PROJECT WRITEUPS

South Africa showcase

South Africa showcase

"Protecting and improving the environment and having access to energy services are essential for sustainable development. The poor are disproportionately affected both by environmental degradation and lack of access to clean, affordable energy. In South Africa, many of UNDP's sustainable development projects through the GEF provide excellent models which can be replicated across the continent and beyond. The projects in South Africa are helping to strengthen capacity, generate new ideas and solutions, and support the integration of environment into national development strategies."

Kemal Dervis
Administrator, United Nations Development Program

"If we are to meet our obligations to current generations and hand over a functioning planet to next one, we need partnerships at all levels and in all parts of the world.
The GEF, which I now proudly head, is a key catalyst. It is bringing governments, the UN, the private sector, scientists and communities together in common cause through its unique multi-billion dollar portfolio of innovative, practical and exciting projects.
South Africa is among those countries seizing the opportunities offered by GEF in areas from biodiversity and international waters to energy and climate change.
This desire, creativity and drive for harmony between the social, economic and environmental worlds, has been ably crystallized in its National Strategy for Sustainable Development. It is a model for the Continent, a model for us all."

Monique Barbut
Chief Executive Officer, Global Environment Facility

"The wealth of Africa's ecosystems of the goods and services provided by nature and their contribution to human well being is important to us all. Many of these ecosystems serve not only the region, but the whole world. Developing Africa's natural wealth in a sustainable way to serve the economic needs of current and future generations is therefore a global concern."

Marthinus van Schalkwyk
Minister of Environmental Affairs and Tourism, South Africa

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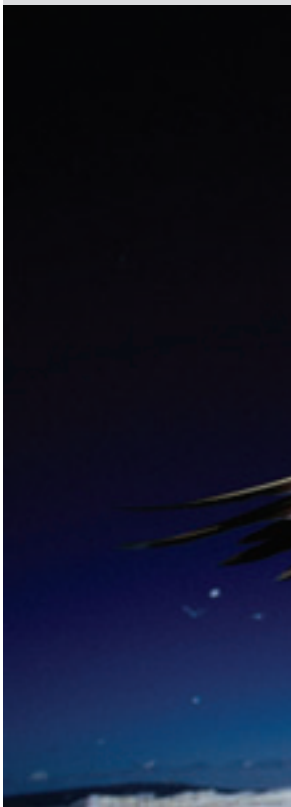


INTRODUCTION

It is well known that degraded ecosystems hold back development. UNDP-GEF's work in South Africa concentrates both on empowering the poor with resource rights so that they can manage ecosystems better and increase their income from environmental resources and on the maintenance of sustainable ecosystems that are a vital resource for the poor. Experience has shown that failure to deal with the declining ecosystems will only increase poverty.

The 14 development projects profiled in this book illustrate South Africa's commitment to a wide range of environmental and development issues. From replacing fossil fuels by solar power to new thinking on the sustainability of protected area systems, UNDP-GEF funded projects in South Africa concentrate on local empowerment, the improvement of livelihoods in harmony with the environment and the sharing of information to ensure that all parties facing similar problems have the knowledge and skills to resolve them.

A particular achievement for South Africa has been the successful building of partnerships at all levels. Government and government agencies, the private sector, ngo's and community organizations, academia and the media have all engaged UNDP-GEF as a key partner. Sustained economic and social development will always require cooperative effort and South Africa has set a fine example in securing the wholehearted participation of many different sectors of society.

Frank Pinto
Executive Coordinator, UNDP-GEF

Agulhas Biodiversity Initiative:

Conserving biodiversity on the southern tip

There is a farmer in South Africa who can lead you to a tiny patch of veld on his farm and show you a diminutive shrub that grows nowhere else on earth. The shrub, *Lobostemon inconspicuous*, is just one of at least 100 plant species endemic to the Agulhas Plain, a tract of land near the southern tip of Africa regarded as one of the world's highest conservation priorities.

The Agulhas Plain is part of the Cape Floristic Region – the smallest, but richest, of the world's six floral kingdoms. The plain, consisting of 270,000 hectares of coastal lowlands and undulating hills, is a region of exceptional biological diversity, with 2,500 indigenous plant species, including remnant patches of coastal renosterveld and lowland fynbos, two of South Africa's most threatened plant types. Cultivation has already claimed 12 percent of the area and another 15 percent has been transformed by the planting of alien species. Only 4 percent of the Agulhas Plain enjoys formal, binding conservation status.

Although the Agulhas Plain is home to some of South Africa's most industrious farms 60 percent of its inhabitants live in rural areas, are unemployed and poorly educated. The challenge for conservationists is to preserve priority habitats while ensuring that the land remains productive and provides new livelihood options for the region's disadvantaged communities.

The Agulhas Biodiversity Initiative (ABI) is supported by the Global Environment Facility (GEF) - via the United Nations Development Programme (UNDP) - the South African government, NGOs and the private sector. It is one of the showcase projects of Cape Action for People and the Environment (C.A.P.E.), an ambitious, comprehensive long-term programme addressing the human impacts undermining the region's diversity.

ABI has four major objectives – conservation management, sustainable harvesting of wild fynbos, developing nature-based tourism and, by increasing public awareness, boosting local support for biodiversity and conservation.

Currently, the most pressing of these objectives is conservation management and the project is working with farmers to secure and protect land from insensitive agricultural development, inappropriate use of fires, and over-exploitation of water, marine and wild flower resources.

"The emphasis is on productive land," explains ABI project coordinator Tertius Carinus. "We're not trying to separate farming and conservation. We want to consolidate conservation land so that we ultimately have one big conservation area made up of private land and state land."

Agulhas Facts

- 2,500 indigenous plant species are found on the Agulhas Plain.
- At least 100 plant species are found nowhere else on earth.
- 12 percent of the Agulhas Plain has been lost to cultivation, 15 percent has been transformed by dense stands of alien invasive vegetation.
- Only 4 percent of the area enjoys formal, binding conservation status.

The three state-owned conservation areas on the Agulhas Plain are the Walker Bay Nature Reserve, the Agulhas National Park, and the De Hoop Nature Reserve. Several private protected areas have also been established.

Carinus is working with farmers to establish conservation corridors between these small protected tracts of land to create a mosaic of protected areas. ABI is targeting seven key areas on the Agulhas Plain and works closely with the Department of Agriculture's Land Care project to encourage farmers to reduce livestock pressure, to plant fynbos-compatible crops, such as rooibos tea instead of vines, to clear land of alien species and give up the practice of ploughing up their land to plant fynbos cultivars.

In some cases, the farmers are enthusiastic about the conservation of the Agulhas Plain and have established their own "conservancies" - voluntary agreements to manage the environment. The Walker Bay Fynbos Conservancy, for example, has a membership of 19 land-owners and covers 12,500 hectares.

Since the ABI project began more than 6,000 hectares have been added to the Agulhas National Park and another 5,000 hectares cleared of invasive species. The project is also working to strengthen the park's management, provide training and build capacity in the agencies that manage the state-owned protected areas.

The C.A.P.E. conservation education programme also offers bursaries to 20 conservationists to study at Rhodes University, while ABI is helping increase awareness by providing environmental and conservation education to children in local schools.

Encouraging biodiversity-based business is another important project objective. ABI provides funding and technical support to the Flower Valley Conservation Trust – a not-for-profit organization which owns and manages a large flower farm near Gansbaai. The Trust is working with Cape Nature towards developing a Code of Practice and certification system that will encourage flower pickers and exporters to harvest wildflowers in an environmentally sustainable, socially responsible way.

The Trust also works for the benefit of the greater community by providing a learning centre for children, organizing special education courses for women and finding new ways to increase the community's earning potential.

An Agulhas Plain Tourism Forum is being established to help local communities share in tourist revenues and to promote conservation issues among tourists. Eco-tourism initiatives include upgrading existing tourism infrastructure, establishing a network of heritage centres, developing tourist routes and a hiking trail, and promoting local landmarks and activities.

ABI is one of three complementary GEF initiatives being conducted in support of C.A.P.E. Its success will provide a model for replication elsewhere in the region. It may seem a grand scheme, but while there is the potential for an entire species, like *Lobostemon inconspicuous*, to be wiped out by one badly aimed swipe of a mechanical digger, nothing less than a grand scheme will do.

Basic information

FOCAL AREA:
Biodiversity

PROJECT TITLE:
Agulhas Biodiversity Initiative (ABI)

PROJECT STATUS:

GEF Grant	US$ 3.226 m
Co-finance	US$ 8.559 m
Project Cost	US$ 11.785 m

The C.A.P.E. Programme:

Conserving a global asset

Along the rugged coast of Africa's southernmost tip is the Cape Floristic Region (CFR) - the smallest and the richest of the world's six floral kingdoms and the only one to be located exclusively within the borders of a single country. Recognized worldwide as a biodiversity hotspot, the CFR is a global treasure for South Africa, but also a kingdom under siege.

The CFR stretches from Nieuwoudtville in the northwest to the Nelson Mandela Metropole in the east. It is a narrow corridor comprising less than 90,000 square kilometres of land, yet it contains an extraordinarily diverse variety of what is commonly referred to as fynbos vegetation. Signature plant species include restios (reeds), ericas, and proteas.

The CFR is one of the world's most biologically interesting ecosystems. It harbours more than 9,600 different species of plants – 70 percent of which are found nowhere else – and is home to 560 vertebrate species and numerous invertebrates, many of which are highly specialised and dependent on the endemic flora for their survival.

But the CFR is also one of the most endangered tracts of land on earth. Its exceptional biodiversity faces a wide range of threats, from the spread of alien plant species to the unsustainable harvesting of natural resources.

Agricultural and urban expansion are its greatest threats.

Approximately 5.2 million people live in and around the CFR, which spans the provinces of the Western and Eastern Cape. There are enormous socio-economic disparities between the people of this region. Poverty abounds in both rural and urban areas and many of the region's poorest citizens rely on the flora and fauna of the CFR for their sole source of income.

While the mountainous areas in the CFR enjoy a fairly high conservation status (most are water catchment areas and not suitable for agriculture), less than 5 percent of the lowland ecosystems in the region are protected. Unless a long-term intervention is undertaken to conserve the CFR, the region's unique natural heritage may be ruined. This would be an enormous loss to the indigenous landscape, and would strip the disadvantaged communities who eke out an existence from the region's marine and floral resources for their livelihoods.

In response to this challenge, the Cape Action for People and the Environment (C.A.P.E.) programme was born.

C.A.P..E. is an innovative project that seeks to unlock the economic potential of conservation-friendly land use, ensuring that, wherever possible, both the ecosystem and human populations benefit. It is a country-driven initiative developed with conservation experts and funded by the Global Environment Facility (GEF) with the World Bank as the lead agency, and co-implemented with the United Nations Development Programme (UNDP).

Fynbos Facts

- There are over 600 different species of ericas in the CFR. There are just 26 in the rest of the world.
- The largest family – in number of species – is the daisy family, with just under 1,000 species found in the CFR. More than 600 of these are endemic.
- C.A.P.E. has more than 1,500 registered individual and organizational stakeholders.
- At least 1,400 of the 9,600 plant species found in the CFR are now endangered or close to extinction.

"The global objective of the programme is to ensure that the natural environment of the CFR and the adjacent marine ecosystems are effectively conserved and restored wherever appropriate, in order to deliver significant benefits to the people of the region in a way that is embraced by local communities, endorsed by government and recognized internationally," explains C.A.P.E. coordinator, Trevor Sandwith.

Two further goals revolve around sustainable development. C.A.P.E. aims to establish a foundation for mainstreaming biodiversity into economic activities in the CFR and also strives to conserve the CFR by piloting and adapting site-based models for effective sustainable management.

The programme has six inter-related components designed to meet these objectives. Institutional strengthening, conservation education and programme monitoring will help to mainstream biodiversity in the CFR.

Three further measures: unleashing the potential of protected areas; facilitating community stewardship and laying the foundations for a biodiversity economy; and integrating biodiversity concerns into watershed management will help improve conservation through efficient management. The watershed management component involves increasing the effectiveness of water resource and fire management systems, alien species control and estuarine management.

The 20-year programme is currently half-way through its first phase, which is expected to continue until 2008. Sandwith says the first phase is making good progress and there have been significant steps forward. Legislation has been improved through the passing of the Biodiversity and Protected Areas Acts and conservation institutions, such as the South African National Biodiversity Institute and the Eastern Cape Parks Board have been established and strengthened.

The knowledge and capacity needed to deal with the issues that affect biodiversity in the region has also been enhanced and the programme's awareness campaigns have helped raise civil society's involvement and participation in conservation issues.

Headway is also being made in creating supportive partnerships between C.A.P.E. and farmers and other private landowners. Over 300 farmers in the Slanghoek Valley of the Western Cape, for example, have formed the Rawsonville Wine and Tourism Cooperative which promotes the sustainable use of the natural environment and contributes to the social development of the entire community.

Basic information

FOCAL AREA:
Biodiversity

PROJECT TITLE:
C.A.P.E. Biodiversity Conservation and Sustainable Development

PROJECT STATUS:

GEF Grant	US$ 11.320m
Co-finance	US$ 44.450 m
Project Cost	US$ 55.770 m

NBSAP:

Saving South Africa's global storehouse

South Africa's newly published National Biodiversity Strategy and Action Plan is the master plan that will guide the country's efforts to conserve and manage its exceptional biodiversity now and into the future.

South Africa is a global storehouse of biological diversity. Although the country occupies only 2 percent of the world's surface area, it is home to nearly 10 percent of the world's plants, 5.8 percent of mammal species, 8 percent of bird species and 5.5 percent of the world's known insect species. It is the only country in the world to contain an entire plant kingdom within its borders and is one of 17 "megadiverse" countries that collectively contain more than two-thirds of global biodiversity.

However, the first national assessment of biodiversity conducted at the ecosystem level contained disturbing findings. The study, coordinated by the South African National Biodiversity Institute (SANBI), revealed just how urgently South Africa needed a plan to tackle the conservation and management of its biodiversity heritage.

SANBI's assessment revealed that 34 percent of South Africa's 440 terrestrial ecosystems were threatened, with 5 percent critically endangered (mainly in the fynbos and forest biomes), 13 percent endangered (mainly in the grassland and savannah biomes) and 16 percent vulnerable (mainly in the fynbos and grassland biomes). The assessment of river ecosystems was particularly alarming. It revealed that 82 percent of South Africa's 120 major rivers were threatened and almost half (44 percent) critically endangered.

One of the most important challenges facing South Africa is to conserve and manage its terrestrial and aquatic biodiversity in the face of serious poverty and underdevelopment. Over half of the country's citizens (more than 22 million people) can be classified as below the poverty line, earning less than R353 per adult, per month, or approximately $2 a day. Much of this population depends on wild biodiversity for its livelihood, leading to over-utilization of resources and unsustainable practices.

There is consequently a pressing need to coordinate land and natural resources conservation with efforts directed at rural development and poverty alleviation. Even tourism, which offers increased employment opportunities to the poorest rural groups and concentrates public attention on biodiversity issues, can place additional stresses on the very resources it seeks to promote.

South Africa recently took an important step towards meeting the dual challenge of development and conservation by publishing a National Biodiversity Strategy and Action Plan (NBSAP). The NBSAP was developed by the national Department of Environmental Affairs and Tourism (DEAT) with funding from the Global Environment Facility (GEF) and support from the United

NBSAP Facts

- South Africa is home to approximately 24,000 plant species.
- 50,000 insect species have been recorded in South Africa, but an estimated 50,000 more have yet to be described.
- Over 11,000 marine species are found in South Africa's maritime waters. More than 25 percent (3,496) are endemic to South Africa.
- Three globally recognized "biodiversity hotspots" are found in South Africa: the Cape Floral Kingdom, the Succulent Karoo and the Maputaland-Pondoland-Albany centre of endemism.

Nations Development Programme (UNDP). It sets out a detailed plan for conserving and managing biodiversity.

"The plan will guide biodiversity management for the next 15 years," says Wilma Lutsch, Director of Biodiversity Conservation at DEAT.

The NBSAP was compiled after two years of serious, focused discussions with a wide range of stakeholders – from national and provincial departments and agencies, to non-governmental organizations (NGOs), community-based organizations (CBOs) and local authorities. According to Lutsch, the SANBI biodiversity assessment made a key contribution by identifying national priority areas for conservation action and more detailed planning.

"The national assessment gave us the broad picture. Without it, it is not possible to implement the biodiversity strategy and action plan," she says.

The goal of the NBSAP, which was launched at a high level meeting with DEAT and other key institutional partners in May this year, is to "conserve and manage terrestrial and aquatic biodiversity to ensure sustainable and equitable benefits to the people of South Africa, now and in the future".

One of the key points that the NBSAP makes is that South Africa's exceptional biodiversity is not only globally significant, but it is also important to the national economy and to people's livelihoods at a local level.

At the launch of the report, South Africa's Minister of Environmental Affairs and Tourism, Marthinus Van Schalkwyk, said: "Given the geographic spread and extraordinary diversity of our plant and animal species, it is impossible to conserve the majority of species and ecosystems through a traditional protected areas approach alone."

"We recognize that sustained economic and social development depends on wise management and protection of the environment. But we know that we will not be able to safeguard the environment if people remain hungry and without jobs. Biodiversity has an economic value that is often underestimated. Intelligently mobilized it can serve the cause of development and poverty alleviation."

The NBSAP says that it is critical that the value and importance of biodiversity is Recognized and mainstreamed throughout the economy. This means that all sectors that impact on biodiversity, especially agriculture and urban planning, need to factor biodiversity considerations into their policies, plans and programmes.

Lutsch admits that this is an enormous task. But, she adds that the NBSAP has provided DEAT and South Africa's conservation community with a set of goals and a plan for achieving them.

"The process of formulating the strategy and action plan has galvanised energies and focused our attention on the pressing matter of conserving South Africa's biodiversity," she says.

"Now we need to get to work."

Basic information

FOCAL AREA:
Biodiversity

PROJECT TITLE:
Development and Implementation of the National Biodiversity Strategy and Action Plan (BSAP) in South Africa

PROJECT STATUS:

GEF Grant	US$ 0.409 m
Co-finance	US$ 1.610 m
Project Cost	US$ 2.019 m

SABONET:

Strengthening the core of southern African botany

Some 30,000 species of plants and ferns, representing 10 percent of global flora, were investigated, evaluated and monitored by scientists working with the South African Botanical Diversity Network (SABONET) project.

SABONET's mission was to develop a strong core of professional botanists, taxonomists, horticulturists and plant diversity specialists within the 10 countries of southern Africa which, while occupying less than 2 percent of the world's land area, contain 10 percent of the flora found in ecosystems of global importance.

The region's incredible plant biodiversity was captured in an IUCN/WWF global review which noted 17 centres of plant biodiversity including arid and semi-arid ecosystems containing 46 per cent of the world's succulent flora; the Cape Floristic Kingdom, the world's richest centre of botanical diversity and endemism; extensive wetlands including several RAMSAR and World Heritage sites and unique forest and mountain ecosystems.

SABONET was supported by the Global Environment Facility (GEF) through the United Nations Development Programme (UNDP). When the project began in 1998 many of these ecosystems were under threat from the growth of human populations, increasing urbanization, land degradation and unsustainable farming practices and natural resource use. Conservation efforts were held back by weak, sometimes totally lacking, institutional capacity to carry out basic botanical inventories and monitor.

SABONET worked hard to boost capacity and improve networking within the 17 regional herbaria and 22 botanical gardens in the 10 countries participating in the project. Its training programme produced 33 postgraduate biodiversity specialists, 39 para-taxonomists, 16 living collections managers and 14 MSc or PhD biodiversity specialists within these institutions. More than a third of the 186 participants in SABONET's in-house regional training courses were female.

The working environment of botanical scientists in southern Africa was improved, after a needs assessment, by the purchase of herbarium cabinets, microscopes, freezers and other equipment. Their ability to record and process data was boosted by the purchase of computer hardware and software and the installation of internet and e-mail facilities where they were lacking.

After purchasing a 4x4 vehicle, expedition equipment, cameras and GPS instruments for field work the project was able to conduct 109 separate national field-collecting expeditions embracing all 10 countries - Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia, and Zimbabwe.

SABONET Facts

- Approximately 50 professions make use of taxonomic information.
- 17 herbaria and 22 botanical gardens participated in the SABONET project.
- More than five million specimens have been recorded regionally on the PRECIS database established by SABONET.
- Although Namibian botanists had begun databasing its collection before the SABONET project they had to start all over again using different software. Nevertheless they succeeded in databasing their entire collection of 81,211 specimens.

The most ambitious SABONET field activities were two regional expeditions – one to the Nyika Plateau in Malawi and Zambia in March and April of 2000 and the other to southern Mozambique in November 2001.

The Nyika Plateau expedition involved 20 botanists all from southern and eastern African countries. Altogether 3,343 plant specimens were collected from the plateau's rolling grasslands, forest and woodland patches.

During the Mozambique expedition, which focused on the Maputo Elephant Reserve and the Licuati Forest Reserve, 20 scientists, including one from each of the participating countries, collected approximately 2,000 specimens.

Scientific findings from the expeditions were included in the SABONET series of regional and national technical publications while many participants recorded their personal experiences in SABONET News, the network newsletter. The programme's extensive publications programme – 39 published titles in the Report series and 24 issues of the project newsletter – now form a comprehensive information source for anyone seeking information on southern Africa plant biodiversity and its rare and threatened plants.

Many SABONET publications were made available through SABONET's website, which also serves as a record of the project's achievements. Subjects in the report series included botanical gardens, herbarium information, how-to guides, resource and Red Data lists. The compilation of Red Data Lists resulted in a full-colour book and an on-line database with advanced search capabilities.

Data has also been made available electronically. During the years of SABONET's activity, details of about 450,000 specimens housed in the participating herbaria, botanical gardens and institutions were computerized. SABONET's database experiences have been instrumental in the development of the African Plants Checklist project which links African scientists to their to their counterpart experts in botany and plant taxonomy in Europe and the USA.

SABONET supported the Threatened Plants Programme as a part of its botanical gardens initiative at institutions across southern Africa. It also formed strong links with related projects taking place in the region and was a key participant at many international and regional meetings and conferences. The SABONET experience has helped guide the project design of the new UNDP-GEF East African Botanical and Zoological Networks in Taxonomy project (BOZONET).

"Southern African botany, like that of any corner of the globe, is fundamental to the sustainable use of our natural resources, says Brian Huntley, chief executive of South Africa's National Botanical Institute " Africa cannot afford the risk of considering botany merely as the pursuit of bourgeois academics or 'greens' on the environmental fringe. It is the base of our well-being, now and in the long term.

"More than anything, the enthusiasm of the SABONET team, students, steering committee and trainers, has been overwhelming and the new family of friends among countries and people previously at war with one another is a wonderful reward for our efforts."

Basic information

FOCAL AREA:
Biodiversity

PROJECT TITLE:
Inventory, Evaluation and Monitoring of Botanical Diversity in Southern Africa: A Regional Capacity and Institution Building Network

PROJECT STATUS:

GEF Grant	US$ 4.725 m
Co-finance	US$ 4.686 m
Project Cost	US$ 9.411m

Grasslands:

Mainstreaming biodiversity in the economic heartland

South Africa's extensive grasslands sweep up from the interior of the Eastern Cape and KwaZulu-Natal, over the escarpment and into the central plateau. They incorporate the vast urban complex of Johannesburg, Ekurhuleni and Tshwane, and provide a home to the majority of South Africa's people. In common with other temperate grasslands across the globe, South Africa's grasslands are critically threatened.

South Africa is divided into nine biomes, each of which shares certain ecological and climatic characteristics. The grassland biome is the biggest, covering almost a third of the country's surface area. Because it contains the economic heartland of South Africa, the biome is under considerable pressure from development. In South Africa 40 percent of grasslands are fundamentally changed with only 2.8 percent conserved in protected areas and parks.

These grasslands are exceptionally rich in floristic diversity and harbour a very high diversity of indigenous species, second only to the Cape Floristic Region. In fact only one in six plant species in a grassland community are actually grasses. The remainder are bulbous plants that include arum lilies, orchids, red hot pokers, aloes, watsonias, gladioli and 54 species of ground orchids. The grasslands provide habitats for many of South Africa's rarest mammals, birds, reptile and butterflies.
As well as hosting this biodiversity the land occupied by grasslands makes a significant economic contribution through agriculture, forestry, mining, industry and delivering essential ecosystem services. These grasslands also supply many traditional medicinal plants, worth more than US$ 7.9 million annually. In many of the region's rural areas, poor people depend on ecosystem resources – water, maize, grass and firewood – for their very survival.

A new regional programme is now being developed to conserve grassland biodiversity. The National Grassland Biodiversity Programme is supported by the Global Environment Facility, through the United Nations Development Programme (UNDP). It has attracted funding and support from the Department of Environmental Affairs and Tourism, WWF-SA's Green Trust and the South African National Biodiversity Institute, SANBI.

"The dilemma facing this programme is that, on the one hand, grasslands provide essential ecosystem services necessary for economic development, but on the other hand this very economic development threatens these grasslands," explains Lala Steyn, Grasslands Programme Developer at SANBI.

To overcome this dilemma, the National Grasslands Biodiversity Programme has chosen a strategic approach of investigating threats to biodiversity in four key sectors – agriculture, forestry, coal mining and urban development. Studies, including a spatial assessment of

Grassland Facts

- The grasslands biome is home to 52 of the 122 Important Bird Areas in South Africa and provides habitats for 10 of the 14 country's globally threatened bird species.
- Almost a third of the 107 South Africa butterfly species that are threatened with extinction are found in the grasslands as are 42 of the country's 195 reptile species.
- Gauteng province, exclusively situated within the highveld grasslands, has a population of almost nine million and is the economic centre of South Africa.

the grassland biome, a strategic agriculture assessment and a comparative land use assessment, have been undertaken to identify the strategies and interventions that are suitable for each of these sectors.

"The studies helped to determine where we should focus our energies," says Steyn.

The spatial assessment revealed that 83 percent of rivers in the grassland biome were threatened and 48 percent critically endangered. Since rivers deliver essential resources – catchment areas around Wakkerstroom in south eastern Mpumalanga supply the Highveld power stations and SASOL's petrol-from-coal plant – great pressure is put upon them. River ecosystems are therefore a project priority area. While the strategic agriculture assessment found that the area under cultivation has declined in the grassland biome over the past ten years, it also warned that the cultivation of crops such as soya beans, used to produce biodiesel, was expected to increase.

The comparative land use assessment study found that game ranching and beef farming were the agricultural activities most compatible with grassland biodiversity.

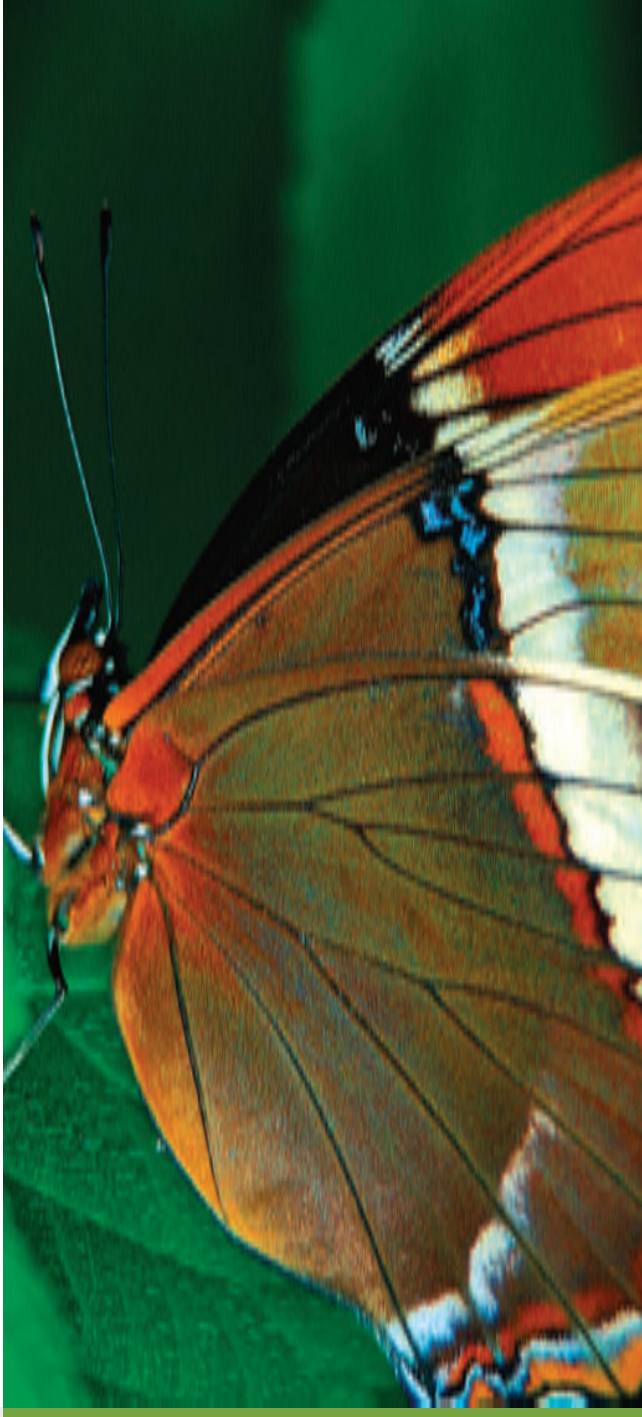
"If we work positively with game or livestock farmers, then we've got 64.5 percent of the biome covered," says Steyn optimistically.

The programme's overall goal is to secure and sustain the biodiversity and associated ecosystem services of the grasslands biome. It will provide an umbrella under which a host of conservation initiatives can be implemented, and will also work to increase awareness so that biodiversity concerns are put at the top of the development agenda.

A broad spectrum of interventions is planned for the four production sectors. For instance, in the forestry sector, the programme will work with Forestry South Africa to contain plantations to areas of limited biodiversity value. In the agricultural sector, as well as creating incentives for game and cattle ranching, the programme will work with farmers to maintain special biodiversity assets. Similarly, in the mining sector, the programme will try to persuade companies to put aside priority areas for conservation.

In the urban context, 12 priority sites have been identified in Gauteng Province for conservation partnerships. One of these is a proposal to expand an existing wildlife reserve near Mogale City (Krugersdorp). If successful, this project could see the establishment of a wildlife reserve similar to Nairobi National Park, which surrounds the Kenyan capital city's south-western perimeter.

A great deal of emphasis will be placed on coordinating the efforts of multiple government interests. The grassland biome not only straddles six provincial boundaries, but its management is divided among several departments – Agriculture, Water Affairs and Forestry, Environmental Affairs and Tourism and others. To address the pressures that threaten to further undermine the unique biodiversity of the grassland biome, every sphere of government – from national departments to provincial and municipal authorities – needs to be involved in the programme.



Basic information

FOCAL AREA:
Biodiversity

PROJECT TITLE:
National Grasslands Initiative

PROJECT STATUS:

GEF Grant	US$ 8.350 m
Co-finance	US$ 38.000 m
Project Cost	US$ 46.350 m

The Wild Coast:

Building conservation on communally-owned lands

South Africa is considered a world leader in the development of new models for protected area management, having pioneered conservation partnerships with private land owners, private utilities and the business sector.

Now the country has embarked on a project to conserve biodiversity on communally – owned land along the Wild Coast – a region characterized by high levels of biological diversity and breathtaking beauty on the one hand, and poverty and under-development on the other.

The Wild Coast forms part of the Eastern Cape Province. It is located within the Maputaland-Pondoland-Albany "hotspot", an important centre of plant endemism. The Pondoland Centre of plant endemism, one of only 235 sites on earth recognized for their global importance as repositories of floral biodiversity, is located on the Wild Coast, which has been identified by South Africa's National Spatial Biodiversity Assessment (NSBA) as one of nine national priority areas for conservation.

Marine biodiversity is equally rich. The Wild Coast forms part of an important transition zone between the warmer, sub-tropical waters of KwaZulu-Natal and the cooler, warm temperate waters of the Eastern Cape. As a result, a high number of endemic coastal fish species occur in the region. Importantly, the Wild Coast represents the centre of distribution for a number of over-exploited endemic linefish, the most important of which are the klipfishes (*Clinidae*), the gobies (*Gobidae*) and the sea breams (*Sparidae*).

Although there are already several types of protected areas on the Wild Coast – including Marine Protected Areas (MPAs) – the effectiveness of their management has been assessed as moderate to very low. Some of the main threats to these protected areas are illegal harvesting of forest products, poaching, illegal grazing and alien invasive plants. For example, stem debarking to make medicines is extensive and inter-tidal molluscs are over-harvested across the entire length of the Wild Coast.

The biggest challenge to biodiversity conservation on the Wild Coast is, however, the region's extremely high level of poverty and under-development. The Wild Coast is home to 1.3 million people, approximately 71 percent of whom live below the poverty line. Unemployment rate is estimated at 67 percent and the majority of households depend heavily on pensions and social grants. Poverty and vulnerability are exacerbated by a lack of access to basic services, including roads, housing, healthcare, water, sanitation and electricity. Levels of infrastructure development are well behind national averages.

Conserving the Wild Coast's extraordinary biodiversity, while bringing benefits to the people of the region, is the focus of a new UNDP/GEF project entitled Conservation and Sustainable Use of Biodiversity on the South African

Wild Coast Facts

- A remarkable 34 endemic tree species and 16 endemic shrub species have been recorded in the 50,000 ha of indigenous forests of the Wild Coast.
- Wild Coast forests are home to a number of rare species such as the Cape Parrot, Mangrove Kingfisher, Giant Golden Mole, Samango Monkey and Tree Dassie.
- The Wild Coast also has the most southerly distribution of mangrove forests, linked to the warm sub-tropical marine currents. There are 16 mangrove forest parcels, covering nearly 300 ha.
- In a recent visual survey of shallow reefs between Port Edward and Port St Johns, 137 species fish species from 49 different families were identified, with a high proportion (26 percent) of endemic species.

Wild Coast. Its long-term goal is to improve South Africa's protected area system by developing a representative protected area estate on communally-owned land along the Wild Coast.

The project aims to enhance the sustainability of livelihoods dependent on living resources such as plant materials and marine resources. An estimated 10,000 to 12,000 households are expected to benefit, not only from the improved management of natural resources, but also from the development of nature-based tourism.

Three main interventions are planned. They will be nested in an integrated land use plan for the Wild Coast that places the management of protected areas within the regional sustainable development framework. GEF funding will be allocated towards building capacity for co-management, while significant co-financing has been leveraged for accompanying environmental management and community development activities.

The three interventions are: to strengthen the institutional framework for co-management, strengthen management effectiveness in existing Type I protected areas and strengthen the management of Type II protected areas. Type I protected areas are provincial nature reserves that have strong legal protection and are primarily managed for the maintenance of biodiversity, while Type II protected areas have an intermediate level of protection and are managed primarily for sustainable use and development.

According to Ntombentsha Nkwentsha, manager of special projects at the Eastern Cape Parks Board (ECPB), the project will develop a representative mosaic of protected areas on the Wild Coast, connecting corridors and adjacent areas under co-management structures that involve local communities, conservation authorities, other government agencies and the private sector. To achieve this, capacity building is required for both conservationists and rural communities. "Relationships between conservationists and communities can be strained," says Nkwentsha, explaining that historically, rural communities were moved off their ancestral lands to make way for nature reserves.

Accordingly, one of the major outcomes of the GEF-funded project is to strengthen ECPB's capacity to broker co-management agreements, and to enhance the ability of local and district municipalities to actively participate in the agreements.

Another outcome is to improve protected areas management by 25 to 40 percent, with a rationalized and more representative system of Type I protected areas operating under co-management agreements with local communities and the private sector.

The systems to be developed on the Wild Coast have the potential to be replicated elsewhere in South Africa, particularly in protected areas on communal lands. By emphasizing community participation, developing sustainable use and benefit-sharing schemes and attracting private sector investment, the project will make a significant contribution towards improving management effectiveness within protected areas.

Basic information

FOCAL AREA:
Biodiversty

PROJECT TITLE:
Conservation and sustainable use of biodiversity on the South African Wild Coast

PROJECT STATUS:

GEF Grant	US$ 6.839 m
Co-finance	US$ 24.318 m
Project Cost	US$ 31.157 m

Solar cookers:

Breaking the barriers to solar cooking

There's much more to solar cookers than novel technology. They're environmentally friendly - they don't require electricity or fossil fuels, reducing carbon emissions as a result - and they can help stop the cutting of forest and scrub for firewood. What's more, solar is a free energy resource and, for South Africa's poor, especially those living in rural and semi-urban areas, the cost of providing household energy is a daily burden.

Until very recently, few people in South Africa were aware of the potential of solar cookers. In contrast, hundreds of thousands of people in countries such as India, for example, rely on solar power as their sole source of energy for cooking and bathing. Solar power projects are also winning acceptance in countries as diverse as Kenya, the Philippines and Brazil.

An FAO study once estimated that two billion people worldwide experience serious problems with their cooking fuel supply. Non-renewable energy sources, particularly firewood, are the traditional fuels for cooking in the majority of countries in the developing world. It is estimated that families use wood and wood-fuelled appliances for approximately 50 percent of all meals with gas, paraffin and electricity used to a lesser degree, in that order. The environmentally friendly technology of solar cooking could contribute a solution – provided that the technology is accepted by end-users and that the solar stoves are both appropriate and affordable.

Although they have the potential to preserve the environment and alleviate poverty, solar cookers do have their drawbacks: they don't work when the sun doesn't shine, they have to be used outdoors and may attract animals or thieves and – compared with the cost of a paraffin stove – the initial purchase cost is high.

The Solar Cooking Pilot Programme set out to see whether solar cookers are indeed a viable alternative to non-renewable energy in South Africa. The project was supported by the Global Environment Facility (GEF) through the United Nations Development Programme (UNDP) and was undertaken locally by the Department of Minerals and Energy (DME) and the German aid agency GTZ.

Introducing an innovative product to consumers, building up an industry and creating a self-sustaining market require research, long-term planning and a marketing strategy. The project initially investigated social acceptance and market potential, moved on to test marketing and the manufacture of solar cookers before focusing on the commercialisation and dissemination of solar cookers.

The project clearly showed that solar cookers can benefit low-income consumers and contribute to the development process as a whole, says David Hancock of GTZ. He says that while sales may not yet have reached their expected levels, the project's positive outcomes,

Solar Facts

- During daylight hours the sun sends 10,000 to 15,000 times more energy to the earth than we use.
- A solar cooker can save a single family 30 litres of kerosene, 30 kilograms of paraffin gas and almost a ton of firewood per year.
- One solar stove reduces carbon dioxide emissions by one ton each year.
- No oil is required in solar cooking, so it's the healthier option for both people and the environment.

performance indicators and conclusions will assist further efforts to disseminate solar cookers, both locally and abroad.

"One reason for the slow uptake is convenience," says Hancock.

"People who use paraffin, wood or electricity are used to being able to cook whenever they want to. Solar cookers require good sunlight and people have to plan ahead. Sometimes they don't like having to do that."

Another reason is price. While solar cooking costs compare favorably with other options over the product's lifetime (purchase price plus running costs), they appear to be expensive to consumers since all the costs have to be paid in full at the time of purchase, explains Hancock.

Despite these disadvantages, the project has succeeded in demonstrating that solar cookers can have a positive impact on poverty and the environment and in establishing the core of a sustainable solar cooker industry in South Africa. Interest has grown, private sector partners have increased in numbers, and an industry association has been formed under the auspices of the Sustainable Energy Association of South Africa (SESSA) to further the development of a healthy market.

One such commercial partner is Mathias Weber of Rapid Dawn. Weber has worked quite closely with the project and believes solar cookers can make a significant contribution to relieving the burden of the poor.

"While the initial outlay of cash for a solar cooker is higher than, say, a paraffin stove, a solar cooker will outlive a paraffin stove by 15 to 20 years," he says.

"Also, consumers have to buy paraffin every day for their stoves, whereas the solar cooker doesn't have any running costs."

The project's biggest success has been to demonstrate that solar cookers can have a positive impact on poverty and the environment; and in proving that, in spite of their drawbacks, once people had access to solar cookers they did use them and were quick to see their advantages.

"As word spreads, demand will rise and prices will fall," says Weber. "There is clearly a future for solar cookers in South Africa."

Basic information

FOCAL AREA:
Climate Change

PROJECT TITLE:
Pilot production and commercial dissemination of Solar Cookers

PROJECT STATUS:

GEF Grant	US$ 0.800 m
Co-finance	US$ 2.850 m
Project Cost	US$ 3.650 m

Wind energy:

South African wind Programme: A wind -win Situation

Wind energy is environmentally friendly and helps reduce the production of the greenhouse gasses that produce global warming. A national demonstration project is taking advantage of the ideal climatic conditions in South Africa to promote the use of this renewable energy source and at the same time create new employment opportunities.

With its abundance of wind resources and vast tracts of open land, alternative energy pioneers believe South Africa has the potential to become a wind powerhouse. The coastal regions of the Western Cape are considered especially good for wind energy generation. Here, not only are the winds consistent, they blow from two directions and tend to be particularly strong during peak electricity periods. Add to this the province's undulating landscape and it's easy to see why the area is being investigated for its wind farm potential.

A key initiative in wind energy is the national demonstration project being conducted at the Darling wind farm, situated approximately 70km north of Cape Town. The project has already made a Power Purchase Agreement (PPA) with the City of Cape Town. Under the agreement, the City has agreed to pay a premium for wind power as part of its commitment to reach the government's target of generating 10,000 gigawatts of power from renewable energy sources by 2013 and the city's self-imposed target of finding 20 percent of its electricity purchase from renewable sources by 2020.

"As a test case for wind energy in South Africa, the Darling project provides the ideal opportunity to learn by doing," explains Andre Otto, acting director of renewable energy at the Department of Minerals and Energy (DME).

"One of our main reasons for supporting the project is to chart its development so that we can use it as a model to teach others."

In the first phase of the project, due to begin later this year, four wind turbines, capable of producing 5.2 MW of electricity from wind power, will be constructed. Phase two will follow a successful first phase and will add another six turbines, raising the farm's output by another 7.8 MW.

The construction of the Darling wind farm will also create employment opportunities. It is estimated that 15 to 19 jobs will be created per MW of power produced during the construction phase, and another 30 jobs will be created indirectly around the activities related to the wind farm.

"We need people to make the turbines, the blades and the towers to harness the wind," says Otto. "Jobs will also be created in the operation and maintenance of the wind farm."

A local wind energy industry will be developed alongside the farm. A research and educational centre, promoting

Wind power Facts

- During its predicted 20-year lifetime, the Darling National Demonstration Project will save 100,000 tons of coal and 60 million litres of water. Unlike conventional electricity generation plants, it will not produce:
  - 298,125 tons of carbon dioxide (15,000 tons/annum)
  - 3,180 tons of sulphur dioxide
  - 2,915 tons of nitric oxide
  - 1,250 tons of particulates
  - 19,875 tons of slag and fly ash

all types of renewable energy and ecologically sound living, will be built. Wind farms all over the world attract a large number of visitors and the educational centre will bring tourists to the area, further supporting much needed local development and employment. The region around the wind farm and educational centre is served by good roads, is close to universities and other learning institutions yet consists mostly of vast areas of open, poor farmland.

Assistance for the development of an on-grid South African Wind Energy Programme (SAWEP) is being provided by DANIDA, the Danish aid agency, in tandem with the Global Environment Facility (GEF) through the United Nations Development Programme (UNDP). Denmark already obtains 18 percent of its energy from wind and is a leader in wind energy production.

SAWEP's long-term objectives include diversifying power generation in South Africa's energy mix; setting up a wind energy industry that generates employment and promoting sustainable development by making use of renewable resources. Future plans for a fully developed wind power generating industry could include exporting energy to the SADC region.

So far the programme has succeeded in achieving its preliminary goals. A preparatory wind energy market survey produced positive results, now confirmed by Cape Town's commitment to purchase power from Darling at a premium. This means the city has not only committed itself to a renewable energy strategy, it has entered into an agreement with the first wind energy producer in South Africa – an encouraging example for others.

In addition to the PPA with Cape Town, a Power Wheeling Agreement (PWA) has been negotiated with South Africa's power generating company Eskom. Important issues such as wind measurements, environmental impact assessments, structuring a financial model and instigating contracts on access to and use of the grid, have been explored and successfully fulfilled by the project.

Efforts to market "green" electricity to South African companies and consumers have already begun. Although the electricity will be sold at a premium of 25 cents per kWh, demand is expected to outstrip the farm's production. Potential buyers include ecologically-conscious consumers and companies who want to enhance their image by reducing the environmental impact of their activities without having to invest in new infrastructure or technologies.

By systematically addressing the barriers that have impeded the development of commercial wind power in South Africa, the SAWEP programme looks set to clear the path for a sustainable wind energy market. Public interest in the Darling wind farm demonstration project is also showing that there is enormous potential for renewable energy sources in South Africa.

Basic information

FOCAL AREA:
Climate change

PROJECT TITLE:
South Africa Wind Energy Programme (Phase 1)

PROJECT STATUS:

GEF Grant	US$ 2.295 m
Co-finance	US$ 8.565 m
Project Cost	US$ 10.860 m

Public transport and sport:

An eco-friendly vision for the 2010 World Cup

South Africa's existing public transport system is indisputably poor, polluting and sometimes dangerous, but this is set to change in the run-up to the 2010 FIFA World Cup.

The birth of democracy in South Africa has had little effect on urban spatial dispersal. The poorest South Africans continue to live on the outskirts of cities and towns – with little or no access to safe, reliable and affordable public transport – while the middle and high income groups live in affluent neighborhoods serviced by excellent urban road networks.

Although urban infrastructure has fuelled an increase in car use in the upper income brackets, more than 63 percent of the working population relies on inadequate public transport or non-motorized transport. From a socio-economic perspective, this means that poor people have reduced access to employment opportunities and basic services. And, from an environmental point of view, increased car dependence exacerbates air pollution and greenhouse gas emissions. Unreliable and sometimes unsafe transport alternatives, such as unroadworthy buses and taxis, also have an adverse effect on tourism.

The South African Department of Transport (DoT) plans to use the 2010 FIFA World Cup as a catalyst to solve some of South Africa's public transport problems. It recognizes that, when 300,000 international visitors converge on South Africa for the world's greatest football tournament, it will be absolutely essential to have a safe and efficient transportation service in place.

The Department has now embarked on a phased project which aims to significantly improve public transport and coordinate planning for transportation services, infrastructure and management that will serve South Africa for the 2010 World Cup, and beyond. The project, "Sustainable public transport and sport, a 2010 opportunity", is co-financed by the South African government and the Global Environment Facility (GEF) through the United Nations Development Programme (UNDP).

The project is designed to serve not only the transport requirements of the World Cup, but to leave a lasting legacy of enhanced sustainable transport after the event, thereby contributing to the long-term mitigation of greenhouse gas emissions. Its development objective is the promotion of a safe and efficient urban passenger system that will ensure improved levels of mobility and accessibility. Implementation will begin in December and continue until the start of the World Cup in 2010.

This is not the first time that a major event in South Africa has been used to promote environmentally-friendly practices in transport and other infrastructure. "Greening the WSSD", conducted during the World Summit on Sustainable Development held in Johannesburg in 2002 was an initiative to turn the

Transport Facts

- Transport in South Africa accounts for 24 percent of total energy consumption.
- More than 90 percent of transport energy is derived from liquid fossil fuels.
- The transport sector accounts for about 10 percent of South Africa's greenhouse gas emissions.
- It is estimated the national car fleet will grow by 64 percent by 2020.
- Transport is the fastest growing source of greenhouse gas emissions in South Africa, and the rest of Africa.

summit's global thinking into local action by promoting green practices in areas such as water, transport and waste.

The World Cup project has been designed around four main components, the first of which tackles policy issues. At present, unclear and fragmented institutional arrangements hamper urban traffic and transportation strategies. The project aims to identify and implement sustainable transportation planning and regulation policies at provincial and municipal levels.

The second component deals with alternative transport technology. South Africa's economy is dominated by fossil fuels, with little attention given to less polluting energy options. The project will study the feasibility and long-term impact of "green" alternatives for public transport, including vehicles powered by biomass-derived fuels or natural gas.

The third project component seeks to shift private car use to less carbon-intensive modes of transport, using the World Cup as a catalyst. Currently stadiums in South Africa are designed for private car users. Most are built on the periphery of cities far from bus or train stations and are surrounded by an abundance of parking spaces. With very little incentive to change their existing mode of operation, these sporting venues perpetuate reliance on private cars.

The project will seek to change this by modifying the design of the transport system serving at least two stadiums. It plans to restrict private vehicle parking and, as an alternative, offer new public transport options for spectators.

The fourth component of the project centers around capacity and awareness-building. It plans to redress the poor awareness of sustainable transportation options in South Africa by building institutional capacity and conducting training and awareness campaigns which will inform South Africans about the costs, performance and other benefits of sustainable transport alternatives.

Project manager David Ingham of the DoT says the project will showcase South Africa's potential to create a viable, environmentally-friendly public transport service.

"Although the World Cup is an ideal mechanism to create awareness, we want to demonstrate the long-term feasibility of alternative fuels beyond the two-month event," says Ingham. "We want to explore issues such as the maintenance and durability of emission-efficient modes of transport."

An important spin off of the project is its potential to facilitate social transformation. By improving mobility, people from different population groups will have better access to employment opportunities and public services. Enhanced public transport will also improve social interaction.

The project also offers an instructive example of how sustainable transport strategies can be implemented. Given the high visibility of the World Cup across Africa, the project could also provide a best-practice model for other African countries.

Basic information

FOCAL AREA:
Climate Change

PROJECT TITLE:
Sustainable Public Transport and Sport: a 2010 Opportunity

PROJECT STATUS:

GEF Grant	US$ 11.197 m
Co-finance	US$ 323.941 m
Project Cost	US$ 335.138 m

Solar water heaters:

On the light track to energy-saving

Imagine if every hospital, hotel and home in South Africa had its own independent means of heating water. How would this impact on the country's electricity supply and, more importantly, on our environment?

Anyone who installs a solar powered water heating unit on their roof stands to save up to 40 percent on their annual electricity bill. But, more importantly, every time an electric hot water storage geyser is replaced by a solar water heater, there is a saving of 3.5 tons of CO_2 emitted into the earth's atmosphere. Considering South Africa has one of the best solar regimes in the world, it would follow that we'd be making the most of this abundant, energy-efficient resource. Not so: South Africa's solar water heating services are conspicuous by their absence.

Many countries have been quick to see the benefits of solar technology. In Morocco for instance they have recently been tested in hospitals, rural hammans, a centre for handicapped people as well as residential buildings.

China has already installed over 30 million square meters of solar heating panels. With South Africa's abundant sunshine (which amounts, on average, to 4.5 to 6 kilowatt-hours per square metre, per day), there is no reason why they can't enjoy the same solar success.

The low cost of subsidized South African electricity – necessary during the country's electrification programme – has, to some extent, masked the environmental costs of fossil fuels. But today, growing environmental concerns and the fact that electricity rates are on the rise has prompted new interest in renewable energy products; and one of the most cost-effective of these is solar water heaters.

In one component of the project 500 households in the low-income township of Ivory Park, between Johannesburg and Pretoria, will benefit from the subsidized installation of solar water heaters at the end of this year as part of a two-phase project that aims to address the barriers that are stunting the growth of solar water heaters in this country. The project, designed by the Central Energy Fund (CEF) and the Department of Minerals and Energy (DME), is sponsored by the Global Environment Facility (GEF), through the United Nations Development Programme (UNDP). If the solar water heaters prove a success, installation of a further 9,000 units is planned.

The project is working to alleviate some of the manufacturing and marketing barriers to solar water heaters by standardizing a quality and testing regime, consolidating the distribution and maintenance infrastructure, offering low-interest financing options and ensuring continued awareness and involvement on both the supply and demand side.

The project's broader development goal is to ultimately bridge affordability gaps and make solar water heaters

Solar Water Heaters Facts

- Research shows that an average household with an electric water heater spends about 25 percent of its home energy costs on heating water.
- Worldwide, some two billion people are currently without electricity.
- Solar water heaters require little maintenance. Simple systems can run without problems for 3–5 years.
- Systems with electrical components usually require a replacement part or two after 10 years.

available to low-income households. But, as Carmen Armstrong of the CEF explains, the project is first targeting the middle to high income sector.

"At this stage our aim is to kick-start the process," she explains. "By mass producing at the top-end of the market we plan to drive down the cost of solar water heaters so that eventually they will become more affordable to the lower income groups."

A number of positive achievements suggest that the project is making excellent progress. There has been a definite increase in solar water heater awareness, brought about by articles in newspapers and magazines and by working with trade organisations such as plumbers and builders.

Armstrong lists other examples of the project's triumphs. Since the South African Bureau of Standards did not have the equipment to test solar water heaters, the project secured funds from the Department of Science and Technology to buy a new solar testing rig from Germany.

"This will be a huge benefit to South Africa,' says Armstrong. "Now we'll be able to test compliancy not only against South African standards, but also against international standards, which means that in the future our local manufacturers will have the opportunity to export."

According to Armstrong, the project has also completed a global best practice study on international solar water heaters, finalized a baseline survey of the local market and developed a financial mechanism which allows solar water heaters to be purchased through municipalities. The International Energy Agency has shown interest in the project and has begun documenting South Africa's renewable energy growth.

Three or four years ago cheap electricity might have been more of a hurdle for the project, but recent power outages have encouraged consumers to become more and more self-reliant. And installing a SWH is a step towards independence.

"The government has made it very clear that the cost of electricity will rise above inflation, highlighting the need for renewable energy products," adds Armstrong.

In the next phase of the project the systems which have been installed will be tested against the newly-developed standards, and the financial mechanisms for a self-sustaining industry will be put into place. Dedicated finance and bulk procurement can further drive down prices and a new industry will increase employment. The project's goals to harness and promote energy efficient measures will ultimately lead to socio-economic and environmental benefits that will advantage all South Africans and potentially spread to other members of the Southern African Development Community.

Basic information

FOCAL AREA:
Climate Change

PROJECT TITLE:
Solar Water Heaters (SWHs) for Low-income Housing in Peri-Urban Areas

PROJECT STATUS:

GEF Grant	US$ 0.728 m
Co-finance	US$ 4.703 m
Project Cost	US$ 5.430 m

BCLME:

Three countries seek holistic solutions to their shared problems

The Benguela Current Large Marine Ecosystem, or BCLME, supports a breathtaking abundance of life: from microscopic phytoplankton to the giant southern right whales that breed in the sheltered bays of the Cape of Good Hope. Today, Angola, Namibia and South Africa are working together to better manage the BCLME, one of the most productive ecosystems on earth.

The Benguela Current is a narrow, ribbon-like system that extends from just east of Port Elizabeth in South Africa to Angola's Cabinda Province. It is one of the world's four major coastal upwelling systems and supports a rich marine life, including fish, seabirds and marine mammals. Fish and shellfish resources such as hake, anchovy, sardine, horse mackerel, deep-sea crab and rock lobster are abundant in the BCLME and support a vibrant commercial fishing industry. In the northern Benguela, inshore resources, including a wide range of fish, sharks and crustaceans, provide subsistence fishers with food and work.

Although fisheries are an economic mainstay in the BCLME - accounting for 10 percent of gross domestic product (GDP) in Namibia, 4 percent in Angola and 0.37 percent in South Africa - there are also rich reserves of oil, gas and minerals, particularly diamonds, within the sediments of the Benguela.

For the past five years, Angola, Namibia and South Africa have been working together to manage these diverse, and often conflicting economic activities in a cooperative way. The countries are participating in the BCLME programme, a country-driven initiative that is addressing a wide range of transboundary environmental problems in the region.

The Programme is funded by the Global Environment Facility (GEF) and implemented by the United Nations Development Programme (UNDP). Funding from the GEF is complemented by a substantial investment by the three countries and contributions from other donors, including a cooperative science programme, BENEFIT.

"Over the past five years we have funded 75 projects that have taught us a great deal about the BCLME, how it is changing over time and how transboundary problems associated with fishing, mining, oil exploration, coastal development and pollution can best be addressed across the whole region," explains Dr Michael O'Toole, the programme's chief technical advisor.

The BCLME programme has attracted considerable international interest because it is at the forefront of a new ecosystem approach to environmental management. This is a radical shift in thinking that calls for a more holistic approach to managing resources.

Benguela Facts

- The BCLME's upwelling system in the form in which we know it today is about two million years old.
- Oil provides 90 percent of Angola's export earnings and diamonds another 7 percent. Much of this is extracted or mined offshore in the waters of the BCLME.
- Marine diamonds account for 10 percent of South Africa's diamond production.
- Fish provide almost 50 percent of animal protein consumed in Angola and fishing is the country's third largest industry, after oil and diamonds.

"The ecosystem approach strives to manage resources at the larger ecosystem level and balance human needs with conservation issues," explains O'Toole.

Managing an ecosystem requires understanding how it works and many of the projects that have been implemented under the BCLME programme have focused on gathering knowledge. For instance, a cluster of projects is working with the diamond industry to test the cumulative impact of offshore diamond mining on the ecosystem. Similar cooperative projects are being undertaken with oil exploration and extraction companies. Harmonizing national environmental policies and legislation for marine diamond mining and offshore petroleum and gas activities between the three countries is a programme priority.

A second cluster of projects is assessing and mapping the biodiversity of the estuarine, coastal, near shore and offshore environments of the BCLME. These projects aim to produce a strategic planning tool that provides advice on the protection of sensitive areas and vulnerable species, as well as identifying possible sites for marine protected areas and aquaculture installations.

Fisheries have been a major focus of the BCLME programme. They are a vital source of food and employment for people in coastal villages, towns and cities throughout the region and can be severely affected by environmental change. For instance, a dramatic eastwards shift in the distribution of sardines – one of South Africa's most valuable commercial fish stocks – is thought to be the result of environmental change. The eastward shift has made it more difficult and costly to land sardines, impacting on the livelihoods of at least 5,000 people who work in the fishing industry and millions more for whom canned sardines are a cheap source of protein.

One of the ways in which South Africa is working to mitigate the impact of environmental change is by establishing an Environmental Early Warning System (EEWS) which will provide early warnings of extreme environmental events such as Benguela Niños – sustained warming episodes that can have a devastating impact on fish resources.

The BCLME has also helped promote cooperation between regional research and management institutes. A strong training and capacity building programme has helped BCLME personnel to gain promotion from technical levels to senior management positions in national and regional organizations.

The BCLME programme is now rapidly moving towards the establishment of a Benguela Current Commission, a formal legal framework that will promote cooperation between Angola, Namibia and South Africa. The three countries have already developed a multilateral agreement that will evolve into a permanent, sustainable commission no later than 2012. Its establishment will facilitate a multidisciplinary, holistic approach to the region's environmental problems and help ensure the protection, conservation and sustainable use of the BCLME.

Basic information

FOCAL AREA:
International Waters

PROJECT TITLE:
Implementation of the Strategic Action Programme (SAP) Toward Achievement of the Integrated Management of the Benguela Current Large Marine Ecosystem (LME)

PROJECT STATUS:

GEF Grant	US$ 15.458 m
Co-finance	US$ 23.450 m
Project Cost	US$ 38.908 m

Orange River Basin:

Common interests secure cooperation in the Orange River Basin

Stretching 2,300 kilometres from its source in Lesotho to its mouth in South Africa, the Orange River irrigates, feeds, fuels and sustains vast populations in four nations. A new GEF project is now helping these nations develop sustainable management plans to preserve the river's vital resources.

With a total catchment area of one million square kilometres, the Orange River is not only the largest river system in southern Africa, it is the most highly developed. In one way or another South Africa, Namibia, Botswana and Lesotho depend on the Orange River for their hydro-infrastructure, industrial production, agriculture and economic growth. As a result, the river is of crucial strategic importance to all four states, especially South Africa which incorporates 60 percent of the river basin.

The principal tributary of the Orange River is the Vaal, which supplies South Africa's industrial heartland in Gauteng, where approximately 50 percent of South Africa's GDP is generated. More than 80 percent of South Africa's electricity requirements are met by the Vaal River's resources, which also supply important agriculture areas.

The Orange River is an important asset to the economy of Lesotho (where it is called the Senqu River). The country, rich in water resources, earns regular royalties by supplying municipal water across the border to Johannesburg.

Water scarcity – caused primarily by erratic rainfall patterns – is a serious issue in Botswana, impacting on the country's domestic livestock, mining, power, and agricultural sectors. With Botswana's growing population, the demand for water continues to rise.
The Orange River is also vital to the economy of Namibia with its arid climate and uncertain water resources.

While all four countries rely on water from the Orange River, the basin is seriously threatened by a number of transboundary problems. Over-extraction of water, evaporation (from 29 dams) and increasing demand are rapidly outstripping the river's resources. The average annual runoff at the river mouth in Alexander Bay is already less than half its historic runoff.

Climate change, including declining average rainfall, is also threatening agricultural practices, industry and the quality of life in the Orange River Basin; pollution is a major threat to the overall health of the ecosystem; and land degradation – caused by over grazing and poorly-suited cultivation practices – is an escalating cause for concern.

Botswana, Lesotho, Namibia and South Africa have stated their commitment to work together to develop an integrated water resources management plan. Their

Orange River Facts

- The Orange River rises in the Drakensberg in Lesotho, where it is known as the Senqu. When the river leaves Lesotho, it flows westward for some 2,300 km to where it finally flows into the Atlantic Ocean at Alexander Bay.
- The total basin area of the Orange River, which has a population of 14.27 million, is 1 million km2.
- At the source of the Orange River the rain fall is approximately 2,000 mm per annum and decreases as the river flows westward. At its mouth the rainfall is less than 50 mm per annum. The annual runoff of the river is12,000 million m3 and the present water demand on its resources is 5,500 million m3/annum.
- There are 29 large dams along the course of the Orange River.

efforts are now being assisted by the Global Environment Facility (GEF), which through the United Nations Development Programme (UNDP), is funding the development and implementation of a Strategic Action Programme for the Orange-Senqu River Basin.

A major component of the project is strengthening the Orange-Senqu River Basin Commission (ORASECOM) which was established in 2000 to advise the four member states on the development, utilization and conservation of the basin's resources.

The project will use the Integrated Approaches to Water Resource Management (IWRM) strategy to remediate threats and tackle root causes, while at the same time restoring and protecting biodiversity. IWRM integrates broad ecological, social and economic objectives into the management of water resources and incorporates issues outside the water sector, such as agriculture and energy, land degradation and climate change, into its approach.

"The project aims to have an agreement on the broad developmental and conservation objectives of the Basin," says Peter van Niekerk, an ORASECOM commissioner and a member of the project's steering committee. "Each country has its own strategic objectives. The big question is how to manage the whole basin so we can optimise these objectives."

A transboundary diagnostic assessment (TDA) which will chart the main threats to the Orange River Basin and ascertain their root causes, is already underway. Project members have begun to collate baseline information from all four countries and present it to ORASECOM. Next a Strategic Action Plan (SAP) will identify ways to mitigate these threats. The SAP will include a blend of capacity building and demonstration activities, encourage public participation and stakeholder involvement, and work with other development initiatives taking place in the river basin.

Government bodies have begun working together in a cohesive, coordinated manner under the project's umbrella. This process of relationship building is very important, according to van Niekerk.

"The more people around the table trust, and are comfortable with each other, the more likely the process will succeed," he says.

The main areas in which the countries are exploring cooperation include developing joint management strategies and regional action plans, coordinating polices to promote water conservation and maximize fresh surface water flow, strengthening institutional capacity, operationalising projects to include technical know-how and developing a basin-wide information system to promote common understanding of water management issues.

Even though the project is still very much in its infancy, it looks set for success. There is strong country level commitment, and a growing list of international donors. The project's emphasis on climate change modelling, transboundary planning, and integrated water resources management, will have the potential to be replicated elsewhere and provide instructive experience for other river basin projects across the world.

Basic information

FOCAL AREA:
International Waters

PROJECT TITLE:
Development and Implementation of the Strategic Action Program for the Orange-Senqu River Basin

PROJECT STATUS:

GEF Grant	US$ 6.700 m
Co-finance	US$ 33.000 m
Project Cost	US$ 39.700 m

ASCLME:

Living fossil symbolises need for knowledge

The coelacanth – a living fossil – has become an icon for ecosystem studies and oceanographic research in the Western Indian Ocean. Today, the African Coelacanth Ecosystem Programme (ACEP) is partnering with UNDP/GEF to research the workings of two of the ocean's large marine ecosystems which influence the livelihoods of more than 56 million people in east African countries.

GEF support will help ACEP build regional knowledge of artisanal and industrial fisheries, investigate sources of pollution, research the root causes of environmental threats to the LMEs, and prepare a Transboundary Diagnostic Analysis and Strategic Action Plan for their protection.

The discovery of a coelacanth – a fish assumed to have become extinct with the dinosaurs – in a trawler's catch from the Western Indian Ocean in 1938 was a scientific marvel of the 20th century – but it also highlighted the limits of our knowledge of the world's oceans.

In 2000 a group of recreational divers found coelacanths in shallow (104m) water off Sodwana Bay. The South African government, quick to realize the research value of the colony, rapidly established and funded the African Coelacanth Ecosystem Programme (ACEP).

From focusing solely on conservation of the coelacanth, ACEP grew to become a major regional scientific initiative and a world leader in offshore marine research, with a focus on existing and prospective marine protected areas, as well as coelacanth ecosystems.

ACEP has now joined a strategic partnership with UNDP to implement the Agulhas and Somali Currents Large Marine Ecosystems project (ASCLME). ACEP will bring its scientific knowledge and regional capacity to the GEF -funded project which will build trust and capacity within the region, and between countries and production sectors. It will collect, assess and use environmental information to sustainably manage the LMEs and their shared resources.

Although the LMEs have a major influence on the societies and economies of the Western Indian Ocean region, knowledge of the oceanographic processes, biodiversity and other fundamentals is lacking. There were 14 years between the first (1938) and second (1952) coelacanth catches and the first observation of living specimens was not until 1987. Even today it is estimated that less than half the area's marine species have been described. ACEP's researches have begun to fill that knowledge gap.

"It's absolutely amazing," says Dr Tony Ribbink, director of ACEP, "through ACEP we've found new canyons, new currents, new seamounts, and new systems – things that we should have known about hundreds of years ago!"

ASCLME Facts

- The sensational discovery of living coelacanths in 1938 caused a worldwide media frenzy. It was hailed as the zoological discovery of the century and equated to finding a living dinosaur.
- Over 11,200 marine fauna have been recorded in the ASCLME. However, the species inventory is incomplete, and the benthic invertebrates of deeper waters, remain virtually unexplored.
- The ASCLME support regionally important fisheries, with industrial landings of approximately 280,000 metric tones per annum. The total catch including subsistence, artisanal and industrial landings, and takings by distant water fishing nations, approaches 4 million metric tones per year. An estimated 56 million people depend to some extent on LME resources for their livelihood or food supply.

One of the starting points of the ASCLME project is to set up a knowledge bank of regional oceanographic processes and fisheries resources. By understanding more about the currents, physical and biological processes of the LMEs, scientists hope to improve fisheries management, economies and livelihood prospects. For example, in Mozambique, artisanal fishing provides a livelihood for more than 50,000 families and supplies food for much of the population.

In neighbouring Tanzania, 20,000 artisanal fishers use dugout canoes and small sailing boats to catch a wide range of coral reef fish, squid and shellfish. Up to 100,000 Tanzanians depend on these resources for their livelihoods. Many are women who process and sell the catch.

The marine life which supports these societies and economies is inextricably linked to and dependent on oceanographic processes that are driven by the South Equatorial Current and its branches –the south flowing Agulhas Current and northward moving Somali Current.

"The South Equatorial Current arrives in the Western Indian Ocean poor in nutrients, yet it generates the productivity and nutrients needed to support the fisheries, as well as extremely high levels of biological diversity," says Ribbink. "Even though the oceanographic processes connected to these currents are unique, very little is known about them."

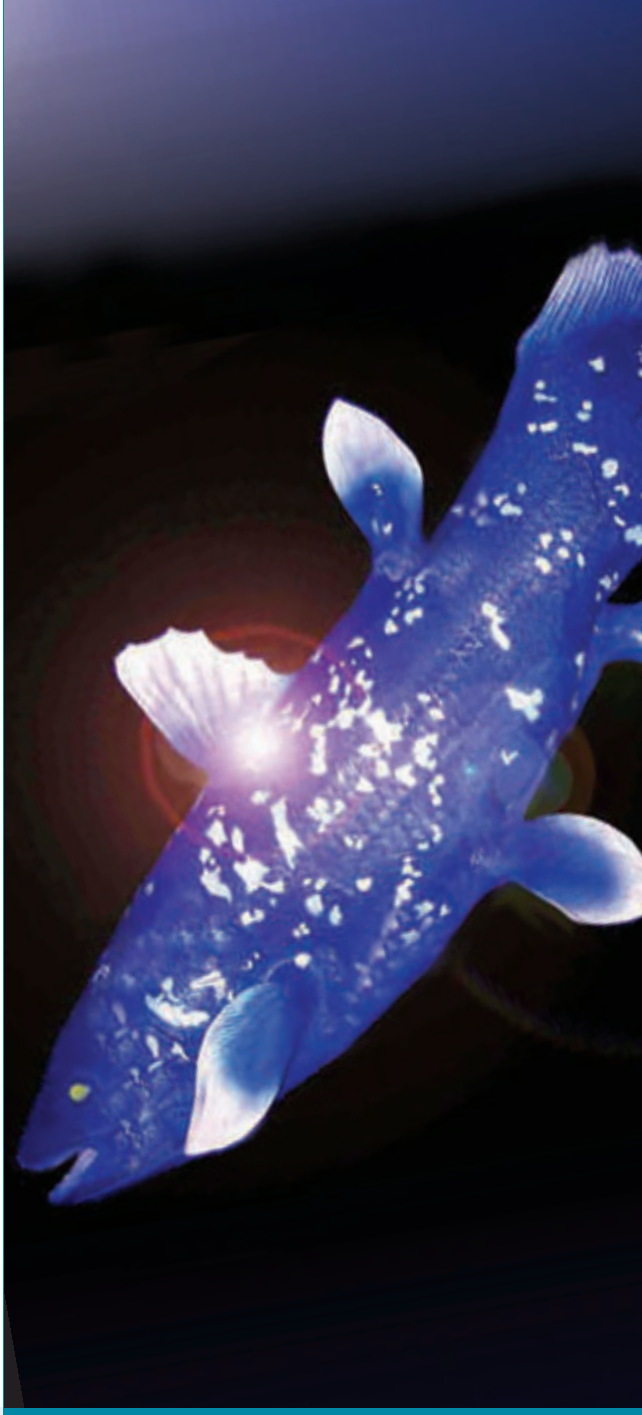
As an example Ribbink points to the recently discovered powerful eddies travelling down the Mozambique Channel, which are not fully understood.

"The survival of marine life is inextricably linked to these eddies and other physical and biological processes. Sound management of fisheries is simply not possible without knowledge of these processes," he says.

The ASCLME project is part of a broader programme which will systematically introduce an ecosystem-based approach to managing the region's living marine resources. The broader programme consists of three distinct projects: the ASCLME project; the South West Indian Ocean Fisheries Programme (SWIOFP) which is being implemented by the World Bank to evaluate industrial fisheries; and the Western Indian Ocean Land Based Project (WIOLaB), implemented by UNEP to investigate land-based sources of pollution and other environmental problems.

The ASCLME project will draw heavily on the lessons learned in the highly successful Benguela Current LME on the other side of the continent. This programme, now in its fifth year of implementation is moving toward the establishment of a permanent Benguela Current Commission, a formal legally binding framework which will facilitate cooperation between Angola, Namibia and South Africa in the protection, conservation and sustainable use of the BCLME.

Substantial support for the ASCLME project has been voiced by the participating countries – Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, South Africa and Tanzania. The US$30 million project is being supported by a US$12.2 million GEF grant with another US$ 17.8 million from regional and international sources. It will run from 2006 to 2011.



Basic information

FOCAL AREA:
International Waters

PROJECT TITLE:
Programme for the Agulhas and Somali Current Large Marine Ecosystems: Agulhas and Somali Current Large Marine Ecosystems Project (ASCLME)

PROJECT STATUS:

GEF Grant	US$ 12.923 m
Co-finance	US$ 18.263 m
Project Cost	US$ 31.186 m

National Capacity Self Assessment:

Body building for the environment

As a signatory to three key multilateral environmental agreements – the United Nations Convention on Biological Diversity (UNCBD), the Framework Convention on Climate Change (UNFCCC) and the Convention to Combat Desertification (UNCCD) – South Africa has committed itself to meeting global environmental targets. A soon-to-be-completed National Capacity Self Assessment (NCSA) will help the country to build capacity and meet these obligations.

NCSAs are designed to identify country level priorities and needs for capacity building to address global environmental issues, in particular in the areas of biological diversity, climate change, and land degradation, with the aim of catalyzing domestic and/or externally assisted action to meet those needs in a coordinated and planned manner. NCSA outputs are a useful and relevant framework for domestic action and external assistance for capacity building and facilitate the development of a capacity building strategy and action plan.

Capacity building is generally defined as "the actions needed to enhance the ability of individuals, institutions and systems to make and implement decisions and perform functions in an effective, efficient and sustainable manner".

At the individual level, capacity building refers to the process of changing skills, attitudes and behaviors, usually through knowledge transfer and training. At an institutional level capacity building focuses on the overall performance and functioning of an organization, including its ability to adapt to change. At the systemic level, capacity building is concerned with the creation of "enabling environments" – the overall policy, economic, regulatory, and accountability frameworks within which institutions and individuals operate.

South Africa has secured assistance from the Global Environment Facility (GEF), via the United Nations Development Programme (UNDP), to complete its NCSA. The planning and coordination of NCSA activities is implemented by the Department of Environmental Affairs and Tourism (DEAT) through a NCSA project management group.

According to Tiisetso Ramotse, deputy director of capacity building at DEAT, the process of preparing a NCSA for South Africa is well underway. Three draft thematic profile reports were recently completed to provide an overview of capacity status and weaknesses in each of the three thematic areas - biodiversity, desertification/land degradation and climate change.

Information was obtained through literature reviews, questionnaires, personal communications, interviews or group discussions, site visits and participatory workshops and the reports were compiled in cooperation with the South African National Biodiversity

South Africa Facts

- South Africa ranks as the third most biologically diverse country in the world. It is in the top 20 countries in the world with respect to endemic species and in the top five countries in Africa for most taxa.
- Only 5.2 percent of the country is proclaimed officially as protected areas, most of that in a single area – the Kruger National Park.
- South Africa is party to a number of protocols, conventions and treaties which include: Antarctic Treaty, Basel Convention on Hazardous Wastes, Bonn Convention (CMS), CBD, CITES, Law of the Sea, Montreal Protocol, POPs, Ramsar Convention, Rotterdam Convention (PIC), SADC Protocol on Fisheries, UNCCD, UNFCCC and Whaling (IWC).

Institute (SANBI), the National Coordinating Body on the UNCCD and the National Committee on Climate Change (NCCC).

"The draft thematic profile reports take a detailed look at the major challenges and opportunities for future capacity building interventions," explains Ramotse. "The Department now plans to present them at a multi-stakeholder workshop."

The planned workshop will bring together a wide range of stakeholders, including government departments at all levels, community- based organizations, business and industry, labour and NGOs. Its main objective will be to refine the constituent elements of capacity building for the NCSA. A second aim will be to promote a sense of national ownership of the NCSA.

After the workshop, the three draft thematic profile reports will be refined, priorities will be identified and capacity building opportunities will be determined. Where appropriate, follow-up discussions will be held with key stakeholders.

The updated reports will then be considered for approval by the Programme Steering Committee (PSC), a representative panel of stakeholders chaired by the director general of the DEAT.

The next step will be to compile a Draft Issues and Options paper for discussion by the PSC. This will identify possible mechanisms for addressing capacity constraints and opportunities in each thematic area. The paper will be examined at a technical key stakeholder workshop to identify national capacity priorities.

Another important step in compiling the NCSA for South Africa will be to evaluate opportunities for harmonizing implementation of the three multilateral environmental agreements which share many common obligations and requirements such as research, report writing, training, public education, awareness and national exchange of information. Understanding the synergies between the conventions, and finding ways to coordinate overlapping activities, will help identify cost-effective capacity building activities. A one-day multi-stakeholder workshop will be convened to focus on these cross sectional and synergistic issues.

Once this exercise is complete, a draft NCSA Strategic Action Plan (SAP) will be compiled and presented to the PSC. The SAP will include a series of realistic, costed options for improving global environmental management within and across the three thematic areas. It will include details on human resource capacity strengthening needs, supported by appropriate information needs, tools and infrastructure, and will be used for widespread dissemination.

The NCSA Strategic Action Plan will be formally launched by the Minister of Environmental Affairs and Tourism.

Ramotse explains that the NCSA should be seen as a first step in a dynamic and long-term capacity building process. It will contribute to strengthening existing national programmes and lead to targeted action plan, both within and across the areas of biodiversity, climate change and desertification/land degradation.

"I believe it will ultimately help to solve some of South Africa's problems in the area of environmental management," concludes Ramotse.

Basic information

FOCAL AREA:
Multifocal

PROJECT TITLE:
National Capacity Self-Assessment for Global Environmental Management

PROJECT STATUS:

GEF Grant	US$ 0.200 m
Co-finance	US$ 0.035 m
Project Cost	US$ 0.235 m

United Nations Development Programme (UNDP)

UNDP is the UN's global development network, advocating for change and connecting countries to knowledge, experience and resources to help people build a better life. We are on the ground in 166 countries, working with them on their own solutions to global and national development challenges. As they develop local capacity, they draw on the people of UNDP and our wide range of partners.
World leaders have pledged to achieve the Millennium Development Goals, including the overarching goal of cutting poverty in half by 2015. UNDP's network links and coordinates global and national efforts to reach these Goals. Our focus is helping countries build and share solutions to the challenges of:

- Democratic Governance
- Poverty Reduction
- Crisis Prevention and Recovery
- Energy and Environment
- Information and Communications Technology
- HIV/AIDS

UNDP helps developing countries attract and use aid effectively. In all our activities, we encourage the protection of human rights and the empowerment of women.

Global Environment Facility (GEF)

The Global Environment Facility (GEF) was established to forge international cooperation and finance actions to address four critical threats to the global environment: biodiversity loss, climate change, degradation of international waters and ozone depletion. Launched in 1991 as an experimental facility, the GEF was restructured after the 1992 Earth Summit in Rio de Janeiro. The facility that emerged after restructuring was more strategic, effective, transparent and participatory. During its first decade, GEF allocated US$4.5 billion in grants, 'supplemented by donors' pledges of $3 billion to finance projects from 2002 to 2006.

In addition to its original mandate, the May 2003 GEF Council approved two new focal areas. The GEF now provides financial assistance for the mitigation and prevention of land degradation and persistent organic pollutants.
GEF- funded projects are managed through the three Implementing Agencies: UNDP, UNEP and the World Bank.
The GEF also benefits from having the following executing agencies: African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Food and Agricultural Organization, Inter-American Development Bank, International Fund for Agricultural Development and the United Nations Industrial Development Organization.

The UNDP-GEF Team

The Global Environment Facility team of the United Nations Development Programme (UNDP-GEF) is headquartered in New York. UNDP-GEF has six regional coordination units located in Thailand, Slovakia, Lebanon, Panama, Senegal and South Africa. Working with other international organizations, bilateral development agencies, national institutions, non-governmental organizations, private sector entities and academic institutions, the UNDP-GEF team supports the development of projects and oversees a mature portfolio of projects in all six GEF focal areas of biodiversity, climate change, international waters, land degradation, persistent organic pollutants and ozone depleting substance phase-out (the latter minimally). The cumulative UNDP-GEF portfolio stands at $2.6 billion in core grants, with over $3 billion raised in additional co-financing. On behalf of the GEF partnership, UNDP-GEF also manages two corporate programmes, the GEF Small Grants Programme and the GEF National Dialogue Initiative.

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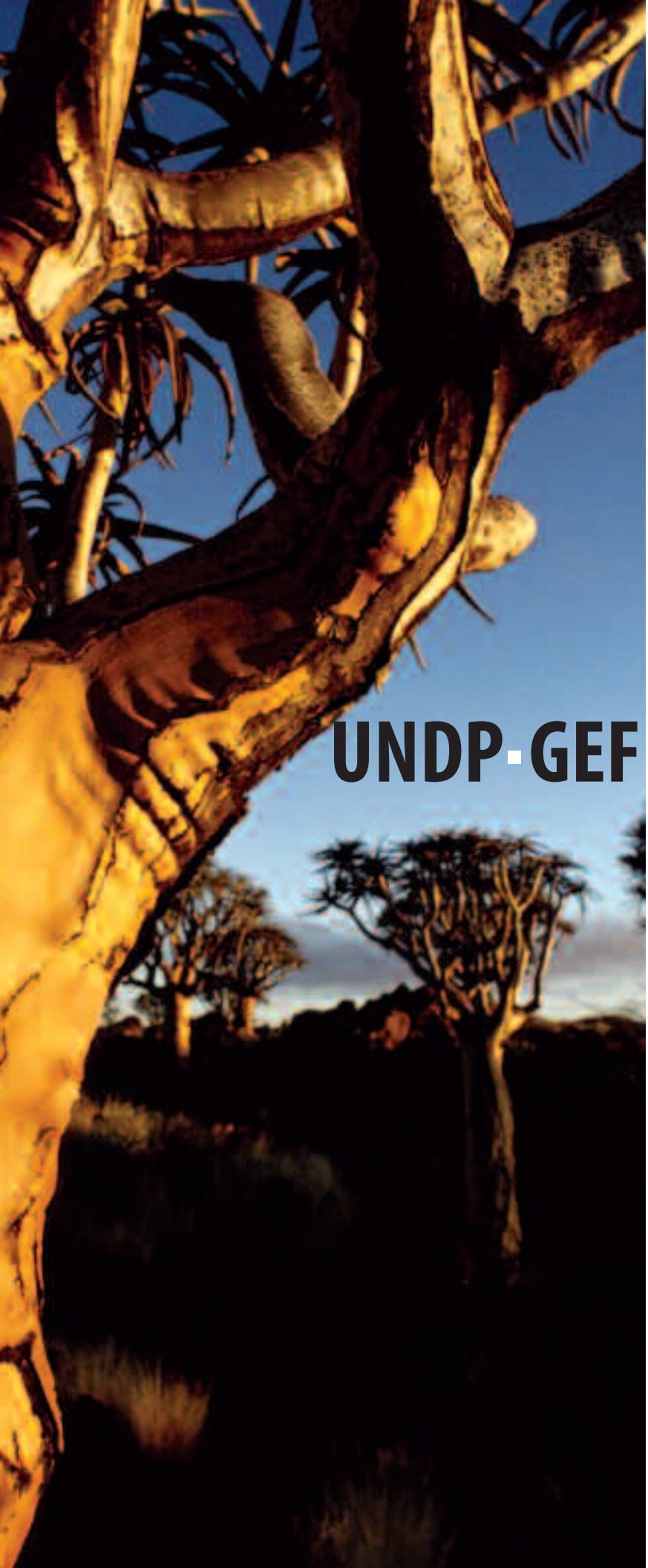

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