

The mighty Orange-Senqu River



Finding Out More

Enviro Fact: Sustainable Livelihoods



The term livelihood is used to identify a relationship between the people and the biophysical resources of the Orange-Senqu River basin. Livelihood is a primary activity that individuals engage in to obtain the income, food, water, shelter, clothing and other materials needed to satisfy and sustain the well-being of families and other members of a social group.

Livelihoods include any choice for making a living, carried out independently or as part of a group effort where there is interdependence between the group members. Specific livelihoods are often embedded in particular cultural traditions and are based on specialised skills, technology and knowledge that are passed down from generation to generation. Livelihoods are closely associated with gender, age and the expectations of civil society.

After many attempts to promote development, developing countries are turning to a new model to reduce and alleviate poverty without compromising the natural assets of the country. These new methods are collectively termed **Sustainable Livelihoods**. A livelihood includes the capabilities,

assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks while maintaining or enhancing its capabilities and assets and not undermining the natural resource base.

The Orange-Senqu River basin provides numerous natural resources and sustainable livelihoods to people living in the basin. Artisanal fishing, subsistence farming, eco-tourism and collecting food and medicine from the wilds within the basin are important sources of income, especially for the rural people of the basin. These livelihoods allow people to work close to their homes and to build a sense of stewardship for the basin.

1. Subsistence Farming.

Lesotho is primarily a country of subsistence farming, with most people growing food for their own consumption and where possible, maintaining small to medium-sized herds of livestock (cattle and goats). Maize, wheat, and sorghum are the main crops, along with peas, beans, and potatoes. Most

of the good farming areas are in the northwest lowlands, surrounding the capital of Maseru.

The rest of the country is either too mountainous or generally too dry to produce high crop yields. These areas are also characterised by fragile soils, where pressures from increasing cultivation and grazing have led to degradation of fields and pastures. Loss of vegetative cover from firewood removal, animal browsing and overgrazing has led to widespread and obvious gully erosion of hillsides.

Food production in Lesotho has been shrinking for years due to erratic rainfall and soil erosion, while HIV has weakened subsistence farming communities. Lesotho imported an estimated 70% of its cereal in 2004, mostly from neighbouring South Africa.

In Botswana, Namibia and South Africa, there is both a commercial agricultural sector and a traditional, mainly subsistence, sector. The portion of Botswana that falls within the Orange-Senqu River basin contains rural settlements mainly reliant on subsistence livestock farming. Overgrazing of

fragile ecosystems in the Kalahari is resulting in less palatable plant species becoming established. This is because utilisation of land by livestock production has increased from 13 000 km² in 1950 to around 32 000 km² by 1990, enabled by the exploitation of groundwater.

About 70% of the Namibian population depends on agriculture, mostly subsistence farming in communal areas. Like Botswana, Namibia is also struggling with land degradation due to overgrazing, which is further compounded by agricultural practices that result in the depletion of soil nutrients. Livestock farming dominates agricultural practices in the Orange-Senqu River basin part of Namibia. In South Africa also, subsistence farming is mostly restricted to communal lands or the former homelands. Up to 2.5 million households subsist in this sector, having to farm on 13% of available agricultural land.

In the lower Orange-Senqu, stock farming, mainly of goats and sheep, is important to the local economy. Land is owned communally and access to almost all grazing is open to the members of the associated communities. Households in other

parts of the basin, normally women-headed, practice labour-intensive small-scale agriculture.

2. Artisanal Fisheries

Artisanal fisheries can range in size from little more than active subsistence fishing, where part of the catch is regularly sold, to much larger operations. Livelihoods based on artisanal fishing can be a reflection of activities that have traditionally been part of a family or other social group and are now organised within local co-operatives. At the more informal end of the artisanal fishery, livelihoods are based on the same type of traditional equipment, skills and knowledge that support the subsistence fishery, with products that are sold and consumed as part of the family economy. The middle range of artisanal livelihoods is somewhat more market-focused, but it is at the upper end of the fishery where the major livelihood shift takes place.

Artisanal freshwater fishing along the Orange River is limited to the Richtersveld area of the Northern Cape Province of South Africa, the region around Aussenkehr in Namibia and Lesotho. Artisanal fishing is carried out for food security and livelihood

purposes; subsistence fishing differs from artisanal fishing because it is not part of the cash economy.

Indigenous freshwater fish diversity in the Orange River is poor despite the river's large size; only fifteen indigenous fish species have been recorded to date. The most common indigenous species of fish are yellow fish. Exotic species introduced are Rainbow trout, Brown trout, Common carp, Largemouth bass and Bluegill sunfish. In Lesotho fishing is exclusively subsistence, and targets both indigenous and exotic species.

In addition to these freshwater in-stream fisheries, there are some very localised examples of small scale aquaculture in the region, such as Naute Aqua, located at the Naute Dam in Keetmanshoop, Namibia.

3. Ecotourism

Parks and nature reserves are important elements of community-based natural resource management and employment, including Ecotourism. Across southern Africa, reserves and parks offer an alternative livelihood to

subsistence farming. People are able to find work near their homes, eliminating the need to travel to the urban centres for work. In the Orange-Senqu River basin there are quite a few protected areas.

These areas are significant tourist destinations and contribute to the national and local economies of all four countries.

Some examples follow.

Lesotho

Lesotho, on the one hand, has to meet serious environmental challenges like soil erosion. On the other hand this country is a paradise of national parks and nature reserves.

- **Sehlabathebe National Park:** This area was proclaimed a “Wildlife Sanctuary and National Park” and therefore a protected area on 27 February, 1970. It is situated in Qacha’s Nek, has an area of 6 475 ha and lies at an altitude between 2 300 and 2 500 m. It has subsequently been established that the Park contains several important rock art (archaeological) sites.

- **Masitise Nature Reserve:** This nature reserve also includes an archaeological site and historic mission cave house. It is a proclaimed National Monument in the Quthing District. It is a small reserve of about 20 ha, 3 ha of which is thickly wooded.
- **National University of Lesotho (Roma Campus):** This university campus was declared a bird sanctuary by the council of the University on 3 April 1965. It has an area of about 95 ha and is situated in the Highveld Grassland Zone, but the area has been modified by the introduction of exotic trees and the creation of water areas.

There are other initiatives to include some important areas of biodiversity into the official national listing of national parks and nature reserves. Two such areas are along the border with South Africa - the Maloti Drakensberg Area and the Letšeng-la-letsie protected area in southern Lesotho.

- **The Maloti-Drakensberg Trans-frontier Conservation and Development area Programme:** This is a World Bank-

financed project intended to aid conservation of biodiversity values in the Maloti-Drakensberg area, and to help development of the people in the adjacent areas along the border between Lesotho and South Africa. The programme is a joint initiative of the Governments of Lesotho and the Republic of South Africa. It is a trans-boundary conservation and development programme aimed at establishing protected areas while promoting sustainable tourism in the Maloti-Drakensberg mountains.

The Maloti-Drakensberg mountains are an extremely important water catchment area with the alpine and montane grasslands hosting a myriad of wetland systems. These fragile systems are crucial to the delivery of one of the area's most important ecosystem services, perennial flows of high quality water. With this area being one of the few in southern Africa where the long-term annual average precipitation exceeds the long-term annual average evaporation, it is easy to understand its importance as a water catchment. The Lesotho Highlands Water Scheme has been well publicised and is completely dependent on the water that drains out of

this area into rivers such as the Senqu and Mokhotlong. The bulk of KwaZulu-Natal's water flows from these mountains in rivers such as the Tugela, Mkhomazi, Mzimkulu and Mzimvubu.

- **Letseng-la-letsie:** This is an important wetland area in southern Lesotho. Efforts are currently underway to engage support for designating the area a protected site. The Conserving Mountain Biodiversity in Southern Lesotho project provides financial support. The project is financed by the Global Environment Facility (GEF) and is implemented by the United Nations Development Programme (UNDP). The National University of Lesotho has undertaken a comprehensive Environmental Impact Assessment for the establishment of a protected area at Letseng-la-Letsie
- **Katse Botanical Garden.** The “Lesotho Highlands Water Project” has significant impact on the environment in the mountains of the country. It is very important that this unavoidable impact is compensated by the creation of nature reserves and other measures. Accordingly, the

government of Lesotho has proclaimed several wetlands in the mountains as protected areas, and the “Lesotho Highlands Development Authority” (LHDA) has created a miniature paradise on a hillside above Katse Dam: Katse Botanical Garden – one of the highest-lying botanical gardens in the world.

The establishment of Katse Botanical Garden was an explicit wish of the people there and is included in the project agreement. The aim was to preserve the flower, shrub and herb diversity of the regions that were being flooded by the LHWP, so that people could continue using these plants and could protect the natural heritage they represent.

South Africa

- **Augrabies Falls National Park:** *Aukoerebies* is a Khoi name for "the place of the Great Noise", where the Orange River thunders its way 60 m downward in a spectacular waterfall, downstream of Uppington. Augrabies Falls are arguably the most impressive waterfall along the Orange River. The 28 000 ha of the Nature Reserve, on both the

northern and southern banks of the Orange River, provide a sanctuary to diverse species from the very smallest succulents, birds and reptiles to Springbok, Gemsbok and the endangered Black Rhino. Careful development has made Augrabies Falls a very attractive eco-tourism destination – providing a considerable amount of jobs in the park administration, hotels, lodges and restaurants.

South Africa / Botswana

- **Kgalagadi Transfrontier Park:** The Kgalagadi Transfrontier Park was established in 1998 as a cross-border merger of two national parks in the southern Kalahari desert, one in Botswana and the other in South Africa. The park contains no fences or border controls, but the countries apply different approaches to park management.

Kgalagadi means “land of thirst”. The average annual rainfall is just 200 millimetres and the plants and animals of this park normally depend on groundwater. The water quality in the boreholes varies. In one place the water may be sweet, in another brackish. At the same time different animals have different preferences. Certain

antelope species are indifferent to what water they drink, most birds like their water sweet. But even in dry years, the animals of the Kgalagadi Transfrontier Park always find enough water. If necessary, they eat wild melons, “tsammas” (*Citrullus lanatus*), prickly yellow “springbok cucumber” (*Indigofera alternans*) and other fleshy succulents.

South Africa / Namibia

- **Ai-Ais Richtersveld Transfrontier Park:** In 2003 an agreement between South Africa and Namibia established the Ai-Ais/Richtersveld Transfrontier Park. The Park covers 6 222 km² and lies in two protected areas on both sides of the Orange River that marks the border between the two countries: the South African Richtersveld National Park and Namibia’s Ai-Ais Hot Springs Park, which includes the Fish River Canyon.

There is an unusual feature of the Richtersveld Park that combines eco-tourism with strong involvement of the local population and thus tries to make eco-tourism also socially sustainable:

South African National Parks (SANParks) doesn't own the park, but leases the land from the local community. SANParks pays a fee into a development fund, which benefits the Nama community living here. At the same time representatives of the community assist in managing the park.

Namibia

- **The Sperrgebiet National Park:** There is still diamond mining going on in a small portion of the “forbidden area” (Sperrgebiet) in the extreme southwest of Namibia. And as yet only a small part of the mining area has been fully rehabilitated. The responsible company, Namdeb, is busy attending to serious scars in the forbidden area, which in 2008 was proclaimed as the Sperrgebiet National Park. This is designed to attract eco-tourists and to supplement the neighbouring Ai-Ais Richtersveld Transfrontier Park. Besides offering secluded beaches, towering dunes and vast, stone-strewn plains it will hold a multitude of succulents and animals.

Namibia / South Africa

- **The Orange River Mouth:** The Orange River Mouth is a trans-boundary area of extensive salt marshes, freshwater lagoons and marshes, sand banks, and reed beds, shared by South Africa and Namibia. The Orange River Mouth is a Ramsar site, but due to degradation in this important wetland area, it has now been placed on the Monreux Record (a list of wetland sites). The pressures placed on the wetland ecosystem are related to various land uses such as the adjacent diamond mining activities and flow regulation of the Orange River as a result of dam construction upstream. The area is important for resident birds and for local, migrating water birds.