

## EXECUTIVE SUMMARY

### PART 1: BACKGROUND

UNEP's GEO programme requires member countries to develop country reports on the state of the environment. In January 1998, Namibia's Ministry of Environment and Tourism (MET), through the Directorate of Environmental Affairs (DEA), launched a programme entitled "Information and Communication Service for Sustainable Development in Namibia" with financial assistance from the Government of Finland. Divided into seven sector specific areas of study, the programme aims at collecting, analysing, interpreting and disseminating accurate and up-to-date environmental information to all stakeholders to support informed decision-making and sustainable development practices in Namibia.

This SOER report focuses on the sector: **Parks, Tourism and Biodiversity in Namibia.**

The **Parks** component of this SOER includes all areas which are afforded formal or informal environmental protection on state, communal and private land including National Parks, Game Parks, Game Reserves, Resorts, Recreation Areas, Private Nature Reserves and Conservancies.

**Tourism** in Namibia is primarily based on wildlife biodiversity, landscapes and cultural factors. The SOER Report on tourism includes all tourist facilities, amenities and attractions provided by the Government, Community and Private sectors.

**Biological Diversity** refers to the variety and variability of living organisms (plants, animals and micro-organisms) found in both terrestrial and aquatic ecosystems, and is colloquially known as Biodiversity. In 1998, a country study on Biodiversity in Namibia was completed (Barnard, 1998), which provided a thorough overview of the country's biodiversity. This SOER therefore compliments that study by focusing on the interactions between the role of parks, the tourism industry and biodiversity. It also contains a review of all relevant policies in Namibia which may affect biodiversity protection.

This SOER on Parks, Tourism and Biodiversity is divided into 7 parts:

PART 1:	Background
PART 2:	Government Policy and Biodiversity
PART 3:	Conservation and Land Management
PART 4:	Tourism
PART 5:	Harvesting
PART 6:	Population Development
PART 7:	Indicators

Parts 3-6 were predicated by the key issues, or driving forces affecting Parks, Tourism and Biodiversity in Namibia, namely conservation and land management, tourism, harvesting and population development. Each of these four Parts follows a similar format, whereby the **current situation** is described, followed by an analysis of the **pressures** and **impacts** and concluding with a description of the **responses** to the challenges posed by the pressures and impacts.

### PART 2: BIODIVERSITY POLICY ANALYSIS

Namibia became a party to the Convention on Biological Diversity (CBD) in 1993. The requirements of the CBD are listed in the report, followed by an analysis of each relevant policy, by Ministerial sector, in terms of its status, objectives and how it complies with the provisions of

the CBD. Recommendations to remedy any deficiencies are made. The policies covered are listed in Table A below.

**TABLE A: LIST OF POLICIES ANALYSED IN TERMS OF THE CONVENTION FOR BIOLOGICAL DIVERSITY**

<b>Institution</b>	<b>Policies/White Papers/Legislation</b>
Ministry Of Agriculture, Water And Rural Development	National Agricultural Policy
National Planning Commission	1. National Population Policy For Sustainable Human Development 2. Regional Planning And Development Policy
Ministry Of Fisheries And Marine Resources	1. The Sea Fisheries Act 2. Draft Inland Fisheries Bill (1999)
Ministry Of Environment And Tourism	1. Namibia's 12 Point Plan For Integrated And Sustainable Environmental Management 2. The Tourism White Paper And Tourism Policy 3. Land Use Planning 4. Environmental Assessment And The Draft Environmental Management Act 5. The Forest Act 6. Conservation Of Biotic Diversity And Habitat Protection 7. Wildlife Management, Utilisation And Tourism In Communal Area 8. Research 9. Climate Change
Ministry Of Lands, Resettlement And Rehabilitation	1. National Land Policy 2. Communal Land Reform Bill
Ministry Of Higher Education, Science And Technology	White Paper On Science And Technology Policy
Other	1. Biotechnology 2. Prospecting And Mining In Protected Areas And National Monuments

### **PART 3: CONSERVATION AND LAND MANAGEMENT**

#### **Current Status of Land Ownership and Land Management in Namibia**

This section examines the current status of the land tenure system, parks and protected areas, biodiversity and the administrative structure relating to land ownership and conservation in Namibia.

#### Land Tenure System

Namibia is divided into commercial farmland (mainly in the savanna and semi-desert areas of the south and centre), communal land (former "homelands", largely in the north), state protected nature areas, tourist recreational areas, and mining areas as shown in Figure 1

Fig. 1

Colonial intervention in the social and economic development of Namibia has produced a stark tenurial dualism in Namibia. Roughly half the non-state land continues to be held under freehold title while no freehold titles can be obtained in the other half. Prior to independence, land in the communal farming areas was held in communal ownership. Land rights were allocated by traditional leaders and not registered in a formal registry and therefore, there was no security of tenure. Communal land, where the majority of Namibians live, now belongs to the State according to the Namibian Constitution, and farmers have only usufruct rights.

Commercial farming areas operate under a freehold title system whereby each farmer owns his land and such ownership is registered.

The principle that sustainable resources and land management depend to a large extent on the land tenure regime prevailing in a particular area is now accepted. It has been argued that communities will not be able to manage natural resources responsibly on a collective basis without clear rights to these resources.

While the State has transferred limited use rights of some natural resources to rural communities in the form of conservancies, for example, such communities still do not have any property rights over land as such. While the National Land Policy White Paper alludes to community ownership of land and natural resources, the Communal Land Reform Bill does not address this issue at all. It is very clear that there is lack of secure and exclusive rights to land and resources on the communal lands, and this needs to be addressed because it seems to be the ultimate root cause of unsustainable resource exploitation.

#### Current Status of Parks and Protected Areas

Namibia has 21 proclaimed parks and nature reserves which make up about 14% of Namibia's land area. The parks, conservation areas and recreational resorts represent all the main biomes in Namibia – ranging from the dune seas of the Namib and the dwarf scrub savanna of Etosha to the species-rich flood plains of Kavango and the Eastern Caprivi. These state-controlled conservation areas form the protected area network. This percentage (14%) exceeds the 10% recommended by IUCN to be set aside for conservation. However, the distribution of these conservation areas is highly skewed towards desert and saline desert habitats, thus Namibia's ecological diversity is not evenly represented in this network - only 4 of the 13 vegetation types are comprehensively protected.

Since the beginning of 1999, 20 of the state owned resorts and campsites have been under the management of Namibia Wildlife Resorts Limited (NWR). Namibia's parks and nature reserves constitute the backbone of the country's tourist industry. Their contribution to the Gross Domestic Product was N\$ 1 300 million in 1998 and it is estimated that by the year 2002 the sector will contribute N\$ 2 billion to Namibia's GDP.

The value of wildlife in National Parks and Game Reserves is not easy to assess. Some of the direct uses occur in the market economy, particularly tourism and the limited capture for live sale, but often not at market prices. Other direct uses, such as research, education, and aesthetic pleasure cannot be easily valued, while some of the most important values of national parks lie in their indirect benefits and non-use values: maintenance of essential ecological functions, and the existence and option value of bio-diversity they preserve. Without the protected areas, economic benefits generated from wildlife on communal and commercial land, and in the tourism industry more broadly, would be severely diminished.

Privately owned nature reserves can play a significant role in biodiversity protection in Namibia. Some are extremely rich in endemic species, unique landscape features or both. Both categories are fairly abundant on commercial farmland. There were 148 private nature reserves totalling 7 642 km<sup>2</sup> or 0.9% of Namibia's land area as of 1995. All of these are registered with the Ministry of Environment and Tourism.

In addition to the private nature reserves many farmers have pooled (natural and financial) resources for the purpose of conserving and using wildlife sustainably. These areas are known as private conservancies and have to be registered with the MET. Members practise normal farming activities and operations in combination with wildlife conservation. Conservancies are managed and operated by members through a committee. A total of 22 private conservancies have been formed to date.

Communal land conservancies operate on the same principles as commercial land conservancies, differing only in management structures. A community or a group of communities within a defined locality constitutes the management structure of communal land conservancies. At present Namibia has nine proclaimed communal area conservancies, and approximately 20 are in the proposal stage.

The absence of conservancies from large parts of the country, especially the southern regions, is due to the fact that the first conservancies started where wildlife was still relatively abundant. However, attention is being given to the establishment of conservancies in the north-central and other regions to redress this situation, starting with the re-introduction of wildlife.

Whereas in the past, rural communities suffered from crop and livestock loss as a result of wild animals, while receiving limited benefits from public and private sector wildlife conservation, conservancies allow rural communities to enjoy the commercial benefits of wildlife conservation. In sum, conservancies promote sustainable environmental management and rural development. For example, the following facts pertain:

- to date approximately 9 500 adults have registered in established conservancies and at least a further 4 300 adults have been registered in emerging conservancies;
- approximately 22 000 km<sup>2</sup> have been registered as conservancies on the communal lands in Namibia.;
- a further 38 000 km<sup>2</sup> are being formed into conservancies by meeting the requirements as laid out by the MET;
- approximately 7% of all communal land in Namibia has been registered as conservancies and a further 12% is in the process of being included in conservancies;
- two conservancies have completed detailed tourism plans;
- at least 5 conservancies plan to develop detailed tourism plans during 2000;
- the combined financial income of conservancies to date is just below N\$2 million;
- the annual operating costs of the conservancies, where data are available, are more than N\$1.3 million;
- three conservancies have started taking over their conservancy running costs.

Since it is estimated that more than 75% of Namibia's large mammals are found outside formally protected areas, key species such as elephants, leopards, cheetahs and antelope move freely between parks and neighbouring land. Thus, privately owned farms, private nature reserves and conservancies can compliment the national Government's wildlife conservation initiatives.

### Status of Biodiversity in Namibia

It is clear that there is a general lack of baseline data on the diversity and ecology of most Namibian flora and fauna in spite of the fact that a relatively high proportion of Namibia is under some form of state, communal and private conservation (15%). This paucity of information on the biogeography and ecological requirements of species means that the conservation status of most groups remains ill defined (see Table B). Birds are probably the best known group but even here there are inevitable gaps in the knowledge base, especially with regard to ecological and habitat requirements.

**TABLE B: SUMMARY OF BIODIVERSITY OF HIGHER ORDER PLANTS AND ANIMALS**

	No c ' species knowr in Namil ia	No c ' endem cs knowr in Namil ia	Knowledge bas : in Namibia	Main known threats in Namibia
<b>Fungi</b>	190	None known	Poor	Insufficient information
<b>Lichens</b>	330	Several	Poor	Off road driving in the desert
<b>Plants</b>	4344	687	266 sp have RDB status	Population increase, demand for plant resources, deforestation, overgrazing, fire, over-harvesting, illegal trade, inadequate protection in PAN
<b>Arachnids</b>	1357	Several	Only 20% of total sp known	Insufficient information. Lack formal protection in PAN
<b>Myriapods</b>	45	14	Poor	Habitat degradation
<b>Insects</b>	6400	1540	Reasonable	Habitat degradation. Lack of sufficient knowledge of impacts
<b>Fish (freshwater)</b>	115	5	Reasonable	Overfishing, habitat destruction, water abstraction, aliens, poor catchment management
<b>Amphibians</b>	50	6	Reasonable	Habitat loss along perennial rivers
<b>Reptiles</b>	260	55	Mostly poorly known; 34 sp in possible threat categories	Habitat alteration, illegal trade
<b>Birds</b>	658	14	Well known; 86 sp in possible threat categories	Habitat degradation, hunting, poisoning
<b>Mammals</b>	250 (incl marine)	14	Well known, except in small mammal groups; 40 in possible threat categories	Habitat degradation and loss, overgrazing by domestic stock, deforestation, fire, hunting and illegal trade

There are several areas of special ecological importance in Namibia which require urgent conservation protection:

- the Kaoko escarpment including the Brandberg and nearby inselbergs and granite domes;
- the southern Namib centre of endemism in the Sperrgebiet;
- the woodlands, floodplains and riparian vegetation of the perennial rivers and surrounding areas in the Caprivi;

- the mountain savanna and karstveld of the Otavi mountainlands;
- the dwarf shrub savanna of the Brukkaros crater.

In addition to these 5 areas of concern there are numerous more localised sites which need some sort of protection. These fall into several general categories, including: caves and sinkholes; inland wetlands; the coastal zone; mountains and inselbergs; the Namib sand sea; and the winter rainfall area of south-western Namibia. Most of these areas are poorly known as far as resident biota and ecological functioning is concerned and warrant considerable further research.

Namibia is fortunate in not having large numbers of problematic invasive species introduced from elsewhere in the world in spite of the fact that control programmes are relatively limited and the legislative framework is outdated and inadequate.

### **Pressures on Conservation and Land Management**

Thirteen pressures on conservation and land management were identified:

- lack of secure and exclusive tenure;
- lack of legal protection from development in parks and protected areas;
- lack of government commitment in terms of resources, financial support, training and research;
- lack of inter-sectoral co-ordination;
- inappropriate range management systems;
- lack of research into wildlife management and production;
- fencing;
- frequent fires;
- climatic change;
- social development and poverty;
- harvesting and trade in species;
- economic development;
- unsustainable government subsidies and incentives.

These are discussed more fully in the report.

### **Impacts on Conservation and Land Management**

The pressures on conservation and land management listed above can result in a number of impacts on the environment, such as:

**Desertification.** The indications of desertification in Namibia include declining ground water levels, soil erosion, loss of woody vegetation, loss of grasses and shrubs, bush encroachment, increased soil-salt content and decreased soil fertility. The direct causes of desertification in Namibia are too many people and livestock occupying one place for too long (contributing to overgrazing and deforestation), inappropriate provision of artificial water points, inappropriate irrigation and other crop cultivation practices, absentee farm management, and inappropriate fencing in dry areas. The background causes of desertification in Namibia are the rapidly increasing population, lack of consideration for low and variable rainfall, national and international policies and economics, and socio-economic factors, especially poverty.

**Loss in Biodiversity** through over-exploitation of resources, open access and habitat conversion.

**Economic Impacts.** Tourism contributes about 4% to the Gross Domestic Product (GDP) of Namibia and is the third largest earner of foreign exchange. However, tourism is highly dependent

on the quality of the environment; problems such as overcrowding, erosion, litter, bush encroachment, loss of biodiversity, fire damage and veld degradation could seriously undermine the quality of the tourist experience, with a consequential decline in the number of visitors. A drop in tourist income will affect the economic viability of the parks and conservancies, which will struggle to pay their way.

This would result in cuts in personnel, resources and maintenance activities. This spiralling decline will have significant consequences for the rural population, as well as affecting the Government's bottom line. The impacts will reverberate through both forward and backward economic linkages.

## **Responses to Conservation and Land Management Pressures**

### **Financial Response**

A number of NGO's support the communal conservancies, particularly LIFE, Rössing Foundation, IRDNC, NACOBTA and NNF. These and other government environmental projects are funded by overseas donors (see Table 3.11 in the main report).

### **Institutional Response**

The commercialisation of many of the country's parks and resorts through the creation of Namibia Wildlife Resorts is hoped to address many of the current problems and pressures on parks.

The forthcoming Environmental Management Act will formalise the need for most future developments to carry out an environmental impact assessment at some level. This should reduce the negative impact of development on the environment, while allowing income-generating developments to take place in a sustainable manner.

### **Administrative Response**

Namibia has a current National Development Plan which is being updated for the period 2000/1 – 2005/6,, and integrated Regional Development Plans are also being developed. The latter include environmental factors in the consideration of development options.

Furthermore, land use plans have been, and are being developed for certain areas such as: Kunene Region, Caprivi, Bushmanland and The Sperrgebiet. The Coastal Zone Management Plans of the Kunene and Erongo Regions aim to establish a system for sustainable development by maintaining the long term economic and ecological potential of the zone.

At a smaller scale, one of the Government's requirements for communal conservancies is to develop a comprehensive management plan. Four conservancies have achieved this goal. MET is also in the process of drawing up management plans for a number of protected areas such as: The Orange River mouth, Ai-Ais/Huns and the Namib Naukluft Park.

A key initiative by the Government is the Parks and Neighbours Relations Policy which seeks to provide incentives for the people living next to a Park to benefit from the presence of the park. Several negotiations are underway.

## **PART 4: TOURISM**

### **Current Situation Regarding Tourism**

Tourism is the world's fastest growing industry. According to the WTO, receipts from international tourism have increased by an average 9% annually for the past 16 years to reach US\$423 billion in 1996; this is predicted to grow to US\$621 billion by the year 2000. But, only 27 million or 4.1% of these tourists will visit Africa in 2000.

In the case of southern Africa, the growth rate estimated by the WTO for the next 20 years is slightly better than that for the continent: a 7.5% growth per annum compared to a 5.5% annual growth for the continent. With a 2% share in world tourism arrivals at present for the SADC countries, there is plenty of scope for an improvement in the tourism performance of this region.

Tourism in Namibia is a very important contributor to the national economy and also an increasingly important job creator. It is estimated that during 1998 this sector made a contribution of N\$1 300 million (4%) to the Gross Domestic Product (GDP) and currently enjoys a 10% per annum growth rate. It is also estimated that Namibia's total visitor numbers will grow from 255 000 in 1993 to more than 800 000 by the year 2002. In 1998, it was estimated that 25 000 people were employed in the tourism industry. The consumer demands of this labour force create additional linkage effects into the economy as a whole.

Thus tourism continues to play an increasingly important role in the social and economic development of Namibia, creating employment opportunities, providing much needed foreign exchange earnings (it is the third largest exchange earner), and stimulating new infrastructure.

Tourism in some communal areas has increased significantly and action is being taken to improve tourism in those areas, which have been previously neglected. Several regions have completed communal area tourism master plans. The lack of policy and legislative backing to allow local control of tourists has been highlighted. Conservancies have been selected as the most appropriate local institution for managing tourism where over-utilisation is occurring.

Overall jurisdiction for tourism falls under the Directorate of Tourism in the Ministry of Environment and Tourism. Future administrative control of tourism is in the process of being devolved to the Namibia Tourism Board, which will be representative of both the private and public sectors. Actual management of the resorts, parks and facilities which were formerly under the MET, was commercialised through the creation of a new company, Namibia Wildlife Resorts Ltd, under an Act of Parliament in 1998.

The private sector of the tourism industry is represented by a number of associations, e.g. FENATA, HAN, NACOBTA etc.

#### Tourist attractions

With an area of 826 400 square kilometres and an estimated population of only 1.8 million, the density of the population in Namibia is one of the lowest in the world. Namibia's wide open spaces, diverse cultures, sunny weather and a healthy climate, a wide range of contrasting landscapes, some of the rarest flora and fauna well adapted to the harsh conditions of our environment, and the untouched wilderness, are the main attractions of Namibia.

Namibia allows the tourist the experience of adventure and exploration, however not at the cost of security and comfort. It is a country generally known for its political stability. It offers sophisticated physical and telecommunication infrastructure and excellent medical facilities. Its accommodation establishments and facilities, especially guest lodges are generally of a high standard.

Accommodation establishments in Namibia are registered and graded on a system similar to many countries in Europe. There has been significant investment in the accommodation sector since Independence, with a substantial growth in bed stock and of guest farms in particular. At the end of 1998 there were some 5 788 rooms or units offering approximately 13 245 beds. The largest number of rooms are located in Windhoek, the coastal area centred on Swakopmund (the preferred Namibian coastal resort) and in Etosha (the prime wildlife area).

### Tourist activities

Namibia offers a wide variety of tourist activities from upmarket safaris to low-cost backpacker facilities. Most tourists embark on one or more of the following activities:

- touring (bus, car, 4x4, air charter, train, balloon safaris, horse safaris, camel tours);
- hunting;
- beach and freshwater angling;
- hiking;
- canoeing, rafting and kayaking;
- game viewing;
- bird watching;
- photography;
- camping;
- cultural tourism;
- yachting, cruises; and
- adventure tourism (skydiving, dune adventures, rock climbing, gliding, caving etc).

While most of these activities are offered throughout southern Africa, it is the largely pristine desert environment, combined with the history of German colonialism and diamond mining, that makes the Namibian experience something special. High quality infrastructure facilitates touring, beach angling is world-class, the Kunene River offers extreme-grade canoeing, arid-zone bird, mammal and plant species attract specialists and tourists from around the world, and Namibia is famous as a photographic subject.

Hunting is one of Namibia's popular tourism activities; between 2000-3000 tourists visit Namibia each year from 35 different countries. The **net** value added revenue generated is N\$35-50 million and the **total** value derived from trophy hunting is N\$130-150 million per annum. The trophy hunting industry employs approximately 2125 people directly, with a further 900 employed in related industries.

### **Pressures on Tourism**

There are several factors affecting the long-term viability of tourism in Namibia:

- **competition** from other countries, especially in the SADC region, if standards and the quality of the tourist experience declines;
- **lack of development** of tourist infrastructure and opportunities for investment;
- **safety and security**; overseas tourists are notoriously skittish when it comes to safety and security in African countries. The immediate cancellation of all bookings in up-market Okavango and Caprivi guest lodges following the tourist attacks in the Caprivi during January 2000 indicates how susceptible the tourism industry is to any type of perturbation, and how this will reverberate through the fragile economy of the region. These incidences serve to highlight the importance that needs to be placed by the Namibian Government, on safety and security in the country, and urgent action is required to first normalise the situation

and then repair the damaged perceptions of Namibia;

- **lack of management plans** - the fact that such plans do not exist at present for many areas of Namibia, can easily result in over- or incorrect utilisation of parks which will be to the detriment of the environment, the park, the tourist experience and in the end, to the economic development of the area;
- **access to the country**. Namibia is extremely dependent on continuing good quality air services, since most tourists enter the country by air;
- an efficient and effective **bookings and reservations** service;
- **diversification of tourist destinations**. Most tourist activity is focussed on a few 'hot-spots' such as Sossusvlei, Fish River Canyon, Etosha and Swakopmund and various points of interest along the main roads between these destinations. Already there are reports of overcrowding which has a negative effect on the tourist experience. Therefore it is becoming necessary to diversify tourist activity in the country, especially in the southern regions. The deproclamation of the Sperrgebiet and the forthcoming land use plan, may provide the catalyst and focal point for an increase in tourism in the south. The opening up of the Southern Namib Naukluft Park for controlled tourism will also have a beneficial effect on this situation;
- **lack of appropriate policy and legislation** on communal land to address local control of tourism. This should deal with equitable benefit distribution, sustainable development and responsibility for managing the impacts of tourism at a local level.

### Impacts on the Environment

The result of these pressures on the environment, by themselves or in combination, is the potential for a number of impacts to occur, such as:

- **over-utilisation** – overcrowding and uncontrolled tourism, (e.g.. off-road driving, collection of firewood, destruction of historical artefacts etc.) especially near popular tourist attractions such as Sesriem/Sossusvlei, can cause many problems, such as degradation of the environment, erosion, over-utilisation of scarce resources and the destruction or pollution of scenic attractions. This is particularly problematic in communal areas where there is limited legislation to control tourism. This results in environmental damage and little benefit reaching local residents from this potentially lucrative source. All of these problems result in the degradation of the tourism experience;
- **under-utilisation** – a lack of visitors to an area can also result in negative impacts of a different kind; too few tourists can lead to a lack of income, which in turn means less maintenance and a progressive decline in the quality of services and facilities.

### Responses to Tourism Pressures and Impacts

A number of initiatives have been taken or should be taken to respond to the pressures on tourism listed above.

A committed Government is of prime importance in furthering the causes of environmental conservation and developing the tourism potential of a country in a sustainable way. In 1991, a Tourism Development Study was completed for Namibia (with donor funding), which was adopted as a Tourism Policy Document in 1994. The main aim is the sustained and sustainable development of the tourism industry in Namibia. However, the enabling legislation to put the policy into practice has still not been promulgated.

It is hoped that the transfer of management functions from MET to NWR will achieve several objectives:

- make Namibian parks and resorts affordable for all Namibians;
- capitalise on the overseas tourists' willingness to pay more, to generate more income from the parks and resorts;
- allow income generated by each Park to be channelled back to that Park to ensure maintenance of the environment, facilities and services, ongoing research and proper park management and administration.
- allow Parks and Neighbour Relations to be pursued more intensively particularly in relation to the communal areas and where people are resident in and near Parks.

In spite of the fact that Cabinet declared Tourism a priority development sector in 1992, there are no special incentives or other measures to promote tourist development in Namibia, as is the case with manufacturing industries in terms of the Investment Act. This should focus particularly on the previously neglected communal areas of the country.

Foreign donors have played a key role in the development of the tourist sector, particularly with regard to various tourist development plans, communal conservancies, research and training.

## **PART 5: HARVESTING**

### **Situation Analysis of Harvesting in Namibia**

About 68% of the population lives in rural areas where people are strongly dependent on living natural resources both financially and for essential goods and services. In the past, traditional resource management practices in Namibia were considered to be a living example of sustainable development, with people living in harmony with their environment. However, these traditional living styles have been largely disrupted by:

- forced relocation of communities under the South African apartheid system;
- increasing population densities;
- modern infrastructure and farming techniques;
- a decline in traditional leadership structures and values;
- increased consumerism and the introduction of a cash economy;
- a lack of skills and education to adapt traditional techniques to changing circumstances.

At 2.2% per annum, the population growth rate is high by international standards, and if sustained, it will result in a doubling of the population in 23 years. This will put increasing pressure on natural resources leading to a progressive degradation of those resources.

In the context of this SOER, harvesting is examined from the point of view of subsistence harvesting (as opposed to agricultural and recreational harvesting) as well as trade in wild species of fauna and flora.

#### Subsistence harvesting

Harvesting for subsistence purposes involves the following:

**Firewood.** The majority of firewood users are found in the rural areas, where 93% of all households use wood as their primary source of energy. As the population increases, there is an increased demand for fuel wood, as well as an increase in the need for clearance of land for agriculture and construction timber. Together, these demands have led to a reduction in the sustainability of forests as a renewable resource.

**Construction timber.** Throughout most of northern Namibia, the construction of traditional homes and villages is wood-intensive. Very little information is available on the quantity of wood used in construction per year, but it has been estimated that 93% of all wood consumption is used for building

**Crafts.** This SOER only examines traditional crafts, as opposed to commercial craft production. Little information exists on the present use of natural resources in the traditional craft industry and thus there are no reliable data on the impacts of natural resource use on the environment. Furthermore, there is no information on the number of people involved in craft production or the value of the industry. All that is known is that there has been a boom in the tourist demand for crafts over the last decade. The main craft products are: baskets, wood carvings, pottery, bead and leather work and jewellery.

**Thatching grass.** Grass species, mainly *Hyparrhenia hirta*, are used as a primary roofing material on most traditional homes in the northern regions. The demand for thatch for upmarket tourist lodges has recently led to a number of thatching grass enterprises being developed and lucrative contracts signed for annual consignments of grass.

**Medicinal products.** The inherent medicinal value of the indigenous plants of Namibia is only recently being understood by city-dwellers and multi-national companies. Very little information is available on the extent and value of medicinal plant use at present, or the impact of increasing collection on the environment.

**Veld foods.** Veld foods comprise wild fruits, nuts, berries, leaves, seeds, roots and barks which are collected to supplement diets and for beverage making. Use varies spatially and temporally across Namibia according to availability, socio-economic status, agricultural potential and yield, cultural patterns and other factors. In rural areas, it is estimated that up to 33% of total household food consumption comes from veld foods. Little is known of the value of these products in purely cash terms, but they play an extremely important role in supplementing dietary requirements of carbohydrates, proteins, fats, vitamins and minerals. However, a limited survey by the CSO in 1995 indicated that the value of a few selected wild food products countrywide was in the order of N\$40 million per annum.

**Subsistence hunting.** Outside of conservancy areas, subsistence hunting is allowed through a permit system, whereby the MET identifies areas with viable game populations and then issues annual quotas for harvesting to the traditional authorities. The system is loosely controlled and wildlife populations in some areas continue to be decimated at an alarming rate.

The harvesting of wildlife within conservancies is still controlled by MET, based on annual quotas, but the way in which the conservancy members decide to utilise the game i.e. for subsistence or commercial purposes, is up to them, within the parameters of an agreed conservancy environmental management plan.

In 1994, it was estimated that small-scale (subsistence hunting) in the Caprivi, former Bushmanland, Opuwo District and former Damaraland, was only worth about N\$119 000, but it has been argued that moving away from subsistence hunting to non-consumptive tourist operations i.e. preserving the game rather than killing it, would yield far greater benefits in terms of net income, in the order of N\$13.27 million.

**Subsistence fishing.** Freshwater fish form a vital part of the diets of many Namibians, with some 50% of the population obtaining half of their protein needs from fish (freshwater and marine). Virtually all freshwater fishing in Namibia is artisanal in nature; more than 100 000 people derive direct or indirect benefits from inland fish resources and the fish supply per capita is approximately 10 kg per person per annum. Due to the dearth of perennial rivers in Namibia, freshwater fish resources are limited to the border rivers and the wetter, northern areas. The main fishing areas are

the oshanas of the Cuvelai drainage, Okavango River and Zambezi catchment. However, it is believed that there has been a gradual decline in fish stocks due to:

- poor catchment management;
- reduction in number, size and duration of floods;
- replacement of traditional fishing methods with modern tackle and fine gill nets;
- destruction of riverine vegetation;
- overfishing;
- erosion of traditional authority over fishing rights;
- changes in channel morphology;
- inadequate government resources to ensure proper fisheries management and control.

### Legal Trade

Legal trade in species is not a major activity at present, except for the recent burgeoning of Devil's Claw harvesting and the export of materials derived from the annual seal culling operations. However, most exported material is in the "raw", unprocessed form such as hides and skins, dry plant parts, tusks etc. with very little added value for the Namibian economy. This results in two things: the lack of appreciation by the rural communities of the value of the products exported and the reduced potential to earn significant foreign exchange.

**Flora.** Trade in live plants is limited. Most of the imported species are Cycads, while the majority of live exports comprise Aloes and Euphorbias, with a few Cycads.

A large-scale commercial export trade has developed around two species of indigenous plants, *Harpagophytum procumbens* (known as Devil's Claw) and *H. zeyheri*, which are used to treat rheumatism and arthritis-type ailments. Several hundred tonnes of dry material of these species, worth millions of Namibian dollars, are exported annually.

**Mammals and Mammal Products.** Mammals and mammal products play a major role in the legal trade of wildlife, and they are exported in large numbers. Most of the mammal **product** exports are in the form of raw or tanned skins. Exports can also be in the form of skulls, trophy parts, live animals, dead animals (mainly stuffed hunting trophies) skin pieces, horns, elephant tusks, teeth etc.

Approximately 100 000 large mammals are removed from wild populations per annum, of which 6-10% are exported live, 6-10% are trophy hunted and the majority (80-88%) are hunted for own use. The most commonly captured species are blue wildebeest, eland, hartebeest, kudu, oryx and springbok. Live imports mostly comprise black and blue wildebeest, blesbok, common impala, springbok and waterbuck.

**Birds.** Most of the legal trade in birds is of captive-bred parrots, lovebirds and parakeets. The export trade is limited in terms of numbers of species, but increasing.

**Reptiles.** Most of the trade in reptiles comprises export of live crocodiles.

### **Pressures on Sustainable Harvesting**

There are a number of pressures which may affect the sustainability of harvesting for subsistence purposes:

**Land Tenure.** The current system of land tenure in Namibia does not favour those who live in communal lands, because there is no interest in preserving resources because they are common to all.

**Population Growth and Poverty.** Increased population growth and poverty will continue to be root causes of environmental degradation in Namibia, until the growth rate stabilises at sustainable levels. The rapid population growth in communal areas leads to an increased demand for firewood, construction timber, traditional medicine, veld foods, protein (fish and game) etc. All of these subsistence activities are largely uncontrolled and the levels of use are unrecorded, but extrapolation of conditions in some of the more densely populated areas, would indicate that continued over-exploitation will result in deforestation, bush encroachment, loss of vegetative cover, desertification and a resultant loss in biodiversity. These effects will in turn have a profound effect on the tourist industry and ultimately, on Namibia's balance of payments

**Survival Strategies.** Namibia is the driest country in sub-Saharan Africa, with extreme rainfall variability both in time and space. Such variability makes primary production unpredictable and thus reliance on traditional agriculture is tenuous at best. Wild products are an important component of drought coping strategies in poor rural communities in Namibia.

**Changes in Traditional Authorities and Customs.** As the country heads into its second decade of Independence, there is a gradual shift in power in some areas away from traditional leadership towards party political hegemony. This is undermining sustainable resource utilisation in that the local Chief no longer has the authority to allocate resources according to traditional custom. Another factor which is putting increased pressure on resources is the shift in technology. Traditional hunting methods using traps, spears, arrows etc are being replaced by guns, which are far more lethally efficient.

**Fire.** Fires are becoming an annual event in certain areas, which is seriously affecting the ability of plants to regenerate and mature, particularly those species which are valuable in household subsistence.

**Illegal Trade.** The biggest problem with regards to illegal trade is ivory poaching. Poaching of ivory reached its peak in 1989 when 7 610 kg were seized from just 22 occasions. Much of the ivory seized in Namibia is in transit from neighbouring countries. In the Caprivi a few elephants are killed every year (less than 10 animals) to prevent crop damage and not necessarily for their ivory.

Rüppell's parrot has a limited range within Namibia and Angola. This combined with its popularity amongst bird fanciers and the limited captive breeding success, means that a significant reduction in numbers could easily occur if illegal collecting is not properly controlled. Shipment sizes vary from 5-600 birds, based on anecdotal evidence, but it is estimated that up to 1000 birds per annum are illegally exported.

Most illegal plant and reptile collection is carried out by home collectors, which is almost impossible to detect.

**Lack of Enforcement, Control and Resources.** Ordinance 4 of 1975 does not provide for the implementation of CITES. Thus it is of paramount importance to promulgate consolidated, enabling legislation together with prescribed penalties for CITES violations. Nevertheless, it is generally acknowledged that Namibia has made rapid progress with the implementation of CITES since accession, but limited human and financial resources have hindered progress with respect to: monitoring of CITES trade, issuance of CITES permits, development of national quotas, management and monitoring plans, and a transparent and simple permitting process

### **Responses: Harvesting**

Namibia is a party to a number of international conventions, protocols and agreements, such as: CITES, the SADC Protocol on Wildlife Conservation and Law Enforcement, the International Air

Transport Association regulations on airline transport of wildlife and veterinary controls in both exporting and importing countries.

In recent years, the Division of Specialist Support Services in the MET has developed a number of policies on wildlife production, management and protection. In 1999, some 17 policies were drafted and a further 12 are being developed. Once passed into legislation, these policies will remedy many of the problems and pressures relating to wildlife use in Namibia.

Two key laws concerning species and habitats are the Nature Conservation Ordinance (4 of 1975) and the Forest Act (72 of 1968). Both of these are outdated and are in the process of being replaced.

The Namibian Police Force has a special unit, the Protected Resources Unit, which mostly deals with illegal rhino and elephant trade, both within Namibia and the SADC community.

Aerial surveys are an essential component of inventory and monitoring in support of wildlife management. The Sub-Division: Specialist Research carried out a number of surveys on private and state land during 1999 in order to determine wildlife numbers and stocking densities.

The 1999-2000 annual budget allocated to MET for resource management and research (personnel and operating costs), was N\$115 million. From 1991-98, the annual budget increased by an average 10% per year, but there was a significant increase (57%) from 1998-99. These figures exclude donor funds.

NamPower, the main electricity utility in Namibia, is aware of the need to accelerate rural electrification programmes in order to relieve the burdens of firewood collection in the subsistence economies of Namibia. Thus rural electrification is proceeding at a steady pace, mostly in northern Namibia. In 1999, nearly 600km of new 33kV, 22kV and 11kV lines were constructed throughout the country.

## **PART 6: POPULATION DEVELOPMENT**

Population issues have been described fully in the SOER on Socio-economics, therefore this part of the report only addresses population issues as they relate to parks, tourism and biodiversity.

### **Situation Analysis**

Relative to its total land mass of 824 000km<sup>2</sup>, Namibia has a small population. The estimated population in 2000 is 1.8 million people up from 1.44 million counted in the 1991 census.

Namibia's population structure is relatively youthful. According to the 1997 estimates based on the 1991 census, approximately 42% of the population were under 15 years and only 4.8% over 65 years. The population growth rate for Namibia is 2.2% per year, which is high by international standards and if sustained will result in a doubling of the population in 23 years. This growth, combined with the needs and expectations of the majority of Namibians for higher living standards, is exerting unprecedented pressure on Namibia's environmental resources which cannot match the demands of the population. Approximately 68% of the population are situated in the rural areas.

Although Namibia has a low population density of 2.0 people per km<sup>2</sup>, the distribution of the population in the country is skewed. The northern regions are the most densely populated with approximately 12 people per km<sup>2</sup> in the former Owamboland, while the commercial farming areas in the south have the lowest densities (0.16 people per km<sup>2</sup>).

Settlement has intensified in areas with natural water, and expanded to areas dependent on engineering supply due to the growing population and economic development. Today, human pressure on the environment is growing because:

- most of the population still relies directly on natural resources such as wood, crops and livestock. Given the slow growth of non-agricultural employment the direct dependence is likely to continue for generations to come;
- urbanisation and industrial development may reduce pressure on the rural areas, but involves lifestyles and concentrated activities that consume more of the scarcest resources.
- traditional resource management practices have been disrupted: by forced relocation, increased population density, modern infrastructure and techniques, decline of traditional structures and values, or lack of adaptation of traditional techniques to changing circumstances such as dense population.

Although the population of Namibia is unevenly distributed, the country's natural resources are too. The problem is that the population distribution and natural resources do not match in large portions of the country and are mainly due to:

- forced relocation of people in selected areas;
- technological and industrial developments in certain areas;
- urbanisation and
- Governmental policies.

### **Responses to Population Pressures**

A number of incentives have been developed to promote the sustainable management of resources by:

- improving traditional agricultural practices;
- complimenting traditional agricultural practices with other lower- impact resource based options i.e. diversification of livelihoods;
- the promotion of small and medium enterprise developments which are non-resource based;
- replacement of incentives which promote unsustainable management.

## **PART 7: INDICATORS**

A list of selection criteria for indicators was developed based on internationally accepted criteria for indicator selection.

1. Are data available to monitor this Indicator?
2. If not, can data be easily and cheaply obtained?
3. Is it a robust/sensitive indicator of change?
4. Does it reflect a fundamental or highly valued socio-economic and cultural aspect of the environment?
5. Is it national in scope or applicable to regional issues of national significance?
6. Does it apply to a broad range of administrative regions?
7. Does it apply to a broad range of ecophysiological regions?
8. Are time-series data available?
9. Are the data scientifically credible? (Quality of data)
10. Is the Indicator easy to understand by decision-makers?
11. Is it easy and cost-effective to monitor every year?
12. Is it relevant to policy and management needs?

13. Does it contribute to International reporting obligations?
14. Does it facilitate community involvement?
15. Has it been covered in other SOER's?
16. Which SOER is the most relevant for this Indicator?
17. Can it be aggregated with another Indicator?
18. Even if it cannot be used, is it essential for future management and decision-making?

The Indicators Workshop was held in November 1999 in Windhoek, to which representatives from all the stakeholder groups (i.e. key authorities, private sector, NGO's, media, etc) were invited. The indicators which fulfilled the majority of the criteria listed above were categorised as follows:

#### **Economic Indicators**

MET's Environmental protection expenditure  
*(More general economic indicators are provided in the SOERs on Socio-economics and Industrialisation).*

#### **Social Indicators**

*(All relevant social indicators are provided in the SOERs on Socio-economics and Agriculture and Land Resources).*

#### **Environmental Indicators**

Uncontrolled burning  
*(Indicators relating to climate, desertification and pollution are found in the SOERs on Water and Agriculture and Land Resources)*

#### **Biodiversity Indicators**

Species diversity and conservation status  
 Biodiversity conservation

#### **Park and Land Management Indicators**

Management of protected areas  
 International Conventions & Policies

#### **Conservancy Indicators**

The area of communal conservancies  
 The number of individuals in registered communal area conservancies in Namibia  
 The total communal conservancy income from natural resource based activities

#### **Tourism Indicators**

Number of tourists to Namibia  
 Number of visitors to each park and protected area

#### **Harvesting Indicators**

Volume of wood harvested for subsistence purposes  
 Legal Trade in CITES species.  
 Enforcement and control of illegal trade

#### **Research and Training Indicators**

Number of research programmes  
 Number of graduates in natural sciences