

**NAMAKWA  
DISTRICT MUNICIPALITY**

**DISASTER RISK REDUCTION FOR  
KAROO HOOGLAND LOCAL  
MUNICIPALITY**

**2011**

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# DISASTER RISK REDUCTION PLAN FOR KAROO HOOGLAND LOCAL MUNICIPALITY

## 1 INTRODUCTION

The Namakwa District Municipality executed a detailed disaster hazard, vulnerability and risk assessment for its area of jurisdiction, including all six local municipalities.

With this information it became possible to compile a disaster management level two plan. Mainly because the disaster management level 2 plan predominately focuses on the implementation of appropriate disaster risk reduction programmes, which is the main responsibility of the local municipality, these plans have to be aligned the IDP and SDF of each local municipality. Hence, this level 2 plan dealt with information relevant to the Karoo Hoogland Local Municipality (KHEM).

## 2 DISASTER RISK ASSESSMENT

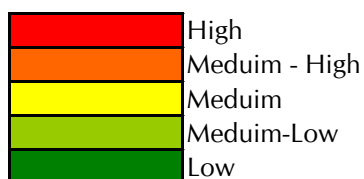
The disaster risk assessment consist out of the disaster hazard, vulnerability and risk assessment and will be discussed next.

During an extensive consultative process with local communities, the potential hazards and risks in the NDM can be summarised in Table 1. These information has been transferred to appropriate GIS-maps and also be integrated with scientific information to compile appropriate disaster hazard profile maps for each local municipality.

**Table 1: Hazard identification using indigenous knowledge**

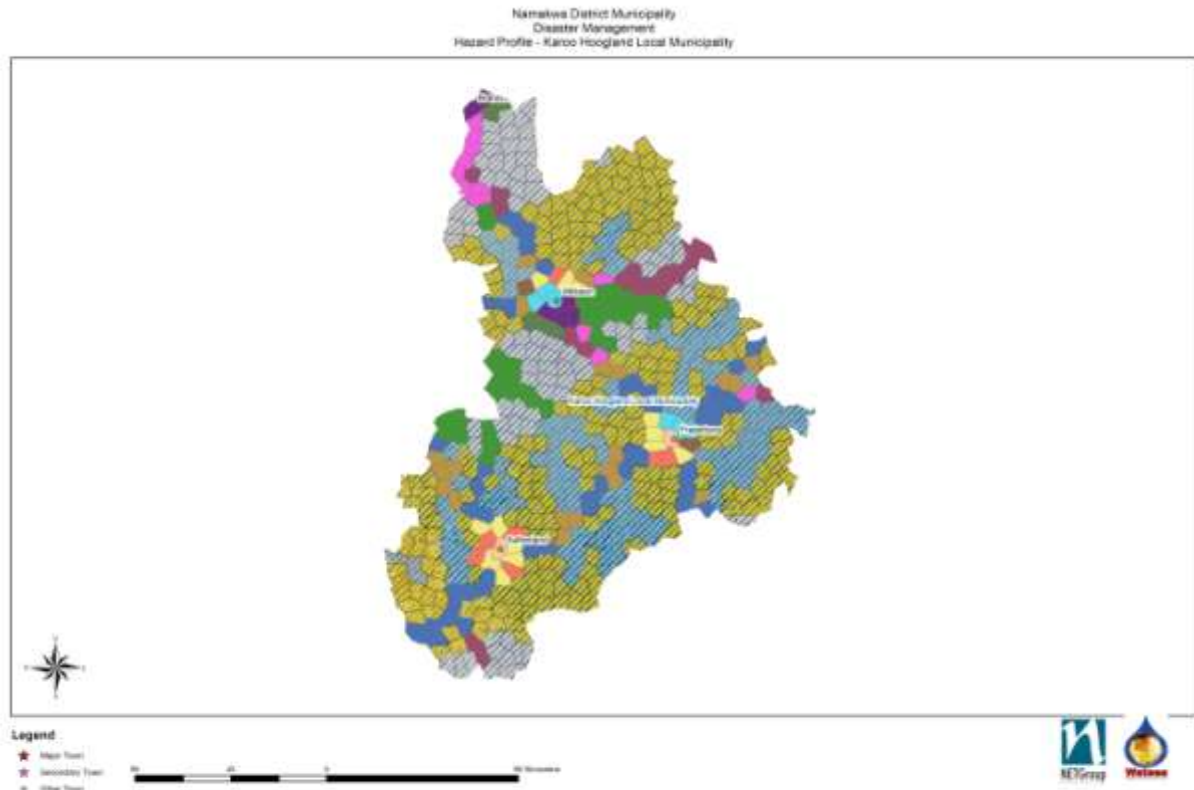
**NAMAKWA DISTRICT MUNICIPALITY: HAZARD IDENTIFICATION USING INDIGENOUS KNOWLEDGE**

Hazard / Risk	Local Municipality					
	Karoo Hoogland	Hantam	Kamiesberg	Nama Khoi	Richtersveld	Khai-Ma
Drought	High	High	High	High	High	High
Flood	Meduim - High	Meduim - High	Meduim - High	Meduim - High	Meduim - High	Meduim - High
Wind Storm	Meduim	Meduim - High	Meduim - High	Meduim - High	Meduim - High	Meduim - High
Storms & Cyclone	Meduim-Low	Meduim-Low	Meduim - High	Meduim - High	Meduim - High	Meduim-Low
Dam Failure	Meduim - High	Meduim	Meduim - High	Meduim-Low	Meduim-Low	Meduim-Low
Hazmat	Meduim - High	Meduim - High	Meduim - High	Meduim-Low	Meduim-Low	Meduim
Landing Strips: Private Aircraft Accidents	Meduim	Meduim-Low	Meduim-Low	Meduim	Meduim	Meduim-Low
Veld Fire	Meduim	Meduim - High	Meduim - High	Meduim - High	Meduim	Meduim
Structural Fire	Meduim - High	Meduim - High	Meduim-Low	Meduim	Meduim	Meduim
Snow	Meduim	Meduim	Meduim-Low	Meduim-Low	Meduim-Low	Meduim-Low
Storm water	Meduim - High	Meduim - High	Meduim - High	Meduim - High	Meduim - High	Meduim - High
Nuclear Waste			Meduim - High			
Lightning	Meduim	Meduim - High	Meduim - High	Meduim	Meduim - High	Meduim
Soil Erosion	Meduim	Meduim	Meduim - High	Meduim - High	Meduim - High	Meduim
Vulnerability	Karoo Hoogland	Hantam	Kamiesberg	Nama Khoi	Richtersveld	Khai-Ma
Telecommunication	High	High	High	High	High	High
Roads	High	High	High	High	High	High
Water	Meduim - High	Meduim - High	Meduim - High	Meduim - High	Meduim - High	Meduim - High
Sanitation	Meduim - High	Meduim - High	Meduim - High	Meduim - High	Meduim - High	Meduim - High
Electricity	Meduim	Meduim-Low	Meduim	Meduim	Meduim	Meduim
Human Disease	Meduim - High	Meduim - High	Meduim - High	Meduim - High	Meduim - High	Meduim - High
Health Services	High	High	High	High	High	High
Agri Disease	Meduim - High	Meduim - High	Meduim - High	Meduim	Meduim	Meduim
Abattoir	Meduim - High	Meduim - High	Meduim	Meduim - High	Meduim	Meduim
Poverty	High	High	High	High	High	High
Ambulance Services	Meduim - High	Meduim - High	Meduim - High	Meduim - High	Meduim - High	Meduim - High
Mine Activities	Meduim	Meduim - High	Meduim - High	High	Meduim - High	Meduim-Low
Open Cast Mines	Meduim-Low	Meduim	Meduim	High	Meduim - High	Meduim-Low
Dumping Sites	Meduim	Meduim - High	Meduim - High	Meduim - High	Meduim - High	Meduim - High
Shortage of Mortuary	Meduim-Low	Meduim	Meduim-Low	Meduim-Low	Meduim-Low	Meduim-Low
Shortage of Old Age Houses	Meduim-Low	Meduim-Low	Meduim-Low	Meduim-Low	Meduim-Low	Meduim-Low
Gas Development			Meduim		Meduim	
Rising of See Temperatures			Meduim	Meduim	Meduim	
See Rescue Services			High	High	High	



**2.1 DISASTER HAZARD AND VULNERABILITY ASSESSMENT**

The disaster hazard profile map for KHLM is displayed in Map 1, indicating in table format vulnerable communities, infrastructures, properties and critical facilities. These tables will be discussed next.



**Map 1: Disaster Hazard Profile Map for the KHLM area of jurisdiction, 2010**

Next is to identify all communities, facilities, properties, infrastructure and critical facilities at risk for each potential hazard.

**2.1.1 Drought risk in the KHLM area of jurisdiction**

Table 2 indicates communities, infrastructure, properties and critical facilities at drought risk in the KHLM area of jurisdiction.

**Table 2: Communities, facilities, infrastructure and critical facilities at drought risk in the KHLM area of jurisdiction, 2010****Communities**

Sutherland
Fraserburg
Williston
Williston nu

Total of 10 737 people can be effected by droughts in KHLM area of jurisdiction.

**Facilities**

Description	Lat	Long	Note
Sewage Farm	-31.347997	20.90431	
Dumping Site	-31.34741	20.899551	
Petrol Depot	-31.345624	20.912882	
Gas Depot	-31.341945	20.918453	
Police station	-31.34187	20.915885	
Reservoir	-31.332127	20.933128	
Earth Quakes & Veldt fires	-31.33934	20.921059	
Abattoir	-31.345217	20.912713	
Police station	-31.9113	21.51413	
Abattoir	-31.909623	21.512221	
Sewage Farm	-31.898046	21.517828	
Dumping Site	-31.906133	21.527361	
Dam	-31.919117	21.505546	(300m east from point)
Dam	-31.950249	21.51434	(300m south from point)
Reservoir	-31.916498	21.507117	
Abattoir	-32.393054	20.665573	
Dumping Site & Veldt fires	-32.399757	20.674392	
Power Station	-32.395953	20.668014	
Police station	-32.39626	20.661538	
Reservoir	-32.393525	20.652522	
Dam	-32.402322	20.655346	
Public Hall	-32.382627	20.669983	
Reservoir with filtering system	-32.386111	20.658235	
Abattoir	-32.390885	20.660166	
Dam	-32.387446	20.650503	(Dam wall broke - 200m south from point)
Air strips	0	0	Sutherland Airport

**Properties**

Land Use	Number
Agriculture	3
Business	2
Cemetery	3
Church	25
Clinic	3
Commonage	6
Community Hall	2
Garage/ Motors	2
Government	14
Guest House	11
Hospital	2

Land Use	Number
Hostel	3
Hotel	2
House	1318
Industrial	8
Mixed land use	7
Municipal Office	12
Municipal/ Other	2
Office	2
Old Age Home	3
Parastatal	2
Parkway	4
Police Station	3
Post Office	2
Primary School	3
Private open space	4
Public open space	14
Road	196
Secondary School	9
Semi-detached	186
Shop	12
Sports ground	5
Unknown	2
Vacant	151

#### Infrastructure

Drainage	Railway	Other
Furrow	Standard Line	Medium Voltage Conductor
Canal		Bridge
		Roads

#### 2.1.1.1 Degradation risk in the KHEM area of jurisdiction

Table 3 indicates communities, infrastructure, properties and critical facilities at environmental degradation risk in the KHEM area of jurisdiction.

**Table 3: Communities, facilities, infrastructure and critical facilities at environmental degradation risk in the KHEM area of jurisdiction, 2010**

#### Communities

A total of 222.1 people can be effected by environmental degradation in KHEM.

#### Infrastructure

Drainage	Railway	Other
Furrow	Standard	Roads
		Bridge
		Conveyor Beld



### 2.1.2 Fire risk in the KHLM area of jurisdiction

Table 4 indicates communities, infrastructure, properties and critical facilities at fire risk in the KHLM area of jurisdiction.

**Table 4: Communities, facilities, infrastructure and critical facilities at fire risk in the KHLM area of jurisdiction, 2010**

#### Communities

Sutherland
Fraserburg
Williston
Williston nu

Total of 10 737 people can be effected by fires in KHLM.

#### Facilities

Number	Description	Lat	Long	Notes
1	Sewage Farm	-31.347997	20.90431	
2	Dumping Site	-31.34741	20.899551	
3	Petrol Depot	-31.345624	20.912882	
4	Gas Depot	-31.341945	20.918453	
5	Police station	-31.34187	20.915885	
6	Reservoir	-31.332127	20.933128	
7	Earth Quakes & Veldt fires	-31.33934	20.921059	
8	Abattoir	-31.345217	20.912713	
9	Police station	-31.9113	21.51413	
10	Abattoir	-31.909623	21.512221	
11	Sewage Farm	-31.898046	21.517828	
12	Dumping Site	-31.906133	21.527361	
13	Dam	-31.919117	21.505546	(300m east from point)
14	Dam	-31.950249	21.51434	(300m south from point)
15	Reservoir	-31.916498	21.507117	
16	Abattoir	-32.393054	20.665573	
17	Dumping Site & Veldt fires	-32.399757	20.674392	
18	Power Station	-32.395953	20.668014	
19	Police station	-32.39626	20.661538	
20	Reservoir	-32.393525	20.652522	
21	Dam	-32.402322	20.655346	
22	Public Hall	-32.382627	20.669983	
23	Reservoir with filtering system	-32.386111	20.658235	
24	Abattoir	-32.390885	20.660166	
25	Dam	-32.387446	20.650503	(Dam wall broke - 200m south from point)
0	Air strips	0	0	Sutherland Airport

#### Properties

Land Use	Number
Church/place of worship	3
Hoërskool Sutherland	4
Industrial light(assembly)	2
Municipal offices	3

Land Use	Number
Residential formal brick home	210
Residential/retail	3
Semi detached house	186
Surveyed park	13
Transnet	2
Vacant	101

#### Infrastructure

Drainage	Railway	Other
Furrow	Standard Line	Bridge
Canal	Marshaling Line	Roads
	LARGE STATION	Medium Voltage Conductor
		High Voltage Conductor

### 2.1.3 Flood risk in the KHLM area of jurisdiction

Table 5 indicates communities, infrastructure, properties and critical facilities at flood risk in the KHLM area of jurisdiction.

**Table 5: Communities, facilities, infrastructure and critical facilities at fire risk in the KHLM area of jurisdiction, 2010**

#### Facilities

Number	Description	Lat	Long	Notes
2	Dumping Site	-31.3474	20.89955	

#### Properties

Land Use	Number
Commonage	2

#### Infrastructure

Drainage	Railway	Other
Furrow	Standard Line	Medium Voltage Conductor
Canal		Bridge
		Roads

### 2.1.4 Hazmat risk in the KHLM area of jurisdiction

Table 6 indicates communities, infrastructure, properties and critical facilities at hazmat risk in the KHLM area of jurisdiction.

**Table 6: Communities, facilities, infrastructure and critical facilities at Hazmat risk in the KHLM area of jurisdiction, 2010****Communities**

Sutherland
Fraserburg
Williston
Williston Nu

Total of 8 208 people can be effected by hazardous material in KHLM.

**Properties**

Land Use	Number
Agriculture	3
Church	19
Clinic	2
Commonage	6
Garage/ Motors	2
Government	14
Guest House	11
Hospital	2
Hostel	3
Hotel	2
House	812
Industrial	8
Mixed land use	4
Municipal Office	11
Municipal/ Other	2
Office	2
Old Age Home	2
Parastatal	2
Parkway	4
Police Station	3
Post Office	2
Private open space	4
Public open space	11
Road	184
Secondary School	6
Shop	11
Sports ground	4
Vacant	125

**Infrastructure**

Drainage	Railway	Other
Furrow	Standard Line	High Voltage Conductor
Canal		Bridge
		Roads
		Medium Voltage Conductor

### 2.1.5 Abattoirs risk in the KHLM area of jurisdiction

Table 7 indicates communities, infrastructure, properties and critical facilities at a possible health risk because of unhealthy practices at abattoirs in the KHLM area of jurisdiction.

**Table 7: Communities, facilities, infrastructure and critical facilities at possible health risk in the KHLM area of jurisdiction, 2010**

#### Communities

Sutherland
Fraserburg
Williston
Williston Nu

Total of 7 691 people can be effected by abattoirs in KHLM.

#### Facilities

Number	Description	Lat	Long	Notes
1	Sewage Farm	-31.348	20.90431	
2	Dumping Site	-31.3474	20.89955	
3	Petrol Depot	-31.3456	20.91288	
4	Gas Depot	-31.3419	20.91845	
5	Police station	-31.3419	20.91589	
6	Reservoir	-31.3321	20.93313	
7	Earth Quakes & Veldt fires	-31.3393	20.92106	
8	Abattoir	-31.3452	20.91271	
9	Police station	-31.9113	21.51413	
10	Abattoir	-31.9096	21.51222	
11	Sewage Farm	-31.898	21.51783	
12	Dumping Site	-31.9061	21.52736	
13	Dam	-31.9191	21.50555	(300m east from point)
14	Dam	-31.9502	21.51434	(300m south from point)
15	Reservoir	-31.9165	21.50712	
16	Abattoir	-32.3931	20.66557	
17	Dumping Site & Veldt fires	-32.3998	20.67439	
18	Power Station	-32.396	20.66801	
19	Police station	-32.3963	20.66154	
20	Reservoir	-32.3935	20.65252	
21	Dam	-32.4023	20.65535	
22	Public Hall	-32.3826	20.66998	
23	Reservoir with filtering system	-32.3861	20.65824	
24	Abattoir	-32.3909	20.66017	
25	Dam	-32.3874	20.6505	(Dam wall broke - 200m south from point)
0	Air strips	0	0	Sutherland Airport

**Properties**

Land Use	Land Use
Agriculture	3
Business	2
Cemetery	3
Church	25
Clinic	3
Commonage	6
Community Hall	2
Garage/ Motors	2
Government	14
Guest House	11
Hospital	2
Hostel	3
Hotel	2
House	1318
Industrial	8
Mixed land use	7
Municipal Office	12
Municipal/ Other	2
Office	2
Old Age Home	3
Parastatal	2
Parkway	4
Police Station	3
Post Office	2
Primary School	3
Private open space	4
Public open space	14
Road	196
Secondary School	9
Semi-detached	186
Shop	12
Sports ground	5
Unknown	2
Vacant	151

**Infrastructure**

Drainage	Railway	Other
Furrow	Standard Line	Medium Voltage Conductor
Canal	Large Station	Bridge
		Roads
		High Voltage Conductor

### 2.1.6 Aircraft risk in the KHLM area of jurisdiction

Table 8 indicates communities, infrastructure, properties and critical facilities at a possible aircraft accident risk in the KHLM area of jurisdiction.

**Table 8: Communities, facilities, infrastructure and critical facilities at possible aircraft accident risk in the KHLM area of jurisdiction, 2010**

#### Communities

Sutherland
Fraserburg

Total of 10 241 people can be effected by aircraft accidents in KHLM.

#### Facilities

Photo Number	Description	Lat	Long	Notes
9	Police station	-31.9113	21.51413	
10	Abattoir	-31.9096	21.51222	
12	Dumping Site	-31.9061	21.52736	
13	Dam	-31.9191	21.50555	(300m east from point)
14	Dam	-31.9502	21.51434	(300m south from point)
15	Reservoir	-31.9165	21.50712	
16	Abattoir	-32.3931	20.66557	
17	Dumping Site & Veldt fires	-32.3998	20.67439	
18	Power Station	-32.396	20.66801	
19	Police station	-32.3963	20.66154	
20	Reservoir	-32.3935	20.65252	
21	Dam	-32.4023	20.65535	
22	Public Hall	-32.3826	20.66998	
23	Reservoir with filtering system	-32.3861	20.65824	
24	Abattoir	-32.3909	20.66017	
25	Dam	-32.3874	20.6505	(Dam wall broke - 200m south of point)
0	Air strips	0	0	Sutherland Airport

**Properties**

Land Use	Number
Agriculture	2
Church	17
Commonage	6
Government	5
Guest House	10
Hospital	2
Hostel	2
Hotel	2
House	625
Industrial	3
Mixed land use	5
Municipal Office	8
Office	2
Parkway	3
Police Station	2
Private open space	4
Public open space	10
Road	126
Secondary School	8
Shop	5
Sports ground	2
Vacant	126

**Infrastructure**

Drainage	Railway	Other
Furrow	Standard Line	Medium Voltage Conductor
Canal	Large Station	Bridge
		Roads
		High Voltage Conductor

**2.1.7 Dam Failure risk in the KHLM area of jurisdiction**

Table 9 indicates communities, infrastructure, properties and critical facilities at a possible dam failure risk in the KHLM area of jurisdiction.

**Table 9: Communities, facilities, infrastructure and critical facilities at possible dam failure risk in the KHLM area of jurisdiction, 2010**

**Communities**

Sutherland
Fraserburg

Total of 4 335 people can be effected by a possible dam failure in the KHLM area of jurisdiction.

**Facilities**

Photo Number	Description	Lat	Long
9	Police station	-31.9113	21.51413
10	Abattoir	-31.9096	21.51222
16	Abattoir	-32.3931	20.66557
19	Police station	-32.3963	20.66154
24	Abattoir	-32.3909	20.66017

**Properties**

Land Use	Number
Administrative / Other	1
Agriculture	2
Apartment	1
Bank/ Financial	1
Business	1
Church	19
Clinic	1
Commonage	4
Government	5
Guest House	11
Hospital	1
Hostel	2
Hotel	2
House	698
Industrial	2
Library	1
Mixed land use	6
Municipal Office	6
Office	2
Old Age Home	1
Parking Area	1
Parkway	3
Police Station	2
Post Office	1
Primary School	2
Private open space	3
Public open space	10
Road	123
Secondary School	8
Semi-detached	186
Shop	5
Sports ground	3
Unknown	2
Vacant	104

**Infrastructure**

Drainage	Railway	Other
		High Voltage Conductor
		Medium Voltage Conductor



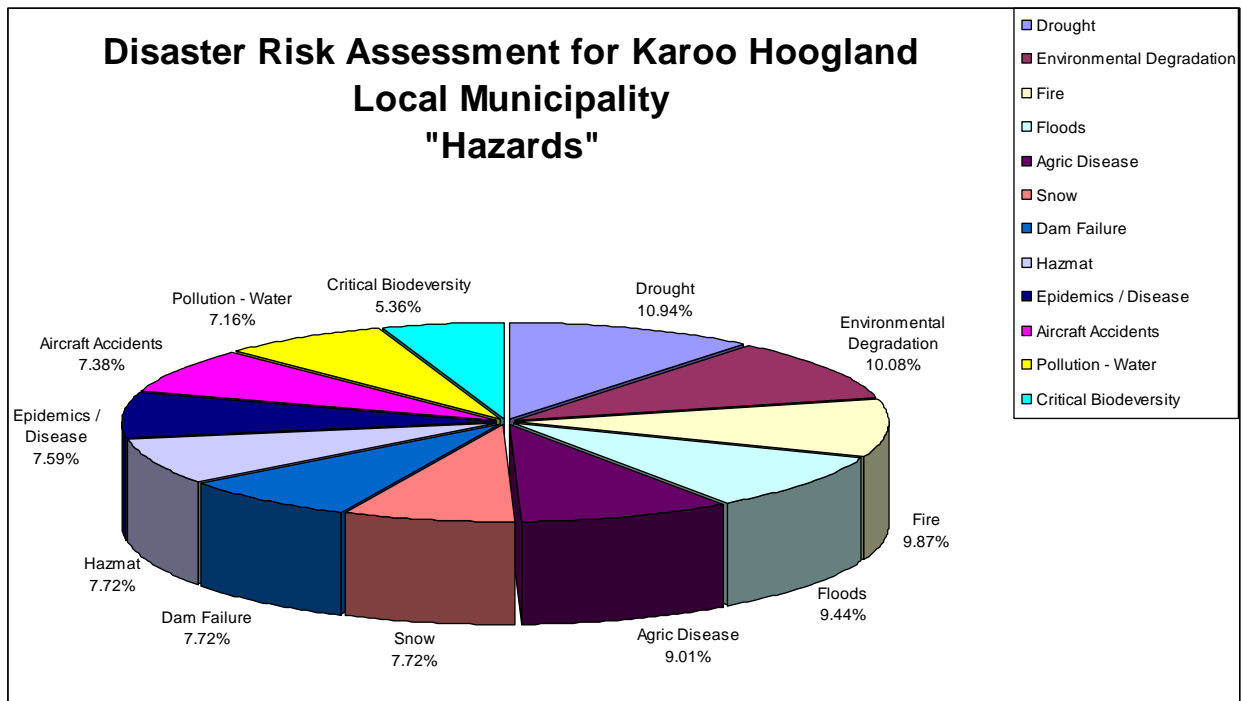
## 2.2 DISASTER RISK ASSESSMENT

A disaster risk assessment was executed for each local municipality in the NDM area of jurisdiction, using five parameters, namely;

- History
- Vulnerability of people
- Vulnerability of property
- Maximum threat
- Probability

From the identified list of hazards, it seems if drought is the highest risk in KHLM (Figure 1). The total impact of drought on communities, the agricultural sector and all fauna and flora therefore can not be neglected. Drought, amongst other factors, also contribute to environmental degradation, hence these to (drought and environmental degradation) separately and collectively is the highest threat in the KHLM area of jurisdiction, followed by veldt fires, floods and possible agricultural diseases.

The fact that snow may appear from time to time and only during winter season, the KHLM must take precautions that some communities may be cut off and that access roads and communication line can seriously be affected.

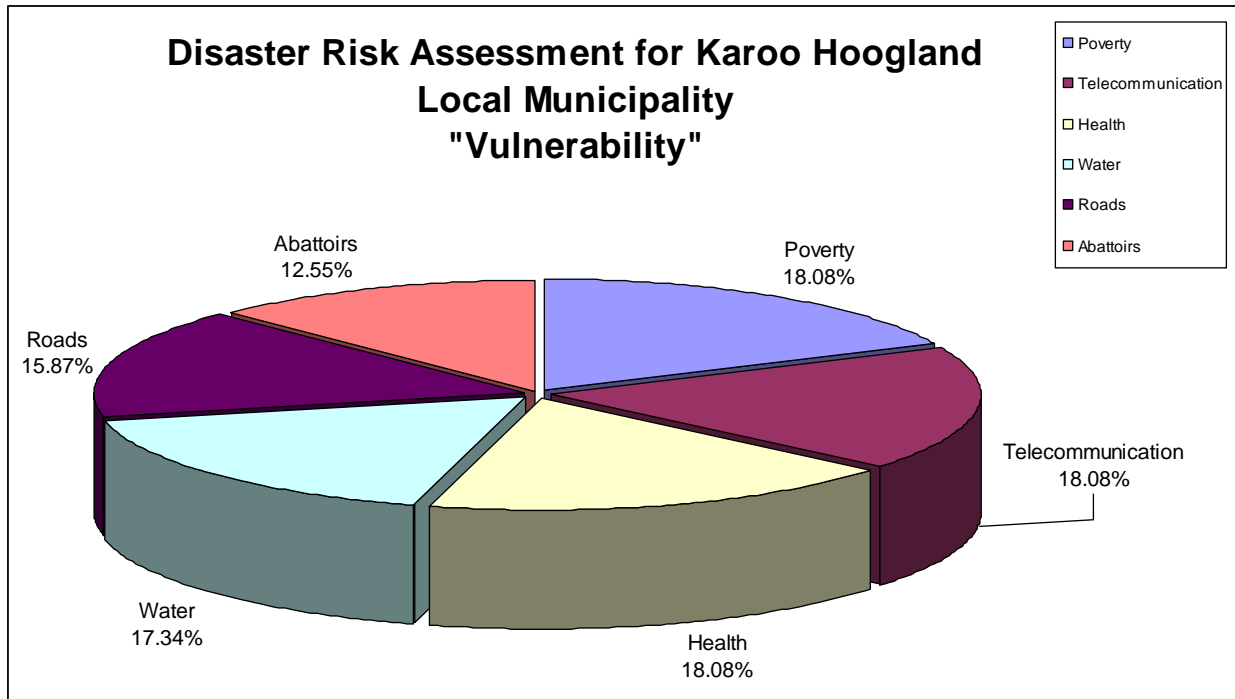


**Figure 1: Prioritising of disaster hazards in the KHLM area of jurisdiction, 2011**

Hazmat is also transported through the area and according to new development it seems that the transportation of such materials may increase in this area of jurisdiction. Hence, it is recommended that KHLM compile, finalised and implement appropriate Hazmat contingency plans. Notwithstanding the fact that critical biodiversity areas are mentioned lastly, does not mean that less attention is required. Hence the protection of these areas are crucial for

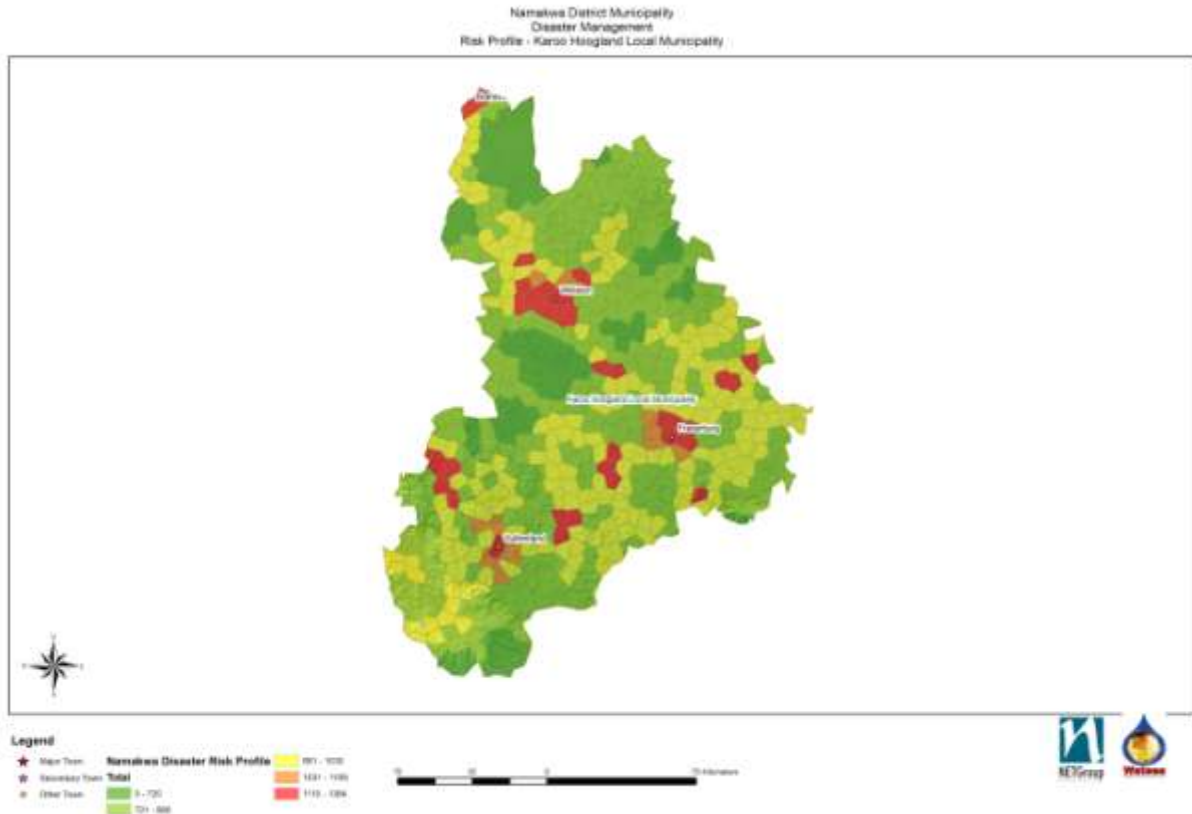
protecting the environment, not only for the next generation, but also for sustainable agricultural production practises to ensure food security.

When potential hazards are distinguished from items which impacted the vulnerability of communities, its seems if poverty alleviations programmes is the highest priority (Figure 2), followed by the upgrading of all telecommunication systems. Basic services, such as providing sustainable health- (clinics, hospitals, medical doctors, medicine, ambulance services), water-, sanitation- and road infrastructure is currently on a very critical and sensitive point of collapsing if KHLM is not taking very serious actions. Operating procedures at local abattoirs may lead to health risk and requires proactive actions from KHLM.



**Figure 2: Prioritising of other items which contribute to the vulnerability status of communities in the KHLM area of jurisdiction, 2011**

It was also possible to compile a disaster risk profile map for KHLM (Map 2). This map indicates the location of high, medium and low risk areas in the KHLM area of jurisdiction. These results can be displayed in table format and is attached in Appendix A.



**Map 2: Risk profile map for KHLM area of jurisdiction, 2011**

### 3 ALIGN WITH IDP

This section entails to align disaster risk reduction programmes with the IDP of Karoo Hoogland Local Municipality. Appendix B hereby attached indicates the current IDP projects for the 2011/12 financial year. These projects were categorised in;

- Proper housing / existing informal settlements
- Proper service delivery / Water
- Sewerage & Sanitation
- Roads and Infrastructure
- Stormwater
- Cemeteries
- Refuse removal
- Electricity
- Sport and recreational facilities and services
- LED

It is clear from the above-mentioned categories that disaster risk reduction programmes is not yet integrated into the IDP of local municipalities. These disaster risk reduction programmes first have to be addressed in a proactive way, hence be part of sustainable development initiatives. Notwithstanding the fact that disaster response programmes also contribute to disaster risk reduction, the emphasis of aligning disaster management with the IDP is more on proactive planning, rather to identify emergency response programmes.

According to Map 2 and results displayed in Appendix A the first priorities in the KHLM are:

- Drought
- Environmental Degradation
- Veld Fire
- Floods
- Agricultural disease
- Snow
- Dam Failure
- Hazmat

Hence, it is envisaged that KHLM focuses on the following risk reduction measures and budget for in the IDP:

- Agriculture Management Practices focusing on
  - Environmental degradation
  - Drought management practices
  - Farm Management Practices
  - Proactive measure to prevent agricultural disease outbreaks
  
- Veld Fire
  - Precaution and proactive measures
  - Equipment
  - Human Resources
  
- Floods
  - Proactive flood remedial works
  - Early Warning Systems
  - Information Dissemination System
  
- Snow
  - Early Warning Systems
  - Information Dissemination System
  - Contingency Plans
  - Standing Operating Procedures (SOP's)
  
- Dam Failure
  - Liaison with owners of dams at risk
  - Annually certification of safety of dams
  - Proactive dam failure risk reduction remedial works
  
- Transportation and storage of Hazmat
  - Contingency Plans
  - Standing Operating Procedures (SOP's)

**Table 10: High priority disaster risk reduction for the KHLM, 2011**

Town	Distance from town (m)	Ward No	Decredation	Drought	Fire	Hazmat	Nuclear	Abattoirs	Aircraft	Dam	Flood
Langkuil	0	3	√	√	√		√	√		√	√
Fraserburg	1638	2	√	√	√		√	√		√	√
Leokraal	0	3	√	√	√		√	√		√	√
Rietfontein	0	3	√	√	√	√		√		√	√
Klipdrift	0	3	√	√	√			√		√	√
Riverside	0	3	√	√	√	√		√		√	√
Jasfontein	0	3	√	√	√	√		√		√	√
Ongelukfontein	0	3	√	√	√	√		√		√	√
Slingersfontein	0	3	√	√	√	√		√		√	√
Vondeling	0	3	√	√	√	√		√		√	√
Erdeel	0	4	√	√	√	√		√		√	√
Eensaam	0	3	√	√	√	√		√		√	√
Kruisrivier	2363	4	√	√	√	√		√		√	√
Kruisrivier	0	3	√	√	√	√		√		√	√
Modderfontein	0	3	√	√	√	√		√		√	√
Saaiplaas	0	3	√	√	√	√		√		√	√
Stofkraal	0	3	√	√	√	√		√		√	√
De Hoek	549	3	√	√	√	√		√		√	√
Elandsberg	0	4	√	√	√	√		√		√	√
Rooikrans	0	3	√	√	√	√		√		√	√
Rooiheuvel	152	3	√	√	√	√		√		√	√
Rivierplaas	0	3	√	√	√	√		√		√	√
Nerosfontein	0	3	√	√	√	√		√		√	√
Beukesplaats	0	3	√	√	√	√		√		√	√
Ou Bordvolwater	0	3	√	√	√	√		√		√	√
Brandlei	3008	3	√	√	√	√	√	0		√	√
Muskietkraal	0	3	√	√	√	√	√	0		√	√
Grofgeskud	0	3	√	√	√	√	√	0		√	√
Grofgeskud	7338	3	√	√	√	√	√	0		√	√
Dikdoorns	1925	3	√	√	√	√	√	0		√	√
De Rust	0	3	√	√	√	√	√	0		√	√
Sandfontein	0	3	√	√	√	√	√	0		√	√
Sandfontein	14	3	√	√	√	√	√	0		√	√
Die Kruis	501	1	√	√	√	√	√	0		√	√
Die Kruis	0	3	√	√	√	√	√	0		√	√
Die Kruis	584	1	√	√	√	√	√	0		√	√
Lynskloof	747	1	√	√	√	√	√	0		√	√
Dikdoorns	2151	3	√	√	√	√	√	0		√	√
Sutherland	0	4	√	√	√	√	√	√	√		
Fraserburg	0	2	√	√	√	√	√	√	√		
Gansfontein	0	3	√	√	√	√	√	√	√		
Rooikloof	0	3	√	√	√	√	√	√	√		
Williston	0	1	√	√	√	√	√	√		√	√
Sandkop	0	3	√	√	√	√	√	√		√	√
Heeltevrede	0	3	√	√	√	√	√	√		√	√
Kleintuin	55	1	√	√	√	√	√	√		√	√
Kleintuin	1021	1	√	√	√	√	√	√		√	√
Skipperskloof	0	3	√	√	√	√	√	√		√	√
Fraserburg	1317	2	√	√	√	√	√	√		√	√
Quaggasfontein	0	3	√	√	√	√	√	√		√	√
Goedverwachting	0	3	√	√	√	√	√	√		√	√
Visserskolkleegte	2585	2	√	√	√	√	√	√		√	√
Visserskolkleegte	0	3	√	√	√	√	√	√		√	√

#### 4 ALIGN WITH SDF

A copy of the KHLM spatial development framework was received and the following tables indicate the spatial objectives and strategies for economic opportunities, sustainable urban and rural settlement development and protecting of natural resources.

Table 1: Spatial Objectives and Strategies – Exploit Economic Opportunities

<b>Spatial Objective:</b>	<b>Exploit economic opportunities</b>	
<b>Spatial Strategies</b>	1	Strengthen mobility & economic links between Sutherland, Fraserburg and Willison
	2	Development of cross border Tourism Corridors
	3	Promote development of Sutherland astronomy tourism hub
	4	Support sustainable mining exploration
	5	Promote renewable energy generation

Table 2: Spatial Objectives and Strategies – Create Sustainable Urban and Rural Settlements

<b>Spatial Objective:</b>	<b>Create sustainable urban and rural settlements</b>	
<b>Spatial Strategies</b>	6	Strengthen hierarchy of activity nodes
	7	Eradicate basic services backlogs
	8	Conservation of ground water as raw water supply

Table 3: Spatial Objectives and Strategies – Protect the Natural and Built Environment

<b>Spatial Objective:</b>	<b>Protect the natural and built environment</b>	
<b>Spatial Strategies</b>	8	Conservation of natural environment
	9	Protection of heritage features

It is recommended that KHLM overlaid the disaster risk profile maps with the SDF in order to identify areas suitable for development and area not suitable for development. As a point of departure Table 10 indicates all the Towns and Wards at high risk. These areas should first be investigated to determine the level of acceptable risk. After this, the department responsible for town and regional planning of KHLM can draft sustainable development guidelines for the municipality.

# **APPENDIX A: COMMUNITIES AT RISK**

# **APPENDIX B:**

## **IDP OF**

### **KAROO HOOGLAND LOCAL MUNICIPALITY**



### THREE YEAR IMPLEMENTATION PLAN

#### Proper Housing / existing informal settlements

Project NR	Project Name	Location	Target Dates	Estimated Costs	Possible Funders	Status Quo	Funding secured	Council Approval Date
5.1.1	<ul style="list-style-type: none"> <li>225 Sites to be serviced</li> <li>225 Top Structure to be erected</li> <li>Rectification 167 houses (pre 1994)</li> </ul>	Fraserburg	09/10		DOH Rectification funds	Implementation	Yes	25/06/09
5.1.2	<ul style="list-style-type: none"> <li>Develop 200 erven</li> <li>Build 100 houses</li> <li>Rectification 80 houses</li> <li>Rectification XX houses (pre 1994)</li> </ul>	Williston	09/10		DOH DOH Housing Emergency fund Rectification funds		N.A	
5.1.3	<ul style="list-style-type: none"> <li>Develop 200 erven</li> <li>Rectification 150 RDP houses</li> </ul>	Sutherland	09/10		DOH Rectification funds Rectification funds		N.A	

#### Proper service delivery / Water

Project NR	Project Name	Location	Target Dates	Estimated Costs	Possible Funders	Status Quo	Funding secured	Council Approval Date
5.2.1	Fraserburg Water Network	Fraserburg	09/10	R 3 500 000, 00	MIG	Registered	Yes	25 /06/ 2009
5.2.2	Water purifier	Fraserburg	09/10	R 1 000 000, 00	MIG	Planning		25 /06/ 2009
5.2.3	Bulk Water Supply	Fraserburg	09/10	R 6 000 000, 00	MIG	Planning		25 /06/ 2009
5.2.4	Upgrade Williston Water network	Williston	09/10	R 3 000 000, 00	MIG	Planning		25 /06/ 2009
5.2.5	New Reservoir	Sutherland	09/10	R 3 500 000, 00	MIG	Planning		25 /06/ 2009
5.2.6	Network upgrading	Sutherland	09/10	R 8 000 000, 00	MIG	Planning		25 /06/ 2009
5.2.7	New Boreholes and pipelines	Sutherland	09/10	R 1 750 000, 00	MIG	Planning		25 /06/ 2009

#### Sewerage & Sanitation

Project number	Project Name	Location	Target Dates	Estimated Costs	Possible Funders	Status Quo	Funding secured	Council Approval Date
5.3.1.	Oxidation pounds Eradication Internal Sewerage Networks	Williston	09/10 09/10	R 2 607 972, 00 R 7 500 000, 00	MIG	Waiting for completion certificate	Yes	25 JUNE 2009
5.3.2.	Phase 2 of Oxidation pounds Internal Sewerage Networks	Fraserburg	09/10 09/10	R 3 250 000, 00 R 5 500 000, 00	MIG	Planning		25 JUNE 2009
5.3.3.	<ul style="list-style-type: none"> <li>Oxidation pounds</li> <li>Internal Sewerage Networks</li> </ul>	Sutherland	09/10 09/10	R 2 630 254, 00 R 6 500, 00	MIG	In Progress	Yes	25 JUNE 2009
5.3.4.	Establishment of Irrigation Land	All Towns	09/10	R 3 000 000, 00	MIG	Planning		25 JUNE 2009
5.3.5.	Eradication of buckets	All Towns	07/08	R 370 000, 00	MIG	Completed (DEC 07)		
5.3.6.	Eradication of UDS Toilets	All Towns	09/10	R10 000 000, 00	MIG	Planning		25 JUNE 2009
5.3.7.	Freeflow Sewerage system	All Towns	09/10	R30 000 000, 00	MIG	Planning		25 JUNE 2009

#### Roads and Infrastructure

Project NR	Project Name	Location	Target Dates	Estimated Costs	Possible Funders	Status Quo	Funding secured	Council Approval Date
5.4.1	Eradicated of Prosopis trees	All wards	09/10	R 1 300 000, 00	EPWP	Implemented	YES	25 JUNE 2009
5.4.2	Upgrade of Bergstreet	Williston	09/10	R 650 890, 00	EPWP	Waiting for Funds		25 JUNE 2009
5.4.3	Upgrade of Streets	All wards	09/10	R 6 000 000, 00	EPWP	Implemented	YES	25 JUNE 2009
5.4.4	Upgrade Major Roads between wards	All wards	09/10	R 140 000 000, 00	EPWP	Refer to District IDP		25 JUNE 2009
5.4.5	Cleaning & Greening	All Towns	09/10	R 500 000, 00	EPWP	Waiting for funds		25 JUNE 2009

## Stormwater

Project NR	Project Name	Location	Target Dates	Estimated Costs	Possible Funders	Status Quo	Funding secured	Council Approval Date
5.5.1	Stormwater System	Sutherland	09/10	R 3 500 000, 00	MIG	Planning	NO	25 JUNE 2009
5.5.2	Stormwater System	Fraserburg	09/10	R 3 500 000, 00	MIG	Planning	NO	25 JUNE 2009
5.5.3	Stormwater System	Williston	09/10	R 3 500 000, 00	MIG	Planning	NO	25 JUNE 2009

## Cemeteries

Project NR	Project Name	Location	Target Dates	Estimated Costs	Possible Funders	Status Quo	Funding secured	Council Approval Date
5.6.1	EIA	Williston	09/10	R 80 000, 00	MIG	Planning		25 JUNE 2009
5.6.2	EIA	Fraserburg	09/10	R 80 000, 00	MIG	Planning		25 JUNE 2009

## Refuse removal

Project NR	Project Name	Location	Target Dates	Estimated Costs	Possible Funders	Status Quo	Funding secured	Council Approval Date
5.7.1	Licensing and upgrading of site	Williston	09/10	R 750 000, 00	MIG	Planning		25 /06/ 2009
5.7.2	Upgrading of site	Fraserburg	09/10	R 500 000, 00	MIG	Planning		25 /06/ 2009
5.7.3	Licensing and upgrading of site	Sutherland	09/10	R 750 000, 00	MIG	Planning		25 /06/ 2009

## Electricity

Project NR	Project Name	Location	Target Dates	Estimated Costs	Possible Funders	Status Quo	Funding secured	Council Approval Date
5.8.1	Public lighting (downward facing lights to avoid light pollution)	Williston	09/10	R 2 500 000, 00	MIG	Planning		25 /06/ 2009
5.8.2	Public lighting (downward facing lights to avoid light pollution)	Fraserburg	09/10	R 2 500 000, 00	MIG	Planning		25 /06/ 2009
5.8.3	Public lighting (downward facing lights to avoid light pollution)	Sutherland	09/10	R 90 000, 00	NDM	Awaiting Funding		25 /06/ 2009

## Sport and recreational facilities and services

Project NR	Ward	Project Name	Location	Target Dates	Estimated Costs	Possible Funders	Status Quo	Funding secured	Council Approval Date
5.9.1	1.	Amandelboom Sport Facility	Williston	09/10	R 3 363 000, 00	MIG	Awaiting funding		25 /06/ 2009
5.9.2	2.	Ammerville Sport Facility	Fraserburg	09/10	R 3 534 000, 00	MIG	Awaiting funding		25 /06/ 2009
5.9.3	3.	Sports Festivals	Rural	09/10	R 150 000, 00	NLDTF, Rural Development	To be planned		25 /06/ 2009
5.9.4	4.	Rebelskop Sport Facility	Sutherland	09/10	R 4 104 000, 00	MIG	Awaiting funding		25 /06/ 2009
5.9.5	5.	Upgrade of Sport Facility K-H	All Wards	09/10	R 7 000 000, 00	NLDTF	Awaiting funding		25 /06/ 2009

## LED

Project NR	Project Name	Location	Target Dates	Estimated Costs	Possible Funders	Status Quo	Funding secured	Council Approval Date
5.10.1	Museum Upgrade	Williston	09/10	R 500 000, 00	NLDTF, Arts, Tourism	To be Planned		25 /06/ 2009
5.10.2	Construction of Corbel House	Williston	09/10	R 580 000, 00	NLDTF, Tourism	To be Planned		25 /06/ 2009
5.10.3	Protection for paleo Surface	Fraserburg	09/10	R 1 000 000, 00	DST, Arts, NLDTF	Planning		25 /06/ 2009
5.10.4	Upgrade museum	Fraserburg	09/10	R 1 000 000, 00	NLDTF, Arts, Tourism	Planning		25 /06/ 2009
5.10.5	Stage and amphitheatre	Fraserburg	09/10	R 195 000, 00	KHM, NLDTF	To be Planned		25 /06/ 2009
5.10.6	Shuttle service	All wards	09/10	R 400 000, 00	DST, Arts, NLDTF	To be Planned		25 /06/ 2009
5.10.7	Agricultural tourism route Feasibility Study	Rural	09/10	R 150 000, 00	NLDTF, Arts, Tourism, Skeppies	B-Plan submitted		25 /06/ 2009
5.10.8	Edu-tourism route (geology, paleontology, astronomy, biology)	Rural	09/10	R 500 000, 00	KHM, NLDTF	To be Planned		25 /06/ 2009
5.10.9	Williston Nature Reserve	Williston	09/10	R140 000, 00	Skeppies, NLDTF	Awaiting funding		25 /06/ 2009

5.10.10	Upgrade of learner hostel facilities	Sutherland	09/10	R 1 000 000, 00	NRF	Completed	YES	25 /06/ 2009
5.10.11	Community computer training centre for K-H	Sutherland	09/10	R 1 500 000, 00	NRF	Implementation	Yes	25 /06/ 2009
5.10.12	Outdoor community recreational facility	Sutherland	09/10	R 245 000, 00	KHM, NLDTF	To be planned		25 /06/ 2009
5.10.13	Renovation of tourism office	Sutherland	09/10	R 80 000, 00	KHM, Tourism	Planning		25 /06/ 2009
5.10.14	Tourism Marketing (Including brochures)	All wards	09/10	R 500 000, 00	Tourism, NCTA, NDM	Seeking funds		25 /06/ 2009

Project NR	Project Name	Location	Target Dates	Estimated Costs	Possible Funders	Status Quo	Funding secured	Council Approval Date
5.10.15	Astronomy themed miniature golf	Sutherland	09/10	R 150 000, 00	NLDTF	To be planned		25 /06/ 2009
5.10.16	Walking with ancestors	All wards	09/10	R 11 000 000, 00	DTEC, KHM, NCTA	Awaiting funding		25 /06/ 2009
5.10.17	Tourism training and awareness	All wards	09/10	R 50 000, 00	DTEC, DOL, TEP	Seek funding		25 /06/ 2009
5.10.18	Karoo Highlands Tourism Route	All Wards	09/10	R 250 000,00	Open Africa	In Process	YES	

5.10.19	Establishment of Tourism Associations	Fraserburg /Williston/ Sutherland	09/10	N / A	KHM	Completed		
5.10.20	Develop and assist Festivals in KHM	All Wards	09/11	R 250 000, 00	DAC, SAAO, NLDTF, NCTA, KHM	In Process		
5.10.21	AIDS – Awareness & Prevention	All Wards	09/11	R 500 000, 00	NACOSA, DSW, NDM, DOH, Drop In Centre (Williston)	In Process		
5.10.22	Social Development Programmes	All Wards	09/11	R 2 000 000, 00	Local NGO's, Dept of Welfare, DOL, NDM	To be planned		
5.10.23	Develop By-laws with regard to Social Development	All Wards	09/11	N/A	N/A	Seeking assistance		
5.10.24	Develop & Support Sport Programmes and Organizations	All Wards	09/11	R1 500 000,00	NLDTF, DSAC	To be Planned		
5.10.25	Indigenous Plants Poster	All wards	09/11	R 100 000, 00	Skeppies, CI, DWAF	Planning		
5.10.26	Karoo Stars Indigenous Knowledge Poster	All wards	09/11	R 100 000, 00	SALT, SKA, NRF	To be Planned		
5.10.27	KHM Recipe Book	All wards	09/10	R 100 000, 00	SAAO, KHM	Awaiting funding		
5.10.28	Spinning & Weaving	Williston	09/11	R 200 000, 00	Drop in Centre (Williston)	In Process		
5.10.29	Tourism Signage	All Wards	09/11	R 600 000, 00	NDM, KHM, DTEC, NCTA	Planning		

Project NR	Project Name	Location	Target Dates	Estimated Costs	Possible Funders	Status Quo	Funding secured	Council Approval Date
5.10.30	Develop a LED Strategy	All wards	09/11	R500 000, 00	DBSA	Awaiting funding	Yes	25/06/09
5.10.31	Establish LED steering committees	All wards	09/11	N/A	N/A	Completed		
5.10.32	Develop a crime prevention strategy	All wards	09/11	N/A	N/A	Seeking Assistance		
5.10.33	Gateway to the universe – MeerKAT & SKA framework (Phase II)	All wards	09/11	R 60 000, 00	KHM, SKA	Planning		
5.10.34	Develop SMME infrastructure	All wards	09/11	R 3 000 000, 00	MIG, DBSA	To be planned		
5.10.35	Feasibility study for FET college in science & technology for KHM	All wards	09/11	R 250 000, 00	DST, Education, IDT	To be planned		
5.10.36	Develop support base for health services in KHM	All wards	09/11	N/A	N/A	In Process		