

Disaster Risk Reduction

Purpose

The purpose of this document is to identify and describe possible disaster risk reduction projects within the Waterberg District Municipality.

Scope

Possible risk reduction projects have been identified through analysis of information collected during consultation with the District Municipality.

The identified risk reduction plans are developed to strategy level in this document, thereafter the Disaster Management Authority is required to further develop them through the phases of:

- Project Planning
- Integration
- Approval
- Implementation

The following risk reduction plans are included:

FIRE DISASTER RISK REDUCTION ACTIONS.....	2
ROAD ACCIDENT DISASTER RISK REDUCTION ACTIONS.....	5
FLOOD DISASTER RISK REDUCTION ACTIONS	8
POLLUTION DISASTER RISK REDUCTION ACTIONS.....	10
DROUGHT DISASTER RISK REDUCTION ACTIONS.....	13

Project Name	FIRE DISASTER RISK REDUCTION ACTIONS
Problem Statement	Fire and the impact thereof have been identified as a risk to the Waterberg District Municipality, and therefore effective Fire Risk Reduction Actions must be identified and consequently implemented.
Risk Reduction Objective(s)	Indicators for Achievement of Objectives:
To reduce the direct and indirect impact of fire and fire related emergencies and disasters on the WDM	<p>The reduction of incidents of fire related incidents in the Waterberg District Municipality</p> <p>The effective response to fire related incidents in the Waterberg District Municipality</p> <p>The increased awareness of all stakeholders regarding their roles and responsibilities to fire safety, fire avoidance and fire suppression</p> <p>The increase in capacity of the fire services within the Waterberg District Municipality to effectively respond to any fire related incidents. The reduction of impact on life, property and environment due to increased effectiveness of preparation, mitigation, response and recovery by all agencies within the Waterberg District Municipality.</p>

Major Activities	Responsible agencies:	Timing:
Installation and maintenance of fire hydrants in high-risk areas, e.g. informal areas.	Water Services Fire Services	
Maintenance of fire breaks	Land owners	
Firebreaks in high-risk areas.	Land owners	
Maintain electricity distribution servitudes.	Eskom Electricity Department	
Regular inspection of electricity lines	Eskom Electricity Department	
Fire vehicles, equipment and personnel must be available and be maintained properly.	Fire Services Municipality Land owners	
Fire vehicles, equipment and personnel must be close to danger zones / areas and available on short notice.	Fire Services	
Fire breaks to be made in areas with dense vegetation.	Land owners	
Smoke-free zones in areas with high risk. (Signage?)	Provincial Traffic Municipal Police Transport Fire Services	

Major Activities	Responsible agencies:	Timing:
Ensure effective fire hydrant system with sufficient pressure.	Water Services Fire Services	
Ensure effective access control in fire-affected areas.	Municipal Police Traffic Fire Services	
Purchase of fire-fighting vehicles and equipment.	Fire Services	
Promote establishment of FPAs (Fire Protection Associations)	Fire Services	
Training of community as first responders on farms and in remote areas (integrated with Farm Watch)	Fire Services Disaster Management Agriculture Municipality	
Alternative housing funds (See subsidised insurance)	Housing	
Awareness campaign for the prevention of fires, pamphlets in rates accounts.	Fire Services Disaster Management Finance Department	
Inspections at businesses with regard to equipment and electrical appliances.	Fire Services	
Total awareness campaign with regard to dangers of continuous fires for man, animal and environment.	Fire Services Disaster Management Environmental Management Nature Conservation DWAF Agriculture	
Improve emergency communication system.	Disaster Management Fire Services Traffic Municipal Police Emergency Medical Services	
Equipment to be distributed to outlying areas	Fire Services Disaster Management Agriculture DWAF Nature Conservation	
Plan for firefighting in each area	Fire Services Disaster Management Agriculture	

Major Activities	Responsible agencies:	Timing:
	DWAF Nature Conservation	
Decentralisation of expertise	Fire Services Disaster Management Agriculture DWAF Nature Conservation	
Training, acknowledgement and stipends	Fire Services Disaster Management Community Development Training Department	
Signboards delineating areas within region to increase awareness of responsibility boundaries	Tourism Transport Roads / Stormwater	
Increased law enforcement of fire hazards	Fire Services	
Evacuation exercises to be done by public buildings and institutions, e.g. schools and hospitals	Fire Services Disaster Management Public building tenants and public institutions	
Training of youths as volunteers for firefighting purposes in local areas (outlying / isolated areas)	Fire Services Disaster Management Community / Social Development Schools Training Department	
Defining roles and responsibilities of authorities.	Fire Services Top Management	
Acknowledgement for assistance by stipends and sponsorships	Fire Services Disaster Management Community/Social Development	
Subsidised insurance for poorer communities.	Housing	
Costs	Budget Estimates:	Sources of Finance:
Remarks		

Project Name	ROAD ACCIDENT DISASTER RISK REDUCTION ACTIONS
Problem Statement	Road Accidents and the impact thereof have been identified as a risk to the Waterberg District Municipality and therefore effective Road Accident Risk Reduction Actions must be identified and consequently implemented.
Risk Reduction Objective(s)	Indicators for Achievement of Objectives:
To reduce the direct and indirect impact of road accident and road accident related emergencies and disasters on the WDM	<p>Reduced number of recorded incidents within the WDM.</p> <p>Reduced number of fatalities per event in the WDM.</p> <p>Increased capacity of emergency services to deal with road accidents within the WDM.</p> <p>A reduction in transgressors of the law within WDM due to better enforcement of the law.</p> <p>A reduction in incidents due to awareness campaigns within the WDM</p>

Major Activities	Responsible agencies:	Timing:
Ensure maintenance of roads within the control of the district	Department of Transport Roads Department	
Ensure enforcement of rules and regulations pertaining to operation of vehicles on public roads	Provincial Traffic Authorities SAPS Municipal Police	
Ensure road signs and markings are correctly placed and maintained	Department of Transport Roads Department	
Create driver awareness of accident hotspots	Roads Department Provincial Traffic Authorities Community Development Training Department Department of Education Disaster Management Department of Transport	
Educate drivers in dangers of fatigue	Roads Department Provincial Traffic Authorities Community Development Training Department Department of Education Disaster Management Department of Transport	
Create areas for truck stops and recreation breaks	Department of Transport Town Planning	

Major Activities	Responsible agencies:	Timing:
	Municipality Commerce and Industry	
Educate drivers in dangers of drinking and driving	Roads Department Department of Transport Commerce and Industry Provincial Traffic Authorities Department of Education	
Educate drivers in risks of overloading vehicles	Roads Department Department of Transport Commerce and Industry Provincial Traffic Authorities Department of Education	
Educate drivers in risks of speeding	Roads Department Department of Transport Commerce and Industry Provincial Traffic Authorities Department of Education	
Create traffic calming zones in towns and residential areas	Town Planning Roads Department Engineering	
Bypass hazardous traffic around towns and vulnerable areas	Municipality Municipal Police Roads Department Department of Transport Town Planning	
Establish systems to deal with road traffic accidents	Provincial Traffic Authorities SAPS Emergency Medical Services Disaster Management Fire and Rescue Services	
School awareness for road safety	Department of Transport Department of Education Community Development Workers Provincial Traffic Authorities	
Pedestrian education programs	Department of Transport Department of Education Community Development Workers Provincial Traffic Authorities	
Educate pedestrians in the dangers of drinking and walking	Department of Transport Department of Education	

Major Activities	Responsible agencies:	Timing:
	Community Development Workers Provincial Traffic Authorities	
Ensure and enforce rules to keep livestock off the roads	Provincial Traffic Authorities Roads Department Department of Transport	
Maintain fences alongside busy routes	Roads Department Agriculture Land owners	
Costs	Budget Estimates:	Sources of Finance:
Remarks		

Project Name	FLOOD DISASTER RISK REDUCTION ACTIONS
Problem Statement	Flood and the impact thereof have been identified as a risk to the Waterberg District Municipality, and therefore effective Flood Risk Reduction Actions must be identified and consequently implemented.
Risk Reduction Objective(s)	Indicators for Achievement of Objectives:
To reduce the direct and indirect impact of flood and flood related emergencies and disasters on the WDM	<p>Reduced flooding events due to structural and planning reduction measures – bridges, dams and stormwater and drainage systems.</p> <p>Reduced impact of flooding due to improved building construction measures.</p> <p>Reduced life loss due to early warning systems.</p> <p>Increased awareness of vulnerable communities to importance of building codes and floodlines.</p> <p>Increased capacity of fire and rescue services to deal with floods.</p> <p>Increased capacity of Disaster Management to deal with floods.</p>

Major Activities	Responsible agencies:	Timing:
Ensure building codes are adhered to with regard to strength and roof design	Engineering Town planning	
Ensure no building below the floodlines	Town planning	
Conduct accurate GIS survey to identify areas prone to flooding	Town planning Disaster Management	
Establish catchment dams and weirs to slow flood build up	Town planning Engineering	
Ensure proper construction techniques for bridges	Department of Public Works Transport	
Conduct assessment of all bridges for strength and integrity	Transport Engineering	
Ensure no further construction of low level bridges	Town planning Engineering	
Ensure appropriate warning signs for low level crossings	Transport	
Ensure proper education for communities travelling high risk routes	Department of Education Community Development Workers Community Development Training Department	
Ensure proper education for drivers of public transport	Transport Provincial traffic	

Major Activities	Responsible agencies:	Timing:
travelling high risk routes	Disaster Management	
Ensure maintenance of roads and bridges in high risk areas	Transport Engineering Department of Public Works	
Ensure adequate maintenance of storm water drainage systems	Town Planning Engineering Department of Public Works	
Ensure adequate maintenance of runoff systems	Department of Public Works Town Planning Engineering	
Install early warning systems for at risk communities	Community Development Workers Disaster Management Fire Services Water Services	
Establish early warning channels of communications for communities and organised agriculture	Water Services Fire Services Land owners Agriculture Disaster Management DWAF Nature Conservation	
Compile database of resources available in the event of a flood incident	Disaster Management	
Ensure pollution and natural debris is kept to a minimum in the river catchment area	Agriculture Land owners DWAF	
Ensure local emergency services are equipped and trained to deal with flood incidents	Municipality Disaster Management	
Establish channels of communication for mutual aid agreements with resources such as air force and military	Disaster Management	
Costs	Budget Estimates:	Sources of Finance:
Remarks		

Project Name	POLLUTION DISASTER RISK REDUCTION ACTIONS
Problem Statement	Water and Air Pollution and the impact thereof have been identified as a risk to the Waterberg District Municipality, and therefore effective Pollution Risk Reduction Actions must be identified and consequently implemented.
Risk Reduction Objective(s)	Indicators for Achievement of Objectives:
To reduce the direct and indirect impact of pollution and pollution related emergencies and disasters on the WDM	Reduce the incidents of air and water pollution in the WDM. Enforce the regulations and laws surrounding pollution. Increase capacity to deal with acute events of pollution. Reduce the impact of pollution events on life, property and environment.

Major Activities	Responsible agencies:	Timing:
The elimination or phasing-out of particular toxic substances	Legislative Commerce and Industry	
Input substitution: replacing a chemical with a non-toxic or less toxic chemical or process	Legislative Commerce and Industry	
Product reformulation, so that the end-product is non-toxic or less toxic upon use, release or disposal	Legislative Commerce and Industry	
Production unit redesign or modification.	Legislative Commerce and Industry	
Production unit modernisation.	Legislative Commerce and Industry	
Improved operation and maintenance of production unit equipment and methods, such as better housekeeping practices, adjustments, inspections and control equipment in the production unit.	Commerce and Industry	
In-process reuse and recycling as an integral part of the production process, such as closed-loop methods.	Commerce and Industry	
Using less: achieving the same production result with reduced toxic substance use.	Commerce and Industry Legislative	

Major Activities	Responsible agencies:	Timing:
Enforcement of laws governing pollution in the district.	DEAT Fire and Rescue Services Legislative Provincial Traffic Authorities Roads Department Engineering Nature Conservation DWAF Agriculture	
Refusal of permission for new developments which are not pollution free	DEAT Town Planning	
Town planning to ensure the pollution risks are not near vulnerable communities	Town Planning	
Town planning to ensure the pollution risks are not near vulnerable ecosystems and rivers etc.	Town Planning	
Resource database to be created of experts who can assist with knowledge, expertise and equipment in the event of a pollution incident.	Disaster Management	
School education programmes about the consequences of pollution in the environment.	Nature Conservation Department of Education	
Community awareness campaigns regarding pollution in the environment	Community Development Training Department Community Development Workers	
Disease education for vulnerable communities	Department of Health Department of Education	
Education regarding safe effective means to build rural toilets	Community Development Workers Community Development Training Department	
Funding to replace the bucket system of sewerage removal	Housing Municipality	
Generally raise awareness of the economic impact of pollution	Disaster Management Department of Education	

Major Activities	Responsible agencies:	Timing:
Costs	Budget Estimates:	Sources of Finance:
Remarks		

Project Name	DROUGHT DISASTER RISK REDUCTION ACTIONS
Problem Statement	Drought and the impact thereof have been identified as a risk to the Waterberg District Municipality, and therefore effective Drought Reduction Actions must be identified and consequently implemented.
Risk Reduction Objective(s)	Indicators for Achievement of Objectives:
To reduce the direct and indirect impact of drought and drought related emergencies and disasters on the WDM	

Major Activities	Responsible agencies:	Timing:
Strengthen community organization by establishing or building on social institutions like church and women's groups and ward committees.	Communities Disaster Management	
Set up a commune seed bank / food credit coupon system.	Department of Social Development Communities	
Establish 'Village emergency funds'. ("Stokvel")	Communities	
Develop an understanding that the drought may be a recurring phenomenon and that communities should prepare themselves to minimise the impact.	Department of Water Affairs Department of Agriculture Community Development Workers	
Promote better veld/forest management and the avoidance of veld/forest fires.	Department of Agriculture Disaster Management Fire Services	
Develop drought-resistant crop varieties.	Department of Agriculture	
Provide training in dry-season cropping techniques.	Department of Agriculture	
Ensure that appropriate crop seeds are in place before the rains.	Department of Agriculture	
Develop community seed banks	Department of Agriculture	

Major Activities	Responsible agencies:	Timing:
with seeds of traditional and improved drought-resistant crops/varieties.		
Provide training in economical water use.	Department of Water Affairs	
Subsidise/facilitate supplies of seeds/irrigation equipment.	Department of Agriculture Department of Social Development	
Establish field schools and mobile libraries for farmers.	Department of Agriculture Department of Education	
Provide meteorological forecasts and corresponding advice on cultivation.	Weather Services	
Improve soil-moisture management.	Department of Agriculture	
Reduce run-off / increase rainwater infiltration by planting barriers.	Department of Agriculture Department of Water Affairs	
Increase fertility and water-holding capacity of the soil through addition of organic manures and green manures.	Department of Agriculture	
Introduce proper land-use planning as per the land carrying capacity.	Department of Agriculture Department of Rural Development	
Promote mulching practices so that the limited available soil moisture is saved during critical stages of crop growth.	Department of Agriculture	
Encourage rainwater harvesting (e.g. roof-top rainwater harvesting).	Municipality: Domestic water use Department of Water Affairs	
Install water pumps/wells.	Municipality: Domestic water use Department of Water Affairs	
Promote 'home-made', cheap, and water efficient drip irrigation	Municipality: Domestic water use Department of Water Affairs	

Major Activities	Responsible agencies:	Timing:
for vegetable gardens.		
Store dry produce and other crop residues for use during scarcity.	Department of Social Development Disaster Management	
Grow seasonal grasses in community veld, fallow lands and permanent pastures.	Department of Agriculture	
Recommend that farmers avoid burning crop residues in the field and use them instead as animal feed by treating them appropriately.	Department of Agriculture	
Establish fodder banks at community/household level.	Department of Social Development	
Improve the quality and productivity of the existing livestock population, either through artificial insemination or other breeding practices or by replacing them with drought resistant breeds.	Department of Agriculture	
Construct rainwater-harvesting structures (ponds, tanks).	Municipality: Domestic water use Disaster Management	
Costs	Budget Estimates:	Sources of Finance:
Remarks		