eg Code Application etc. 	<ul style="list-style-type: none"> • Weak community participation on disaster issues, • Failure to control illegal developments and housing along river streams and flood plains, • Poor collaboration with social relief civil bodies i.e. Red Cross, • Poor public education on disaster management, • Lack of integrated response by municipal business units during disaster, • No disaster relief stock stored within the municipality, • Poor warning systems on disaster, • Insufficient human resource (Staff) • Vehicles shortage, especial off the road vehicles (grass fire) • No Fire Station • Shortage of Equipment • Lack of capacity to adequately handle all kinds of Disaster related incidents. • Insufficient funds allocated to the section. • No Climate Change Response Strategies
<p style="text-align: center;">External origin (attributes of the environment)</p>	<p>Opportunities</p> <ul style="list-style-type: none"> • Employment of more staff. • Site has been identified to build a Disaster Centre... • Nodal point identified to build satellite station • More investors coming since their properties will be safe. • More revenue to our Municipality. • More specialize training needed to the staff. 	<p>Threats</p> <ul style="list-style-type: none"> • We are prone to airborne since we are the board line. • Human and life stock fatalities are prone to lightning. • High rate of fatalities since on Motor vehicles since we not enough equipment and vehicle. • No safety of the employees

	<ul style="list-style-type: none"> Strengthen partnerships with sector departments i.e. Human settlements, COGTA and Social Development 	
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2.8 Challenges for DM and Fire Services as per SWOT Analysis

During the engagement sessions of the disaster management there were critical issues identified that need to be incorporated as priorities in the IDP:

- Integrating risk management programs with the IDP.
- To maintain risk specific safety infrastructure and plans e.g. Aircraft, railway and major road accidents.
- To develop disaster prevention programmes that focus on the most vulnerable communities and endeavor to support sustainable livelihoods.
- To design a program to improve fire protection on the urban fringe and rural areas.
- To establish and maintain multi-disciplinary co-operation and co-operative partnerships.
- To establish pro-active media liaison and rapid response to media inquiries.
- To contribute to preventive and reactive management strategies for the Covid-19, HIV/AIDS pandemic as well as animal diseases.
- Education and awareness programmes

Table-4-: Challenges and Interventions

Key Focus Area	Challenge
<ul style="list-style-type: none"> Floods and fires; Climate change; Environmental legislation Water Supply Methods and practices No community/municipal safety plans 	<ul style="list-style-type: none"> Ulundi Municipality is prone to flooding during the rainy seasons. The Municipality is also affected by climate change. Non-compliance with environmental legislation Water Shortage, Water Supply, Service Delivery, Supply Risk Management, Supply Chain Risk

	<ul style="list-style-type: none"> ▪ Current methods that are practiced in Zululand DM are unsuitable for the long-term and large-scale PLES investigation ▪ No Climate Change Response Strategies
<p>Interventions:</p> <ul style="list-style-type: none"> ▪ The Municipality continues to build capacity of local communities regarding firefighting and response to floods. ▪ The municipality has also submitted a proposal and business plan for grant funding application to LGSETA for the training of fire fighters and development of community safety plans. ▪ Encourage local communities to refrain from building their houses along the flood lines. ▪ The Municipality will work closely with local communities in identifying and implementing community resilience projects. ▪ To build capacity of local communities and leadership around the issues of improving the ability of the sustainable development for resource-based urban and rural areas. 	

KEY PERFORMANCE AREA 2

3. DISASTER RISK ASSESSMENT

3.1 List of Priority Risks (Hazards)

The Ulundi Municipality just like any other municipality in the Province is prone to several natural and man-made hazards. The vulnerability varies, which mainly depends on socio-economic status as well as the exposure of a particular household or community to a specific hazard. The table below sketches the list of priority hazards that are affecting the Municipality. The characteristics of these hazards are well known since they have been observed and recorded continuously.

Table 5: Priority Risks and Threats

Ulundi Municipality		Risk
No.	Prevalent Hazards and Threats	High Priority
1	Drought	
2	Covid-19 Pandemic	
3	Lack of (Adequate) Water	
4	Lack of (Adequate) Sanitation	
5	House Fire/s	
6	Severe Weather: Severe Storms (Lightning)	
	Severe Storms (Strong Winds)	
7	Road Accidents	
8	Veld/Forest Fires	
9	Environmental	
10	Service Disruption	
11	Mass Events	
12	Civil Strikes and service delivery protests	
11	Violence and crime	

The abovementioned hazards were found to pose the highest risks in Ulundi Municipality area of jurisdiction. The risks and vulnerabilities will determine the priorities for Disaster Management Programmes and Projects. The amount of possible benefit to be derived from a project in terms of lives protected, livelihoods secured, and property or natural resources defended will be the criteria that determine priorities.

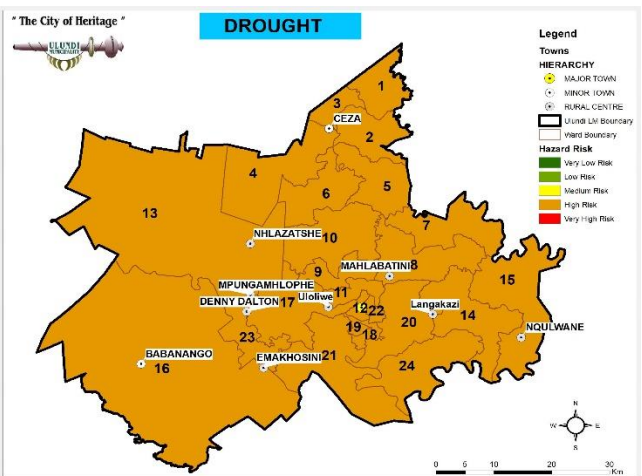
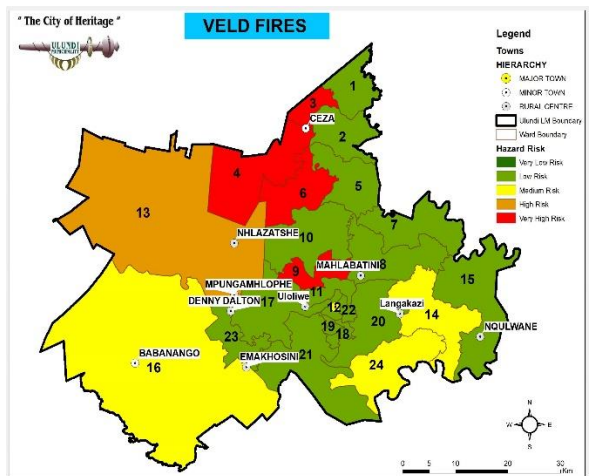
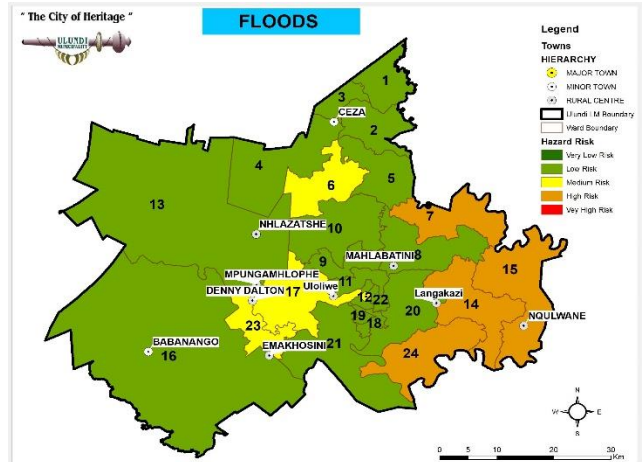
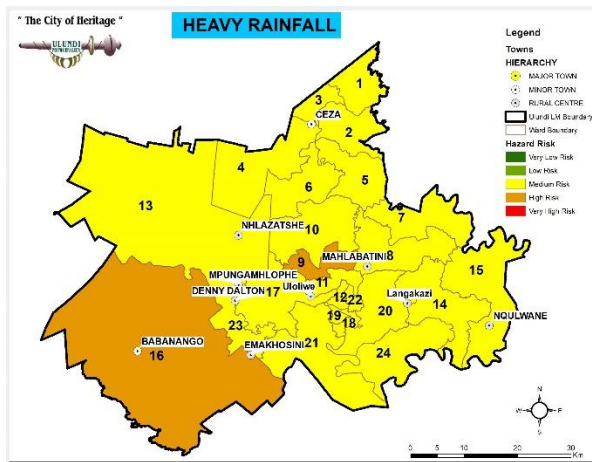
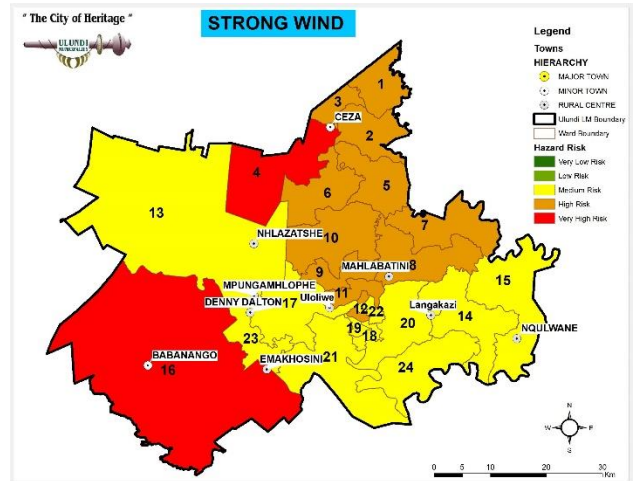
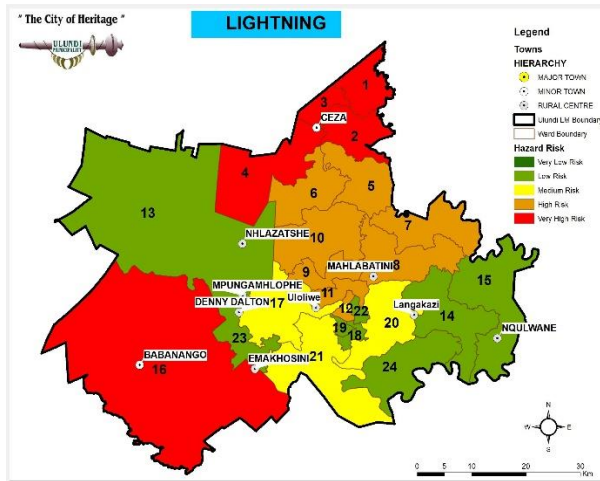
Communities in informal settlements mud houses with thatched roof are the most vulnerable to many of these physical risks, but proximity to certain installations or hazards also exposes other communities to risks. In terms of capacity to address and therefore reduce risks, there currently is a strong emphasis on preparedness and response planning. This means that capacity and planning in terms of mitigation and prevention should be strengthened. The influence of poverty, rapid population growth, unsafe building practices, lack of infrastructure and accessibility places these communities at risk of disasters. The picture below show recent incidents that had big impact to the community at large:



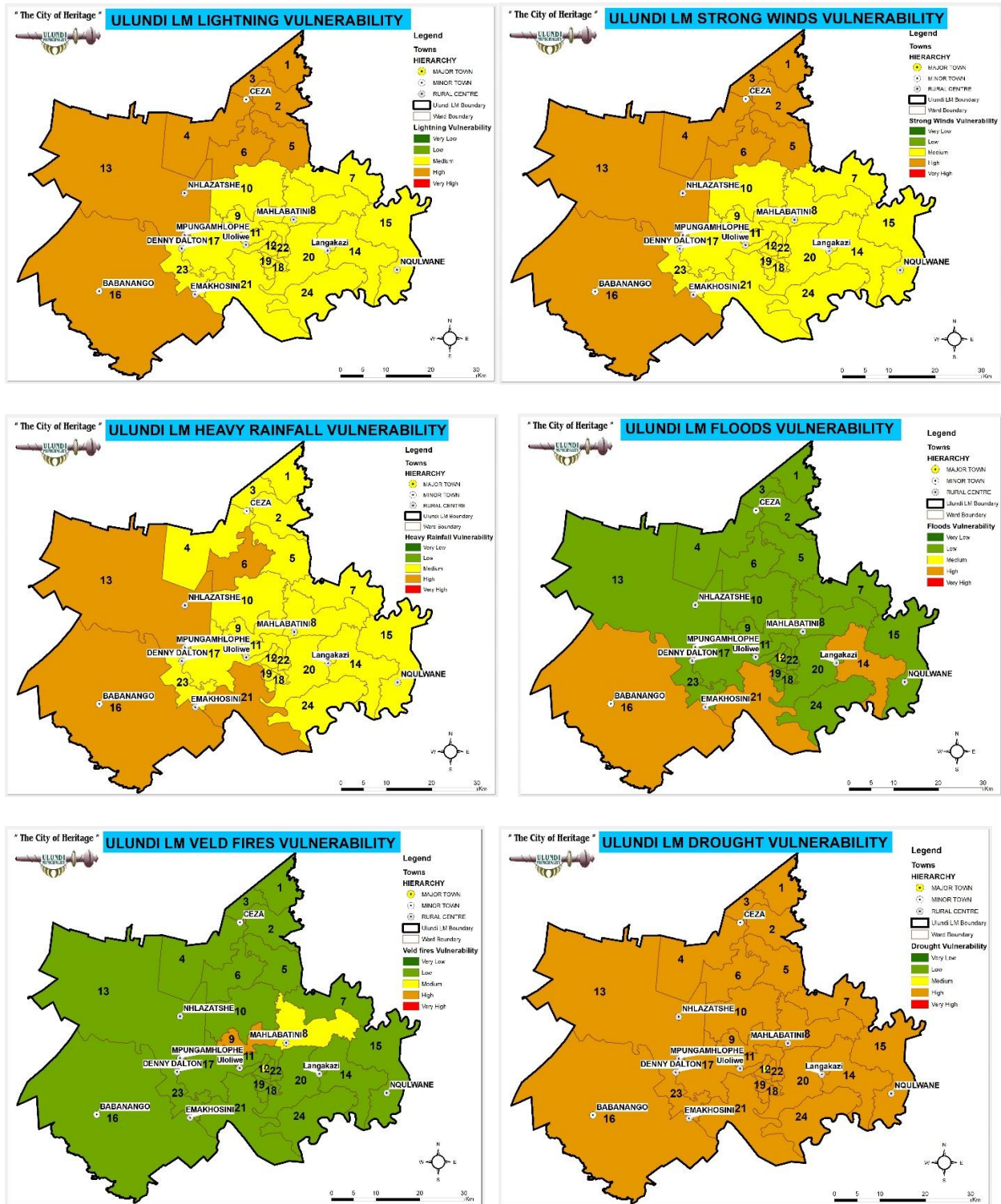
Emergency shelter and water supply in crises is of great concern. There are few community halls in their vicinity, and it was found that the disaster-stricken persons often refuse to leave their property for facilities in other areas. The following have been identified as critical Disaster Management issues and should receive priority attention in the IDP:

- Integrating risk management programs with the IDP;
- To maintain risk specific safety infrastructure and plans e.g. Aircraft, railway, and major road accidents.
- To establish disaster prevention programmes that focus on the most vulnerable communities and endeavor to support sustainable livelihoods.
- To design a program to improve fire protection on the urban fringe and rural areas.
 - To establish and maintain multi-disciplinary co-operation and co-operative partnerships.
- To establish pro-active media liaison and rapid response to media inquiries.
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- Education and awareness programmes

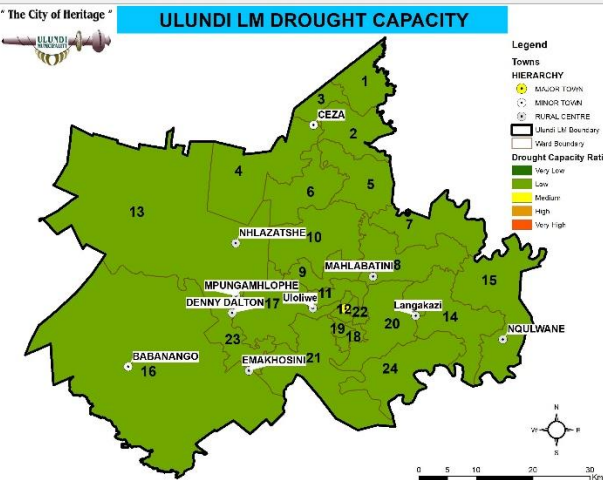
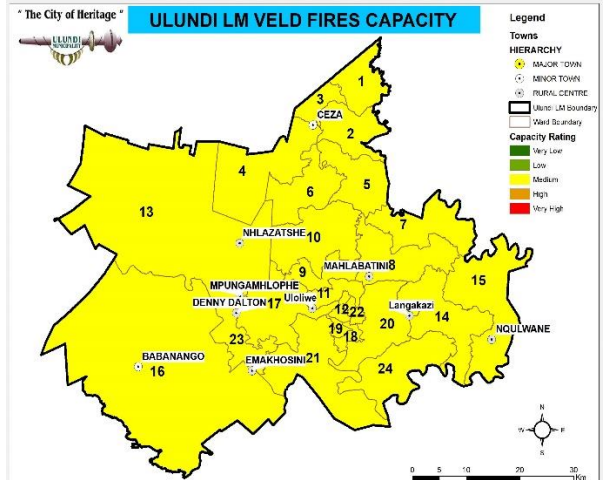
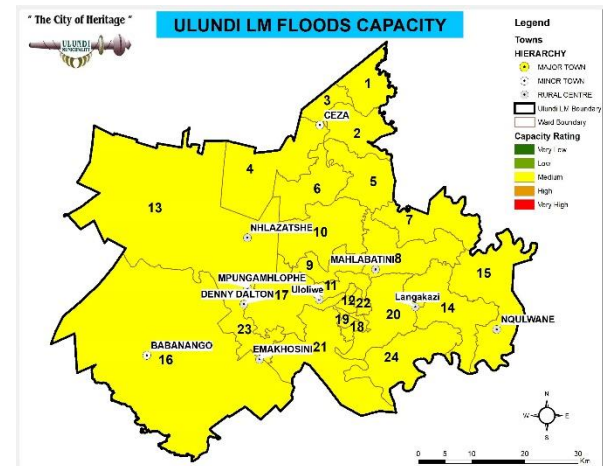
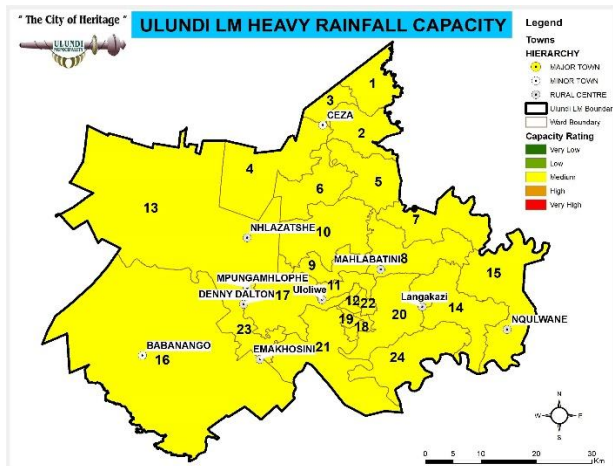
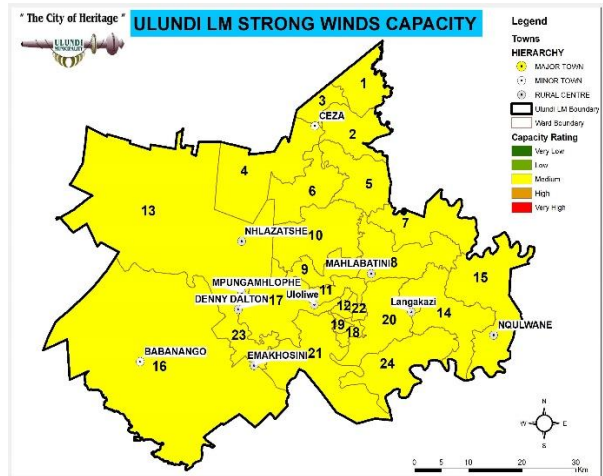
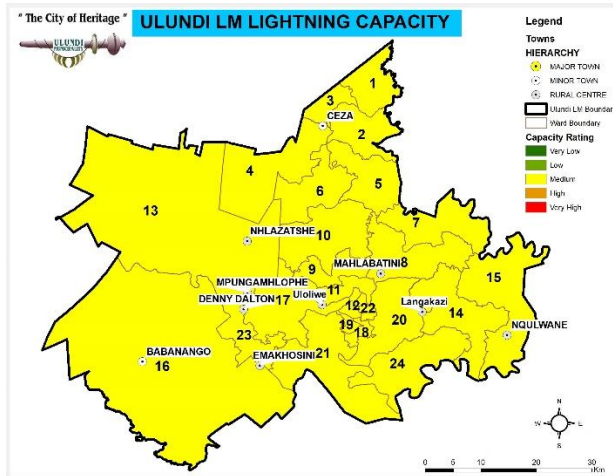
3.2 Hazards Maps



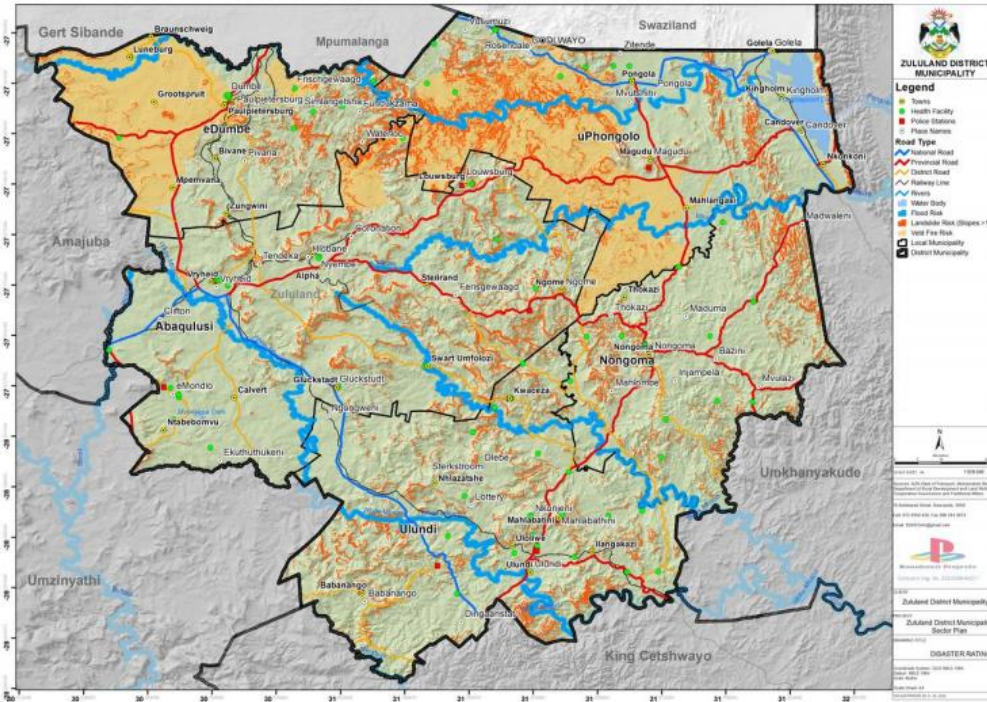
3.3 Vulnerability Maps



3.4 Capacity Maps



3.5 Disaster Risk Rating Map



3.6 Analysis of Climate Change

Drought Influence on Forest Plantations: According to KZN Climate Change Vulnerability Assessment, 2017, the Zululand District Municipality has a long history of recurrent droughts that have adversely affected its economic performance. The recent drought was declared in 2015 as the most serious in 26 years and weakened the key agricultural sectors including the forestry sector. The research on the forests' responses to drought is crucial for management planning and monitoring. The effects of the 2015 drought on the forests in Zululand has not been studied and are uncertain. The study reported here addresses this gap by using Moderate Resolution Imaging Spectroradiometer (MODIS)-derived normalized difference vegetation index (NDVI) and precipitation data retrieved and processed using the JavaScript code editor in the Google Earth Engine (GEE) and the corresponding normalized difference infrared index (NDII), Palmer drought severity index (PDSI), and El Niño time series data for KwaMbonambi, northern Zululand, between 2002 and 2016.

Through the study, it was discovered that the greening decreased in 2015, with some forest remnants showing resistance, implying that the tree species had varying sensitivity to drought. We found that the plantation trees suffered drought stress during 2015, although it seems that the trees began to recover, as the NDVI signals rose in 2016. Overall, these results demonstrated the effective use of the NDVI- and NDII-derived MODIS data coupled with climatic variables to provide insights into the influence of drought on plantation trees in the study area.

Unsupervised Clustering of Forests Response to Drought Stress: According to KZN Climate Change Vulnerability Assessment, 2017, Drought limits the production of plantation forests, notably in the drought-prone Zululand region of South Africa. During the last 40 years, the country has faced a series of severe droughts, however that of 2015 stands out as the most extreme and prolonged. The 2015 drought impaired forest productivity and led to widespread tree mortality in this region, but the identification of tree response to drought stress remains uncertain because of its spatial variability. To address this problem, a method that can capture drought patterns and identify trees with similar reactions to drought stress is desired. This could improve the accuracy of detecting trees suffering from drought stress which is key for forest management planning. In this study, we aimed to evaluate the utility of unsupervised mapping approaches in compartments of *Eucalyptus* trees with similar drought characteristics based on the Normalized Difference

Water Index (NDWI) and to demonstrate the value of cloud-based Google Earth Engine (GEE) resources for rapid landscape drought monitoring. Our results showed that calculating distances between pixels using three different matrices (Random Forest (RF) proximity, Euclidean and Manhattan) can accurately detect similarities within a dataset.

Dimensions of Supply Risk in the Supply of Water: According to KwaZulu Natal Research Space 2017, The ever-increasing water shortage in Zululand DM is imperative to the measurement of water utilization. To give a sensible picture of utilization, this measurement ought to incorporate the operational activities of the municipality as well as to view from an end to end supply chain point of view. This study, subsequently, aimed to investigate the supply risks in the supply of water of the Zululand District Municipality.

The study has four objectives namely:

- 1) To establish the degree of balance between water supply and demand characterized by driving forces of service delivery.
- 2) To determine the extent of supply risk management of water within the restraining forces of the Zululand District Municipality.
- 3) To determine the magnitude response capacity of the Zululand District Municipality to mitigate the supply risk of water delivery.
- 4) To analyze whether the integration of service delivery activities enhance the supply component of water.

A thematic analysis approach was adopted after gathering information through an in-depth interview. It became evident in this research that district municipalities lack the capacity to deliver water services due to a variety of supply chain risks faced by the municipality. The study also showed that the region is confronted with various risks with regard to supplying water to the community members of the surrounding area. The implications of water shortage negatively affect the livelihood and enhancement of the people neighbouring the Zululand region.

Quantitative Recognition and Characteristic Analysis of Production-Living-Ecological Space Evolution for Five Resource-Based Cities: The accurate identification of Productive Living Ecological Space (PLES) changes and the discovery of their evolution characteristics is a key issue to improving the ability of the sustainable development for resource-based urban areas.

The above mentioned research undertaken by Xuzhou, Lota, Surf Coast and Ruhr, April 2021 (School of Environment and Spatial Informatics, China University of Mining and Technology, Xuzhou 221116, China), revealed that, the current methods that are practiced in Zululand DM are unsuitable for the long-term and large-scale PLES investigation.

In this study, a modified method of PLES recognition is proposed based on the remote sensing image classification and land function evaluation technology. A multi-dimensional index system is constructed, which can provide a comprehensive evaluation for PLES evolution characteristics. For validation of the proposed methods, the remote sensing image, geographic information, and socio-economic data of five resource-based urbans (Zululand in South Africa, Xuzhou in China, Lota in Chile, Surf Coast in Australia, and Ruhr in Germany) from 1975 to 2020 are collected and tested. The results show that the data availability and calculation efficiency are significantly improved by the proposed method, and the recognition precision is better than 87% (Kappa coefficient). Furthermore, the PLES evolution characteristics show obvious differences at the different urban development stages. The expansions of production, living, and ecological space are fastest at the mining, the initial, and the middle ecological restoration stages, respectively. However, the expansion of living space is always increasing at any stage, and the disorder expansion of living space has led to the decrease of integration of production and ecological spaces. Therefore, the active policies should be formulated to guide the transformation of the living space expansion from jumping-type and spreading-type to filling-type, and the renovation of abandoned industrial and mining lands should be encouraged.

Please refer to (KZN Climate Change Vulnerability Assessment, 2017) to identify climate change risks and their impact in relation to your municipality.

KEY PERFORMANCE AREA 3

4. DISASTER RISK REDUCTION FOR DM & FIRE SERVICES

Alignment/Integration between the IDP and DMP

Section 26 (g) of the Municipal Systems Act, 200, Act 32 of 2000, states that a Municipality's IDP must contain a disaster management plan. A development project in the Municipality, as contained in the Municipality's IDP, is thus interlinked with disaster management planning and activities. The risk reduction projects are identified as part of disaster risk management planning, and those identified in this plan. The contingency plans will be developed as well as risk assessment that need to be incorporated into the Municipal IDPs.

Activities to be implemented to reduce the vulnerability will:

- Use disaster risk assessment findings to focus planning efforts.
- Implement urgent measures to maintain existing infrastructure, and invest in service delivery, especially related to provision of water and sanitation services;
- Increase access to adequate housing;
- Increase access to quality healthcare services;
- Develop local institutions, education, training and appropriate skill development opportunities while focussing on skills development and capacity building at community level;
- Manage urbanisation, and implement and enforce the appropriate urban planning processes;
- Strengthen livelihoods and increase low income levels;
- Increase economic and employment opportunities by developing of the tourism and agriculture sectors in the municipality.

4.1 Disaster Management & Fire Services Programmes/Projects

Name of the Project	Budget	Targeted Areas	Annual Target
Staff Requirements			
Protective Clothing		Ulundi Municipality	By 31 June 2022
Staff Uniform		Ulundi Municipality	By 31 June 2022
Jumping Bag equipment		Ulundi Municipality	By 31 June 2022
Training		Ulundi Municipality	By 31 June 2022
Projects			
Review of Disaster Management Sector Plan	R200 000	Entire municipality	By 31 June 2022
Development of Strategies as responses for Climate Change		Ulundi Municipality	By 31 June 2022
Installation of lightning conductors (climate change)		All homesteads previously attached by lightning strikes/bolts	By 31 June 2022
Establishment of fire breaks		All wards	By 31 June 2022
Roll-out awareness campaigns on Covid-19 Pandemic, illegal dumping, astray animals, veld fires.		All Wards	By 31 June 2022
Capacity Building; Training, Workshops, Seminars and Conferences	NIL	Staff, Stakeholders and Councillors	By 31 June 2022
Disaster Management Relief			
Procure Relief Stock (Blankets, Temporal Structures, Food Parcels, Plastic Sheets and Kitchen Accessories Starter Packs	R1 000 000	Ulundi Municipality	By 31 June 2022
Construction			
Planning and Construction of Disaster & Fire Emergency Centre	R25000 000.00	Ulundi Municipality	By 31 June 2022

Establishment of Control Room including installation of Early Warning System	R	Ulundi Municipality	By 31 June 2022
Tools and Equipment			
Procurement of Equipment e.g. Vehicle, Fire Truck, entry tools		Ulundi Municipality	By 31 June 2022
Skid Unit Vehicle		Ulundi Municipality	By 31 June 2022

4.2 Disaster Management Programmes/Projects by Stakeholders

Name of the Project	Department	Budget	Target Areas	Annual Target
Mitigation of soil erosion	DEAR	R1. million	Affected wards	By 31 June 2022
Implementation of Greening Project			Throughout the municipality	By 31 June 2022
Drought Relief	Technical Department (ZDM)	R1 Million	Throughout the local municipality to the vulnerable communities	By 31 June 2022

4.3 Specific Climate Change Adaptation Programmes (If any)

Name of the Project	Budget	Target Areas	Annual Target
To maintain risk specific safety infrastructure and plans e.g. Aircraft, railway, and major road accidents.		Ulundi Area of Jurisdiction	By 31 June 2022
To develop disaster prevention programmes that focus on the most vulnerable communities and endeavour to support sustainable livelihoods.		Ulundi Area of Jurisdiction	By 31 June 2022
To design a program to improve fire protection on the urban fringe and rural areas.		Ulundi Area of Jurisdiction	By 31 June 2022
To maintain risk specific safety infrastructure and plans e.g. Aircraft, railway and major road accidents.		Ulundi Area of Jurisdiction	By 31 June 2022
Identification of areas for greening of urban areas		Ulundi Area of Jurisdiction	By 31 June 2022
Development of Strategies as responses for Climate Change		Ulundi Area of Jurisdiction	By 31 June 2022

4.4 Map Reflecting Strategic Interventions for DRR

KEY PERFORMANCE AREA 4

The objective is to ensure effective and appropriate disaster response and recovery by:

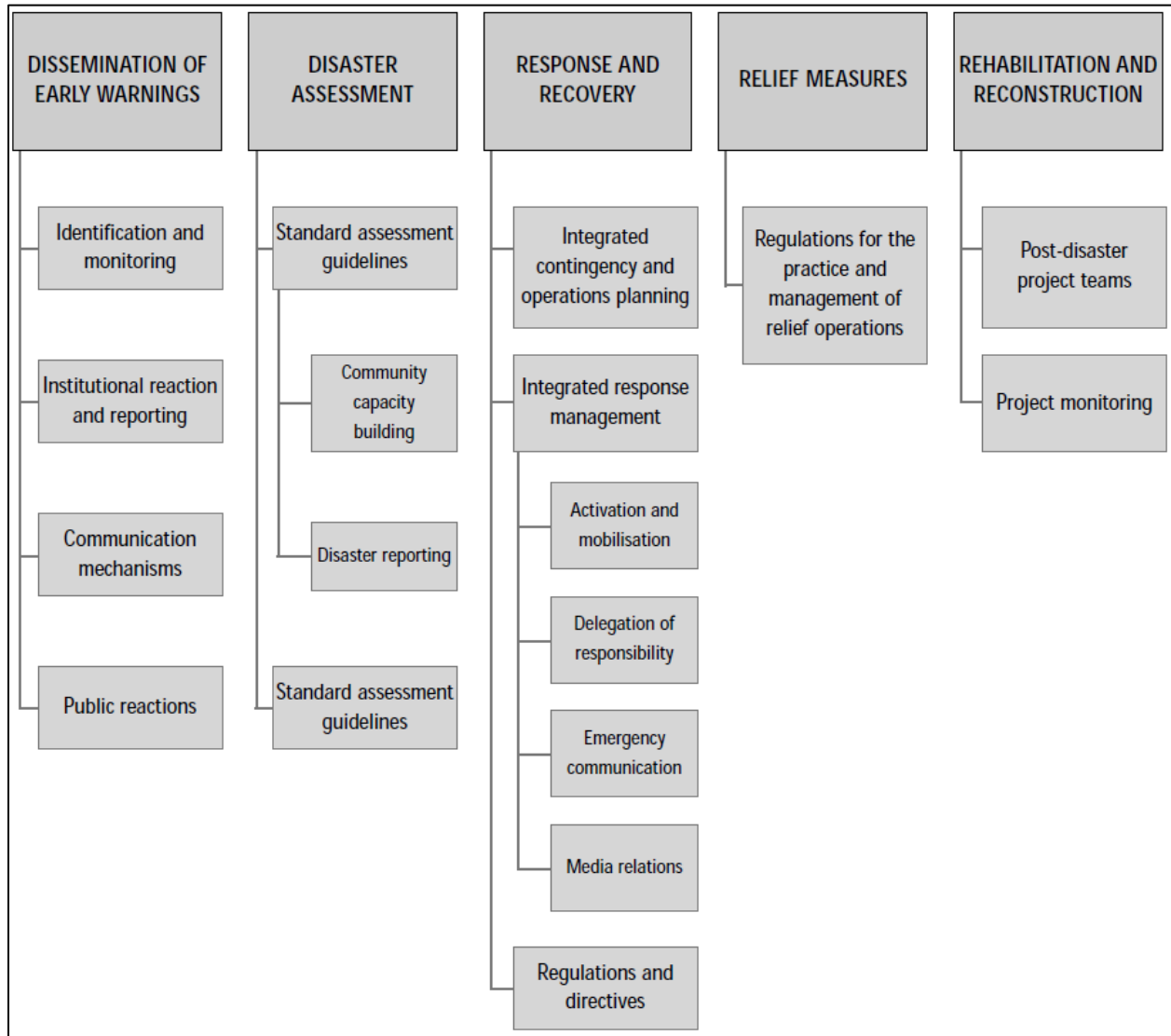
- implementing a uniform approach to the dissemination of early warnings in the municipality.
- Averting or reducing the potential impact in respect of personal injury, health, loss of life, property, infrastructure, environments and government services;
- Implementing immediate integrated and appropriate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

5. DISASTER RESPONSE AND RECOVERY

5.1 Municipal Capacity in terms of Response and Recovery

Every time there is a threatening or looming hazard, an early warning will be spread accordingly to the relevant communities or sectors. Formulation of phase in terms of implementation of actions will be done in stages and kept high all the times through various means e.g. physical engagement with the public particularly during capacity building and awareness campaign programmes as well as through the media and other methods. Ward Councillors, Ward Committees, Traditional Leadership and Volunteers will be utilized to carryout response and recovery activities.

Figure 1: Municipality Disaster Response and Recovery Framework



5.2 Stakeholders, Roles and Responsibilities Pertaining to Disaster Response and Recovery

The stakeholders applicable to this disaster risk, with their primary roles and responsibilities include, but are not limited to the following:

Table-6-: Stakeholders, Roles and Responsibilities

STAKEHOLDER	PRIMARY ROLES AND RESPONSIBILITY
Ulundi Local Municipalities	<p>The Ulundi Municipality take primary responsibility for a disastrous and is the primarily responsible for response and recovery and management of local disasters that occur in its area and the following functions:</p> <ul style="list-style-type: none"> ▪ Provide a representative on the JOC. ▪ Conduct assessment of the effect of the Severe Weather. ▪ Provide emergency relief of victims. ▪ Accommodate victims in emergency venue (e.g. halls schools etc.) ▪ Compile required reports. ▪ Compile beneficiary lists. ▪ Accommodate victims in emergency venue org halls schools etc. ▪ Provide the required report to applicable sectors (e.g. Zululand & PDMC).
Zululand Disaster Management Centre	<p>The District Municipality has the secondary responsibility to assist the Local Municipality in the coordination following function.</p> <ul style="list-style-type: none"> • Coordination of JOC • Provide relief to victims. • Support in terms of Funding Arrangements
Road Traffic Inspectorate	<p>The Road Traffic Inspectorate is to provide the following function</p> <ul style="list-style-type: none"> ▪ Upon receipt of information from the DDMC or SAP provide traffic control services including assistance with road closures and identifying alternative routes. ▪ Provide a representative on the JOC; and ▪ Provide a required report to the JOC.

Department of Health	<p>The Department of Health is to provide the following functions upon receipt of information from DDMC</p> <ul style="list-style-type: none"> ▪ Coordination of medical resources for injured people. ▪ Provision of medical health care services. ▪ Appropriate pre-hospital on-site medical and health response management for casualties. ▪ Psychological and counselling services for victims of the event. ▪ Provide a representative on the JOC. ▪ Provide the required report to the JOC.
Department of Social Development	<p>The Department of Social Development is to provide the following function</p> <ul style="list-style-type: none"> ▪ Upon receipt of information from the PDMC. ▪ Carry out assessment of families in need of assistance. ▪ Provide appropriate relief as necessary. <ul style="list-style-type: none"> ▪ Provide a representative on the JOC. ▪ Provide report to the JOC.
Department of Transport	<p>The Department of Transport is to provide the following function</p> <ul style="list-style-type: none"> ▪ Carry out assessments of any infrastructure that has been effected by severe weather; ▪ Give guidance on alternative routes where necessary (e.g. Orders and other machinery). ▪ Assist with traffic control where necessary. ▪ Provide Tractors where needed. ▪ Provide the required reports to the JOC. ▪ Provide the required reports to the JOC. ▪ Provide a representative on the JOC
Department of Agriculture	<p>The Department of Agriculture will provide the following, upon receipt of information from the DDMC</p> <ul style="list-style-type: none"> ▪ Assist in assessment of agricultural activities □ Provide the required report to the JOC; and ▪ Provide a representative on the JOC.

Department of Education	<ul style="list-style-type: none"> ▪ The Department of Education is to provide the following functions, upon receipt of information from DDMC that the department is responsible for ▪ Provide the required report to the JOC; and ▪ Provide a representative on the JOC.
SASSA	<p>SASSA is provide the following function upon receipt of information from the DDMC</p> <ul style="list-style-type: none"> ▪ Assess need of community members who have lost official documents (e.g. pension cards, child grant documents) ▪ Provide reports to the JOC.
Department of	The Department of Home Affairs is to provide following functions, upon
Home Affairs	<p>receipt of information from the DDMC</p> <ul style="list-style-type: none"> ▪ Assess need of community members who have lost official documents (e.g. identity documents; married certificates etc.). ▪ Assist community in replacing lost or damaged official documents ▪ Provide reports to the JOC

ENABLER 1

6. INFORMATION MANAGEMENT AND COMMUNICATION

6.1 Information Management and Communication System Model

Ulundi Municipality established a control centre which has a responsibility of information management and communication. The control centre has the following responsibilities:

Receive and convert all emergency calls, by:

- Receive emergency calls (fire, accidents, special services, after hour call for other departments, medical incidents) using telephonically
- Update occurrence book
- Respond relevant emergency services officer to scene, telephonically or by radio
- Inform role-players of emergency, telephonically or by radio
- Monitor incidents by radio
- Monitor activities after hours for other departments in the municipality using radio, telephone, complaint logbook
- Maintains communication with fire brigade personnel, vehicles, other municipal personnel as well as external emergency service providers, e.g. SAPS, ambulance, port control, etc.

Record all relevant information in incident book, by:

- Receive call, complaints telephonically
- Send relevant emergency services and SAPS to scene telephonically or by radio
- Monitor incidents continuously by radio
- Communicate continuous with services, telephonically or by radio
- Administration – statistics, keeping statistics, incident forms using computer
- Deliver a support service
- Notify relevant authorities

ENABLER 2

7. EDUCATION, TRAINING, PUBLIC AWARENESS AND RESEARCH

An integrated capacity building and public awareness strategy for uMkhanyakude Municipality has been developed and continuously implemented to encourage risk-avoidance behaviour by all role players, including all departments, and especially in schools and in communities known to be at risk. Such a strategy seeks to promote an informed, alert and self-reliant society capable of playing its part in supporting and co-operating with the Municipality in all aspects of disaster risk and vulnerability reduction.

7.1 Planned Capacity Building Programmes

The municipality's training programmed is planned for the following groups:

- Training of traditional councils where their roles and significance will be clearly defined in line with the DM Act
- Training of Disaster Management Advisory Forums
- Training of the Municipal Council
- Training of Ward Committee Members
- Training of Employees

7.2 Planned Public Awareness Campaigns

- Communities' awareness campaigns in all wards
- Schools awareness campaigns
- Joint multi-stakeholder's awareness campaigns

7.3 Research

Commissioning of disaster related scientific studies in the Municipality.

ENABLER 3

8. FUNDING ARRANGEMENTS FOR DISASTER RISK MANAGEMENT

8.1 Breakdown of available budget for disaster management and fire services

Table-7-: Funding Arrangements

Activity	Funding source	Funding mechanism
Disaster risk reduction	All spheres of government	<ul style="list-style-type: none"> ✓ Own budgets ✓ Own budgets but can be augmented by application for funding to the NDMC for special national priority risk reduction projects
Response, recovery and rehabilitation and reconstruction efforts	All spheres of government	<ul style="list-style-type: none"> ✓ Own budget, particularly for those departments frequently affected by disasters. ✓ Access to central contingency fund once threshold is exceeded on a matching basis. ✓ Reprioritise within capital budget for infrastructure reconstruction. ✓ 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 spheres of government	<ul style="list-style-type: none"> ✓ 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
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8.2 Funding Mobilisation Strategy

The municipality will prepare business plans to various potential funders for the implementation of disaster management programmes and projects. Currently, the municipality receives grant funding for the disaster management related activities as well as equitable share.

8.3 Private Partnerships

Public Private Partnerships relating to disaster management projects will be explored in 2021/2022 financial year.