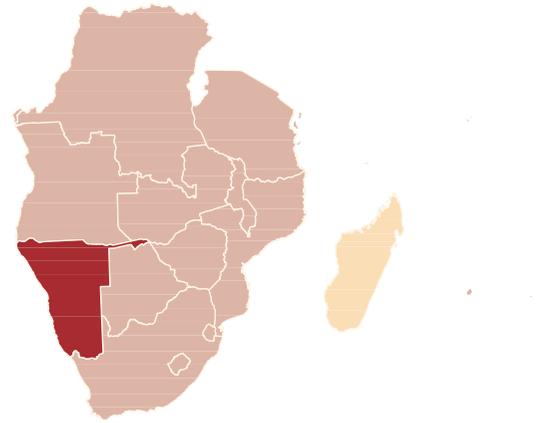


Peter Tarr and Jacque Tarr



# Namibia

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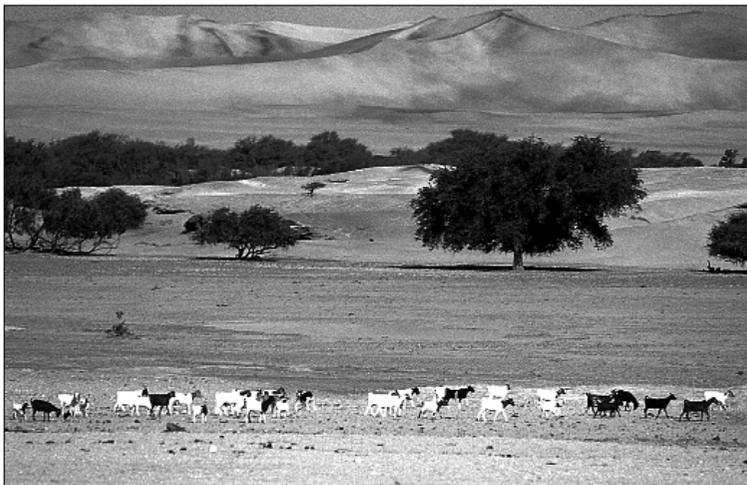
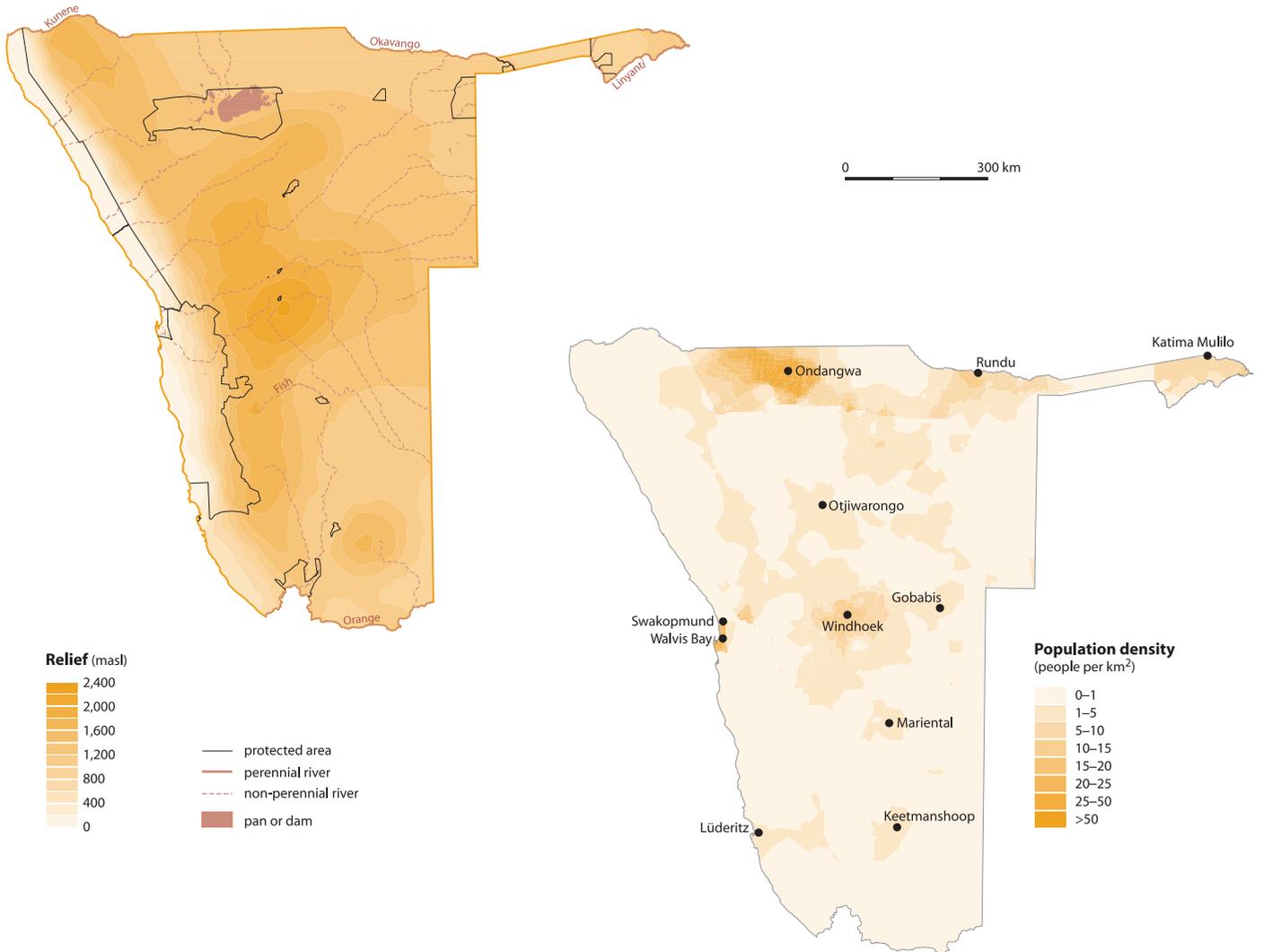
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### ***Appendix 2: Useful contacts.***

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COUNTRY REPORTS



Peter Tarr

A lack of readily available fresh water is Namibia's most significant limiting factor.

## National vision

After gaining independence from South Africa in 1990, Namibia began the long process of creating a new system of government and redressing the social and economic injustices incurred during a century of colonial rule. Since then, the development of new infrastructure and the provision of land, water, mineral and occupation rights have intensified. Hundreds of kilometres of roads have been built or resurfaced. The country's two harbours have been deepened, towns and cities are expanding, new power-supply projects are under way, and new boreholes, dams, canals and pipelines are being developed to supply escalating demands for water. Consequently, the need for proper planning and accountability, using environmental impact assessment (EIA) as a tool, is more important now than ever before.

Currently, formal land-use planning in Namibia is still centrally controlled and highly sectoral. However, Government has embarked on a process of decentralisation, thus aiming to re-empower the Namibian people by transferring more responsibilities to the country's various regions, traditional authorities and communities.

## Vision for sustainable development

Since 1990, the Government has adopted a number of policies that promote sustainable development. Most of these have their roots in the following two clauses of the Namibian Constitution (GRN 1990): Article 91(c), which defines the functions of the Ombudsman to include –

*... the duty to investigate complaints concerning the over-utilisation of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia ...*

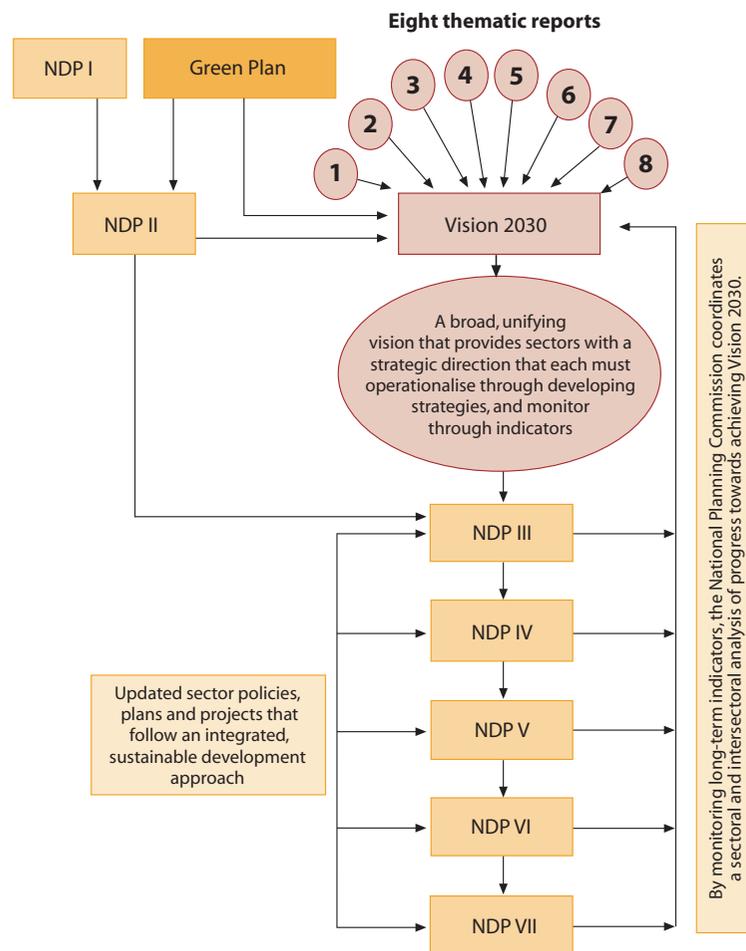
and Article 95(l), which commits the State to actively promote and maintain the welfare of the people by adopting policies aimed at the –

*... 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 Namibians, both present and future ...*

In 1992, Namibia's Green Plan (GRN 1994a) was drafted by the newly created Ministry of Environment and Tourism (MET) and presented at the United Nations Conference on Environment and Development. This document identified and analysed the main environmental challenges facing Namibia and specified actions required to address them. Following on from the Green Plan, the MET formulated Namibia's 12-point Plan for Integrated and Sustainable Environmental Management (GRN 1994b), a strategic document that set out the most important areas that needed to be developed to place Namibia on a sustainable development path. These included –

- the need for policy formulation and debate
- legislative reform, and

Figure 1: NDP I and II, the Green Plan and Vision 2030



- the identification of key programmes for gathering critical environmental information, spearheading new approaches for natural resource management and developing local capacity.

Based on the foundation laid by the Green Plan, an effort was made to incorporate environmental and sustainable development issues and options into Namibia's Second National Development Plan (NDP II), for the years 2001–2006 (NPC 2001c). In addition, Vision 2030 (NPC 2001a), which was formulated in 2001/02, aims to help guide the country's five-year development plans from NDP III through to NDP VII (Figure 1), while providing direction to government ministries, the private sector, non-governmental organisations (NGOs) and local authorities. Vision 2030 fully embraces the idea of sustainable development which, for the natural resource sector, states –

*The nation shall develop its natural capital for the benefit of its social, economic and ecological well-being by adopting strategies that: promote the sustainable, equitable and efficient use of natural resources;*

Although Namibia does not have a national strategy for sustainable development, NDP II and Vision 2030 have attempted to place sustainable development at the heart of national planning.

*maximize Namibia's comparative advantages; and reduce all inappropriate resource use practices.*

*However, natural resources alone cannot sustain Namibia's long-term development, and the nation must diversify its economy and livelihood strategies.*

## Biophysical profile

Namibia's climate is characterised by aridity, with 92% of the land mass defined as hyper-arid, semi-arid or arid. The coastal Namib Desert extends up to 160 km inland, while the Kalahari Desert occupies most of the eastern parts of the country. The low and highly variable rainfall leads to a corresponding variability in run-off, stream flow and infiltration into underground aquifers. The only permanently flowing rivers lie near to, or form part of, the country's international boundaries in the north and south.

Species richness is lowest in the Namib Desert and highest in the wetter north-east, where there are large, perennial tropical river systems. However, species in the Namib Desert are characterised by a high degree of endemism. Two noteworthy sites of endemism include the Succulent Steppe Vegetation Belt in the winter rainfall area of the Karas Region, and the Namib Escarpment, which forms a transition zone between the Namib Desert in the west and the savannahs of the Central Highland Plateau in the east. These areas of endemism are poorly represented in Namibia's network of protected areas (Simmons et al. 1998).

Namibia's coastal zone provides valuable migration and nursery habitats for many shorebirds and other coastal organisms. The marine ecosystem (the Benguela) is characterised by intense upwellings. Although species diversity is low, the Benguela's cold, nutrient-rich upwelled waters support large quantities of plankton, which in turn sustain vast populations of commercially exploitable fish and other marine organisms.

Like most of Namibia, Windhoek receives its rainfall in the summer months.

## Current and projected natural resource use

German colonial policies and the South African apartheid administration laid the foundation for the way in which

Namibia's land is currently divided and utilised (Mendelsohn et al. 2002). As a result, –

- an estimated 60% of Namibia's population practise subsistence agro-pastoralism on communal land that is state-owned and constitutes approximately 37.1% of the total land area
- less than 10% of the population own the freehold farming areas; this privately-owned land constitutes approximately 43.3% of the total land area
- some 1.5% of the total land area comprises exclusive diamond concession areas,
- some 14.1% has been proclaimed as conservation areas, and
- the remaining 4% constitutes urban areas and land under various other governmental uses.

Namibia is endowed with a rich variety of mineral resources and has a long tradition of mining. Diamonds remain the country's premier mining commodity although copper, fluorspar, gold, lead, salt, uranium, zinc, semi-precious stones, industrial minerals and dimension stone are also produced.

Water demand continues to rise in Namibia and water scarcity has become a problem for all urban areas located geographically far from the perennial water sources. The rate at which water demand per economic sector is expected to rise from 2000 to 2030 is given in Figure 3. The current problem of distributing the available water to where it is most needed will be exacerbated and, due to full exploitation of developed resources, expensive new water sources will need to be developed (e.g. a desalination plant at the coast). Water demand for irrigation, currently the main water consumer, is expected to increase considerably in future decades (NPC 2001b).

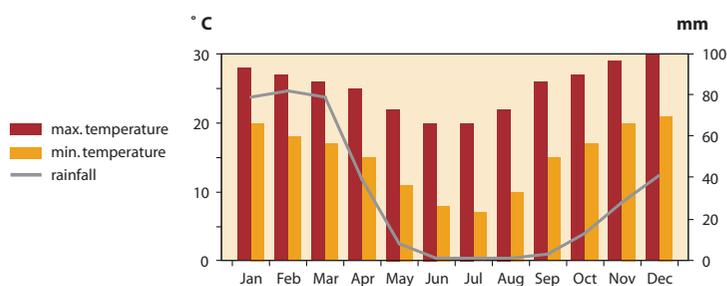
The marine fisheries industry foresees an increase in exports of high-value fish products to overseas markets. In addition, the opening of the Trans-Caprivi and Trans-Kalahari Highways are expected to result in more efficient trade and improved export markets for marine products to landlocked countries within the Southern African Development Community (SADC) Region. There is considerable potential for expanding mariculture and diversifying the marine resources sector. In particular, nature-centred tourism activities along the coast provide ideal opportunities for economic growth.

## Key environmental limitations

Namibia's renewable natural resource base is characterised by low productivity and/or high variability:

- The lack of readily available fresh water remains the most important limiting factor for development. Using Falkenmark's indices, Namibia is classified as being subject to absolute water scarcity and high water stress.<sup>1</sup> High rates of evaporation ensure that, of the rain that falls over most of the country, no more than 2% is likely to end up as run-off and less than 1% is available to recharge aquifers.
- Soils are generally poor and easily degraded. Most of the land also has low capacity for conventional agricultural

Figure 2: Average temperatures and rainfall at Windhoek



<sup>1</sup>Department of Water Affairs of the Ministry of Agriculture, Water and Rural Development; unpublished 2001 data.

activities. Consequently, the development of rain-fed cultivation and commodity (or commercial) livestock and crop farming throughout most of the country is severely limited. Despite this, 94% of rural households identify agriculture as their main activity (Ashley & La Franchi 1997). In most years, however, households are unable to produce enough grain for the family's requirements.

- The marine environment is highly variable. The climatic conditions that determine upwelling events and marine species assemblages and distribution fluctuate with shifting seasons and other temporary or cyclical changes in the Earth's atmosphere.

### Environmental impacts of development

#### • Increasing water stress

This is due to population growth, rapid urbanisation and economic growth. Although groundwater extraction is the cheapest available source of water in Namibia it is vulnerable to over-exploitation as it is difficult to set rates of abstraction that are sustainable. Emergency boreholes, e.g. those established during the 1992/93 drought, were supplied without forward planning or consideration for the socio-economic and ecological problems they could cause (UCT 1997).

#### • Declining water quality

Water pollution levels in Namibia are still comparatively low, but a growing population, expanding development and poor land management in catchment areas have begun to cause a decline in water quality (Day 1997). Namibia is extremely vulnerable to the effects of water pollution – mainly because of the country's limited supply of surface water and its high dependency on groundwater sources. In addition, the quality of the water that reaches Namibia from the major perennial rivers is largely dependent on the activities that occur upstream in neighbouring countries – most notably in Lesotho and South Africa (in the case of the Orange), and Angola (in the case of the Kunene and Okavango).

#### • Declining fresh fish populations

This has occurred in the Okavango River in particular, largely due to an increase in unsustainable fishing practices (Hay et al. 2000).

#### • Loss of biodiversity

Of the many causes of biodiversity loss in Namibia, habitat destruction resulting from activities such as land clearing for agricultural expansion is the most important.

#### • Land degradation

This has occurred most noticeably in areas where the productivity of the land is naturally highly variable (e.g. Namibia's semi-arid savannah systems) or where extensive deforestation has caused dry woodland areas to revert to savannah-type systems. Soils in Namibia's arid, semi-arid and sub-humid areas are inherently vulnerable to the



Henrie Burger

Despite the lack of surface water, groundwater resources enable farming – even in the dry western areas.

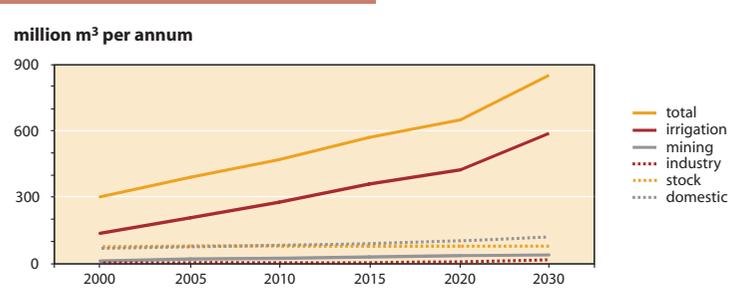
degradation processes of soil erosion, bush encroachment, crust formation and salinisation. Although these processes are usually attributed to overgrazing, land clearing for crop farming, or inappropriate cultivation and irrigation techniques, they ultimately result from the policy framework, incentives and regulations that do little to discourage inappropriate land management practices.

#### • Mining impacts

A century of mining with little or no planning to reduce environmental damage has impacted heavily on large areas in Namibia, especially the Namib Desert. There are currently approximately 40 abandoned, unrehabilitated mines in Namibia, of which 16 are in nature reserves (Tarr 1999). In some cases, these remnants can be exploited as tourist attractions (e.g. Kolmanskop), but in others (e.g. mines in the Skeleton Coast Park), they present significant obstacles to other, more sustainable forms of land use. At least one abandoned mine (Oamites) has resulted in health problems for nearby residents (Tarr 1999).

Irrigation places the greatest demand on Namibia's limited water resources.

Figure 3: Projected water demand



Source: P Heyns, Department of Water Affairs, unpublished data.

### Importance of natural capital

Namibia has a high reliance on natural resources. Thus, –

- commercial fishing, mining, agriculture and nature-centred tourism currently sustain the national economy, and
- the majority of rural Namibians rely heavily on subsistence agriculture, subsistence freshwater fishing and/or gathering of wild foods for survival.

The reliance of rural Namibians on natural resources is significant. Although the country's freshwater fish resources contribute little directly to gross domestic product (GDP), they play a vital role in enhancing the livelihoods of almost half the Namibian population through informal employment and subsistence fishing (Hay et al. 2000). Further, at a national level, 33% of total household consumption in rural areas is estimated to come from wild foods. Households in the Caprivi, Ohangwena, Okavango, Omusati and Oshikoto regions are the most dependent on wild products (NPC 2001b). The most important wild products that are harvested include (NPC 2001b) –

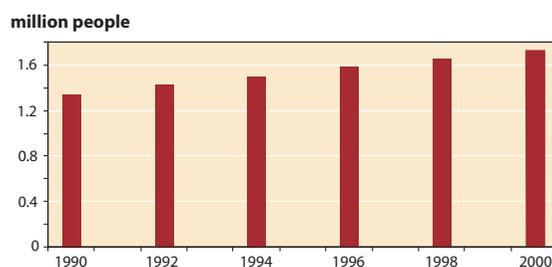
- firewood (it is estimated that 93% of all rural households use firewood as their primary source of energy)
- wood for construction and carvings
- thatching grasses
- medicinal products
- veld foods (from nuts, fruits, leaves, roots and bark), and
- meat (from game animals and fish).

### Transboundary environmental impacts

The potential for transboundary environmental impacts in Namibia is significant, especially in the context of water pollution along shared rivers, wildlife management and tourism. Improved and sustained cooperation and coordination as regards policy formulation and implementation is essential to avoid future inequitable use, pollution and conflict over shared freshwater, marine and wildlife resources.

Transboundary agreements already exist in the areas of shared water and marine ecosystem management, but much more needs to be done in terms of shared terrestrial ecosystems and mobile species.

Figure 4: Population, 1990–2000



Source: World Bank Group (2002).

## Socio-economic profile

### Overview of the economy

Namibia's economy relies heavily on its primary (mining, commercial fishing and commercial livestock farming) and tertiary sectors (wholesale, retail and transport services). The majority of Namibians are directly or indirectly dependent on agriculture. This high dependence on primary production renders the economy vulnerable to climatic and other external forces. Agriculture remains the largest employer in Namibia, providing almost 37% of total employment. The unemployment rate was estimated at 34.5% in 2001 (NPC 2001c).

Nature-centred tourism contributes extensively to Namibia's national economy through the provision of many diverse services including accommodation, restaurants, transport, entertainment and financial services. However, there are limited data available in Namibia to analyse the 'multiplier' economic impact of tourism. Consequently, the full contribution of this sector to the national economy is underestimated, and the annual growth rate of hotels and restaurants, which are generally referred to in the national accounts as an indicator of tourism growth, provide only a small part of the picture. This sector grew by an estimated 14% per annum between 1990 and 1996,<sup>2</sup> and remains an important employment generator, particularly in the rural areas.

The economy is broadly characterised by low physical investment, low domestic savings and very high government consumption (NPC 2001c). While it is government policy to reduce dependence on the primary sector, the manufacturing base remains small and underdeveloped.

### Adequacy of the budgetary programme

Increasing economic growth and employment, reducing poverty and improving equity remain a pivotal part of the nation's development objectives.

- Since Independence, approximately 50% of Namibia's development assistance has been used to finance human resources development (education and health) and social sector projects (access to potable water, housing and sanitation). Between 1990 and 1998 foreign aid made up, on average, 12.6% per annum of Namibia's total revenue (NPC 2001c).
- Public investment during the past ten years has followed a downward trend. On average, capital expenditure during the period 1990–1994 accounted for 16% of total government expenditure, but dropped to 14.3% during the period 1995–1999 (NPC 2001c).
- Namibia's budget deficit has given cause for concern. In the financial year 2000/01, the deficit totalled N\$1.4 billion (US\$133,079,847)<sup>3</sup> – an estimated 50% more than the previous year.<sup>4</sup>

<sup>2</sup> H Suich, 2002 pers. comm.

<sup>3</sup> Calculated at the mean exchange rate during 2002 of US\$1 equal to N\$10.52.

<sup>4</sup> Figures taken from an article entitled 'A budget too far', published in the Friday, 26 October 2002 edition of *The Namibian* newspaper.

**Table 1: Forecast for sector growth, 2001–2006**

Sector	Forecast (%)
Commercial agriculture and forestry products	6.1
Subsistence agriculture and forestry products	4.1
Fishing	7.5
Mining and quarrying	12.1
Manufacturing	5.8
Electricity and water	4.3
Construction	4.1
Hotels and restaurants	6.0
Transport and communication	5.8

Source: NPC (2001c).

- Wildlife-based tourism,<sup>5</sup> although an important income generator, is generally given low priority, as evidenced by the relatively modest budget allocated to the Ministry of Environment and Tourism since Independence (NPC 2002).

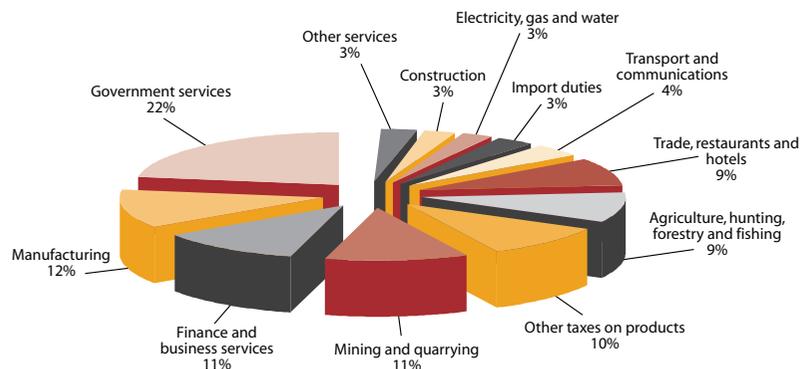
### Projected economic growth

It is extremely difficult to project economic growth in Namibia due to the high reliance on primary sectors, which are subject to environmental influences and variability in output. The figures depicted in Table 1 provide optimistic growth forecasts over a six-year period for selected economic sectors, as reported in the NDP II (NPC 2001c).

- Approximately 11% of the total growth forecast over the period 2000–2006 is expected to come from *mining*.
- Tourism* has the potential to grow at a rate of almost 7% per annum until 2010. However, preserving the natural capital and assets (healthy herds of wildlife, wide and undeveloped open spaces, and spectacular scenery) that make Namibia a sought-after destination for game viewing, trophy hunting and other high-earning, low-impact, nature-centred activities is fundamental to growth within the industry. Poor planning and uncontrolled mass tourism threaten service provision, quality of experience and sustainable growth within this important sector.
- Despite the country's low land capacity for *agriculture*, the government aims to expand irrigation activities fivefold, and proposes to expand livestock production onto underutilised land in the northern parts of the country. Namibia's agricultural policy does not reject the use of subsidies for any products, including pesticides and fertilisers, which may enhance agricultural production. The NDP II (NPC 2001c) emphasises that communal farmers need to start applying modern methods of production, use fertilisers, diversify into cash crops, and breed livestock for the market. These suggestions could lead to an increase in pollutant agricultural wastes, escalating land degradation and other impacts that ensure deviation from the sustainable

<sup>5</sup>Wildlife-based tourism on freehold farmland has been the fastest-growing land-use and economic activity since Independence. Wildlife tenure reform (to grant exclusive wildlife-use rights on private farmland), declining farm subsidies (especially since Independence), and diminishing farmland productivity (in part due to bush encroachment) have combined to usher in this form of land diversification, even though wildlife-based tourism is still far from enjoying a level playing field with domestic livestock-keeping (Krugmann 2000).

**Figure 5: Economic activities**



Source: Europa Publications (1999).

development path, and detract from the country's comparative advantages – especially the production of relatively uncontaminated, free-range meat and fish products.

Services contribute greatly to Namibia's economy.

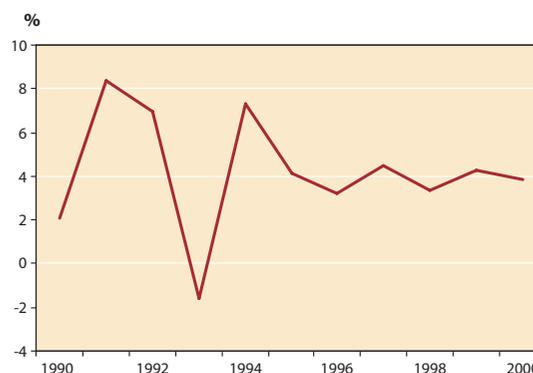
### Overview of human resources

At Independence in 1990, the new Government inherited a country with significant financial, social and environmental debts, incurred through a century of colonial rule. The outcome of this legacy included widespread environmental degradation and a sharply divided society whose majority were impoverished and very poorly educated.

Despite improvements that have been made since then in the education and health sectors, efforts need to be further intensified at all levels of society in order to fully redress Namibia's past inequalities and to improve public sector capacity. In summary, Namibia still suffers from –

- comparatively low levels of education and strong social, gender and regional disparities in education levels and outputs (NPC 2001c).
- low public sector capacity and a high reliance on foreign technical experts and consultants.

**Figure 6: Economic growth rate, 1990–2000**



Source: World Group (2002).

Overall, Namibia's economy was growing steadily at about 4% per annum at the turn of the century.

- a 'brain drain' from the civil service, with many of the better-qualified managers and technical experts being absorbed into the private sector, parastatals and NGOs – institutions that generally offer better remuneration packages and broader opportunities. The overall result is a growing gap between technical and political expectations in Namibia and periodic mistrust and/or lack of support for NGOs, and
- insufficient public awareness on environmental issues.

### Key socio-economic limitations

In addition to the limitations regarding Namibia's human resources as discussed above, the key socio-economic challenges that threaten sustainable development in Namibia, as identified and analysed by Krugmann (2000) and Tarr (2000a), may be summarised as follows:

- **High dependence on natural resources**  
This is despite the low productivity and/or high variability that characterises Namibia's natural resource base. The key challenge is to improve Namibia's natural capital and production systems whilst simultaneously improving standards of living for the impoverished majority.
- **Population growth and settlement patterns**  
Although, as a whole, Namibia is sparsely populated, certain areas support high human density. For instance, 2% of the land in north-central Namibia is estimated to support 26% of the entire population (NPC 2001b). High population growth rates, reduced land capacity and reduced economic prospects in the rural areas are responsible for the high incidence of urban migration (urban growth rates are estimated to be 5.5% per annum).<sup>6</sup>
- **Human health and HIV/AIDS<sup>7</sup>**  
Despite considerable improvements in primary health care, there are still disparities between urban and rural access to adequate health care, water and sanitation services in parts of the country. In addition, the prevalence of the HIV/AIDS

pandemic undermines human well-being and economic prosperity by reducing the quantity and quality of the labour force.

- **Poverty and inequality**

Namibia has one of the most highly skewed income distributions in the world. This means there is significant poverty and inequality in the country. The poor in Namibia are generally reduced to a dependence on primary production for food and energy, while the wealthy elite generally adopt resource-intensive lifestyles and, as a result, are responsible for the high rates of energy and raw material consumption and for producing large amounts of polluting waste.

- **Land issues and access to natural resources**

The unequal distribution of land and inequitable access to resources, if not resolved in the near future, could lead to conflict that will destabilise the country's entire society and economy. Based on recommendations for resettlement in Namibia (Dewdney 1996), secure tenure over all natural resources should be assigned to communities; wealthy farmers in the communal areas who currently occupy large areas of illegally fenced-off land should be moved onto freehold land; and land considered 'agriculturally underutilised' for sound environmental reasons (e.g. protection of rare endemic species or threatened wetlands) should not be the target of resettlement schemes.

- **Poor governance**

Governance affects efficiency within the civil service, equity, political stability and democracy. In addition, regional conflicts,<sup>8</sup> increasing crime and domestic violence are sources of human insecurity, threaten growth within the tourism sector, and drain the country's resources.

- **Improving knowledge**

Valuable local (traditional) and other knowledge of Namibia's natural and socio-economic environments is essential for sustainable development. In Namibia, there is a strong need to improve access to existing knowledge and to fill knowledge gaps. Furthermore, sound sustainable development planning and implementation are not possible without appropriate monitoring efforts.

- **Stable macroeconomic environment**

A stable macroeconomic environment is essential for economic growth and poverty reduction. Namibia's growing national budget deficit, trade imbalances and uncertainties regarding foreign direct investment undermine the stability of the country's macroeconomic environment. In addition, private sector development (crucial to economic growth and poverty reduction) remains underdeveloped in Namibia.



Charles Beyers

Rich marine fisheries contribute substantially to Namibia's GDP.

<sup>6</sup> J Mendelsohn, 2002 pers. comm.

<sup>7</sup> Human immunodeficiency virus / acquired immune deficiency syndrome.

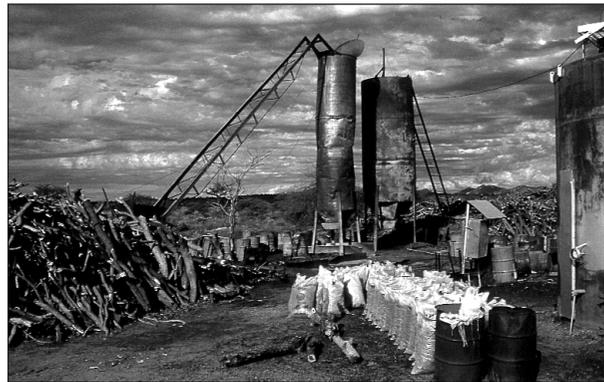
<sup>8</sup> This includes Namibia's recent involvement in the war in the Democratic Republic of Congo.

## Legal profile

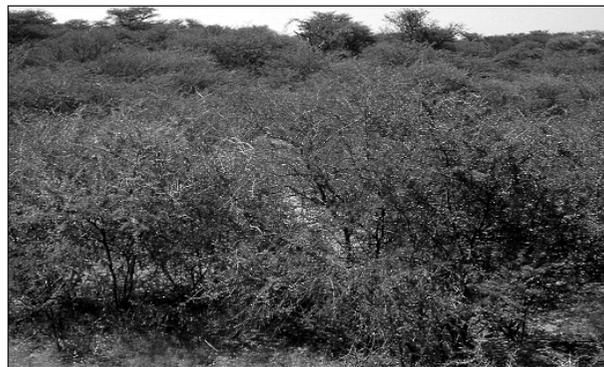
### The evolution of EIA policy and legislation

A lengthy process of stakeholder consultation, begun in 1992, was pursued during the development of Namibia's policy and legislation on EIA. Cabinet approved the Environmental Assessment Policy (EA Policy) in August 1994 (MET 1995) and, in 1996, work began on the drafting of the Environmental Management Bill. The process of drafting the Bill was locally driven and highly consultative, making use of a series of workshops, focus-group discussions and external review. The main difficulty faced in drafting the legislation was accommodating diverse sectoral interests, especially in the fields of land-use planning, pollution control and waste management.<sup>9</sup>

By December 1998, a sixth and 'final' draft of the Bill had been negotiated with the key stakeholders, but by June 2003, the Bill had still not been submitted to Parliament. The main reason for the delay is a lack of consensus over whether the new Act should be administered by the Office of the Environmental Commissioner (Box 1) located within the MET and overseen by a proposed Sustainable Development Commission (SDC),<sup>10</sup> or whether there should be a more neutral 'Namibia Environment Agency' located outside of Government, but still contracted to it.



Johan Jooste



Peter Tarr

*Paying solutions can be found for some environmental limitations. Here charcoal is being produced (top) from encroaching bush.*

### Box 1: The proposed functions of the Environmental Commissioner and the Sustainable Development Commission

#### Environmental Commissioner

- Maintains a register of all EIAs conducted in Namibia and of all decisions taken under the Environmental Management Bill
- Renders secretarial services to the Sustainable Development Commission (SDC)
- Supervises the EIA process and liaises with the proponent and the authority responsible
- Reviews EIA reports and makes recommendations to the SDC
- Responds to environmental complaints and refers these to the SDC, where appropriate
- Coordinates the compilation of state of the environment reports

#### Sustainable Development Commission

- Promotes coordination and cooperation within Government, amongst NGOs, community-based organisations, the private sector and donors, on environmental issues relating to sustainable development
- Reviews and advises on the development of policy and strategy for achieving sustainable development
- Promotes the integration of environmental considerations in all aspects of development
- Monitors compliance by all government institutions
- Advises Government on the implications of existing or intended legislation on the environment, and promotes legislative reform
- Makes proposals on the use of financial incentives and disincentives as well as user fees in order to promote sound environmental management
- Reviews and comments on government-initiated policies, plans, programmes and proposed new legislation
- Reviews EIA reports and recommends conditions to be imposed if the development proceeds
- Coordinates pollution control and waste management
- Coordinates the setting of standards and monitoring
- Advises on development constraints and options, and recommends mitigatory actions and action plans
- Investigates environment-related complaints and recommends remedies
- Hears appeals
- Acts as a focal point for international conventions

<sup>9</sup> Currently at least five ministries have some statutory responsibility for pollution control. In addition, local authorities (municipalities) have their own by-laws and yet another institutional layer for management. Each institution issues permits, carries out inspections, issues fines and sets standards, but since they are not obliged to coordinate or liaise with each other, enforcement is fragmented and often inadequate.

<sup>10</sup> It is proposed that the SDC comprises senior officials from various government ministries, as well as experts drawn from NGOs and the private sector.



Peter Tarr

A good example of efforts to integrate potentially conflicting types of land use is the management of the Walvis Bay wetland as part of the town.

### Description of legislation

As stated in Namibia's draft Environmental Management Bill, its purpose is to –

*give effect to Article 95(l) and 91(c) of the Namibian Constitution by establishing general principles for the management of the environment and natural resources; to promote the co-ordinated and integrated management of the environment; to give statutory effect to Namibia's Environmental Assessment Policy; to enable the Minister of Environment and Tourism to give effect to Namibia's obligations under international environmental conventions; to establish certain institutions in particular to provide for a Sustainable Development Commission and Environmental Commissioner.*

Part 1 of the Bill sets out various environmental rights and duties, including –

- the right of current and future generations to 'an environment conducive to health, well-being and security' (intergenerational equity) and equitable access to resources
- a duty placed on all people and on Government to protect and conserve Namibia's environment
- an extension of the traditional concept of *locus standi*. In the past, the main obstacle to using civil action to enforce environmental law has been that the person who brings the action was obliged to have a direct interest in the relief claim (i.e. have *locus standi*). To ensure that the law extends maximum protection to the environment and to communities whose health and welfare is dependent upon it, the standing clause in the Bill has extended the scope of *locus standi* to be as broad as possible – thus affording individuals the legal right to challenge a decision on behalf of the environment (Tarr & Figueira 2000), and
- a provision that –
  - every person has access to publicly held information relating to the implementation of this Act and to the state of the environment and actual and future threats to the environment, including any emissions to water,*

*air or land as well as the disposal and storage of hazardous waste.*

Part 1 of the Bill also specifies the only circumstances in which a request for information can be refused:

- *If information to be given would involve the supply of unfinished documents, data or internal communications, or where the request is manifestly unreasonable or formulated in too general a manner;*
- *If the public order or national security would be affected thereby; or*
- *For the reasonable protection of trade or industrial secrets.*

The Bill thus ensures that proponents and decision-makers can be held accountable to the public, who in turn, have ample opportunity to inform themselves and to exercise their citizen's rights (Tarr & Figueira 2000). The 13 'Principles of Environmental Management' set out in Part 2 of the Bill apply to government institutions and private persons. They are as follows:

1. *Renewable resources shall be utilised on a sustainable basis for the benefit of current and future generations of Namibians.*
2. *Community involvement in natural resource management and sharing in the benefits arising therefrom shall be promoted and facilitated.*
3. *Public participation in decision-making affecting the environment shall be promoted.*
4. *Fair and equitable access to natural resources shall be promoted.*
5. *Equitable access to sufficient water of acceptable quality and adequate sanitation shall be promoted and the water needs of ecological systems shall be fulfilled to ensure the sustainability of such systems.*
6. *The precautionary principle and the principle of preventative action shall be applied.*
7. *There shall be prior environmental assessment of projects and proposals which may significantly affect the environment or use of natural resources.*
8. *Sustainable development shall be promoted in land-use planning.*
9. *Namibia's movable and immovable cultural and natural heritage including its biodiversity shall be protected and respected for the benefit of current and future generations.*
10. *Generators of waste and polluting substances shall adopt the best practicable environmental option to reduce such generation at source.*
11. *The polluter pays principle shall be applied.*
12. *Reduction, reuse and recycling of waste shall be promoted.*
13. *There shall be no importation of waste into Namibia.*

**EIA**

The Bill defines *environmental impact assessment* as –  
*a process of identifying, predicting and evaluating the actual and potential biophysical, social and other relevant effects on the environment of projects prior to their authorisation, or in the case of proposals prior to their implementation, as well as the risks and consequences of projects and proposals and their alternatives and options for mitigation with a view to minimising negative impacts on the environment, maximising benefits and promoting compliance with the principles of environmental management.*

This definition differentiates between projects and proposals (the latter being policies, plans, programmes and new or revised legislation). The most important difference is the level of assessment afforded to project EIA, compared with the system applied to strategic environmental assessment (SEA). Furthermore, the Bill stresses the integrated nature of an EIA, and defines *environment* as –

*the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life.*

Thus, the legislation does not foresee separate assessments for ecological, social or cultural components.

Once established, the SDC will be empowered to monitor compliance with the Bill and if, for example, a government institution is not adhering to the environmental management principles set out in the Bill, the SDC may recommend that the Minister of Environment and Tourism request the minister concerned to remedy the situation. Should the counterpart minister fail to do so, the matter may be referred to the Ombudsman for further action. The Bill provides the Minister of Environment and Tourism with the power to order the cessation of any activity which has seriously damaged, is seriously damaging or may seriously damage the environment, and to order that such damage be rehabilitated.

**Institutional profile**

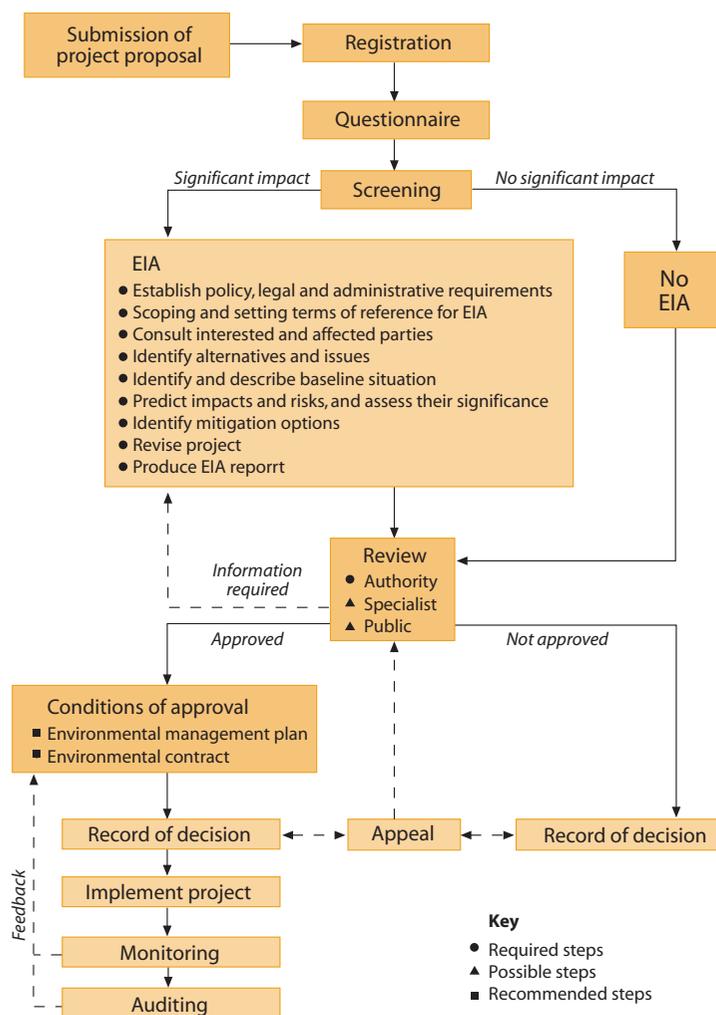
**Project-level EIA**

Schedule 1 of the Bill specifies a list of over 30 activities that require an EIA. They are grouped under four headings, namely –

- construction and related activities, which include roads, dams, factories, pipelines and other infrastructure
- land-use planning and development activities, which include rezoning and land-use changes
- resource extraction, manipulation, conservation and related activities such as mining and water abstraction, and
- other activities (e.g. pest-control programmes).

The Bill stipulates that any proposal for an activity stipulated in Schedule 1 be accompanied by a completed environmental questionnaire when it is submitted to the relevant ministry or authority responsible. If this authority intends permitting the activity, it liaises with the Commissioner and together they decide if an EIA is required or not. This decision is based on their collective judgement of the nature and significance of the impacts the activity is likely to cause. In the event that an EIA is not required, the Commissioner issues an environmental clearance (with or without conditions) and the activity may commence once the relevant authority has approved it. The SDC only becomes involved in this screening process if the Commissioner and the relevant authority do not concur, or if the proponent appeals against their decision. This fast-track process ensures that time and resources will be used efficiently and the SDC spared unnecessary work (Tarr & Figueira 2000). Once the Commissioner and the authority responsible have agreed that an EIA is required, the process illustrated in Figure 7 is followed.

**Figure 7: The EIA process for projects in Namibia**



Source: MET (1995).

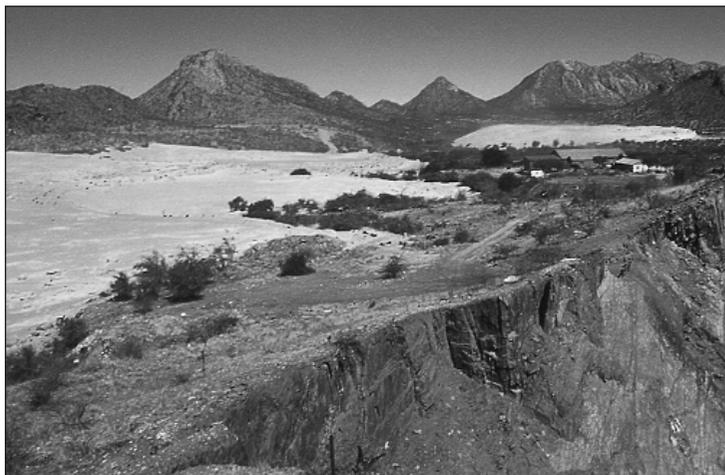
The Bill provides opportunities for –

- public comment and hearings in addition to the requirement that interested and affected parties be consulted during the EIA, and
- the Commissioner to subject the EIA report to external review at the proponent's expense or to convene an *ad hoc* committee of experts to assist with the review.

Thereafter, the Commissioner makes a recommendation to the SDC, which is ultimately responsible for the review process. Thus, the SDC considers the Commissioner's recommendation in the light of its own understanding of the EIA report. Ultimately, the SDC is responsible for issuing a conditional or unconditional environmental clearance for the project, or for refusing to grant such clearance. A clearance indicates that the SDC has approved the EIA report and the project, subject to an appropriate environmental management plan or set of conditions being implemented. The authority responsible takes the final decision regarding the project and the conditions to be imposed upon its implementation. This authority is also responsible for ensuring compliance with the stipulated conditions and for monitoring the project's progress in terms of the EIA report. The Bill specifies a maximum period within which the Commissioner and the SDC (30 days, respectively) must make their decisions, and it requires each decision to be recorded (Tarr & Figueira 2000).

### Strategic environmental assessment

Policies, plans, programmes and proposed new legislation are not assessed in the same way as projects (see Figure 8). In virtually all cases, these strategic-level activities will originate from within Government, and usually from a ministry that is a member of the SDC. The ministry, being the authority responsible, is obliged to inform the Commissioner that a new policy, plan, programme and proposed new legislation is envisaged and/or provide the Commissioner with a first draft of it with an explanation of how the principles of environmental management have been taken into account.



Peter Tarr

Oamites mine near Windhoek is an example of an abandoned, unrehabilitated mine that poses threats to people, livestock and wildlife.

Once the Commissioner receives a draft policy, plan, programme or new legislation from the authority responsible, s/he may invite public comment or arrange for the proposal to be subject to public hearings. This step is consistent with past practice, in terms of which various government agencies have consulted the public during the development of a number of sector policies (e.g. land reform, energy, mining, EIA). The key difference is that the Commissioner, rather than the authority responsible, initiates the peer-review process. This may be a weakness, given the fact that, in project EIA, the proponent and the authority responsible are obliged to internalise the process and provide opportunities for public input, with the Commissioner and SDC monitoring these activities. The advantage of the Commissioner running the SEA peer-review process is that the authority responsible has fewer opportunities to manipulate the process. Either way, it is significant that the public have ample opportunity to provide input on intended development actions, ranging from new legislation and policy to individual projects (Tarr & Figueira 2000).

As is the case in project EIA, the Commissioner provides the SDC with his/her comments, together with a summary of comments received from the public. The SDC is then obliged to review the draft policy, plan, programme or new legislation within 30 days and to make recommendations to the authority responsible. In the case of Bills, draft regulations and amendments to existing legislation, the SDC may advise Cabinet directly. The authority responsible is ultimately accountable for pursuing its line functions and for considering stakeholder opinions.

Provision is also made in the Bill for a simple appeal process. In terms of this process, any person can appeal to the SDC against a decision taken by the Commissioner, or to the Minister of Environment and Tourism against an SDC decision. In all cases, the Bill provides for a prescribed process and time frame for appeals.

Another important aspect of the Bill is that it endows the Minister of Environment and Tourism with a range of general powers, including the right to stop a person from –

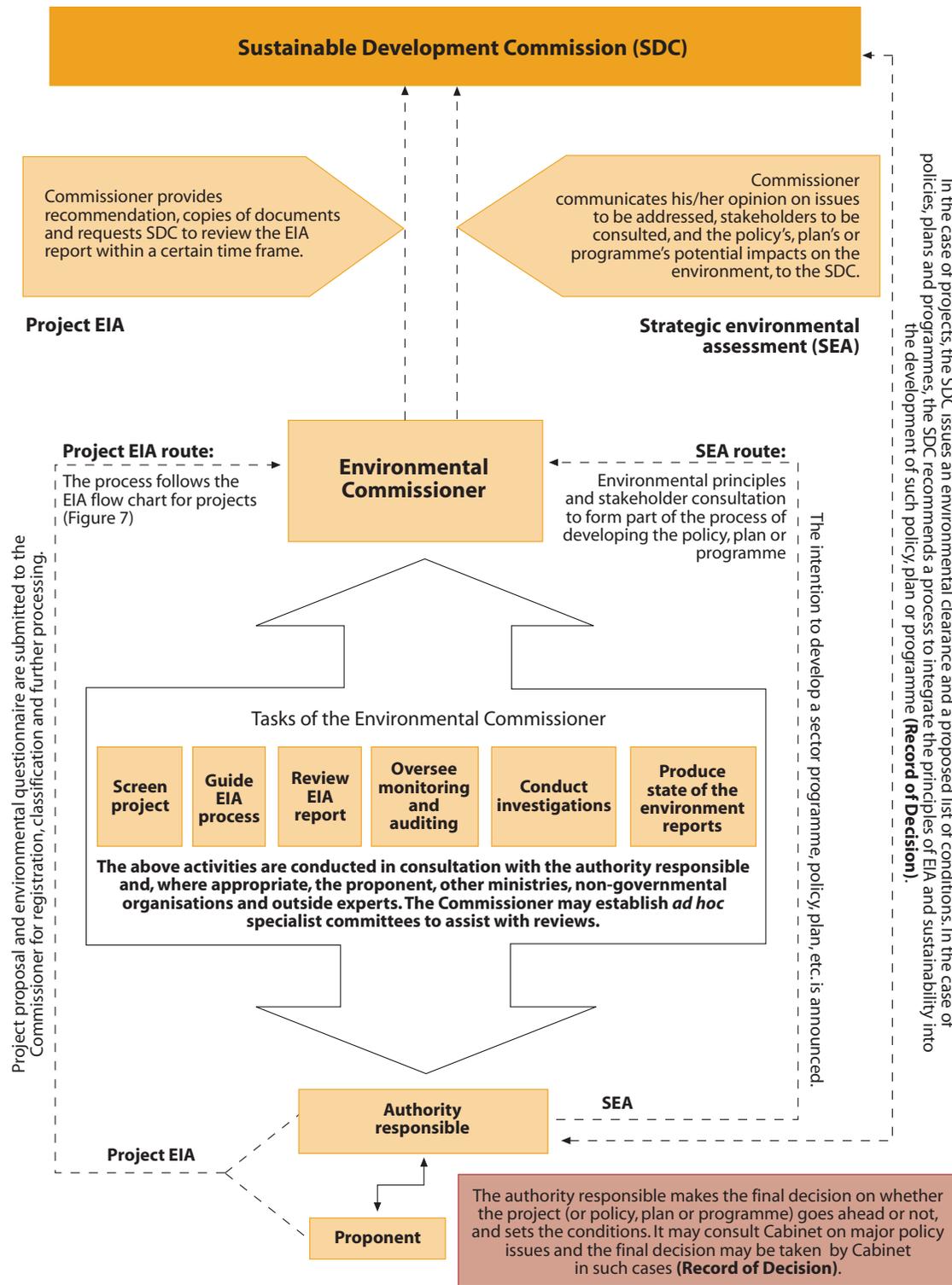
*performing any activity or failing to perform an activity as a result of which the environment or any component thereof is or may be seriously damaged, endangered or detrimentally affected.*

The Minister may also direct a person to rehabilitate damage. In the case of project proponents who fail to implement such rehabilitation, for example, the Minister is empowered to affect the required rehabilitation at the proponent's expense. In addition, the Minister may –

*prohibit any person from taking, disturbing, harming, or damaging any environment or part of an environment, living or non-living, that the Minister declares to be part of the natural, archaeological, or aesthetic heritage.*

Thus, the Bill provides a practical framework within which to administer and guide EIAs in Namibia. While it falls short of establishing an all-powerful EIA agency (where the Minister would have the power to veto the implementation of a project), it is perhaps better in the long term to encourage all ministries

Figure 8: A comparison of the project EIA and SEA processes



The positions of the proponent, the responsible authority, the Environmental Commissioner and the Sustainable Development Commission in a project EIA are different to those in an SEA.

to develop their own 'environmental conscience'. In any case, the current situation within Government precludes an equivalent environmental protection agency for the foreseeable future, if at all (Tarr & Figueira 2000).

### EIA practice

As is the case elsewhere in the world, the vast majority of EIAs conducted in Namibia have been for projects. A smaller number have been done *post facto*, i.e. some time after a project's implementation, with very few SEAs.

The use of EIA in Namibia was minimal prior to Independence (Table 2). Most EIAs conducted since then have been for the mining and infrastructure sectors (Table 3).

The main reason for the comparatively large number of mining EIAs is that the Minerals (Prospecting and Mining) Act, 1992 (No. 33 of 1992) and the Petroleum (Exploration and Production) Act, 1991 (No. 3 of 1991) both require proponents to conduct EIAs. Furthermore, the majority of mining and petroleum companies are foreign-owned and, thus, operate within the parent companies' code of conduct, which usually includes adhering to environmental standards and conducting EIAs. Many mining EIAs were *post facto*, having been conducted a number of years after the mine was established. This accounts for the escalation of EIAs during 1997 – the year in which the diamond mining company, Namdeb, published a series of EIAs and environmental management plans for its operations in the Sperrgebiet and offshore.

An interesting EIA modification in Namibia was the introduction of 'fast-track' EIA in 1998. This was initiated to assist formerly disadvantaged people in gaining access to the

**Table 3: Full project EIAs, 1980–2001**

Sector (category of activity)	No.	%
On-land mineral prospecting and mining	22	26.8
Offshore diamond prospecting	9	10.9
Oil and gas exploration	8	9.7
Roads and railways	6	7.3
Manufacturing projects	6	7.3
Power plants and power lines	5	6.0
Dams (for hydroelectric power and water storage)	4	4.8
Urban development projects	4	4.8
Hotels and tourism projects	3	3.6
Bulk fuel storage and transportation	2	2.4
Harbour upgrading	2	2.4
Small-scale water supply projects	2	2.4
Waste-disposal facilities	2	2.4
Bulk water abstraction and transfer schemes	1	1.3
Pest control projects	1	1.3
Research and training centres	1	1.3
Telecommunications infrastructure	1	1.3
Rock and sand quarries	1	1.3
Military installations	1	1.3
Forestry projects	1	1.3
<b>Total</b>	<b>82</b>	<b>100.0</b>

Source: MET, unpublished data.

mining industry, which has traditionally been dominated by multinationals. Under the system, Government waived its requirement for a full EIA, relying instead on the completion of a comprehensive environmental questionnaire that led to the setting of environmental conditions (Figure 9). The system was initially applied only to small-scale diamond prospecting along the Orange River, but has since been expanded to other projects including dimension stone. In spite of some inconsistencies in

**Table 2: Number of EIAs and related studies completed per sector, 1980–2001**

Year	Preliminary or initial EIA	Full project EIA	Post facto environmental management plan	Strategic environmental assessment or land-use plan	Feasibility study <sup>a</sup>	Environmental audit	Small-scale environmental contract
1980–1990	0	3	1	1	0	0	0
1991	0	1	0	1	0	0	0
1992	0	2	1	0	0	0	0
1993	3	3	0	0	1	0	0
1994	0	4	0	2	0	0	0
1995	1	4	0	0	2	0	0
1996	1	6	1	2	0	0	0
1997	0	14	5	0	0	4	0
1998	4	14	1	1	1	1	55
1999	2	10	2	1	1	1	55
2000	3	11	0	0	0	0	61
2001	6	10	0	1	0	0	56
<b>Total</b>	<b>20 (5.5 %)</b>	<b>82 (22.8 %)</b>	<b>11 (3.1 %)</b>	<b>9 (2.5 %)</b>	<b>5 (1.4 %)</b>	<b>6 (1.7 %)</b>	<b>227 (63.0 %)</b>

Source: MET, unpublished data.

<sup>a</sup> In this context, feasibility studies were conducted to determine the viability of proposed new projects, with environmental considerations being part of the studies. However, there were no separate or specific EIAs.

its application, fast-track EIA has shown itself to have considerable potential in Namibia. It should be noted from Figure 9 that once a ‘small-scale’ activity becomes large-scale, the more comprehensive EIA system is followed.

Large infrastructure projects, which usually require foreign funding, have generally been preceded by an EIA. This has been at the insistence of the lending agencies rather than by a desire to do so on the part of the ministry responsible. An exception has been the government-owned power utility (NamPower), which has, partly of its own accord, commissioned extensive EIAs for its major projects since 1999.

In spite of the size and importance of Namibia’s agriculture and water sectors, they collectively account for only 6% of all EIAs done. This is an alarming trend – especially considering the nation’s water scarcity and the fact that most of the country is placed under some form of agriculture (Box 2). Similarly, only three EIAs have been conducted for Namibia’s fast-growing tourism industry (Box 2), and no EIAs have been conducted in the marine fisheries sector at all, which is extremely vulnerable to both environmental factors and inappropriate management.

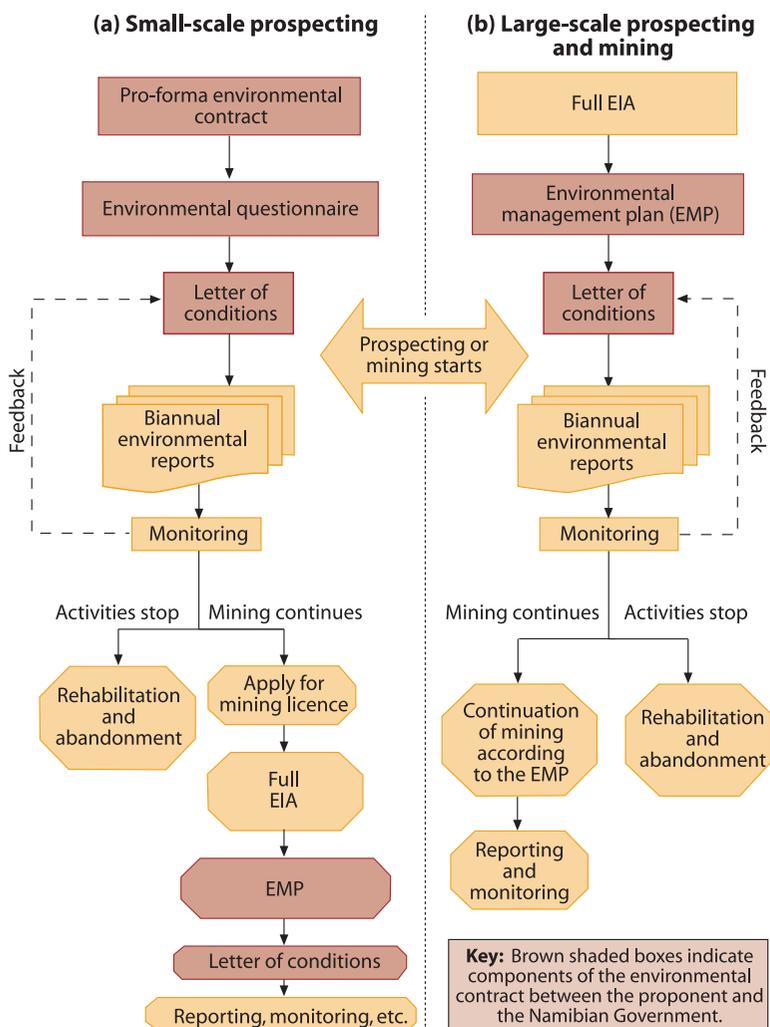
The time and costs required for EIAs are variable, as illustrated in Table 4.

**Box 2: Agriculture and tourism – cause for concern**

The paucity of even *post facto* EIAs in the agricultural sector is surprising, considering the fact that most of the country is placed under some form of agriculture. Furthermore, the existence of, and planned increase in, various small- to medium-scale irrigation projects in an arid country such as Namibia raises a number of questions. These include the use of precious water resources on low-value crops, the liberal application of fertiliser and agrochemical supplements to control pests and boost poor soils, and vulnerability to climate variability and future climate change. Indeed, the country pins its hopes on agriculture for its future, but little has been done to assess the appropriateness or sustainability of current practices. A notable exception is the recent study to assess, strategically and at project levels, the appropriateness of a sugar project, amongst others, in Caprivi. Projects of this nature have potential transboundary impacts, and Namibia has made concerted efforts to consult its neighbours in this regard.

To date, only three EIAs have been conducted for tourism projects – despite tourism being regarded as Namibia’s fastest-growing industry. Tourism projects are often located in sensitive environments, including areas of high species endemism, nature reserves, along river banks and near to disadvantaged local communities. Moreover, where EIAs have been undertaken, the recommendations are at risk of not being implemented. For example, the recommendations made in the report relating to the *post facto* study on the environmental impacts of tourism in the Etosha National Park and in the Sossusvlei area of the Namib Naukluft Park, conducted by the Ministry of Environment and Tourism in 2000, had still had not been implemented by June 2003.

**Figure 9: EIA processes for small- and large-scale mining activities**



‘Fast-track’ EIA has assisted small-scale miners to enter the industry and address the impacts of their activities without doing a full EIA.

**Table 4: Time and costs expended on EIAs in different sectors**

	Power	Mining	Oil and gas	Water supply	Roads and harbours
<b>Time (months)</b>	13 (6–27)	8.25 (1–14)	7.6 (2–12)	6.75 (4–12)	5.25 (1–10)
<b>Cost (as % of total project cost)</b>	2.52 (0.24–4.8)	1.25 (0.01–5.2)	0.4 (1 sample)	0.24 (0.08–0.38)	0.22 (0.05–0.55)

Source: Tarr (1999). Average figures, range in brackets.

**Table 5: Strengths and weaknesses of EIA in Namibia**

Strengths	Weaknesses
<p><b>Policy and legislation</b></p> <ul style="list-style-type: none"> <li>• Good framework conditions exist, such as Constitutional clauses, the Office of the Ombudsman, and a functional democracy.</li> <li>• A good policy and draft legislation (Environmental Management Bill) exist.</li> <li>• The Bill has some very progressive components and ensures that the public have a key role in EIA.</li> <li>• The Bill was drafted following a consultative, home-grown process that has resulted in considerable local ownership.</li> <li>• A fast-track EIA system is in place to deal with smaller projects (i.e. system is flexible).</li> </ul>	<ul style="list-style-type: none"> <li>• The Environmental Management Bill has not yet been passed.</li> <li>• The Environmental Assessment Policy and EIA legislation are not accessible to the general public and need to be popularised.</li> <li>• Inconsistencies across sectoral legislation still exist, with some laws contradicting each other in terms of EIA.</li> <li>• The Bill needs strengthening as there are still too many opportunities for the EIA system to be ignored for various reasons.</li> <li>• The Bill needs to be complemented by regulations.</li> <li>• There are not enough safeguards for rehabilitation (e.g. a fund).</li> </ul>
<p><b>Institutions and partnerships</b></p> <ul style="list-style-type: none"> <li>• The Office of the Ombudsman is an important cornerstone.</li> <li>• The MET (Ministry of Environment and Tourism) has an EIA Unit.</li> <li>• Namibia has some very good local non-governmental organisations (NGOs) who have expertise in EIA and who are willing to become involved in local issues.</li> <li>• There is reasonably good multi-sectoral cooperation within Government, and between Government and others.</li> <li>• Government officials are generally accessible.</li> <li>• A reasonably good relationship exists between Government, NGOs and the private sector.</li> <li>• There is a growing culture of bottom-up decision-making (e.g. community-based natural resource management), and decentralisation should promote better EIA practice.</li> <li>• International agencies (e.g. United Nations Development Programme) provide good support.</li> <li>• The local media are free and strong, and some newspapers give extensive coverage of environmental issues. This has helped improve awareness amongst the public.</li> <li>• The education system has begun to include environmental issues in the curriculum, and various resource materials have been produced locally for schools and higher institutions.</li> </ul>	<ul style="list-style-type: none"> <li>• The Office of the Ombudsman is not used enough in the context of EIA.</li> <li>• The MET is very weak, and the EIA Unit depends on one or two people. Its functioning is, thus, very vulnerable to staff turnover.</li> <li>• The structure exists on paper, but is not properly operationalised.</li> <li>• There is not enough access to politicians on matters pertaining to EIA.</li> <li>• Too much jurisdictional overlap and sectoral rivalry exist, although these are gradually diminishing.</li> <li>• There is still antagonism towards NGOs, especially when Government is challenged.</li> <li>• Although one or two people in ministries other than the MET are knowledgeable of and committed to EIA the majority of government officials seem unaware and uncommitted.</li> <li>• Government is generally not well staffed with specialists, and the few competent staff that are in place are overextended.</li> <li>• In some circles within Government, there is a reluctance to outsource (e.g. EIA reviews), even though this could assist Government.</li> </ul>
<p><b>EIA practice</b></p> <ul style="list-style-type: none"> <li>• There is a systematic and transparent EIA review system (checklist template).</li> <li>• Limited corruption exists.</li> <li>• Experience of the application of EIA has so far been good. This has improved awareness and attitudes.</li> <li>• As a result of the above, many government agencies, parastatals, NGOs and private companies have internalised EIA and developed their own systems and, in some cases, guidelines.</li> <li>• A number of well-qualified and experienced local consultants are available and can do most of the EIAs. Thus, there is minimal importation of foreign experts.</li> <li>• As a result of the above, the quality of EIAs done in Namibia to date is regarded as high.</li> <li>• Despite inadequate baseline data, a number of resource materials that are useful to EIA continue to be produced (e.g. atlas, profiles, biodiversity country study, state of the environment reports).</li> <li>• Reliable communications (e.g. Internet) facilitate a quick and easy exchange of information.</li> </ul>	<ul style="list-style-type: none"> <li>• In most cases, the EIA review checklist template is not used.</li> <li>• Although corruption is limited, its presence is felt. This can undermine EIA implementation.</li> <li>• EIA is selectively applied, being strict and highly sophisticated in some cases (e.g. oil and gas exploration), but ignored in others, especially those projects initiated by influential people (e.g. politicians).</li> <li>• Some antagonism exists between NGOs and Government, even though both theoretically share a common vision.</li> <li>• Due to inexperienced staff at government level, terms of reference for EIAs are usually inadequate, leading to frustrations and inadequacies during the EIA process.</li> <li>• Because of inadequate post-implementation monitoring, EIA is largely a paper exercise.</li> <li>• EIA has not enjoyed enough positive coverage in the media. Consequently, decision-makers and the public have not been shown the real value of EIA, which has led to some negative perceptions.</li> <li>• Not enough use has been made of strategic environmental assessment, even though it is well known that project-level EIA (though good) does not generally address issues such as cumulative impacts.</li> </ul>

## Key success and challenges

The strengths and weaknesses of EIA in Namibia are summarised in Table 5. An analysis of the application of EIA in Namibia makes it clear that great differences exist between policy and practice. The opinion of stakeholders consulted during the preparation of this chapter is that Government has been slow to consolidate the consensus reached during a decade of multi-stakeholder consultation, which led to the development of policy and draft legislation. High expectations of the use of EIA as a planning tool for sustainable development are often not being met, as both public and private sectors, at national and local level, apply EIA in a rather selective and subjective way. Simply put, decision-makers sidestep or violate the EIA process when it suits them.

Furthermore, most stakeholders agree that post-implementation monitoring is weak in Namibia, resulting in the EIA usually being regarded as a 'paper exercise': conducted primarily to satisfy an administrative or legal requirement. Fortunately, a few dedicated officials in the field (e.g. MET staff and mining inspectors) and some private sector developers (e.g. petroleum and mining companies), undertake regular monitoring of a few projects.

## Conclusions

Since Independence, Namibia has undergone a process of formulating new policies, revising outdated legislation and introducing large numbers of developmental programmes and

projects. Consequently, the need to apply project EIA and strategic environmental assessment has increased dramatically in the past 13 years.

Namibia has laid a solid foundation for EIA through the systematic development of its policy and legal framework. Thirteen years after Independence, a small but highly skilled network of EIA professionals established within private, public, academic and non-governmental institutions generally share a common vision for the sustainable development of the country. In addition, good cooperation usually exists between stakeholders during the EIA process. However, whilst the policy environment is good and the structures for EIA administration, guidance and quality control are partially in place, the system falls short when it comes to implementation and monitoring.

Namibia needs to harness its limited skills base more effectively, and broaden this through ongoing capacity-building and efforts to raise awareness of EIA. Although EIA is being practised on a comparatively regular basis, this essential planning tool will continue to be inconsistently implemented until legislation is put in place, properly administered and enforced. Consequently, the Environmental Management Bill needs to be passed, the Office of the Environmental Commissioner created, and the Sustainable Development Commission established as soon as possible.

The use of EIA has tremendous potential to help Namibia avoid the negative impacts of development that other nations have suffered in the past. However, this requires a consistent approach, which is ultimately underpinned by political will, good governance and a well-informed, proactive and articulate civil society – one that actively seeks to influence legislative and policy agendas and outcomes.



Peter Tarr

*Far from being 'barren wasteland', the Namib Desert is an important centre of endemism and a unique tourist destination.*

## Appendix 1: Case studies

### Environmental management of land-use activities in the Sperrgebiet

Alexandra Speiser

In the following, a brief description is given to illustrate the importance of implementing and monitoring environmental management plans (EMPs) as regards –

- land use within the Sperrgebiet, an area of Namibia that is highly sensitive and unique in the world
- the management of exploration activities within the Sperrgebiet to ensure that all options for future land use are not compromised
- meeting the requirements set by the Ministry of Environment and Tourism (MET) before exploration commences within the Sperrgebiet, and
- the environmental monitoring of EMP implementation.

The Sperrgebiet was established to form a protective belt around the diamond areas along Namibia's west coast. It lies in south-western Namibia and is part of the Namib Desert, which is thought to be the oldest desert in the world.

The Sperrgebiet, characterised by a number of unique landscapes with an extraordinarily high biodiversity, has been off-limits to most people for more than 80 years. There is, thus, a general awareness of the importance of maintaining the uniqueness of this area.<sup>1</sup> All land use (e.g. tourism and research) in the area needs to be properly managed, therefore, to guarantee that users' rights and interests are met. To this end, a Land-use Plan was initiated by the MET. The preparation of the Plan was funded by DANCED (the Danish Cooperation for Environment and Development), and conducted by consultants in 2001. The Plan is currently under review by the relevant authorities.

The Sperrgebiet has also become the focus of various exploration activities. In 2000, the Ministry of Mines and Energy opened the area to exploration companies. As stipulated by No. 68 in Section X of the Minerals (Prospecting and Mining) Act, 1992 (No. 33 of 1992), anyone applying for an Exclusive Prospecting Licence is required to submit –

- particulars on the existing damage to the environment
- an estimate of the impacts that the proposed prospecting operations could have on the environment, and
- an overview of the steps to be taken in order to minimise any possible impacts.

Due to the fact that the Sperrgebiet is such a sensitive desert area, and because research has been limited over the past eight decades, the MET has requested that a comprehensive EIA be undertaken by each exploration company that is granted a licence in the area, and that specific plans be drawn up to reduce potential environmental impacts. These companies are obliged to submit both an EIA and an EMP to the

MET for approval before environmental clearance can be granted and an environmental contract entered into. Public participation in such EIAs is limited as the area is still closed to the public, but specialist advice or studies should be conducted where relevant.

Once the environmental contract becomes operative, the exploration companies are obliged to conduct monitoring field visits twice a year, and submit a monitoring report to the MET. During such visits, compliance with the EMP needs to be checked, as well as rehabilitation efforts and results. It is highly recommended, although not obligatory, that an independent consultant conduct the monitoring visits. During the six-month period between one such visit and the next, MET staff based in Lüderitz are to conduct random inspections while in the area.

Analyses of the monitoring reports submitted by exploration companies to date show that the following aspects of mining have the highest impacts on the environment:

- Access tracks to geophysical ground-survey areas
- Trenching, and
- Access tracks to drill sites.

In conjunction with the MET and various exploration companies, the Geological Survey of Namibia has compiled a map showing all the access tracks within the Sperrgebiet. The tracks shown are divided into different categories, such as main access tracks or prohibited tracks. The laying down of new access tracks to areas of geological interest is to be discussed with MET staff in Lüderitz before being carried out. All temporary tracks such as access tracks to drill sites or geophysical lines are to be rehabilitated after the projects have been completed. One company actually commissioned an environmental induction session for its drilling crew who were stationed within the Sperrgebiet next to their drill site: the crew were previously unaware of the reasons why vehicles should stay on tracks, why one should avoid any damage to vegetation, etc.

Over the past three years, as EMPs have been drawn up and implemented, the following aspects of environmental management have emerged as being crucial and are to be incorporated into all future exploration projects:

- An EMP is only as good as its implementation.
- Environmental awareness should exist at all levels of an exploration company.
- Good communication should exist between all stakeholders (the MET, the exploration company, the subcontractor, the environmental consultant).
- Everyone involved should possess or receive the necessary education and training.

<sup>1</sup>The MET has proposed that the area be granted 'Protected Area' status in terms of an IUCN classification.

Aug 2002



Eco-Plan

Jan 2003



Eco-Plan

*Off-road driving has a great impact in the southern Namib because vehicle tracks on some substrates can remain visible for over 100 years. The implementation of EMPs has reduced the negative impacts of vehicle-based prospecting.*

## Okanjande Graphite Project

*Bryony Walmsley*

### Aims of the project

Rössing Uranium Ltd. (RUL), a subsidiary of Rio Tinto Zinc, identified a high-grade flake graphite deposit near Otjiwarongo in north-central Namibia. In view of the high demand for quality graphite worldwide in the early 1990s, RUL recognised a market opportunity to develop a world-class mine and process plant, which would help to diversify the Namibian economy and create employment.

The project was to be developed in two phases. The first phase constituted a feasibility study, involving three trial mining pits, a pilot plant near Otjiwarongo and a small tailings dam, while the second phase led to the full development of the mine and process plant. The mining project as a whole entailed the following activities:

- Ore was to be mined at a rate of 500,000 t per annum from an open pit, using trucks and shovels to a depth of 90 m for at least 25 years.
- The ore reserve of high-grade flake graphite was estimated to be 12 million t, at 3% carbon cut-off grade.
- A process plant was to be located next to the open pit, comprising milling, heavy mineral separation, flotation, filtration, drying, screening and bagging sections.
- Graphite was to be produced at an initial rate of 20,000 t per annum, but with expansion planned.
- Disposal dumps for dry tailings and waste rock were to be established.
- Ore would be stockpiled on-site.
- Wastewater and effluent would be controlled, and disposal facilities would be constructed.
- A waste-disposal plan would be implemented to deal with domestic and industrial waste.
- Accommodation would be provided in Otjiwarongo for approximately 90 permanent employees.
- A new access road, a power line and water pipelines would be built.
- The final product would be trucked to Walvis Bay for shipment.

### Project alternatives

The location of the ore body makes the mine site-bound, but several alternatives were considered during project planning in respect of –

- contractor mining vs. in-house mining by RUL
- the location and size of the ore stockpiles and waste-rock dumps
- sulphur removal technologies
- process technologies
- waste disposal and recycling methods
- methods to reduce water demand
- the tailings dam site, the method of tailings disposal, and design of the tailings dam
- pollution prevention measures around the tailings dam, and
- the access road, power line and pipeline routes.

### Receiving environment

The mine site was located amongst some low hills to the south-west of Otjiwarongo. The site was previously used for grazing, but also had an abundance of natural fauna and flora. Although groundwater resources in the region are scarce, the farmers are entirely dependent on those that exist for all their uses. In places the groundwater quality is poor, especially where it has come into contact with the highly mineralised host rocks.

The proposed mine site's location close to the small town of Otjiwarongo meant the mine could benefit from its labour pool, transport infrastructure, and social and community facilities, although additional housing was expected to be needed. There were no farmsteads on or near the proposed new mine and plant sites.

### Key issues

- High cost of water supply
- Potential contamination of groundwater, especially in view of the highly reactive sulphide minerals in the ore body
- Impact on groundwater resources
- Noise, dust and visual impact during construction and operation
- Loss of grazing land
- Routes for infrastructure
- Increased potential for crime on surrounding farms
- Interference with farming activities
- Rehabilitation and restoration of land capacity
- Waste disposal

### Key mitigation measures

#### Construction

- Development of a landscaping and rehabilitation plan
- Archaeological survey to be conducted during site clearance
- Development of a topsoil handling and management plan
- Dust-suppression programme
- Appointment of an Environmental Control Officer
- Hours of work to be limited
- Formulation of a waste-management strategy
- Ongoing communications with farmers to deal with issues proactively
- Careful design of river crossings for the access road and pipeline

#### Mining

- Dust-suppression programme
- Slope stabilisation and storm-water control plans
- Measures to control pollution at primary crushers, ore stockpiles and waste-rock dumps

#### Plant

- Dry tailings disposal: The original plan had been to use traditional hydraulic deposition for the tailings because of the perceived high capital costs for dry disposal. However, once the full environmental costs had been taken into consideration, dry disposal was found to be cheaper, both in terms of capital and operating expenditure (annual savings of N\$750,000 or US\$71,292 in water economising alone)
- Comprehensive pollution control and rehabilitation plan for the tailings dump
- Storm-water run-off control plan
- Monitoring plan (for dust control, revegetation, water quality and water availability)
- Waste-management plan, including recycling, reuse and disposal of hazardous materials, and
- Local employment or contracting where possible.

#### Infrastructure

- The preferred environmental options were selected for the access road, power line and pipeline routes.

#### Other

- A weather station should be installed.
- The mine should provide water to the farmers in the surrounding area.
- An environmental management system should be developed.
- Environmental audits should be conducted once a year.

**Table 1: EIA process**

Date	Activity
January 1991	<ul style="list-style-type: none"> <li>Consultants were appointed to conduct Phase I of the study, i.e. to compile an environmental baseline of the mine site and to undertake an EIA of the pilot plant operation (including trial mining).</li> <li>The EIA study was motivated by Rio Tinto Zinc's policy requirements, rather than any legal requirement in Namibia at the time.</li> </ul>
March 1991	<ul style="list-style-type: none"> <li>The Phase I study was completed. This comprised a desk study, literature review, and limited specialist studies on the soils, vegetation, birds and archaeology of the area, as well as the pertinent legal requirements. There was consultation with local farmers, the Otjiwarongo Town Council, neighbours of the proposed pilot plant site, and the relevant authorities.</li> <li>The trial mining and pilot plant operations were described, the environmental impacts of construction, operations and – importantly – closure were assessed, and recommendations for mitigation were included in the EIA study report.</li> </ul>
July 1991	<ul style="list-style-type: none"> <li>The monitoring of operations at the pilot plant commenced, including chemical and physical testing of tailings, revegetation trials on the tailings, storm-water erosion control, topsoil removal and stockpiling, natural revegetation at the mine site, and the taking of air and water quality samples.</li> </ul>
October 1991	<ul style="list-style-type: none"> <li>A detailed scoping study was carried out to define the terms of reference for the EIA. This included consultation with five ministries, the local authorities, farmers, the Regional Commissioner, the Otjiwarongo Chamber of Commerce, and the Wildlife Society.</li> </ul>
February 1992	<ul style="list-style-type: none"> <li>A Project Quality Control Plan was formulated in terms of ISO<sup>a</sup> 9001, as was an Environmental Quality Control Plan.</li> </ul>
April 1992	<ul style="list-style-type: none"> <li>Consultants were appointed to do the EIA in terms of Rio Tinto Zinc's policy and the requirements of existing mining legislation. The study was done in close cooperation with the process-plant design engineers and the tailings dam engineers. Detailed studies were carried out on climatic conditions, soils, water quality, groundwater conditions, socio-economic impacts, surface hydrology, and archaeology, and the database on fauna and flora was updated. In addition, extensive test work was carried out on the geochemistry of the ore body, including acid–base accounting and tailings analysis. The impacts were considered in terms of their significance, magnitude, duration and potential for mitigation.</li> <li>The report contained extensive recommendations for the control and mitigation of the residual impacts, which could not be eliminated through design and layout.</li> </ul>
November 1992	<ul style="list-style-type: none"> <li>The EIA report was submitted to the relevant authorities for review.</li> </ul>
February 1993	<ul style="list-style-type: none"> <li>The report was approved with a few small amendments.</li> </ul>
May 1993	<ul style="list-style-type: none"> <li>A sharp slump in the world graphite market, together with a marked drop in the price of graphite, led to a decision by Rössing Uranium Ltd to terminate the project.</li> </ul>
June 1993	<ul style="list-style-type: none"> <li>Consultants drew up a closure plan for the trial mining sites, the pilot plant and the tailings dam.</li> <li>Site rehabilitation commenced immediately.</li> </ul>
September 1993	<ul style="list-style-type: none"> <li>The rehabilitation work was completed.</li> </ul>
November 1993	<ul style="list-style-type: none"> <li>The first monitoring site inspection of the rehabilitated site was conducted, and an audit report compiled.</li> </ul>
March 1994	<ul style="list-style-type: none"> <li>A second inspection took place, with the compilation of a concomitant report.</li> <li>The Namibian Business Forum for the Environment visited the site to view its rehabilitation, and a TV documentary was made on the work.</li> </ul>
February 1995	<ul style="list-style-type: none"> <li>A third site inspection took place, and a report was compiled.</li> </ul>
April 1996	<ul style="list-style-type: none"> <li>A final site inspection was conducted, and a final report produced.</li> </ul>
June 1996	<ul style="list-style-type: none"> <li>Final closure of the site was approved by the landowners and authorities.</li> </ul>

<sup>a</sup> International Organisation for Standardisation.

### Press coverage

The project received extensive coverage in trade journals, as well as in the Namibian newspapers and the Namibian Broadcasting Corporation. A TV documentary was made on the rehabilitation work undertaken on the closure of the pilot plant operation. The Namibian Business Forum for the Environment targeted the rehabilitated area for its annual site visit.

### Proponent response and involvement

The motivation to do the EIA came from Rio Tinto Zinc's policy; before the Namibian EA Policy (MET 1995) came into being. The proponent was fully involved with the EIA study.

### Political response and involvement

The Minister of Mines and Energy not only visited the project site, but his Ministry also granted its full support for the project. Useful contributions

and comments were received from all the other authorities involved in the public participation process, including local government.

### How the EIA influenced the process

Environmental issues and concerns were fully integrated into the designs of the mine, plant and associated infrastructure.

The Phase I EIA for the pilot plant actually planned for possible closure, although this was considered highly unlikely at the time. This included recommendations relating to topsoil stripping, overburden removal, erosion control, storm-water management, vegetation removal, and dust and noise control. The work included field trials on the pilot plant's tailings to determine the most effective means of revegetation. Thus, when the decision was taken to terminate the project, the planning had already been done and a strategy was in place. This was the main reason for the success of the closure operation.

### Post-implementation monitoring

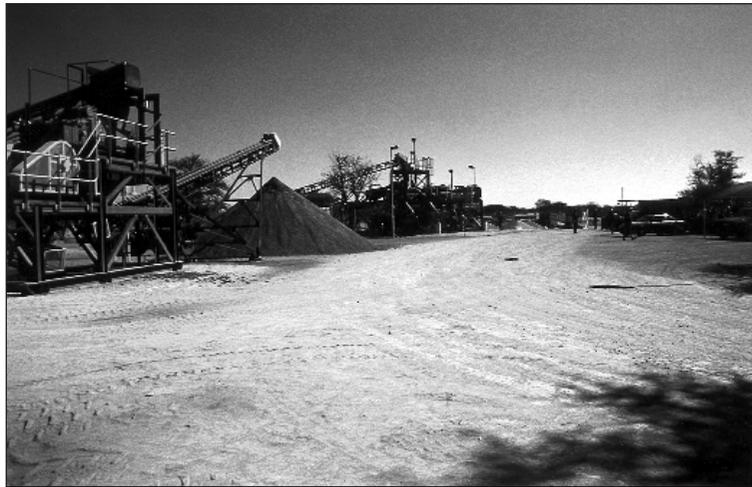
The site was visited annually for four years. Monitoring ceased once the land was completely taken over for other uses: cattle were again allowed to graze at the mine, while the Riding Club resumed holding events at the pilot plant site.

### Key lessons learnt

1. The fact that the proponent recognised the value of the environmental input resulted in the full integration of environmental concerns into the project design. This led to highly effective communication and a high degree of credibility.
2. The importance of full environmental accounting was highlighted:

what initially appeared to the engineers as a major cost, actually ended up costing less, once all related environmental factors had been taken into account.

3. Consultation throughout, especially with the affected parties, was crucial.
4. Although there was no thought of premature closure during the feasibility study, potential closure was given proper consideration in the planning. Therefore, when closure became a reality, it was possible to implement rehabilitation measures immediately and with great effectiveness.
5. The proponent aimed for a world-class project from the start, which was reflected in its holistic approach to environmental matters.



WSP Wainisley



WSP Wainisley

*The Okanjande Graphite Project shows how EIA can result in successful decommissioning and rehabilitation of a mine. The photograph above shows the plant operation in 1991, and below the rehabilitated area five years after closure.*

## Aries–Auas 400-kV power line

Bryony Walmsley

### Aims of the project

A study conducted in 1995 showed that Namibia would experience a shortfall in power supply by 1998. The only scheme that could provide a reliable, long-term source of power within the required time frame was found to be the construction of a 400-kV power line from South Africa. Namibia's power utility, NamPower, commissioned consultants in 1996 to undertake an EIA in terms of the Environmental Assessment Policy (MET 1995).

### Project description

- The project involved the establishment of a new 400-kV power line from the Aries sub-station near Kenhardt in South Africa, via the existing Kokerboom sub-station near Keetmanshoop in Namibia, to a new sub-station (Auas) located 22 km east of Windhoek.
- NamPower commissioned an EIA for the Namibian section of the route, from the Orange River to Auas.
- The main project components included –
  - 730 km of 400-kV conductors supported on two different types of pylon, namely the new compact cross-roped suspension tower and standard self-supporting strain towers
  - way-leave clearance
  - importing all construction materials for tower erection
  - stringing and tensioning the lines
  - crossing the Orange River
  - extending the Kokerboom sub-station
  - constructing a new sub-station at Auas
  - establishing contractors' camps, and
  - constructing a new access road.

### Project alternatives

Prior to the EIA, a comprehensive study was undertaken to evaluate the various power source alternatives available to NamPower, such as upgrading the Ruacana hydroelectric plant, the Van Eck thermal power plant, and the existing 220-kV line. Alternative power sources were also considered, such as gas, and solar and wind power. Each alternative was considered in terms of the time it would take to complete (this was a critical factor), its supply capacity and reliability, its cost, and its long-term sustainability. The option to construct a 400-kV line from South Africa fulfilled all the key criteria.

The first phase of the EIA was to evaluate three possible route options. NamPower engineers identified two routes, while the third option was computer-generated, using a shortest-route algorithm buried in an environmental 'cost' grid.

### Environmental description

Despite the 730-km-long study area, it could all be described as semi-arid, with poorly developed soils and sparse vegetation. Trees are scarce and, thus, even more important in the context of supporting biodiversity, when they occur along river beds and in the slightly wetter areas in the hills south of Windhoek. The combination of climate, soils and vegetation has resulted in an extremely low carrying capacity for larger species of game and domestic stock. However, several areas along the route are thought to be centres of endemism for smaller mammals, reptiles, amphibians, reptiles and plants. The low agricultural potential of the area means the farms are generally large and the population very low.

The topography of the study area ranges from steep mountain ranges south of Windhoek, to almost flat, featureless plains between Rehoboth and Keetmanshoop. The remote and desolate Karasberg massif dominates

the landscape south-east of Keetmanshoop, while the Orange River valley is characterised by extremely rugged, broken terrain.

### Key issues

- Power supply to the southern Regions
- Potential for economic development and upliftment in the southern Regions
- Use of local contract labour during construction
- Potential negative impacts on tourism because of visual impacts
- Presence of localised habitats sensitive to disturbance, especially in the mountainous areas
- Negative impacts on bird flight paths, especially near ephemeral pans and river crossings
- Saline soils
- Impacts of construction, e.g. route clearing, waste disposal, access tracks, contractors' camps

### EIA methodology

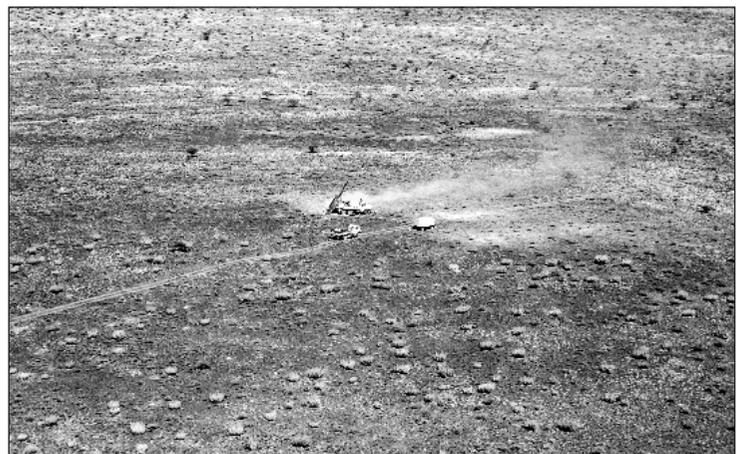
The EIA study was conducted in three main phases:

- Phase 1: Route selection and evaluation
- Phase 2: Route finalisation and field checking
- Phase 3: Monitoring of construction

#### Phase 1

A scoping study was carried out to identify key issues. This involved contacting over 80 organisations representing government, non-governmental organisations (NGOs), interested parties and other stakeholders. Each person was sent a briefing document and an invitation to public meetings. Notices were also placed in all the national newspapers, and the public meetings were advertised on the radio in English and Afrikaans. Public meetings were held at main centres along the entire route.

In view of the size of the study area, a geographic information system was used to capture all relevant environmental data such as slope classes, river crossings, farmsteads and settlements, the location of infrastructure, ecologically sensitive areas, areas with high archaeological potential, the location of irrigation schemes, existing and future nature conservation areas, seasonal and ephemeral pans, main soil types (especially saline soils), and important viewsheds. Each environmental attribute was then



Drilling anchor holes – note the single-access track

scored according to its intrinsic environmental value, engineering constraints and financial constraints.

A computer program was used to generate the shortest route at lowest environmental cost. The three route options were then evaluated in terms of a number of agreed criteria. In principle, the computer-generated route was selected. Inherent in this route was a minimum environmental impact.

**Phase 2**

The computer-generated route was then refined using larger scale maps and helicopter surveys to optimise distance vs. technical and environmental cost. One of the key issues debated at this stage was the option to take the power line through the centre of the Karasberg or to go around the massif at an extra cost, then, of N\$12 million (US\$1.14 million). It was argued that the Karasberg could become a major tourist destination, and that the construction of a power line through the centre of this area would compromise future land-use options. NamPower took the decision to avoid this area, therefore, and to incur the additional cost of going around the Karasberg.

**Phase 3**

The EIA report made several recommendations to mitigate the impacts relating to pylon positions, final alignment, construction activities and line maintenance. The consultants were involved in final alignment decisions and were appointed to monitor construction activities every two months for the entire construction period, as well as conducting a final inspection upon handover to NamPower. Every two months, the line was inspected by helicopter with spot checks on the ground, particularly at construction

camps. Audit reports were sent to the contractors and to NamPower. The contract could not be completed until all environmental issues had been resolved.

**Public involvement**

The authorities, stakeholders and the public were kept informed throughout the process, and the latter were encouraged to submit their written comments on the project. The local news media covered the project at various landmark stages. In addition, relevant trade journals carried papers on the project's progress, and it was showcased at several environmental conferences.

**Proponent involvement**

NamPower personnel were fully involved in the entire process – to the extent that the Chief Executive Officer, Technical Manager and Design Engineer were present at all the public meetings. The NamPower helicopter was made available for all site visits and NamPower personnel accompanied the environmental team on all route checks and construction monitoring trips. This allowed continual dialogue on how to optimise the route from a financial, technical, social and environmental point of view.

**Political response and involvement**

Although there was little political involvement during the EIA studies, the importance of the environmental component of this project was mentioned at the 'switching on' of the southern section of the line by Presidents Nujoma and Mbeki of Namibia and South Africa, respectively.

**EIA review**

The EIA was reviewed in terms of the EA Policy (MET 1995) by the Directorate of Environmental Affairs in the Ministry of Environment and Tourism, and approved.

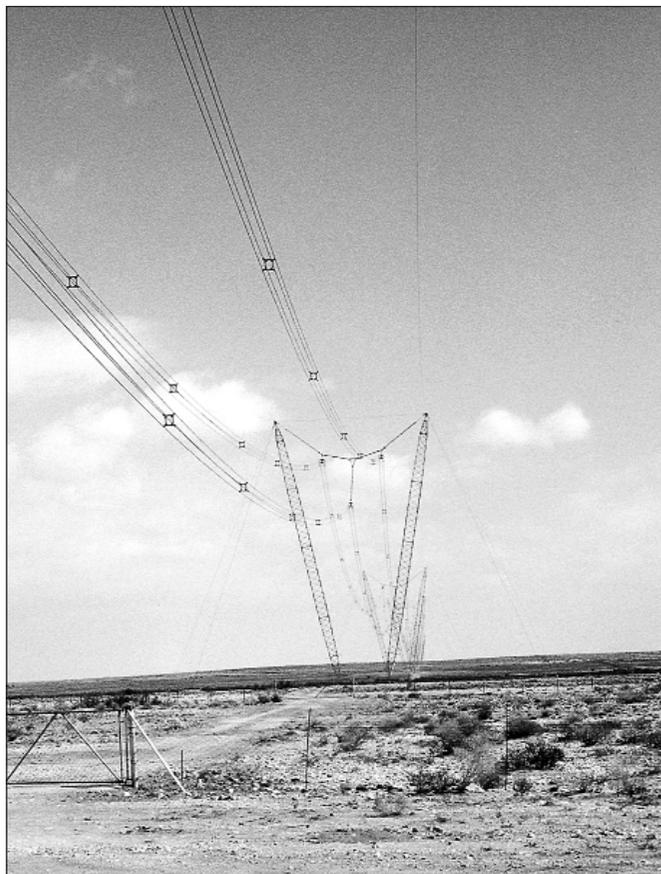
**Influence of the EIA**

The EIA process resulted in several key decisions that had a positive impact on the environment:

- Although the final route chosen was not the shortest, the least difficult technically, or even the one with the least environmental impact, the route achieved an acceptable balance of all these factors.
- The EIA process ensured that future land-use options in the Karas Mountains were not compromised by the presence of a power line.
- Some of the construction teams had never monitored construction before, so many lessons were learnt regarding acceptable environmental management.
- The study provided a benchmark for future power-line studies in Namibia and several lessons were carried forward to those studies.

**Key lessons learnt**

- Archaeological and botanical surveys should be undertaken in sensitive areas at the same time as the final line survey so that minor adjustments to the route and pylon positions can be made .
- Environmental management clauses should be incorporated into the construction tender documentation, with specific targets and requirements that can be measured and audited.
- Construction auditing is crucial for ensuring that the findings of the EIA are implemented during construction.



Compact cross-roped suspension tower

WSP Walmsley

## Appendix 2: Useful contacts

### Key government officials dealing with EIA

Contact	Ministry	Address	Telephone	Fax	e-mail
Nghitila, Mr Theo Acting Deputy Director	Directorate of Environmental Affairs, Ministry of Environment	P/Bag 13306, Windhoek	(+264-61) 249015	(+264-61) 240339	nghitila@dea.met.gov.na

### Key NGOs and community-based organisations (CBOs) dealing with EIA

NGO/CBO	Contact person	Address	Telephone	Fax	e-mail
Coastal Environmental Trust of Namibia	Mr Keith Wearne	PO Box 786, Walvis Bay	(+264-64) 205057	(+264-64) 200728	cetn@iafrica.com.na
Desert Research Foundation of Namibia	Dr Mary Seely, Director	PO Box 20232, Windhoek	(+264-61) 229855	(+264-61) 230172	mseely@drfn.org.na
Earthlife Namibia	Ms Bertchen Kohrs	PO Box 24892, Windhoek	(+264-61) 227913	none	earthl@iway.na
Greenspace	Ms Kittie Stern, Secretary	PO Box 86194, 2 Christa Davids Street, Windhoek	(+264-61) 228886	(+264-61) 228886	stern@mweb.com.na
Namibia Association of Community-based Natural Resource Management Support Organisations (NACSO)	Ms Patricia Skyer	PO Box 98353, Windhoek	(+264-61) 230888	(+264-61) 230888	nacso@iafrica.com.na
Namibia Community-based Tourism Association (NACOBTA)	Ms Maxi Louis, Director	PO Box 86099, 18 Liliencron Street, Windhoek	(+264-61) 250558	(+264-61) 222647	nacobta@iafrica.com.na
Namibia Nature Foundation	Dr Chris Brown, Executive Director	PO Box 245, Kenya House, Robert Mugabe Avenue, Windhoek	(+264-61) 248345	(+264-61) 248344	chrisbrown@nnf.org.na
Wildlife Society of Namibia	Ms Gaby Dembski	PO Box 3508, Windhoek	(+264-61) 236283	none	etosha1@mweb.com.na

### Key academic institutions dealing with EIA

Academic institution	Contact person	Address	Telephone	Fax	e-mail
School of Natural Resources and Tourism, Polytechnic of Namibia	Dr W Jankowitz, Dean of School	P/Bag 13388, 13 Storch Street, Windhoek	(+264-61) 2072031	(+264-61) 2072142 2072196	wjankowitz@polytechnic.edu.na

### Useful websites

Desert Research Foundation of Namibia	<a href="http://www.drfn.org.na">http://www.drfn.org.na</a>
Directorate of Environmental Affairs, Ministry of Environment and Tourism	<a href="http://www.dea.met.gov.na">http://www.dea.met.gov.na</a>
Namibia Nature Foundation	<a href="http://www.nnf.org.na">http://www.nnf.org.na</a>
School of Natural Resources and Tourism, Polytechnic of Namibia	<a href="http://www.polytechnic.edu.na">http://www.polytechnic.edu.na</a>

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