DIRECTORATE OF FORESTRY
NAMIBIA-FINLAND FORESTRY PROGRAMME

FIRST DRAFT
NATIONAL FOREST AND VELD FIRE MANAGEMENT POLICY

Windhoek
First draft November 30, revised in February and April 2004

PREAMBLE

Forest and veld fires are issues of great concern to the Namibian people and the environment. Repeated and uncontrolled fires can be a threat to human lives and people's livelihoods. Fire can reduce the productive capacity of land, damage property and infrastructure, and even destroy resources such as grass for grazing and thatching, non-timber forest products (NTFPs), and valuable wood. Fire-damaged landscape can also have an adverse impact on the tourism sector that is a major source of foreign exchange. Forest and veld (used more or less as a synonym for woodlands) fires also play a positive role. In addition to being part of the natural ecosystem, fire is quite commonly used as a management tool to help meet people's various needs related especially to agriculture and livestock. Fire management can help in controlling bush encroachment, enhance grass production and even contribute meeting protected area management objectives. But with the increasing population pressure, changing weather conditions, eroding traditional practices, and increasing land use conflicts frequent human-induced fires are starting to put pressure on the environment especially in the Caprivi Region. It is against this general background that a decision to have a national Forest and Veld Fire Management Policy has been made.

The development of the national Forest and Veld Fire Management Policy started already in 1999 with the organising of a national workshop in Windhoek. Consequently, a National Forest Fire Forum (NFF) was established but the actual policy development did not proceed properly until the process was restarted in October 2002. The development of the National Forest and Veld Fire Management Policy (NFVFMP) has now progressed to a stage, where it is already possible to consolidate the inputs from the participatory policy process and the various technical and policy analyses into this first policy draft.

The first draft National Forest and Veld Fire Management Policy has been prepared for review and discussion by the various stakeholders before it is finalised and submitted for official government approval. In addition to containing the actual policy proposal, the report aims at:

- studying carefully the implications of various government policy documents that could provide guidance for the formulation of this policy;
- analysing and clarifying the existing legal framework, and its consistency with policies and laws;
- clarifying the responsibilities of various stakeholders and agreeing on mechanisms for co-operation for implementing the policy at various levels and sectoral agencies;
- formulating measures that would enable wide participation of community andother land managers in responsible land stewardship through the wise use of fire;
- identifying ways how improvements in overall land-use planning and management, including improved land security in communal lands, could contribute to more effective fire management and control.

TABLE OF CONTENTS

PREAMBLE
ABBREVIATIONS
DEFINITIONS

SECTION I 1

BACKGROUND FOR POLICY FORMULATION 1

1. Trends in Forest and Veld Fires in Namibia 1
2. Need for a National Forest and Veld Fire Management Policy 3
3. Overview of the Process Adopted in the Development of the Policy 4

SECTION II 6

MAIN FOREST AND VELD FIRE MANAGEMENT ISSUES 6

SECTION III 10

NATIONAL FRAMEWORK GUIDING POLICY FORMULATION 10

1. Introduction 10
2. Policy and Strategic Directions 10
   - 2.1 Constitution 10
   - 2.2 National Disaster Management System 10
   - 2.3 Namibia Forestry Development Policy 12
   - 2.4 Namibia Forestry Strategic Plan 13
   - 2.5 National Land Policy 14
   - 2.6 National Agricultural Policy 15
3. Legal Framework 15
   - 3.1 Forest Act (2001) 15
   - 3.2 Soil Conservation Act (1969) 15
   - 3.3 Civil Defence Ordinance (1979) 16
   - 3.4 Fire Brigade Services Bill (2002) 16
   - 3.5 Communal Land Reform Bill (1999) 16
   - 3.6 Traditional Authorities Act (1995) 16
4. Summary of the Policy and Legal Analysis 17

PROPOSED POLICY ON FOREST AND VELD FIRE MANAGEMENT IN NAMIBIA 19

SECTION V 24

PROPOSED ACTION PLAN TO IMPLEMENT THE POLICY 24

Annex 1 Forest and Veld Fires in Namibia in 2001
Annex 2 Areas Burned by Region in 2002 and 2001
Annex 3 Fire Frequency in Northeast Namibia in 1989-2001
Annex 4 National Forest and Veld Fire Management Policy Formulation Process
Annex 5 Review of Draft National Guidelines on Forest Fire Management in Namibia

ABBREVIATIONS

CBO	Community-based organisation
CBNRM	Community-based natural resource management
CEMU	Constituency Emergency Management Unit
DEA	Directorate of Environmental Affairs
DOF	Directorate of Forestry
EMU	National Emergency Management Unit
EOU	Emergency Operational Unit
FDO	Forestry District Office
FPA	Fire Protection Association
GFMC	Global Fire Monitoring Centre
GoN	Government of Namibia
IFVM	Integrated Forest Fire Management (includes also veld)
ITTO	International Tropical Timber Organisation
MAWRD	Ministry of Agriculture, Water and Rural Development
MBESC	Ministry of Basic Education, Sports and Culture
MET	Ministry of Environment and Tourism
MLRR	Ministry of Lands, Resettlement and Rehabilitation
MRLGH	Ministry of Regional, Local Government and Housing
NAMPOL	Namibian Police
NBC	Namibian Broadcasting Corporation
NDF	Namibian Defence Forces
NEMC	National Emergency Management Committee
NFFP	Namibia-Finland Forestry Programme
NFF	National Fire Forum
NTFP	Non-timber forest product
NGO	Non-governmental organisation
OPM	Office of the Prime Minister
REMU	Regional Emergency Management Unit
RON	Republic of Namibia
SADC	Southern African Development Community
WMO	World Meteorological Organisation

DEFINITIONS

Anthropogenic fires. Fires caused by human activities.

Cutline. Any natural or constructed discontinuity in a fuelled (burning vegetation) which is utilised to segregate, stop or control the spread of fire. The cutline (firebreak) may also act as a control line from which to suppress the fire.

Firebreak. See cutline.

Fire danger. The resultant, often expressed as index, of both constant and variable danger factors affecting the inception, spread and difficulty of the control of the fire as well as the expected damage the fire can cause under certain weather conditions.

Fire danger rating. A component of fire management system that integrates the effects of selected fire danger factors into one or more qualitative or numerical indices of current protection needs.

Fire hazard: A fuel complex, defined by volume, type, condition, arrangement and location that determines the degree both of ease of ignition and of fire difficulty.

Fire risk. The chance of a fire starting when considering the presence of all contributing factors like e. g. weather, fuel and anthropogenic activities.

Forest fire. An unattended fire that burns in a forest area or causes damage to the forest or the forest produce which in turn causes economic, social and environmental losses.

Forest fire detection. Activities carried out to discover or locate a forest fire as early as possible so that appropriate and prompt control or suppression measures can be applied before the fire spreads to wider areas.

Forest fire prevention. All activities aimed at minimising incidences of wild fires or fires running out of control.

Forest fire protection. All activities to protect the forest from damaging fire (prevention, pre-suppression and suppression.

Forest fire suppression. All the work and activities connected with fire extinguishing operations. Suppression work begins with the discovery of the fire and it continues until the fire is completely extinguished. Pre-suppression measures include those activities that are required to enable fire protection organisations to cope with wild fires before they start.

Forest fuel. All organic materials in forests, either alive (living fuel) or dead (dead fuel). Living fuels are fuels which occur naturally and in which the moisture content is physiologically controlled within the living plant. Dead fuels are fuels having no living tissue and in which the

moisture content (relative humidity and precipitation) is governed almost entirely by, air temperature, wind speed and solar radiation.

Integrated forest and veld fire management (IFFM). All activities required for the protection of burnable forest and veld against destruction by fire or activities using fire. IFFM includes prevention, suppression and the controlled (planned) use of fire. Integration refers also to fire management being an inseparable part of land management.

Prescribed or controlled burning (fire). Controlled application of fire to vegetation in its either natural or modified state, under specified environmental conditions that allow the fire to be confined to a predetermined area and at the same time, to produce the correct intensity and rate of spread required to attain planned resource management objectives.

Veld fire. A fire taking place on veld (woodlands) that are not classified as forest.

Wild fire. Any fire occurring on forest or non-forest land except prescribed or controlled fires.

SECTION I

BACKGROUND FOR POLICY FORMULATION

1. Trends in Forest and Veld Fires in Namibia

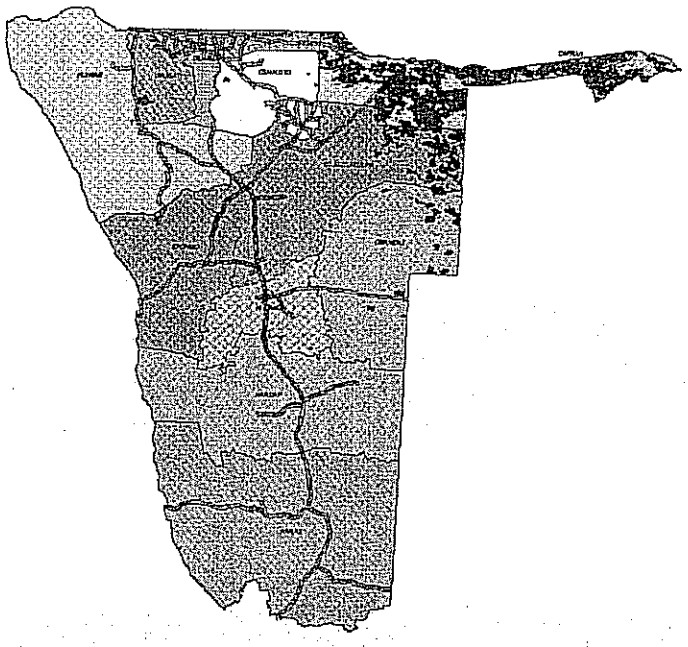
In Namibia, 3.5 – 7 million hectares of forest and veld land burn every year. In 2002, in total about 3.7 million hectares were burned whereas in 2001 the figure was about 5 million hectares (Figure 1 and Annex 1). There are considerable annual fluctuations in the extent of fires largely because of the weather conditions, but the total areas burned each year indicate the seriousness of the fire problem in Namibia.

Fires are a mixture of natural fires at the onset of the rainy season and anthropogenic ones set during the dry season. In the Caprivi strip and the northern communal lands, the majority, even more than 90% of the fires are set by people. In central Namibia, natural causes are much more common, and in fact have become over centuries, even millennia, a natural part of the savanna ecosystem, which cover about 64% of the country.

Fires are concentrated very much on the same areas. Caprivi, Kavango, Otjozondjupa and Omaheke regions accounted in 2002 for 98% of the detected fires. In 2001 their share was 68%. Fires affect also quite regularly Omusati, Kunene and Khomas regions (Annex 2). These areas should thus receive special attention when targeting the forest and veld fire management policy measures.

Based on the available time series data, it is difficult to detect a clear trend in the total areas affected by fire. Weather conditions, especially the amount of rain, affects the extent of fires because of the build-up of biofuel mass. However, systematic analysis of fire incidences in the Caprivi strip in 1989-2001 carried out by the National Remote Sensing Centre (NRSC) of the Directorate of Forestry (DOF), suggests that fire frequency has increased in communal land areas. In 1989-2001 95 percent of the Kavango and Caprivi Regions burned at least once. Many areas burn annually (NRSC 2002). Annex 3 demonstrates graphically the extent and frequency of fires in Northeast Namibia.

Figure 1 Forest and Veld Fires in Namibia in 2002



Most of the forest and veld fires take place on open communal lands. Commercial farming areas and game and nature parks are also greatly affected by fires. It is important to note that 58% of all military terrain burned in 2001. Also, 12% of open communal land burned in 2001 but only 2% of the *demarcated* communal area (Table 1). This suggests that improved land tenure security may improve land husbandry and e.g. result in reduced fire occurrence.

Table 1 Forest and Veld Fires in 2001 by Land-Use

Name	Total area ha	Burned ha	Share of total fires	Share of fires of land area by land use
Commercial farming areas	36756130	862217	18 %	2 %
Demarcated communal areas	5791339	109605	2 %	2 %
Game and Nature Park	10244453	833023	17 %	8 %
Military terrain	1739	1017	0 %	58 %
Open communal areas	26622428	3070035	63 %	12 %
State protected areas	4469	238	0 %	5 %
Total	**79420558**	**4876135**	**100 %**	

Source: National Remote Sensing Center of the Directorate of Forestry

2. Need for a National Forest and Veld Fire Management Policy

Forest and veld fires can have both positive and negative impacts on the livelihoods of the people and sustainability of natural resources. However, the current levels of uncontrolled wildlife occurrences and severity are putting an excessive pressure on the nature and cannot be regarded as compatible with the national socio-economic and environmental development objectives.

Fire also has positive effects on the environment and it can be used to achieve a wide variety of resource management objectives. Fire is a natural process that is integral to many Namibian ecosystems. These systems have evolved over thousands of years in response to the effects of fire. Some species, including the commercially important *Pterocarpus angolensis* (Kiaat), require fire to enable regeneration. Prescribed burning can be used to reduce fuel build-up. Total exclusion of fire through effective prevention and suppression, combined with high grazing pressure, may lead to bush encroachment in an agricultural area, or changing an ecosystem e.g. in a protected are into something that is not consistent with the overall management objectives. In these instances fire can be used as a management tool to reduce bush encroachment in farming areas and e.g. to mimic natural fires to create or maintain ecological conditions favourable to protected area management. In communal lands controlled fire can enhance grass production for livestock and sometimes for commercial use; it is cheap and relatively simple to apply and sometimes the only option available for poor people. Increasing population pressure, eroding indigenous management and control systems, excessive logging, and increasing land use conflicts, however appear to have resulted in extensive and too frequent fires especially in the Northeast Namibia.

Traditionally government response to fire has tended to focus on "banning" the use of fire and on suppression and related technological solutions to fight fires. Too often it is assumed that fire problems are created by lack of capacity to extinguish fires. Fire management efforts focus on enhancing professional fire fighting capacity, largely ignoring the potential role of communities and overlooking analysis, prevention and restoration. The integrated forest fire management activities piloted and promoted by the Directorate of Forestry (DOF) of the Ministry of Environment and Tourism (MET) since 1996 are an exception in this respect and have provided valuable lessons for incorporation into the national policy and strategy for forest and veld fire management.

There is a need to develop more strategic responses to forest fires that take into account the specific environmental conditions and socio-economic constraints and opportunities. The issues to be addressed are complex and cut across many interests, sectors, communities, nations and regions. Consequently, a concerted effort by the central and local government and various agencies is needed to harness the potential of fire as a management tool and mitigate the negative impacts of wild fires. The Government of Namibia (GoN) and its agencies responsible for land management can strengthen the capacity of various organisations and local communities to prevent, suppress and manage fire. The government can promote responsible land stewardship by all resource managers, enhance co-operation in fire prevention and suppression at all levels and improving governance at regional and local levels. The Government can also improve co-operation amongst neighbouring countries to develop fire prevention and suppression measures across borders.

At present, there is no clear, single national policy framework that would guide the formulation of the National Forest and Veld Fire Management Policy (NFVFMP). The policy directions are provided by a number of policy statements contained in various national and sectoral documents. The reconciliation of the positive and negative roles of fire in a balanced manner at all levels can take place only within a multi-stakeholder policy dealing with forest and veld fires in an integrated manner and paying attention to the interests of all key stakeholders. It is against this general background that the process for developing the NFVFMP has been initiated.

3. Overview of the Process Adopted in the Development of the Policy

The overall process adopted in the development of the NFVFMP is described in Annex 4. It needs to be noted that the process had its origin already in 1999 when a national workshop on forest fires was organised in Windhoek. The draft policy is based on the following inputs:

- recommendations concerning stakeholder roles originating from a national forest and veld fire workshop in 1999;
- technical papers prepared for the DoF by internationally recognised fire management experts (Goldammer 1998, Trollope & Trollope 1999, DOF 2001, Trollope *et al.* 2001);
- lessons learned from FFP Integrated Forest Fire Management Programme (FFMP) in the Caprivi Region under the DOF/Namibia-Finland Forestry Programme (NFFP); the fire control programme has been running since 1996 and has been evaluated from different perspectives (Kamminga 1999, 2001; Trollope & Trollope 1999);
- review of existing policies, legislation, guidelines and other documents with reference to fire, including those of neighbouring countries; and
- regional and national consultations carried out as part of this policy development process.

There have been six regional consultations and a major national stakeholder/expert workshop. The process has been participatory and based on a bottom-up approach to ensure that those who will be ultimately responsible for fire management (as land managers) or fire suppression can contribute to the formulation of the policy. The regional consultations aimed at collecting views and inputs from the regional and local stakeholders on (i) negative and positive impacts of fire on their livelihood and environment; (ii) causes of uncontrolled fire; (iii) which options (means) they have, or would like to have access to, to reduce negative impacts and enhance the positive role of fire; (iv) and constraints they face in securing their interests. The regional workshops took place as follows:

Place	Date	Number of participants
1. Gobabis	November 8, 2002	28 participants
2. Rundu	November 11, 2002	30 participants
3. Otjiwarongo	November 13, 2002	40 participants
4. Katima Mulilo	January 24, 2003	52 participants
5. Oshakati	January 27, 2003	59 participants
6. Ondangwa	January 28, 2003	32 participants

In total 241 persons attended the regional workshops. All stakeholder groups had an opportunity to contribute to the process. Traditional leaders and community representatives participated in large numbers as did regional councils and government officials. Non-governmental organisations (NGOs) and conservancies contributed especially in the north.

The development of this policy draft has also benefited from previous field consultations carried out as part of the Fire Monitoring Project with funding from Lux-Development. The workshops in Katima Mulilo and Rundu were organised (i) to discuss the findings of a fire scar mapping study; (ii) identify main reasons for (increased) fire occurrences, (iii) identify tools and action for fire management, and (iv) determine stakeholder roles in fire management. A wide range of stakeholders representing various government departments, traditional authorities and NGOs attended the two workshops (NRSC 2002).

The Intersectoral Stakeholder Workshop on the Development the National Forest and Veld Fire Management Policy took place in August 2003. The meeting was opened by the Permanent Secretary of MET and Chaired by the Director of Forestry. Altogether 43 persons representing MET; Ministry of Regional, Local Government and Housing (MRLGH); Ministry of Works, Transport, and Communication (MWTC); Ministry of Defence; Ministry of Agriculture, Water and Rural Development (MAWRD); Windhoek Emergency Services; regional forestry offices, and NGOs attended the two-day consultation. Four honourable Councilors also attended the workshop. The main focus of this national consultation was to inform the national stakeholders about the findings based on the regional consultations, and discuss and agree, in general, on the (i) policy objectives, (ii) associated means; and (iii) especially the roles of key stakeholders in implementing the policy at various levels.

SECTION II

MAIN FOREST AND VELD FIRE MANAGEMENT ISSUES

Repeated and uncontrolled burning results in economic losses through damage to wood and non-wood resources, including grazing land, and consequently increased mortality of livestock and wildlife as well as unwanted changes in the vegetation and occasional loss of human lives. The loss of natural resources through fire affects detrimentally both local and national economies. It has also global impacts through release of greenhouse gases to the atmosphere and reduction in the vegetation available as carbon sinks. Systematic studies still need to be carried out to estimate the costs and impacts related to forest and veld fires.

The findings concerning the impacts and causes of uncontrolled fires based on the reviewed studies (Goldammer 1999, Trollope & Trollope 1999, DOF 2001, Virtanen 2001, NRSC 2002) and regional and national consultations carried out as part of this policy design process and previous support through Lux-Development are summarised below:

Main impacts of forest and veld fires:

- *Negative*
  - Destruction of grassland, plants and non-timber forest product (NTFP) resources
  - Reduction in long-term capacity of land to produce grass and other products, with negative impacts on people's livelihoods
  - Destruction of property and cattle
  - Sometimes loss of lives
- *Positive*
  - Enhanced grass production and better quality grass for grazing and thatching material production (especially in Caprivi and Kavango)
  - Fire used to clean fields, facilitate hunting, enhance germination of some plants and kill insects
  - In many areas regular fire helps in controlling bush encroachment
  - Controlled fire can also help in protected area management by emulating the impacts of natural fire caused by lightning

It is important to note that ecological impacts of fire vary depending on the ecosystem. Based on Goldammer 1998, the following impacts are highlighted:

- *Baikiaea (Zambesi teak) forests.* Excessive use of fire, combined with shifting cultivation, can lead to erosion and formation of troughs and channels. Rehabilitation of the sites back to productive teak forests is very difficult under continuous fire pressure.
- *Baikiaea-Erythrophleum/Erythrophleum-Combretum woodlands.* Uncontrolled fire and excessive grazing lead to erosion and formation of unproductive Acacia-Burkea woodlands or to Terminalia-Acacia savannas.
- *Combretum-Acacia savanna.* Uncontrolled fire and excessive grazing result in temporary soil compaction and severe erosion due to rapid run-off.

- *Burkea-Pterocarpus woodland and Pterocarpus-Baikiaea forest.* There is considerable scientific evidence indicating that commercially valuable *Pterocarpus (angolensis)* has a good coppicing capacity and regeneration is promoted by fire. Fire can thus be used to manipulate the woody vegetation, including species composition. However, if the forest is burned too often and grazed too intensively, Pterocarpus forests can become degraded and gradually convert into less valuable Acacia-Burkea woodlands.
- *Colophospermum (mopane) forest.* Frequent fires do not destroy these forests but reduced their productivity because of penetration of fire into the root system and creation of multi-stem forms. Wood quality also suffers because of fires reaching the crowns.
- *Farm lands in the Central and North Namibia.* Large tracts of Namibia's agricultural lands are subjected to heavy bush encroachment with serious adverse impacts on agricultural productivity. Overgrazing by livestock and exclusion of fire have primarily contributed to bush encroachment. In areas not yet encroached, controlled fire can be used as a management tool. On the other hand, land is often burned at a wrong time (late autumn or late winter) to provide green grazing for livestock, which has negative impacts in terms of reducing the vigour and basal areas of the grass sward and increasing the runoff of rainwater soil erosion. Thus, the challenge is to burn at the right time.
- *Savanna ecosystems in the protected areas.* It is commonly accepted, that in the evolutionary history, natural fires caused by lightning and also traditional burning practices over millennia have significantly shaped Namibia's savanna and forest ecosystems. Climatic reasons (long dry spells) and new roads as well as fuelbreaks that fragment the vegetation have all reduced fires caused by lightning. In protected areas, such as the Etosha National Park, prescribed burning is often needed to maintain the dynamic equilibrium between succession of vegetation and its utilisation by wildlife (Goldammer 1998). Fire can be used to remove moribund grass material, control bush encroachment, recycle nutrients and manipulate game movements.

A recent study (NRSC 2002) looking at the impacts of frequent fires on forest vegetation in the Caprivi and Kavango Region did not find evidence linking forest fires and deforestation. However, the tree species composition and wood quality are adversely impacted from a commercial viewpoint. The remaining trees are often damaged up to the crown level. There are no reliable studies looking at the impacts of frequent forest fires on forest biodiversity in Namibia.

<u>Main issues/causes:</u>

- *Causes for forest and veld fires*
  - In the north, most fires set by people (hunters, farmers, campers, children); in central Namibia most fires caused by lightning
  - Ignorance, lack of awareness and negligence about impacts of fire
  - Insufficient knowledge about using fire as management tool, resulting in wrong burning times during the late dry season when a large biomass of dead material exists
  - No or inadequate sense of ownership of land
  - Lack of awareness about government policies and legislation on fire
  - Poor enforcement of both traditional rules and government laws regarding fires
  - Cross-border fires (especially in Kavango, Caprivi)

- *Causes for poor fire control and management practices*
  - Inadequate incentives to undertake control measures because of unclear property rights in the communal lands and uncertainty about compensation for undertaking control measures
  - Unclear allocation of responsibilities and inadequate co-operation and co-ordination in fire suppression and management between stakeholders
  - Inadequate co-ordination and co-operation arrangements between villagers
  - Confusion caused by "overlapping" official policies, legislation and traditional rules; traditional authorities do not have enough power to control fire and other activities on land
  - Insufficient awareness of government policies and legislation on forest and veld fire management and related rights and responsibilities
  - Inadequate skills, knowledge, and resources to prevent fires and adopt integrated fire management

The impacts and causes of fire, how the problems are perceived by various stakeholders, and the policy responses vary, depending on the ecological and socio-economic conditions prevailing in specific regions and also partly on the management objectives of a specified land area. Ultimately, the resource managers have to integrate fire management into their guidelines, plans and operations to meet the management objectives of the land area under their control. In some areas, such as e.g. national and game parks, it may mean using controlled fire by protected area managers e.g. to manipulate wildlife movements. In farming areas it may mean adopting fire prevention measure including construction of cutlines, or in certain areas adopting controlled burning to control bush encroachment. The multiple impacts and uses of fire imply that one cannot adopt a fixed uniform approach in the National Forest and Veld Fire Management Policy but enough flexibility must be allowed.

Table 2 summarises the issues from the viewpoint of land categories and associated management objectives. The same table also refers to the opportunities in using fire as a management tool.

Table 2 Forest and Veld Fire Issues by Type of Land Management Category

State Forest Reserves	• Inadequate tenure arrangements (*de facto* common access land due to lack of active management) • Unclear or disputed boundaries • Indifference of the "outsiders" on impacts of fires on state land • Inadequate attention paid to range management and beneficiaries from management • Reactive approach to fire management • Insufficient human, financial and physical resources and technological knowledge to manage fire
Communal land	• Fire only one of the problems; water scarcity and grazing related issues tend to dominate together with worsening terms of trade • Woody and grass resources destroyed with adverse impacts on supply of wood and NTFPs, cattle productivity and consequently people's livelihoods • Often inadequate incentives (including lack of land tenure) to adopt sustainable land management practices • In many areas, fire used traditionally as a management tool but sometimes not enough capacity or know-how • Inadequate skills, knowledge, and resources to prevent fires and adopt integrated fire management resulting often in a wrong burning time or too frequent fires • "Overlapping" official policies/legislation and traditional rules; power and management systems of traditional authorities eroding making it more difficult to make best use of traditional practices and enforce local rules • Unclear allocation of responsibilities and inadequate co-operation and co-ordination in fire suppression/management between stakeholders and also between adjoining villages • A general lack of awareness and concern about forest and veld fire • Insufficient awareness of government policies and legislation on forest and veld fire management and related rights and responsibilities
Conservancies	• Fire one problem amongst many; it also plays a positive role as management tool • Woody and grass resources destroyed with adverse impacts on supply of wood and NTFPs, cattle productivity and consequently people's livelihoods • Wildlife conservation values may be threatened when fires get out of control • Overlapping official policies/legislation and traditional rules; traditional authorities do not always have enough power to control fire and other activities on land • Fire management part of conservancy management only in pilot areas • Insufficient awareness of government policies and legislation on forest and veld fire management and related rights and responsibilities • Inadequate skills, knowledge, and resources to prevent fires and adopt integrated fire management and controlled burning
National, game and other state-owned parks and reserves	• Large uncontrolled fires can have a negative impact on biodiversity, including mammal mortality • On the other hand, fire management is also needed especially on savannas to emulate historical natural fire patterns • Impacts of fire on biodiversity in different ecological conditions not known well enough • Lack of fire management guidelines and plans in most areas • Lack of human and financial resources to manage fire in most parks • Inadequate technological knowledge to manage fire in most parks, e.g. how to use prescribed fire based on the condition of vegetation to meet specific management objectives
Commercial farms	• Fire not amongst most important issues; water scarcity, bush encroachment and worsening terms of trade dominate • Bush encroachment in several areas with continuous fire exclusion and high grazing pressure • Negative impact on grass production • Loss of crops and damage to property and infrastructure • Inadequate facilities to suppress large fires • Inadequate understanding of the ecological role of fires and prescribed burning mechanisms

SECTION III

NATIONAL FRAMEWORK GUIDING POLICY FORMULATION

1. Introduction

Sections I and II have provided an overview of the forest and veld fire trends in Namibia and the challenges that need to be addressed by a national policy. In principle, the policy must identify general objectives and specify the means that help in addressing the main issues. At present, guidance is provided on one hand by policies and legislation, which govern the prevention and management of all types of disasters at regional and national level, and on the other hand, by policies and legislation concerning sustainable management of land resources, in general.

The policy statements and legal provision related to forest and veld fires can be found in a number of documents presented by various ministries.

2. Policy and Strategic Directions

2.1 Constitution

The Constitution of the Republic of Namibia lays the foundation for all policies and legislation, and also influences policies concerning forest and veld fire management. According to Article 26(1) "*at a time of national disaster ... or public emergency threatening the nation ... the president may by proclamation in the Gazette declare that a state of emergency exists in Namibia or any part thereof*". Based on this a system for managing national disaster, including fires, has been set up. Article 95 stipulates that the State shall actively promote and maintain the welfare of the people, by adopting policies, which include:

> "*.. the maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for the benefit of all the Namibians*".

This provision in the constitution also implies protecting forests and veld and all related land resources from degradation and deforestation, including protection from the damage caused by uncontrolled fires.

2.2 National Disaster Management System

The National Disaster Plan (1998) is both a *policy document* and a *plan* for ensuring that in times of disaster, appropriate response systems, procedures and resources are in place to assist the victims of a disaster and enable them to help themselves. This policy gets its power and mandate from the Constitution that gives the President the power to declare a state of emergency based on a national disaster, a Cabinet Memorandum (Decision 002 1997) on establishing a national emergency management system, and Civil Defence Ordinance (1979).

According to the National Disaster Plan and the Cabinet Memorandum on the national emergency management system, the responsibilities regarding forest and veld fire management are to be divided from the national level down to the constituency level as follows:

National disasters (including wild fires):

- National Emergency Management Committee (NEMC), responsible to the President and Prime Minister, carries the overall responsibility for policy and national decision-making, preparedness and co-ordination of national emergency operations. The NEMC comprises all permanent secretaries, strategic institutions and NGOs.
- Emergency Management Unit (EMU), operating under the Office of the Prime Minister (OPM), is a permanent, executing body of NEMC being responsible for planning for preparedness, response, and recovery; development of capacity, assessment of vulnerability in particular areas; and co-ordinating emergency operations under the instructions from the NEMC.
- Regional Emergency Management Units (REMUs) and local Constituency Emergency Management Units (CEMUs) are responsible for co-ordination and implementation whenever an emergency is declared either regionally or nationally. At other times, REMUs and CEMUs are responsible for ensuring a high level of preparedness through capacity building and organising.
- Emergency Operational Units (EOUs) act as focal points in relevant government and non-governmental (NGO) organisations at all levels at times of emergencies. EOUs comprise people trained by EMUs in various aspects of emergency management.

National fire management:

- The MRLGH, through municipalities, regional offices and other local authorities, is responsible for forest and veld fire suppression in co-operation with various organisations such as ministries of Defence, Home Affairs and Environment and Tourism.
- The MET is the lead agency in (forest and veld) fire prevention.

The national emergency management system is quite clear with structures already established at different levels based on legal mandates. However, at present the system focuses primarily on drought and flood disasters. REMUs and CEMUs are not systematically involved in fire prevention and suppression. However, this system already provides the scope for addressing fire prevention and suppression because fire is dealt with as one of the man-made disasters and also as one of the factors causing deforestation, which is classified as one of the major disaster threats. The system can also easily be adapted for forest and veld fire management by:

- clarifying when a forest and veld fire is declared a national disaster triggering already quite well established mechanisms;
- enhancing the use of these structures for "routine" fires (which are not declared national disasters) including allocation of responsibilities for various fire prevention and suppression activities;

- including MAWRD also as a stakeholder responsible e.g. for fire prevention on agricultural lands; and
- applying the system, with MET as the lead ministry, for fire prevention and integrated fire management.

The MRLGH has issued a proposal for a Policy on Combating of Bushfires in Namibia. This document has no official status but is worthwhile considering because it is logically based on the earlier discussed Cabinet Memorandum (Decision 002 1997) on establishing a national disaster management system, and Civil Defence Ordinance (1979). The policy proposal concentrates on bush (veld) fires and does not make explicit references to forest fires.

According to the policy, the MRLGH through local authorities and regional councils would be responsible for suppressing fires and the MET would be responsible for bush fire prevention.

2.3 Namibia Forestry Development Policy

Namibia Forestry Development Policy of 2001 promotes sustainable and participatory management of forest resources and other woody vegetation, to enhance socio-economic development and environmental stability. It does not directly address fire management, but is implied in the principles of promoting sustainability and protecting forest resources from all threats (including fire).

The aims of the Forestry Development Policy are to:

- reconcile rural development with biodiversity conservation by empowering farmers and local communities to manage forest resources on a sustainable basis;
- increase the yield of benefits of the national woodland through research and development, application of silvicultural practices, protection and promotion of projects;
- create favourable conditions to attract investment in small and medium industry based on wood and non-wood forest raw materials; and
- implement innovative land-use strategies including multiple use conservation areas, protected areas, agro-forestry and a variety of other approaches designed to yield forestry global benefits .

The policy also talks about protecting the forest resources to produce environmental benefits such as sequestering carbon. At present, forest fires are releasing carbon, but there is not yet enough information to assess what the net impact is. In principle, forest and veld fires can become a major source of carbon, if the land-use is permanently changed so that less carbon is fixed in the biomass. However, according to the Intergovernmental Panel on Climate Change those fire ecosystems, which are characterised by recurring fires and natural regeneration of the vegetation to the original state (to burn again) e.g. in the savannas, should not be regarded as part of the present human-induced climate change process. The problem is in the setting of the baseline to be able to determine what could be considered as additional net release.

The *policy means*, which are relevant for fire management, include:

- The *assignment of effective property rights* to create an enabling environment for sustainable management of the nation's woodlands and savannas; this is very important especially on communal lands where lack of clear property rights is regarded as one of the main reasons for uncontrolled fires;
- *Capacity building* e.g. through designing and implementing a national programme on prevention and control of forest fires;
- *Supporting preparation of forest management plans*, including protection measures;
- *Carrying out and promoting education and training* to enhance awareness and enhance skills needed for sustainable management of forest and woodlands; and
- *Decentralising government decision-making and management responsibilities* and building up local capacity for forest management following the (proposed) programme of Community-Based Management of Natural Forests.

The forestry policy can be interpreted to include fires mainly as a threat that needs to be controlled. It does not provide guidance to the possibility of using fire as a management tool e.g. for the prevention of bush encroachment. Also, the policy does not clearly define what constitutes a forest as opposed to veld, which creates a "grey" area in terms of addressing fires in veld areas. To address explicitly this issue, the national fire management policy will deal with both *forest* and *veld* fires.

2.4 Namibia Forestry Strategic Plan

The Namibia Forestry Strategic Plan of 1996 was formulated to provide forestry objectives and a strategy to guide efficient resource programming within the framework of integrated national development. It also provides a framework for fire policy and management planning. The strategic plan identifies key challenges to sustainable forest management, including a whole section on the protection of forests, including fire control.

In the strategic plan forest fires are mainly seen as a threat. The plan notes that uncontrolled and accidental forest fires and repeated burning of woodlands have an adverse effect on regeneration of timber species and therefore reducing the growth of timber in the forests. The plan specifically proposes that the occurrence and severity of uncontrolled and accidental forest fires have to be reduced. It also states that the policy of burning patches of woodlands to improve hunting grounds should be changed to one of using fire only as a controlled tool under specific circumstances.

The Namibia Forestry Strategic Plan also includes other statements of concern to the development of the NFVFMP:

- Local communities are to be involved in the sustainable management and conservation of forest resources. To support this principle a Community-level Management of Natural Forests Programme was to be introduced (one of the four national programmes). The development of forest management agreements and plans, which are also to include fire management, are promoted under this programme.

- Carbon sequestration, through sustainable forest management and protection of forests from fire, is addressed through the Environmental Forestry Programme.
- Different regions in Namibia can adopt different policies, which provides opportunities for the development of fire policies in accordance with the different roles of fire and distinctly different impacts of fire in the various vegetation types of the country.

As part of the implementation of this strategy, the DOF has prepared the National Guidelines on Forest Fire Management in Namibia (Final Draft 2001). These guidelines are a mixture of policy, strategic and operational statements and guidelines. The document is based on International Tropical Timber Organisation (ITTO) Guidelines on Fire Management in Tropical Forests and Guidelines (1997) and does not have any official status. However, the prepared guidelines are comprehensive and covers a number of elements that should be contained in the NFVFMP (in a way, the preparation of the guidelines has preceded the development of the related national policy). The guidelines are reviewed in Annex 5.

Although the National Guidelines on Forest Fire Management in Namibia are very useful, and most importantly, integrate lessons learned from years of field implementation of the integrated forest fire management approach, the guidelines:

- Focus too much on forestry and do not pay adequate attention to fire-related issues especially on lands that are not legally classified as forest, i.e. on the veld;
- Are too comprehensive and do not prioritise action;
- Do not take into account resource constraints, including insufficient finance and human resources needed for training and extension;
- Do not provide adequate guidance in terms of short, medium and long-term action;
- Despite emphasising fire as part of (forest) land management, appear to use fire as an entry point for forest land management rather than starting from all the assets and people's priority needs concerning their livelihoods; and
- Do not (directly) regard fire as a management tool.

2.5 National Land Policy

The National Land Policy (1998) has *indirect* implications for the development of the NFVFMP through promotion of principles and measures aimed at sustainable land resource management:

- The National Land Policy emphasises sustainable natural resources management and provides for an institutional framework to co-ordinate land use planning and natural resources management; and
- It proposes formalising tenure arrangements, including lease agreements in communal land areas, to ensure more exclusive and clearly defined legal rights to land and natural resources.

The latter policy measure is very important especially in the north and northeastern regions where most of the land is communal, and often, no person or group of persons has established clear rights to the land. Insecure land tenure, combined with lack of incentives to protect the land

and invest in land resource management, has been cited as one of the main reasons for the irresponsible use of fires.

2.6 National Agricultural Policy

The overall goal of the National Agricultural Policy (1995) is "to increase and sustain the levels of agricultural productivity, real farm incomes, and national and household food security, within the context of Namibia's fragile ecosystem". The policy objectives refer to the creation and sustaining viable livelihood and employment opportunities in rural areas and promoting the sustainable utilisation of the nation's land and other natural resources.

This policy has no clear references to the forestry sector and even less to fire-related issues although a large share of fires takes place on agricultural land and although fire is in many areas a well-established tool in managing land in agriculture and animal husbandry.

3. Legal Framework

3.1 Forest Act (2001)

The new Forest Act No. 12 of 2001 lays out the rules on fire management. The Act (Part VI) has seven articles:

- Establishment of fire management areas;
- Preparing fire management plans;
- Carrying out fire management;
- Declaration of specific fire hazard areas;
- Prohibition of fires;
- Liability for fire damage; and
- Control of fire

The fire-related provisions contained in the Forest Act are the most comprehensive set of legislation governing fire management in Namibia. The Act contains provisions concerning the composition, functions and procedures of fire management committees, which can be set up for communal and commercial areas. The Act recognises the importance of forming fire management committees and having fire management plans for designated fire management areas. The plans are to contain, among other things, provisions relating to management objectives, circumstances in which burning is allowed as well as the prevention, control and extinguishing of veld and forest fires. Fire management committees will have the powers to order an owner or occupier of land that is a fire management area to participate in the implementation of the fire management plan.

The Act does not define what constitutes a forest as opposed to veld. Sustainable veld management which would address issues of bush encroachment and its eradication in a way that ensures biological diversity and environmental sustainability does not seem to be covered under

forestry. In order to address this issue, it is recommended that the definition of forest management areas be extended to include the sustainable management of veld. This would make it possible to apply forestry policy and legislative instruments also to bush encroachment and its prevention. The Act also treats fire mainly as a threat; there are no legal provisions for using fire as a management tool

3.2 Soil Conservation Act (1969)

The Soil Conservation Act of 1969 provides the MAWRD with powers to prevent, control and extinguish veld, mountain and forest fires. Fire protection areas are provided for in the Act as well as the establishment of fire protection committees for each area to be protected. The committees are responsible for the preparation of fire protection schemes and their submission to the Minister of Agriculture. These schemes have to describe the areas in which they would be implemented and have to contain provisions related to regulating or prohibiting of veld burning as well as the prevention, control and extinguishing of veld and forest fires.

3.3 Civil Defence Ordinance (1979)

The Civil Defence Ordinance of 1979 is for the exclusive purpose of civil protection, including the protection of people and property, the rendering of assistance in a state of emergency or a state of disaster. This ordinance is applicable to a local authority, and can thus cover regional councils and traditional authorities in combating of forest and veld fires in national interest. This ordinance is reflected both in the unapproved Policy of Combating of Bush Fires in Namibia and the National Guidelines on Forest Fire Management in Namibia.

3.4 Fire Brigade Services Bill (2002)

A Fire Brigade Services Bill of 2002 regulates fire suppression in areas governed by local council authorities, i.e. mainly in urban or semi-urban areas. The Bill states, amongst others, that if the local council authority establishes a fire brigade, the Ministry must subsidise such a service, and a chief fire officer must be appointed to head each fire brigade.

The scope of these services is physically limited to the vicinity of population centres. However, the Bill allows using fire brigades as training institutions in fire fighting, which can play a positive role in building up the local capacity in fire management. For example, the Windhoek Emergency Services is a "centre of excellence" that can provide especially training services (of trainers) in fire suppression.

3.5 Communal Land Reform Bill (1999)

The Communal Land Reform Bill (Republic of Namibia 1999) can help in improving the overall incentive framework for adopting sustainable land management practices, including more responsible use of fire and investing into fire prevention. The Bill provides for the allocation of

rights in non-freehold areas, the establishment of Communal Land Boards and the powers of traditional leaders regarding non-freehold land. The Bill allows for the continued allocation of customary land rights by traditional leaders, but introduces some checks and balances such as maximum land holdings.

The Bill confirms the rights of all residents of a particular communal area to use the commonage in such an area. Traditional Authorities may impose conditions for the utilisation of commonages, such as the maximum number of livestock and rotational grazing. The Bill also proposes to introduce leasehold in communal areas, an option that is already provided for in National Land Policy of 1998.

3.6 Traditional Authorities Act (1995)

The principles of resource protection are also included in the Traditional Authorities Act of 1995. According to this act, the members of a traditional authority shall have the following duties of relevance to (fire) protection:

- to assist the police and other law enforcement agencies in the prevention of crime and apprehension of offenders within their jurisdiction;
- to assist and co-operate with the organs of the central, regional and local government in the execution of their policies; and
- to ensure that the members of their traditional community use the natural resources at their disposal on a sustainable basis and in a manner that conserves the environment and maintains the ecosystem, for the benefit of all persons in Namibia.

4 Summary of the Policy and Legal Analysis

The various policy documents and laws and regulations provide useful directions for the development of a forest and veld fire management policy. Especially, the more recent policy and legal documents such as the National Disaster Plan, Namibia Forestry Development Policy, Namibia Forestry Strategic Plan, and Forest Act, are relatively consistent in terms of addressing forest fire-related issues. However, as a whole, the framework needs to be made more coherent and clearer in terms of directions for the development of the NFVFMP. It is possible to build on the existing documents and improve the policy and legal framework by developing a policy that:

- Recognises fire as cross-sectoral issue concerning management of protected areas, agricultural and livestock areas as well as forests;
- Extends the definition of forest management areas to include the sustainable management of veld;
- Moves away the focus from forest fire suppression towards prevention and integrated forest fire management;
- Clearly identifies who is ultimately responsible for fire management on the ground;
- Clearly allocates responsibilities for fire prevention and management at different levels;

- Identifies co-ordination and planning mechanisms for fire management at all levels and provides the National Fire Forum a legal mandate;
- Explicitly addresses the issue of creating sustainable incentives for carrying out fire management measures; and
- While fully recognising the risks with fire, addresses the positive impacts of fire and use of fire as a management tool e.g. to control bush encroachment and fuel load

It will also be important to clarify and streamline the legal framework by introducing a separate Forest and Veld Fire Act based on the NFVFMP. At the same time the outdated legal provisions related to fire (e.g. those included in the Soil Conservation Act) need to be revoked. The proposed act is to be the main tool for policy implementation.

SECTION IV

PROPOSED POLICY ON FOREST AND VELD FIRE MANAGEMENT IN NAMIBIA

Policy Proposal

A draft policy dealing with forest and veld fire management in Namibia has been prepared for consideration by the various stakeholders. It is composed of a *policy goal, policy objectives* and *statements on policy means*. The policy has been kept relatively brief and concise to avoid the common problem of having a very comprehensive policy document that may be overtly ambitious. Also, the draft policy focuses on trying to provide a shared vision and strategic directions rather than on regulating or developing detailed implementation guidelines.

Policy on Forest and Veld Fire Management in Namibia

1. Proposed Policy Goal:

Public safety, sustainable livelihoods, and the environment of the Namibian people are improved by reducing the occurrence and severity of uncontrolled forest and veld fires and utilising the beneficial effects of forest and veld and fire management in land resource management.

2. Proposed Policy Objectives:

- *Forest and veld fire management contributes to sustaining the supply of timber, grass and other non-timber forest products and meeting set environmental objectives;*
- *Fire-related losses and damage to human lives, property, crops, livestock, and other natural resources contributing to people's livelihoods and biodiversity resources are reduced to reasonable levels through improved fire management and suppression;*
- *Forest and veld fire management is an integral part of land resource policy and management at different levels with land owners and managers having the responsibility and incentives to manage fire to their own and society's benefit;*
- *The understanding of the ecological role and indigenous uses of fire in land husbandry are promoted to enhance the positive impacts of fire; and*
- *Enhanced capacity at national, regional, constituency and community level to undertake forest and veld fire management measures, including controlled burning and fire suppression to develop and protect the land resources in collaboration with all key stakeholders*

3 Proposed Statements on Policy Means

3.1 Forest fire management, including prevention and suppression

- Forest and veld fire prevention, pre-suppression, suppression and post-fire rehabilitation will be promoted as integral parts of the protection and sustainable management of all land resources to produce timber, non-timber forest and veld products as well as environmental services.
- Integrated forest and veld fire management, whereby all aspects of prevention and suppression are considered together, will be promoted as the main approach to fire management, while recognising that the approaches must be adapted depending on the role of fire in various ecological zones and the prevailing socio-economic conditions.
- Scarce government resources will be allocated to priority areas based on the extent of the fire problem, and values at risk, including human lives, damage to property, biodiversity and other conservation values. Priority areas include at least Caprivi, Kavango, Omusati, Otjozondjupa, Oshana, Omaheke, Khomas and Omusati.
- The land owner or manager will bear the main responsibility for fire prevention, suppression and management on own or controlled land (with assigned management responsibilities) as well as stopping the fire from spreading to the adjoining properties.
- The preparation and implementation of fire management plans, linked to land resource planning and management, will be promoted at different levels:
  - Regional Emergency Management Units and Constituency Emergency Management Units will be responsible for the preparation of regional and constituency forest and veld fire management "master plans" in all areas affected by wild fires;
  - State Forest Reserve management under the Directorate of Forestry (DOF) will be responsible for preparing fire management plans in each reserve;
  - Protected area managers, under the Directorate of Parks and Wildlife Conservation, will be responsible for preparing fire management plans for each protected area; and
  - Local communities and commercial farms will be responsible for developing fire management plans for their area.
- Collaborative, participatory fire management, based on benefit/cost-sharing arrangements that provide incentives for local stakeholders to implement fire management measures, will be promoted on state lands.
- The role of civic organisations in motivating community participation in fire prevention and suppression activities will be promoted.
- The establishment of community fire management committees (units) in communal areas and forest fire protection associations on commercial farms, and co-operation amongst them, will be promoted through public education, national fire campaigning and extension.
- Construction of cutlines will be promoted in all areas affected by fire through awareness campaigns and extension and through cost-sharing arrangements in those areas, which lack adequate resources and incentives to invest into fire prevention measures.
- Special attention will be paid to establishing firebreaks along border areas frequently affected by fires spreading from neighbouring countries.
- Fire Brigades will be provided adequate resources to carry out fire suppression in accordance with their duties and responsibilities as identified in associated legislation.

3.2 Policy planning, co-ordination and other institutional responsibilities

- The National Emergency Management Committee will carry the overall responsibility for policy and national decision-making, preparedness and co-ordination of the national emergency operations related to national forest and veld fire disasters; the Emergency Management Unit under the Office of the Prime Minister will help in implementing these policies.
- The inter-sectoral National Fire Forum, with participating ministries is responsible for formulating the national policy on forest and veld fire management, monitor its implementation and update the policy when found necessary.
- The National Forest and Veld Fire Management Policy will be reviewed systematically in a transparent and participatory manner.
- The Ministry of Environment and Tourism (MET) and DOF will lead forest and veld fire prevention at the national and regional level working closely with the Ministry of Regional, Local Government and Housing (MRLGH) at the national level and with the Regional Councils at the regional level.
- The MRLGH will lead forest and veld fire suppression and co-ordinate efforts to fight fires at the regional level, in co-operation with Fire Brigades, Fire Protection Associations and Fire Management Committees, the Namibian Defence Forces, Ministry of Works, Transport and Communication, and other stakeholders.
- Decentralisation of forest and veld fire management, including prevention and suppression, to regional, constituency, local authority and land manager levels will be promoted, with Regional Councils and Rural Development Co-ordinating Committees in a key role at the regional level.
- The organisations responsible for fire management at the national and regional levels will be strengthened in terms of human resources and equipment so that they are capable of executing their duties and responsibilities.
- Legislation, including by-laws, will be modified and new by-laws and possibly a Forest And Veld Fire Act enacted as soon as possible to make the legislation consistent and supportive of the National Forest and Veld Fire Management Policy.

3.3 Extension, education and training

- National training capacity in forest and veld fire management will be strengthened using Ogongo Agricultural College, Faculty of Agriculture and Forestry, selected municipal Emergency Services and other appropriate educational organisations as training centres.
- The DOF, under the guidance of the National Fire Forum, will be responsible for developing forest and veld fire extension messages, training materials and tools used by organisations providing training and natural resource management sectors (including agriculture, forestry, conservation, and livestock) in providing extension services.
- Forest and veld fire extension will be integrated into the existing extension systems of all government organisations dealing with land resources.
- The use of churches, schools, NGOs, community-based organisations, farmers' unions and non-governmental sector in general in providing fire-related extension and training services will be promoted.

- Local communities, members of fire protection associations and management committees will be trained in fire prevention, suppression and management, including proper construction of cutlines and prescribed burning techniques, emphasising burning in the early dry season.

3.4 Public awareness

- The MET and DOF will be responsible for planning and co-ordinating the implementation of national forest and veld fire awareness campaigns.
- The awareness of the general public and all the stakeholders on the negative and positive effects of fire will be enhanced using radio, television, school books, billboards, cartoons, plays and other appropriate communication tools.
- National forest and veld fire awareness campaigns will be carried out on a regular basis, concentrating on the areas most affected by fire (including the Caprivi, Kavango, Omusati, Otjozondjupa, Oshana, Omaheke, Khomas and Omusati Regions).
- Communal land areas will be targeted in particular when implementing fire awareness campaigns.

3.5 Enforcement

- Both indigenous, community-based and government fire enforcement systems will be strengthened and their respective roles clarified.
- The awareness about forest and veld fire-related legislation amongst regional and local government officials, local authorities, communities, farmer's associations and individual farmers and other stakeholders will be promoted by publicising related legislation and incorporating legal aspects into extension.

3.6 Research

- The State will provide adequate to universities and research organisations to carry out fire-related research along the priorities indicated by the policy.
- Priority research areas are: enhancing the understanding of traditional fire management systems, ecological impacts of fire in priority economic and ecological areas, improving fire management systems for specific management objectives in different vegetation zones, developing a fire danger rating system, and economic and social costs of forest and veld fires.
- Networking with regional and international research centres and networks will be enhanced with the main objective of making good use of already existing information.

3.7 Monitoring

- A fire monitoring system providing basic information on the extent and frequency of fire with possible economic, human and other losses will be adopted to help with the planning of forest and veld fire management activities and monitoring the effectiveness of policy implementation.
- Use already existing information and monitoring system at the National remote Sensing Center at DOF to establish monitoring baselines and zone priority affected areas for targeting fire management measures, including awareness campaigns.

- A fire danger rating system and a cost effective early fire detection system that can be used by decision-makers at different levels will be developed and adopted, paying attention to the needs and resources available at different levels of land management.

3.8 Cross-border co-operation

- Information and knowledge exchange concerning forest fire management among the Southern Africa Development Community (SADC) governments will be promoted.
- The central government will initiate action, within the framework provided by SADC, to establish bilateral and multilateral agreements and an associated multinational task force to control spreading fires across borders, including timely communication about fires close to border areas.

3.9 Financing

- Adequate financial support to the central, regional and local organisations responsible especially for the management of priority national land areas at risk from fire and needy communal areas will be provided.
- Support will be actively sought from multilateral and bilateral aid organisations as well as international organisations such as World Meteorological Organisation, the Global Fire Monitoring Center, and FAO, to help with the implementation of the National Forest and Veld Fire Management Policy.
- National Fire Forum co-ordinate international support to help with the implementation of the policy.

3.10 Extrasectoral linkages

- It is recognised that the adoption of forest and veld fire management measures will also depend on factors beyond the control of government agencies directly responsible for fire management.
- The National Fire Forum will actively engage in dialogue with the ministries and organisations responsible for land resources to promote sustainable resource management, including fire protection, in accordance with other natural resource policies by:
  - Promoting the establishment of community forests and nature conservancies strengthening land tenure arrangements at the community level to reduce land use conflicts and reduce open-access land in communal land areas; and
  - Promoting collaborative, participatory management schemes in state-owned areas including forest reserves, and national and game parks

SECTION V

PROPOSED ACTION PLAN TO IMPLEMENT THE POLICY

Policy documents may remain only as well-intending documents unless concrete action is taken to implement the policy. The final policy document will be supported by an implementation strategy. Some of the most urgent elements of this strategy are outlined below:

Immediate action:

- Review first internally this draft Forest and Veld Fire Management Policy, revise and submit it for a broader review involving the key national and regional stakeholders, using the National Fire Forum as a key platform.
- Prepare the final draft policy document based on the feedback and present it at a national workshop,
- Submit the proposed policy to the Ministry of Environment and Tourism for approval.
- Mobilise a legal expert to
  - carry out a detailed assessment of the consistency and adequacy of the existing legislation with this draft Forest and Veld Fire Management Policy and other key Government policy documents related to fire management;
  - assess the consistency of the various forest and veld fire-related pieces of legislation with other legislation;
  - propose legal developments needs, including the possible drafting of a separate Forest and Veld Fire Act.
  - prepare input for drafting of bylaws, including terms of reference.
- Continue the ongoing fire management activities under DOF, including carrying out a national forest and veld fire management awareness campaign and supporting fire prevention (including construction of cutlines).
- Consolidate the lessons learned into extension packages and training modules that could be adopted by other regions in forestry extension or by agencies such as MAWRD in their agricultural and livestock extension work. Organise a national workshop to discuss the streamlining forest and veld fire management related training and extension at the national levels and those regions most affected by wild fires.
- Carry out research on the national, regional, farm and household level costs caused by forest and veld fires to help in providing an estimate of the economic and social significance
- Undertake measures to support government financing, complemented with external financing, to enable carrying out above-prescribed activities.

Medium term action:

- Draft new legislation.
- Strengthen the training systems and carry out training programmes.

- Finalise the preparation/consolidation of forest and veld fire related extension materials and integrate them into extension systems of various agencies concerned with natural resource management.
- Ensure financial support for fire management activities for the identified priority areas.
- Continue with the national awareness campaign
- Develop a national forest and veld fire danger rating system appropriate in the Namibian situation, based on already existing similar systems e.g. in the Republic of South Africa, Australia or the United States.
- Develop a cost-effective fire detection system applicable in all major environmental and socio-economic contexts in the fire prone areas of Namibia.
- Start implementing the developed fire detection and fire danger rating systems.

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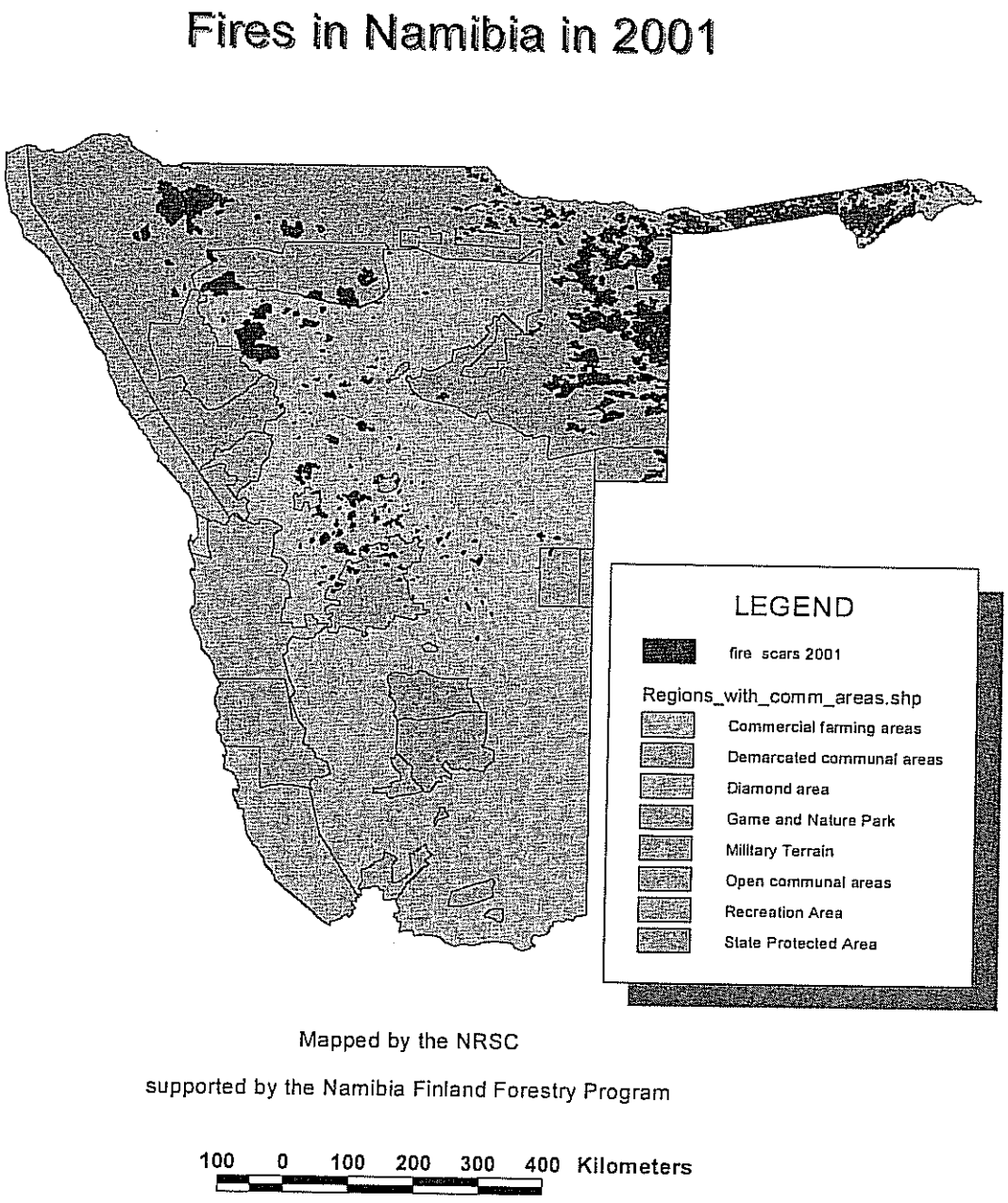
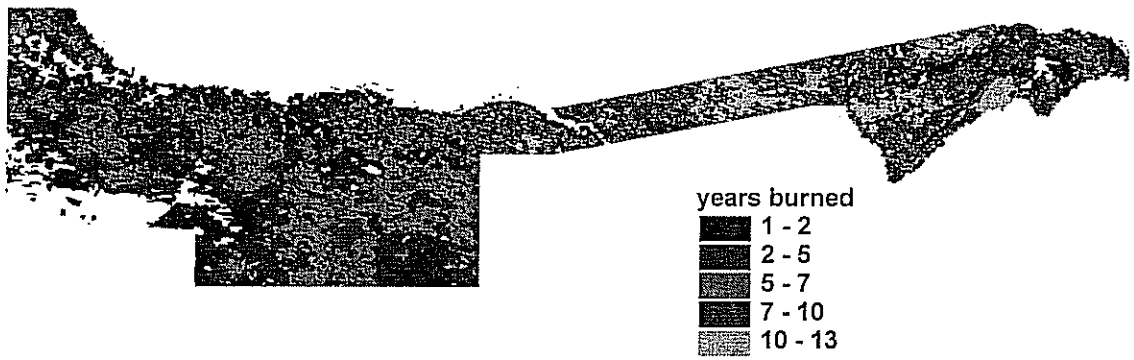
Annex 1 Forest and Veld Fires in Namibia in 2001



Annex 2 Areas Burned by Region in 2002 and 2001

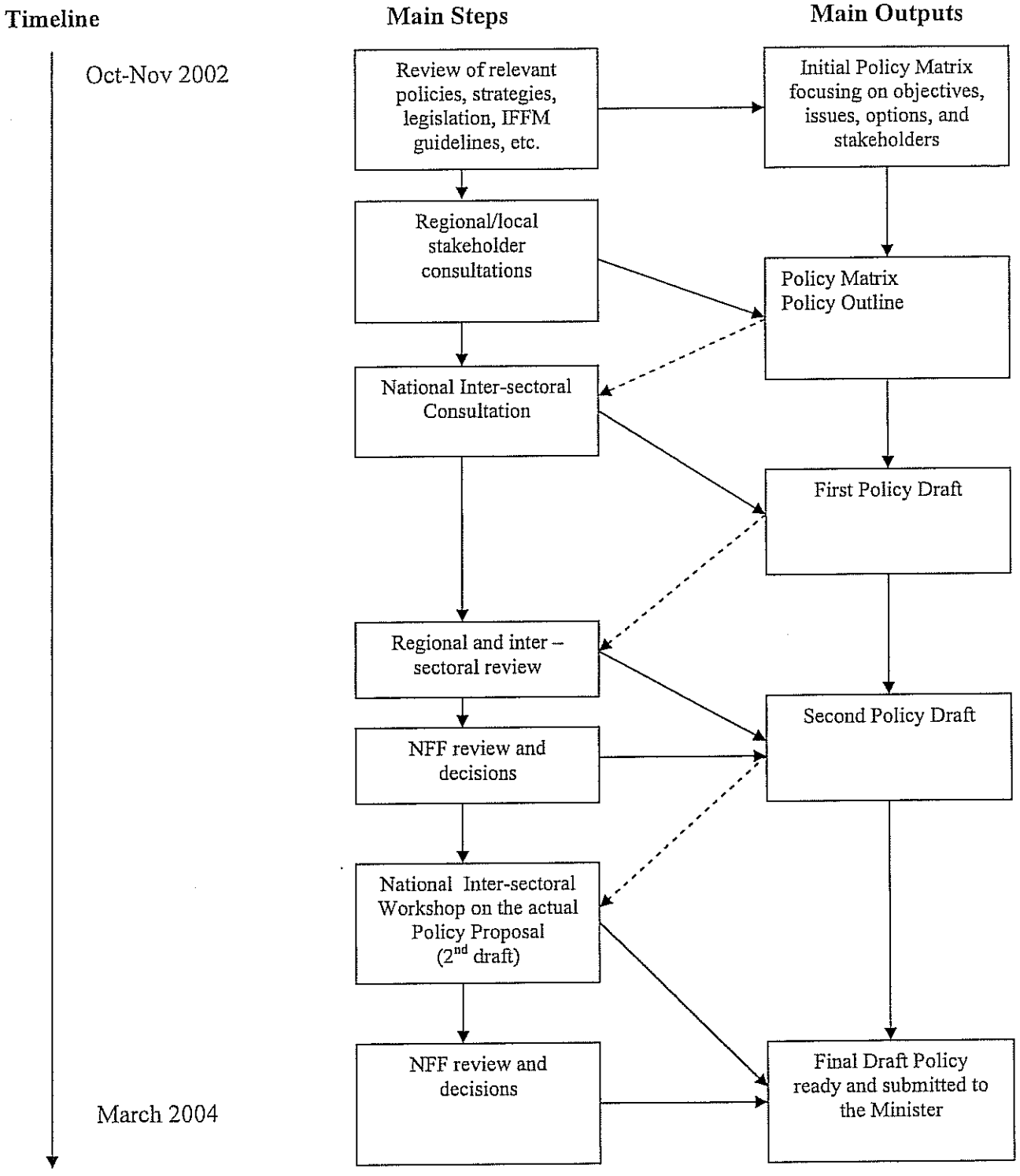
Region	Area burned in 2002, ha	Share of burned area of region/of total fires	Area burned in 2001, ha	Share of the burned area of the region of the total fires, %
Caprivi	714 711	49%	955 615	47.6%
Erongo	0	0/0	95 682	1.5%
Hardap	0	0/0	44 039	0.4%
Karas	0	0/0	0	0
Kavango	2 100 038	43%	868 079	20%
Khomas	14 150	0.3%	237 037	6.3%
Kunene	3 939	0.03%	636 692	5.5%
Ohangwena	7 722	0.7%	0	0
Omaheke	238 980	3%	529 360	6.2%
Omusati	36 496	1.3%	355 625	13.3%
Oshana	0	0	60 114	7%
Oshikoto	11 259	0.3%	147 029	3.8%
Otjozondjupa	51 4 540	5%	949 369	9%
Total area	**3 645 189**	**100%**	**4 890 000**	**100%**

Annex 3 Fire Frequency in Northeast Namibia in 1989-2001



Blue colors indicate low frequencies, purple intermediate and red to yellow very high frequencies

Annex 4. National Forest and Veld Fire Management Policy Formulation Process Chart



Annex 5 Review of Draft National Guidelines on Forest Fire Management in Namibia

Directorate of Forestry has prepared the National Guidelines on Forest Fire Management in Namibia (Final Draft 2001). These guidelines are a mixture of policy, strategic and operational statements and guidelines. The document is based on ITTO Guidelines on Fire Management in Tropical Forests and Guidelines and does not have any official status. However, the document is comprehensive and covers a number of elements that should be contained in the National Forest and Veld Fire Management Policy (in a way, the preparation of the guidelines has preceded the development of the related national policy).

The report is structured around seven themes, which contain specific basic principles for fire policy formulation:

- National fire policy and legislation
- Forest fire management
- Institutional framework and capacity building
- Socio-economic considerations
- Public training and education
- Research and development
- Monitoring and evaluation

The section on *national forest fire policy and legislation* contains the following principles:

- community participation will be crucial in the implementation of forest protection policies;
- fire protection/management groups or associations will be responsible for fire management on land controlled by the manager (local communities, traditional authorities, commercial farmers);
- fire protection efforts must be prioritised based on conservation priorities, community needs, cultural importance, etc.; and
- fire policies must be made integral parts of land management policies and land management plans at different levels.

The *forest fire management strategy* lists the following important principles:

- a number of approaches to fire management can be adopted depending on the regional/local context, but integrated forest fire management (IFFM), where fire prevention and suppression are considered together, should be considered as a priority system;
- fire prevention and suppression need to be based on a good understanding local people/land managers' needs and involving them both in planning and implementation;
- MET (Directorate of Forestry) should be leading fire prevention;
- MRLGH should be responsible for leading and co-ordinating fire suppression following the Civil Defence Ordinance and the 1997 Cabinet Decision; and
- fire management must be made incorporated into forest management plans.

The *institutional framework and capacity building strategy:*

- seeks to develop and strengthen institutions involved in the protection of forests from fire and suggests that the Directorate of Forestry needs to be strengthened at all levels;
- special attention must be paid to clarifying institutional arrangements especially at the regional and district level and strengthening the institutions so that they can take care of their duties effectively;
- regulations Forest Fire Regulations ought to be executed especially with regard to functions and role of Fire Protection Associations and community stakeholders; and
- a National Fire Forum (NFF), linked to the EMU, should be co-ordinating the implementation of the national forest management policies

The section on *socio-economic considerations* is concerned with the basic principles of cost effectiveness, conflict situations in land utilisation among communities and the role of communities including traditional authorities in the management of fires.

Public training and education strategy contains the following principles:

- any organisation, community or individual responsible for land management must also acquire skills for fire management, which requires strengthening of training and extension capacity;
- enhancing awareness on the use and impacts of fire using a wide range of communications tools at different levels is crucial; and
- non-governmental organisations (NGOs), community-based organisations (CBOs), women's groups and non-state sector as a whole must be mobilised both for developing awareness and to help with implementation of fire management policies.

The *Research and development strategy* recognises the vital role of information for fire management and suggest that particularly more information will be needed on fire ecology, basic fire science, socio-economic and cultural aspects (including indigenous practices) to develop improved fire management practices in the communal and commercial areas. The strategy also recognises the need for co-ordination and co-operation with international institutions and experts.

The guidelines concerning *monitoring and evaluation* contain the following principles:

- monitoring of incidences and impacts of fire must take place at all levels;
- statistical information must be used to develop a system for identifying fires risk and hazard areas (fire danger rating system); and
- early detection systems, based on the available (appropriate) technology and resources, must be developed.