

Benefiting from our African Lakes

There are many ways for people to benefit from the African lakes, as Africans we can only make a difference in our life's if we appreciate the natural resources we have. The Lakes of Africa is a natural resource that can earn the country money to fight poverty that continues to threaten the continent. Nature-based tourism is one of Africa's fastest-growing industries, with a growth rate of nearly seven per cent in international visitor arrivals between 2004 and 2005. As well as national parks and wildlife reserves, lakes provide some of the continent's most important flora and fauna areas and recreation destinations. Some lakes, such as Lake Malawi and the St. Lucia wetlands, are also protected as World Heritage sites under the World Heritage Convention of 1975 (Chenje 2000). Visitors come to these lakes to enjoy boating and water sport, as well as to witness the remarkable range of freshwater and inland biodiversity that they support.

Ecotourism has also increased environmental conservation as people struggle to maintain Africa's lakes in their natural state as a way to sustain local tourism activities. Many riparian states have gazetted conservation areas and enacted strict laws to protect wildlife and plant life around their lakes. Elephants, which were about to face extinction, have increased around Lake Tanganyika and Lake Kariba as tourists seek them out. The establishment of game parks around lakes is a strategy that allows tourists to see many different kinds of animals in one location (IUCN 2004). African lakes also house about 500 different aquatic species, creating the potential for sustainable fishing activities.

Despite all these opportunities, however, increasing tourism can also have negative impacts. Without proper management and regulation, growing tourist facilities, roads and other infrastructure can wreak havoc on fragile freshwater environments. A rapid increase in visitors' numbers can render lakeside developments environmentally unsound-and negatively impact the very creatures that brought people there in the first place. Areas within easy reach of large population centres are particularly under threat. Even apparently harmless activities such as boating and rafting can pose a threat to fragile lake environments. The growing number of boats on Lake Kariba, for example, is increasing oil and fuel pollution of the lake waters – both from accidental leakages and the deliberate dumping of waste oil into the lake. Oil reduces the water quality, and can be fatal to many aquatic animal and plant species.

Likewise, noise pollution and the wave action of motorboats can harm riverbanks and, over time, cause irreparable damage to their micro-ecology. There is mounting concern about the impact of sport angling on certain game-fish species, as well as the effects of introducing alien species such as trout and bass, which are favoured by anglers. At Lake Kariba, concerns are growing over the impact of sewage discharges from local lodges and settlements, siltation from erosion cause by riverbank disturbance, overexploitation of wetland resources such as reeds and fish, and pollution by fuels and pesticides. All of these factors pose a significant threat to the flora and fauna upon which the lake's tourism is based. The souvenir or curio industry has developed as a by product of tourism and is a big consumer of indigenous hardwoods. The over-harvesting of large and increasingly

rare indigenous trees is occurring- unsustainably and often illegally-in many parts of Africa where tourism is thriving.

Fishing - Fishing is vital to Africa, supporting annual exports worth about US\$3,000 million. Fish are crucial to the health of 200 million Africans, providing a source of inexpensive protein, and income for over 10 million people engaged in fish production, processing and trade. The fishing sector also plays an important role in the alleviation of poverty and general food security in Africa. In Malawi, the FAO states that 70 per cent of dietary animal protein is derived from fish, and the fishing sector constitutes a major source of income and livelihood for more than 300,000 people. Lakes in Africa support 16-17 per cent of inland fisheries (Sithole 2000). Across much of the continent, lake fisheries provide an important source of food and livelihood for millions of people. Yet these benefits are at risk as the exploitation of natural fish stock is reaching its limit and filled its potential (FAO 2004). African lakes are among the largest and most ecologically diverse on Earth-but are also among its most endangered water systems. Population densities are higher along the shores of Lakes Tanganyika, Victoria and Malawi. With four of Africa's Great Lakes on its borders, Uganda ranks as one of the world's largest producers of freshwater fish. But pollution, the introduction of non-native fish, and over-fishing has all taken a heavy toll on these waters.

Africa's fishing sector urgently needs strategic investments to safeguard its future contribution to poverty alleviation and regional economic development. Broadly, Africa needs investments to (i) improve the management of natural fish stocks, (ii) develop aquaculture production, and (iii) enhance fish trade in domestic, regional and global markets. In support of this investment, capacity needs to be strengthened at both the regional and national levels for research, technology transfer and policy development. As a first step, stakeholders in the region need to build a common and strategic understanding of the importance of fisheries and aquaculture for Africa's development and of the challenges being faced by the sector. The New Partnership for Africa's Development (NEPAD) is taking the lead in developing regional priorities for future investments in fisheries and aquaculture as part of its wider agriculture programme. Following an invitation from President Olusegun Obasanjo of Nigeria, the World Fish Center and the FAO are supporting NEPAD in developing an integrated approach for the sustainable management of fisheries in Africa's lakes. This is critical, as poor fishing habits are still known to be poisoning large water bodies in most African countries.

On the African continent as a whole, 85 per cent of water withdrawals are used for agriculture-and the percentage is even higher in sub-Saharan Africa. Sub-Saharan Africa lags far behind the rest of the world in the proportion of irrigated arable land to its contribution to the total food supply. In North Africa, 11 per cent of the land is irrigated (excluding Egypt's 100 per cent), whereas in sub-Saharan Africa, it is only 3.5 per cent of total cropped land. In North Africa, 3.4 million hectares are irrigated by large-scale systems, whereas in sub-Saharan Africa, half of the 5.3 million hectares is irrigated by large- and medium-scale systems; the other half is by small-scale systems. In terms of value, irrigation is responsible for an estimated 33 and nine per cent of the crops produced in North Africa and sub-Saharan Africa respectively (Yudelma 1994). In those

areas, the water withdrawn for agriculture from the hydrologic system may represent a significant part of the total water resources. The ways in which freshwater resources are used for agriculture leave much to be desired. In some places, water use exceeds renewable supply rates and cannot be indefinitely continued. Elsewhere, overuse in one area deprives users in other areas, leading to agricultural production decreases and the loss of jobs. Misuse occurs where water is returned to the water system in an unusable state. Used irrigation water is often contaminated with salts, pesticides and herbicides.

Irrigation from lakes can also jeopardise aquatic ecosystems such as wetlands, leading to losses in their productivity and biodiversity. This has important implications for people who depend upon the major inland fisheries that such areas support. Wetlands serve as natural filters that have historically been responsible for cleaning up much of the world's wastewater. Where they have been eliminated in the name of irrigation, the results are usually regretted. A positive impact is that highly productive irrigation of a small area can often replace the use of a much larger area of marginal land for growing crops. Improving the environmental performance of irrigation projects is important for their long-term sustainability.

Aquatic Biodiversity and Habitats- Lakes provide critical habitat for an amazing array of plants and animals, including bacteria, fungi, algae, plankton, mussels, snails, crustaceans, insects, fish, amphibians, reptiles, birds and mammals. Despite their importance, however, lakes continue to be fairly invisible on the global conservation screen. Lakes and their watersheds dramatically underrepresented both in protected areas and in the significance of the aquatic biodiversity they hold. Many African lakes boast some of the world's richest freshwater ecosystems, harbouring a broad diversity of endemic species that exist nowhere else on Earth. They are often surrounded by wetlands store significant volumes of fresh water, as well as serving as vital habitats for endemic wildlife and transit-points for migratory species. Lake Victoria is home to more than 300 endemic species, Lake Tanganyika 140, and Lake Malawi nearly 500. Lake Malawi provides over 60 per cent of the animal protein consumed by the country's entire population. Such figures demonstrate the major 'natural capital' generated by Africa's lakes – the broad range of social, economic, ecological and hydrological functions on which people, especially, the poor, often directly depend. Understanding the full range of benefits and services provided by these aquatic ecosystems is crucial to the conservation of the continent's lakes.

As biodiversity 'hotspot' regions of the Earth with vitally important but critically endangered biodiversity – Africa's lakes and wetlands share high concentrations of unique plant and animal species and high degree of threat. Although they are clearly of great regional importance to livelihoods and economies, development activities are not always compatible with the conservation of their biodiversity. One of the main reasons for the inadequate representation of biodiversity in development planning processes is a widespread lack of readily available information on the status and distribution of inland water taxa. Pollution and sedimentation, as well as the introduction of invasive species, pose the greatest threat to the aquatic biodiversity of Africa's lakes. On a basic level, activities that influence aquatic environments and biological systems, like forest clearing,

the burning of fossil fuels, agricultural pollution and soil loss, lead to greater emissions of carbon dioxide and an increase in global warming. The impacts of climate change are projected to accelerate aquatic and animal population losses and the extinction of a wide range of species and ecosystems. Some of those lakes richest in aquatic biodiversity are already being affected, most notably Lake Victoria and the Okavango Delta. It is estimated that at least 30 per cent of freshwater fish and over 800 other freshwater species are on the brink of extinction in Africa's lakes (IUCN 2002). Some lakes in Africa contain large amounts of carbon dioxide (CO₂), which when released can be fatal to people and animals. Lake Nyos is one of Africa's best known "killer lakes." On 21 August 1986, the lake released a large cloud of CO₂, which flowed down neighbouring valleys, travelling as far as 26 kilometres (16 miles) from the lakeshore. The cloud reportedly moved fast enough to flatten much of the vegetation in its path, including several trees. A total of 1,746 people suffocated, while an additional 845 people had to be hospitalised.