



MINISTRY OF TOURISM, ENVIRONMENT AND NATURAL  
RESOURCES

**Second National Report  
on the  
Implementation of the  
Convention on Biological Diversity in Zambia**

**NARRATIVE REPORT**



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## **1.0 Introduction**

This report has been prepared by the Ministry of Tourism Environment and Natural Resources on behalf of the Government of the Republic of Zambia. Zambia is a contracting party to the Convention on Biological Diversity (CBD). Zambia signed the CBD at the United Nations Conference on Environment and Development (UNCED) on 11th June, 1992 and ratified it on 28th May, 1993. This report is therefore submitted in accordance to the requirements of the Convention. This report details progress achieved in implementing articles of the Convention in the country for the period 1997-2001. The CBD requires a Contracting Party to submit a National Report every four years. This report is a follow up to the First National Report was submitted in December 1997.

### **1.1 Purpose for preparing National Reports**

The objective of national reporting is to provide information on measures taken for the implementation of the Convention and the effectiveness of these measures. The reporting process is not intended to elicit information on the status and trends of biological diversity as such in the country concerned, except in so far as such information is relevant to the account of the implementation measures.

The process of reporting can assist Zambia to monitor the status of implementation of the commitments it has taken. Further it can assist the country to identify those commitments that are being successfully met, those that have not been implemented, and constraints to implementation.

Within the national framework, public availability of the national reports can assist relevant actors (for example, non-governmental organizations and scientific bodies) to formulate focused strategies and programmes to assist the country, with implementation. Similarly it can enable sectors in the economy to identify common issues to be addressed, thus facilitating the development of cost-effective and mutually supportive initiatives for implementation

### **1.2 Methodology for preparing the National Reports**

This National Report is a product of a consultative process and close liaison between the Ministry of Tourism, Environment and Natural Resources (MTENR) and, key stakeholder organisations and institutions. The reporting followed Guidelines made available by the CBD Secretariat. The report was validated to through a Stakeholders Consultative Workshop. In terms of process, the narrative report was put together first and information therein then used to fill out the questionnaire.

## **2.0 Biodiversity in Zambia, its Significance and Management**

The CBD defines biological diversity as the variability among living organisms (NBSAP 1999). Variability occurs at the Genetic, Species and Ecosystem levels. This definition was adopted during the NBSAP process. Much of the biodiversity management work in Zambia however is conducted at species level.

A study conducted by Chidumayo (1998) listed a total of 7,774 species of organisms that occur in Zambia. Micro organisms constitute 7%, plants 40% and fauna 44% of this biodiversity. At least 316 of these species are endemic to Zambia, 174 are classified rare while 31 species are endangered or vulnerable. It is important to note that these figures may be estimates because knowledge on the species is scanty.

The diversity of fauna has been estimated at 3,407 species of which 1,808 are invertebrates, 224 are mammals, 409 are fish species, 67 are amphibians, 150 are reptiles and 733 are birds. Rare and threatened and include Shoebill Stork, Wattled Crane, Slaty Egret and Black-Cheeked Lovebird are found in Zambia. Endangered and threatened animal species include the black rhinoceros, elephant, wild dog, cheetah, lechwe, leopard, Nile and slender snout crocodiles. Poaching eliminated Zambia's rhino population and reduced elephant numbers by 70% during the past 20 years. Large gaps exist in the knowledge of most invertebrates groups. Total fauna diversity is therefore likely to be much higher than indicated.

The floristic diversity has been estimated at 4,600 species of which 211 are endemic. Floristic diversity is dominated by herbs and woody plants.

In terms of ecosystem diversity, 16 ecosystems have been identified. The main biomes cover forests, woodlands, grasslands, aquatic and anthropic types. Woodlands and forests cover at least 70% of Zambia; a further 6% of the country is made up of vast wetlands and swamp forests with their specialized aquatic and swamp vegetation. The wetland biome covers approximately 14% of Zambia when dambos are included.

Species diversity in some organisms shows significant correlation with ecosystem. The highest diversity of mammals occurs in munga and miombo woodlands followed by floodplain/swamps grassland. The montane ecosystem although of limited extent in the country has the highest number of endemic woody plants. Biodiversity is lowest in the dry deciduous forests.

## **2.1 Ecological Values and Uses of Biodiversity in Zambia**

Biodiversity plays an important function most often not recognised: the maintenance of ecological balance through processes such as the water and nutrient cycling, control of erosion and thus deterrence of land degradation, regulation of climatic factors such as temperature and rainfall through carbon sequestration, and in the production of crops through pollination.

Biological resources support the livelihoods of a vast majority of rural populations and for commercial exploitation at a national level. The benefits derived from biological resources contribute to the wealth of Zambia in a number of different ways – at the level of households, communities or provinces, from a variety of different sectors, including energy, tourism, food, livestock, pharmaceuticals and forestry. Ash for shifting cultivation is from burning forests and woodlands. Forests also provide timber, energy, household tools and construction material. Plants and animals are important sources of food. Medicines and other valuable chemicals products are obtained from both plants and animals.

## **3.0 National Strategy for Implementing the CBD**

Article 6 of the Convention on Biological Diversity requires that all Contracting Parties develop national strategies, plans or programmes for the conservation and sustainable use of the national biodiversity. Since 1985, the Government of Zambia took a number of important steps to preserve the environment and ensure conservation of its biological resources. These included, the adoption of a National Conservation Strategy in 1985, the promulgation of the Environmental Protection and Pollution Control Act, (EPPCA) in 1990, the creation of the Ministry of the Environment and Natural Resources (MENR) in 1991, the establishment of the Environmental Council of Zambia (ECZ), the formulation of a National Environmental Action Plan (NEAP), the formulation of the Zambia Forestry Action Program (ZFAP) and the Zambia Wetlands Program.

As a follow up to these strategies, Zambia formulated the National Biodiversity Strategy and Action Plan (NBSAP), a national strategy for implementing the Convention on Biological Diversity. The NBSAP was formulated with the recognition of the provisions of Article 6 of the Convention, but also from the realisation for the need for a common framework for realising biodiversity conservation and management in Zambia. The NBSAP thus created a national administrative framework that serves to comply with Article 6 of the Convention, but also provides for ensuring that biodiversity activities meet national interests as well as prioritizes actions required for achieving the objectives of the Convention in years to come.

### **3.1 Priorities for Implementation**

As a principal strategy for biodiversity management and conservation, the NBSAP was formulated through a participatory process that brought relevant stakeholders including government ministries and departments, NGOs, academicians, traditional leaders, the private sector, international organisations and individual local environmental experts. A steering committee led by the Ministry of Environment and Natural Resources (MENR) facilitated the gathering of biodiversity information, spearheaded the process of consensus building, synthesis and analysis of findings and the drafting of the final NBSAP document. The NBSAP was formerly adopted by Government in 1999.

In the NBSAP priorities are given to six priority needs for biodiversity management. The activities under each of the priority areas are given equal importance and include the following:

- Conservation of ecosystems and protected areas;
- Sustainable use and management of biological resources;
- Equitable sharing of benefits arising from utilisation of biodiversity;
- Conservation of crop and livestock genetic diversity;
- Provision of appropriate legal and institutional framework and needed human resources to deal with biosafety;
- Provision of appropriate legal and institutional framework and human resources to implement biodiversity programmes

Even though the identified priorities were accorded equal weighting, it is important to highlight some critical issue that underlay the priority areas. An overview of biodiversity in Zambia (Chidumayo 1998) acknowledges that protected areas are encroached or depleted. Twenty percent of forest reserves are either encroached or depleted due to over exploitation of products, settlements and cultivation. Further human encroachment in national parks and unplanned developments and settlements in GMAs are a threat to ecosystem conservation. Settlements in GMAs are expanding due to population growth and immigration and more and more land is being converted to agriculture. Already ecosystems in 25% and 48% of national parks and GMAs respectively are degraded due to human encroachment. Equally mining activities have degraded ecosystems and wildlife habitats in several national parks.

The sustainability of ecosystems and biological resources within them has been recognised to be critical to human sustenance. In this respect the sustainable use of flora and fauna is assuming growing importance and growing attention being paid to the role of local communities in resource management, use and the sharing of benefits at that level.

In as far as the capacities of biodiversity management agencies are concerned; the legal and institutional frameworks have long received attention going back to the years of the National Conservation Strategy (1985). For the period under review several key pieces of legislation were in place for dealing with the biodiversity. It has been pointed out that while legal instruments may be sufficient some are outdated requiring revision in order that they are brought in line with current biodiversity management. Thus limited achievement in biodiversity conservation is not due to inadequate legislation as such, but rather to the lack of efficient and proper capacity to enforce and implement the provisions of existing laws and regulations. Without capacity, it would be difficult, if not impossible to achieve the goals of biodiversity conservation.

Following the identification of the priority areas, six strategic goals were identified with accompanying objectives and actions were derived to guide biodiversity management. The six strategic goals are outline in Box 1 below:

#### Box 1: NBSAP Strategic Goals

**Goal 1: Ensure the conservation of the full range of Zambia's natural ecosystems**

**Objective 1:** to assess the coverage of Zambia's ecosystems in existing protected areas network in order to ensure inclusion of all major ecosystems

**Objective 2:** modification of the existing protected areas network to include representative areas of viable size of all of major ecosystems

**Objective 3:** enhancing the effective participation of stakeholders in the management of the PA network.

**Goal 2: Conservation of the genetic diversity of Zambia's crop and livestock**

**Objective 1:** to conserve the genetic diversity of traditional crop varieties and their wildlife relatives

**Objective 2:** to conserve the genetic diversity of traditional livestock breeds

**Goal 3: Improve the legal and institutional framework and human resources to implement the strategies for conservation of biodiversity, sustainable use and equitable sharing of benefits from biodiversity**

**Objective 1:** To strengthen and develop appropriate legal and institutional frameworks for the management of biodiversity in Zambia's PA's

**Objective 2:** To develop a co-ordination mechanism among institutions responsible for biodiversity management

**Objective 3:** to improve biodiversity knowledge in Zambia

**Goal 4: Sustainable use and management of biological resources**

**Objective 1:** to develop and implement local management systems that promotes sustainable use of biological resources

**Objective 2:** to establish the sustainable maximum yields of biological resources and design and implement systems of monitoring their utilization and management

**Goal 5: Develop an appropriate legal and institutional framework and needed human resources to minimise the risks of genetically modified organisms (GMOs)**

**Objective 1:** to establish an appropriate institutional framework for biosafety.

**Objective 2:** to develop adequate human resources for biodiversity

**Goal 6: Ensure equitable sharing of benefits from the use of Zambia's biological resources**

**Objective 1:** to develop and adopt a legal and institutional framework, which will ensure that benefits are shared equitably

**Objective 2:** to create and strengthen community based natural resource management institutions

With a relatively large portion (approximately 40%) of Zambia's natural lands under protected status, by legislation under the forest and wildlife sectors, ensuring the preservation of biodiversity in protected areas was identified as a priority requirement in the conservation of biodiversity, especially in relation to in-situ conservation. Additionally Goal 1 intended to ensure that the protected areas system included all major ecosystems and that appropriate action was taken to this effect, in addition to ensuring that sufficient focus is directed towards harmonizing management of protected areas in order to better reflect the needs of biodiversity preservation.

Other goals emphasized the increasing roles and participation of the local communities, enhancing the knowledge of biological resources, provision of an improved implementation and monitoring system and controlling the impacts of human activities both in and outside of protected areas within the framework of sustainable use.

### **3.2 Approaches taken by National Strategies**

The main focus of policies and actions plans related to biodiversity conservation is reduction of negative trends in the status of biodiversity mainly plant, wildlife and fish biodiversity. Current trends suggest a downward spiral in the population of species. Being able to efficiently monitor trends requires the estimation of populations another critical focus of national biodiversity strategies in the key subsector mentioned. However the main focus of the national strategies was directed at legal and institutional reform in support of biodiversity conservation i.e. devising new legislation, revising old legal frameworks and reorganising biodiversity conservation agencies. Government also made policy changes that created enabling conditions for community based natural resource management implementation. These changes have focussed on the devolution of rights over the use of biodiversity to local communities and enabling the local communities participate in biodiversity conservation and the retention of benefits from using biodiversity utilisation. Specific actions undertaken are discussed under the following sections:

#### **3.1.2 In-situ Biodiversity Conservation Strategies**

Contemporary management of biodiversity in Zambia is incorporated within a network of protected areas comprising 19 national parks, which cover close to 8%



of the land area, and 35 Game Management Areas that buffer these parks, covering an additional 22% of the land area. Over 1.5 million people live in these game management areas.

In addition, a total forest reserves estate covering 7.8 million hectares and botanical reserves provide protection for forest areas important for key river catchments. Other protection of biodiversity is through designated national heritage sites and non-fishing periods during the year.

The management of a large majority of the protected areas is essentially the responsibility of the state.

Generally, the conservation of biodiversity components in the natural habitat is supported by measures developed in the legislation, national policy and action plans. It is acknowledged that biodiversity productivity and conservation is fundamental to the sustenance of the Zambian populace. The protected area system in Zambia consists of national parks, bird sanctuaries, game management areas, game ranches, forest and botanical reserves and national heritage sites. All these categories hold varieties of biological resources of varying status. The in-situ conservation of biodiversity presents opportunities for the conservation of ecosystems and natural habitats and the maintenance of viable populations of species in their natural surroundings and in the case of domesticated or cultivated species, in the surroundings where they have developed their distinct properties. Specific actions in support of in-situ conservation were specified in the following national policies, strategies and action plans:

### ***Multi-sectoral Conservation Strategies***

#### *National Biodiversity Strategy and Action Plan*

At national level the NBSAP recognises the conservation of the full range of the Zambia's natural ecosystems through a network of protected areas of viable size.

The measures are strongly focussed towards species conservation and specifically on the assessment of flora and fauna in the main ecosystems so that the underrepresented ecosystems are also integrated into the protected areas system. An initiative to reclassify Zambia's protected areas and raise effectiveness is under planning. This initiative will strengthen the enabling frameworks and capacities for managing the national protected areas systems of protected areas that have biodiversity conservation as the principle objective. This initiative will ultimately insecure Zambia's ecosystems are effectively safeguarded from human-induced pressures. This initiative will be accompanied by legislative amendments and formulation of appropriate measures for protecting biodiversity.

The following are some of the more recent biodiversity initiatives that have been undertaken:

- Lake Tanganyika Biodiversity Project, formerly known as Pollution Control and other measures to Protect Biodiversity in Lake Tanganyika,
- The Integrated Dry Land Biodiversity Conservation Project in Semi-Arid Areas of Lower Zambezi-Luangwa Valley Region;
- The Lukanga Swamps Biodiversity Conservation;
- Participating in the Southern Africa Biodiversity Support Program (SABSP) where ten (10) SADC countries collaborate.
- Preparation of the National Biotechnology and Bio-safety Policy.

*Zambia National Action Programme for Combating Desertification and Mitigating Serious Effects of Drought (NAP)*

Desertification has impacts on land productivity, leading to a reduction in the lands biological potential. In 2000, Government formulated the Zambia National Action Program on Desertification. The NAP aims to contribute to sustainable environmental management through the reduction/control of land degradation. Its immediate objectives are to:

- Reduce the destruction of land resources in affected areas;
- Promote sustainable use of land resources;
- Increase public awareness and information dissemination on matters of land degradation;
- Provide a suitable policy and legislative framework for the implementation of the NAP;
- Establish and support effective administrative and co-ordination of the NAP;
- Introduce and improve on assessments, planning and monitoring systems for the effective management of the NAP, and
- Establish partnerships with multi-lateral and bilateral institutions in the management of arid, semi-arid and sub-humid areas.

The priority programmes in the NAP include the following:

- Early Warning and Preparedness;
- Forestry, Ecosystems and Species Conservation;
- Water Catchment and Energy Conservation;
- Collaboration and Networking;
- Capacity Building of Programme Co-ordination Unit and Other Focal Persons;
- Extension, Public Awareness and Information Dissemination;
- Land Degradation Assessments, Monitoring and Reporting;
- Easy to use environmentally friendly technologies including Indigenous Knowledge;
- Livelihood Improvement;
- Food Self Sufficiency and Food Security;
- Human Settlement Management, and
- Legal and Policy Reviews.

*United Nations Framework Convention on Climate Change (UNFCCC)*

The Climate Change convention is closely linked to the CBD. Zambia is a signatory to the UNFCCC. By the close of the reporting period Zambia well advanced in the preparation of the Initial National Communication (INC) which commenced in 1994 and was to be completed in 2004. Preparing the INC was a requirement under the UNFCCC to prepare a National Communication which normally takes four years.

#### *Environmental Support Program*

The recommendations of the NEAP formulated in 1994 were implemented through the Environmental Support Program supported by IDA (World Bank). The ESP Phase I was initiated in 1998 and intended to run up to 2003. The major components of the ESP included:

- Strengthening the Institutional, legal and regulatory framework.(including implementation of the Community Environmental Management Program (CEMP);
- Strengthening Environmental Education and Public Awareness;
- Undertaking pilot activities to strengthen community-level environment and natural resources through provision of matching grants through PEF for community initiatives and for environmental studies;
- Building environmental information management systems, and Community Based Natural Resources Management Program in Western Province (CBNRMPWP).

### **Sectoral biodiversity Conservation Programmes**

#### *Wildlife Biodiversity Conservation Programmes*

Under wildlife management, the National Parks and Wildlife Policy revised in 1997, recognises that national parks exist for the protection of wild ecosystems and the biodiversity that exists within them. The goal of the National Parks and Wildlife Policy is to promote the conservation and sustainable use of wildlife resources, and this is intended to be achieved through the management of national parks for the protection of the ecosystems and biodiversity, the repopulation of depleted parks and the management of control and utilization of wildlife and plant species in GMAs. The Zambia Wildlife Act of 1998 regulates entry into wildlife protected areas and provides backing to the Zambia Wildlife Policy. In wildlife biodiversity management, several subspecies conservation strategies have been developed directed at securing particular animal species and these include rhino, elephant, crocodile, wild dog conservation strategies and the conservation of wildlife on private wildlife estates.

#### *Agricultural-biodiversity Conservation*

Agricultural biodiversity is critical for food security in Zambia. At the genetic, species, and farming systems levels, biodiversity provides valuable ecosystem services and functions for agricultural production. The government's agricultural

sector policies appear conducive to the maintenance of agro-biodiversity<sup>1</sup>. Specifically the Agriculture Sector Investment Programme (1996-2001) set out to ensure that the existing agricultural resource base is maintained and improved upon. Agro-biodiversity issues were addressed in two of the five sectoral objectives of ASIP, namely pertaining to sustainable use of natural resource base and enhancement of food security. Agro-biodiversity is also alluded to in some of the sectoral strategies outlined for achieving the five objectives. In the past, agriculture was generally considered as a threat to biodiversity, especially among nature conservation organisations. However, there is a reversing trend which indicates a growing appreciation of the contribution that increased agro-biodiversity can make to food security while simultaneously combining goals of nature conservation.

The NBSAP duly recognises issues of, agro-biodiversity. With respect to on-farm biodiversity conservation, strategies and approaches are still a long way from being perfected in Zambia. However, several initiatives are underway to collect information on farmers' management practices for traditional varieties, to identify suitable strategies for encouraging on-farm conservation. So far indications are that farmers appreciated traditional varieties but genetic erosion has been taking place due to drought, the introduction of new varieties, and certain farmer practices. Further investigations have established that food security was a major determinant of farmers' choice of variety, as was the need for production to fit with overall livelihood strategies, and availability of seed, as there is a need for seed multiplication to support conservation through use.

For genetic resources of traditional vegetables, these have received comparatively low priority since the inception of Zambia's National Plant Genetic Resources Centre in the early 1980s (Mingochi and Luchen....?)<sup>2</sup>. Traditional farming systems have played an important role in preserving genetic diversity (MAFF, 1995). Most traditional cultivation practices include passive conservation of semi-cultivated or wild relish species. The future plans of the national plant genetic resources programme include the establishment of community-based conservation activities, which may require technical and financial assistance from the national, regional and global levels. A Vegetable Crops Working Group is in place in Zambia to advise the national programme on technical issues.

### *Forest Biodiversity Conservation*

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<sup>1</sup> Agricultural biodiversity can be defined as all components of biological diversity of relevance to food and agriculture: the variety and variability of plants, animals and microorganisms at genetic, species and ecosystem level which are necessary to sustain key functions in the agro-ecosystem, its structures and processes.

<sup>2</sup> *D.S. Mingochi and S.W.S. Luchen Traditional vegetables in Zambia: genetic resources, cultivation and uses, Department of Agriculture, National Irrigation Research Station, Mazabuka, Zambia*

Zambian forests represent a unique natural forest ecosystem with complex ecological attributes. Emphasis in conservation of forest biodiversity in Zambia has been on *in situ* conservation mainly in the national forest reserves. The creation of forest reserves has been the main strategy of conserving forest genetic resources *in situ*. In addition botanical reserves established for the preservation of relic vegetation types and/or plant species, and for sources of germ plasm for multiplication and breeding programmes complement forest biodiversity conservation in national and local forests. A twenty year programme the Zambia Forestry Action Programme (ZFAP) spearheads the conservation of forest biodiversity. ZFAP's main objective is to provide a framework for effective management and conservation of forest resources. The main outcome of the first five years of the ZFAP process (1993-1997) has been the formulation of a New Forest Policy that places emphasis on community participation in the management and sharing of benefits of forest resources. ZFAP also led to the review of the Forest Act and has since been enacted by Parliament. The Provincial Forest Action Plans focusing on selected provinces, which commenced in February 2000, prepared Forest Action Plans for four provinces namely; Central, Copper-belt, Luapula and Southern, also strengthened forest biodiversity conservation.

#### *Inland Waters Ecosystem Conservation*

With respect to the conservation of ecosystems and biodiversity in inland waters three key frameworks guide conservation. These include the National Wetlands Policy, the National Strategy and Action Plan for the Conservation and Wise Use of Wetlands developed under the Zambia Wetlands Programme in 1999 and the Water Resources Action Programme (WRAP). The overall aim of these programmes is to conserve and sustainably use Zambia's inland water ecosystems resources and specifically to identify and conserve wetlands ecosystems and the biological diversity therein.

Very little is known about the biodiversity of inland waters and its status other than that of fish. Even though, compared to other biodiversity, fish biodiversity conservation is perhaps one of the most neglected areas of biodiversity conservation in the country. The Zambia Fisheries Bill is under preparation. Policy and practice in fisheries management is inferred from current legislation, the Fisheries Act of 1974. Few of the country's massive wetlands and river systems have protected status with the exception of the two estuaries on Lake Mweru (Mifimbo and Kalungwishi) that have been gazetted as breeding sites. Chikuni in the Bangweulu swamps and; Lochinvar and Blue Lagoon National Parks are wetlands protected areas designated as RAMSAR Sites (Wetlands of International Importance). No other water body is protected unless it is part of an existing Protected Areas. By and large there is no protection of water bodies unless rivers mouths entering lakes which are treated as breeding sites according to the Fisheries Act of 1974, but the extent to which this provision is adhered to, is unclear.

Some information on biodiversity in wetlands areas is available but desperately needs updating. It is critical for the future that a new Fisheries Policy addresses issues relating to sustainable fisheries management, stakeholder participation (especially the participation of local communities) in the capture fishery and aquaculture.

### *Biological diversity of dry and sub-humid lands*

The Zambian government through the Ministry of Tourism, Environment and Natural Resources prepared the National Action Plan (NAP) to combat desertification with the support of UNDP/UNSO. Under this action plan, Zambia is targeting to deal with land degradation and the development of comprehensive drought preparedness and relief schemes in degraded areas of Southern Province, Western Province, Central Province, Lusaka Province and Eastern Province.

Other programmes included the early warning system under the FEWS programme. This programme consists of institutions responsible for early warning, vulnerability assessment and disaster management such as Meteorological Department, Ministry of Agriculture and Central Statistical Office. Under the Environmental Support Programme; issues of land degradation were dealt with under the Community Environmental Management Programme (CEMP) and the Community Based Natural Resources Management Programmes (CBNRM). Under ESP, at least one district in each province was covered by CEMP and or CBNRM programme. Under the Land Management and Conservation Farming Project, diversification of crop production and promotion of drought tolerant crop varieties such as millet, sorghum and cassava is being undertaken in drought prone areas.

Zambia signed the International Convention to Combat Desertification in countries experiencing drought and/or desertification particularly in Africa in 1994 and ratified in 1996. Zambia is an affected country party in terms of land degradation and experiencing frequent devastating droughts. Over the last five years, the rainy season has tended to start late towards the end of November and by the end of March the rains have virtually stopped in most parts of the country. Zambia has in recent years continued to experience mean seasonal rainfall below normal, especially in the extreme southern parts. Statistically calculated rainfall indices over the last twenty five years clearly show that rainfall seasons for periods 1972/73, 1981/82, 1983/84, 1991/92, 1993/94 and 1994/95 have been the most severe drought seasons that Zambia has experienced. Zambia is particularly vulnerable to recurrent droughts mainly due to factors such as over dependence on rain fed agriculture and wide spread poverty. It is estimated that about 100,000 hectares of land is affected by land degradation in Zambia.

### **3.2.2 Ex-Situ Biodiversity Conservation**

The conservation of components of biological diversity outside their natural habitat in Zambia involves the establishment of botanical gardens, herbaria, and gene banks. Further ex-situ protection is provided for under established, fish breeding stations, veterinary research stations and private game ranches in various locations around the country. The largest herbaria include the Forest Department herbarium in Kitwe, the National Plant Genetic Resource Centre at Mount Makulu, and the University of Zambia. Mount Makulu focuses on plant genetic resources and to date 4619 genetic resources accessions of various plant species are conserved at the gene bank.

The National Plant Genetic Resources Programmes main achievement has been in the area of collections and staff training and capacity building as well as provision of conservation facilities. The National Plant Genetic Resources Centre (NPGRC) collection is composed mainly of the country's major traditional crops which include those regarded as being indigenous by virtue of being of African origin and those that were introduced at a relatively early stage and are now important components of the traditional cropping systems with useful local adaptation. Within the NPGRC collection landraces of indigenous crops and adapted traditional crops are given priority. To this effect the general policy which has been adopted is that in the event of shortage of storage space these categories of crops will be stored first.

The NPGRC holds an active collection meant for short to medium term storage. Duplicate samples of all the material at the NPGRC are intended to be deposited at the SADC Plant Genetic Resources Centre (SPGRC) which holds the base collection for the sub-region. Only a small proportion has been deposited in the base collection because most accessions have smaller seed samples. Priority in the activities of the NPGRC will have to given to seed multiplication to solve this problem.

### **3.2.3 Integration of Biodiversity Conservation and Sustainable Use**

Biological diversity is a resource and in terms of human uses and needs in Zambia viewed as the capital stock of living organisms on which development is based (WCMC 1996)<sup>3</sup>. In the context of extractive biological resource use, "sustainable" means that an activity can be carried out at a level of intensity through the foreseeable future.

Zambia recognises that the prudent use of biological resources is critical to sustainable development. Forests, fish, wildlife and other biological resources could provide the basis for sustainable use and development. However increasing pressures on these resources has given rise to the degradation of ecosystems leading to environmental degradation, constraints to growth and increasing

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<sup>3</sup> World Conservation Monitoring Centre, 1996 Assessing Biodiversity Status and Sustainability, Groombridge, B and Kenkins, M.D. (Eds), World Conservation Press, Cambridge UK.

poverty. The effects are most visible in declining agriculture productivity, dwindling wildlife populations as a consequence of poaching or degradation of natural habitats, declining fisheries from over-fishing.

Sustainable natural resource depends on enabling biodiversity conservation laws that provide for the participation of various stakeholders. Government is exploring better ways of involving local people in managing biodiversity much more efficiently through community based natural management programmes. Government with the assistance of collaborating partners supports community based programmes in selected parts of the country. The CBNRM programmes aim to contribute to the effective management of Zambia's biodiversity in an integrated manner by assisting community based groups to develop the skills and knowledge required to initiate and manage viable economic activities.

It is generally accepted that forests are not being managed in a sustainable manner. Indeed, in its global review of the state of the world's forests during the decade 1990 – 2000, the UN's Food and Agriculture Organisation (FAO) reported that Zambia had the **fourth highest level of forest loss in the world**, (estimated at 850,000 ha / year).

Following on the successes of participatory forest management arrangements in other parts of the world, Zambia's Forest Policy – revised in 1998 - recognises the important role that local people can play in **protecting** and **sustainably managing** forests. The country's new Forest Act (1999) makes legal provision for the involvement of non-government stakeholders, especially local forest-adjacent communities, in **joint forest management** arrangements.

Both National Parks and Wildlife Policy (1998), and the Zambia Wildlife Act of 1998 makes provision for community participation in wildlife management through community based organisations.

The present Fisheries Act provides little for community-based fisheries management. The structure for fisheries management acknowledges and provides for sustainable fisheries management. The current bias is however, the development of commercial fishing. Multiple stakeholder community participation in fisheries management remains undeveloped. The current declines in fish catches in most of the country's fisheries is a result of lack of active participation of local communities due to an inept policy and legal framework, lack of institutional capacity and co-ordination.

In 2001 a new Fisheries Bill was drafted which give greater priority to the conservation, management and sustainable utilization of fisheries resources. The new bill when enacted is expected to promote better utilization of the country's fish resources and aquaculture development in order to achieve sound ecological balance and economic growth by way of practical and accountable stakeholder participation in sustainable fisheries management.



Several co-management initiatives have been piloted across the country but often become stuck due to the lack of an enabling legal framework. There is an urgent need to strengthen Local Authorities through the Decentralisation Policy. Notwithstanding, the lessons emerging from these initiatives will underline the need for some form of legislative support if community participation in fisheries management is to be promoted.

Programmes that integrated biodiversity conservation and sustainable use during the period under review included the following:

- Administrative Management Design for Game Management Area- which addresses biodiversity conservation and sustainable use issues through the participation of local community groups in wildlife areas;
- Community Based Natural Resource Management- provides for the involvement of local communities in the development of management plans and management of natural resources such as forests, wildlife, fisheries, water and arable land. The programme emphasised an integrated management approach of all natural resources with the involvement of all gender groups.
- Soil Conservation and Farming systems- aims to combat soil degradation while undertaking integrated agriculture and forestry extension efforts with local communities in the Eastern, Southern, Central and Lusaka provinces
- Zambia Social Investment Fund- was directed at supporting communities to rehabilitate infrastructure through the implementation of micro-projects. The fund expanded to include environmental projects apart from ensuring that from ensuring that all projects undergo environmental assessments.
- Industrial Pollution Prevention Programme- arising from the regulations set out in the Environmental Protection and Pollution Control Act (EPPC), and aims at controlling pollution and promoting sustainable development. The programme also focussed on developing for the Environmental Council of Zambia capacity to enforce regulations through the development of a monitoring and licensing framework for ensuring cleaner production by industry
- Environmental Management Programme- under the Copperbelt Environment Programme, directed at the development of Environmental Management Plans for mining areas as a part of the privatization process, thereby adhering to environmental laws of the country.
- Water Resources Action Programme (WRAP) - provides a framework for promoting the development and wise management of water resources in a sustainable manner, thereby contributing to poverty reduction.
- Sustainable Land Management in the Miombo Woodlands Ecosystem-whose ultimate aim is to shift land management from the practised chitemene to a sustainable land management system based on Integrated Ecosystems Management and Conservation Farming.

The development of these programmes involved wide stakeholder involvement in planning and implementation. Implementation has stagnated in a number of

programmes due to budgetary constraints, compounded by the unavailability of reliable and up to date data in the major sectors.

### **3.2.4 Equitable Sharing of Benefits from Biodiversity**

Attempts at the equitable sharing of benefits from biodiversity started with initiatives intended to share benefits of wildlife utilisation. These programmes have led to the formulation of wildlife utilization schemes providing local communities living within Game Management Areas (GMAs) to participate in the management of wildlife resources (Hachileka et al 2005). Various benefit sharing formulas have been instituted for revenues from hunting activity. Communities receive 45% of revenues, Chiefs within hunting concession areas receive 5%, and the wildlife management agency receives 40% while 10% goes to Central Treasury. Communities are negotiating for a share of revenues from concession fees.

Under the management of forests, the Joint Forest Management (JFM) framework outlined in 2000, and operating in four provinces- Luapula, Central, Southern and Copperbelt, aims to increase the responsibilities, rights and share of benefits accrued from the use of biodiversity in natural forests in order to improve the livelihoods of local communities. JFM pilots were initiated in the open areas and local forests. Under JFM local communities living adjacent to the open areas have the right to cut and collect any forest produce for their consumption but are required by law to obtain permits when they want to extract and offer for sale. In protected areas, access to any forest produce is through a permit from the Forestry Department or JFM committee. The JFM guidelines proposed that 60% allocation of the benefits accrued go to government whilst local communities acquire 40%. This rationale of sharing benefits is based on the notion that the forest estates lie on government land on behalf of the state.

Under agro-biodiversity, access to resources is through the use of genetic material collected through research, restocking and bio-control. Crop development and improvement activities in the country are conducted on a commodity basis, covering major staple food crops like cereals, food legumes, oilseeds, fibre crops, vegetables, tree and plantation crops and roots and tuber crops. Basically all research is government run.

Benefit sharing of genetic material of agro-biodiversity development programmes is through seed multiplication. Farmers get benefits from breeding through many channels like fellow farmers; farming systems research team, extension service as well as primary cooperatives. The plant breeding programmes focus their activities towards improving local plant varieties and on adapting imported germ plasm to local needs. In both cases introduction of specific desired traits such as pests and disease resistance, drought and acid tolerance and improved yield and quality are among the specific objectives included.

No concrete benefit sharing mechanisms for the fisheries sector are yet in place although several pilot projects have been implemented in the northern and southern fisheries of the country for use as learning platforms. These include community-based fisheries management programme in Luapula province, operational on the Luapula River, Lake Mweru and Bangweulu swamps fisheries and the Lake Kariba Community fisheries management programme.

Benefit sharing initiatives do not address all the objectives of the Bonn guidelines due to legal and policy constraints.

### **3.2.5 Public Awareness on Importance and Benefits of Biodiversity**

Various institutions involved in the management of biodiversity developed specific programmes for awareness raising. Efforts in increasing public awareness on the importance of and benefits of biodiversity were directed at both the national and local levels. The Environmental Support Programme (ESP) and the Environmental Council for Zambia (ECZ) for example sponsored a television series to educate the public on the value and importance of conserving the country's biological resources. The National Agriculture Information Services (NAIS) provided extension information, which incorporated biodiversity conservation messages. Radio broadcasts were used by NGOs to promote awareness. Institutions involved in the awareness programmes included, the Wildlife and Environmental Conservation Society of Zambia (WECSZ), PANOS, Institute, the German Foundation for International Development (DSE), Pan African Institute for Development (PAIDESA), World Wide Fund for Nature (WWF) IUCN, and Environmental Conservation Association of Zambia (ECAZ) to promote public awareness in biological resource conservation.

In addition special focus was given to promoting public awareness on corruption in biodiversity utilisation by the Species Protection Department (SPD), of the Anti-Corruption Commission (ACC).

Awareness activities undertaken ranged from the formal integration of environmental education into the schools curriculum to tailored workshops and seminars. In addition, stakeholders communicated through the electronic and print media to raise awareness including the use of popular theatre.

A critical area for awareness raising is the development of data and information base from which information can be passed on to the public with respect to the status of biodiversity. Increasing public awareness on biodiversity and its values requires that those organizations tasked with collecting information especially information of a technical nature actually collect and disseminate the information. As part of data base development, the Environmental Support Programme, embarked on the development of priority sectoral databases for five pilot areas which would have formed the basis of the National Environmental Information Management System. Subject areas include forest resources

information system in Chibombo district, fish, and wildlife information system in Kafue National Park, land degradation information system in Mpika and Siavonga districts, air pollution information system in Mufulira district and water and sanitation information system in Lusaka urban district. Information systems whose development was initiated include computerised databases at Environmental Council of Zambia, Forestry and Fisheries departments. Geographical information systems (GIS) were established at the Ministry of Agriculture Food and Fisheries (MAFF), Zambia Wildlife Authority (ZAWA) and University of Zambia (UNZA).

In the Education sector, Teacher Resource Centres positioned in selected areas around the country provided information to teachers for use in lessons plans. With respect to the biodiversity and conservation, the Resource Centres supported the development of Environmental Education (EE), an identified strategy for the delivery of environmental information both to the teacher and pupil. Environment Education is a recognised strategy in the national education policy "Educating Our Future". Under the Environmental Support Program (ESP) environmental education was included in the school curricula by the Curriculum Development Centre (CDC).

Other sources of information on biodiversity were the:

- SADC Plant Genetic Resources Centre and the National Plant Genetic Resources Centre at Mt. Makulu.
- Non-formal interactions through the district extension system supported by the government departments or institutions responsible for agriculture, forestry, fisheries, wildlife and water, the District Council, the District Development Coordinating Committee and the many non-governmental organizations working in the local level;
- Informal interactions, at social gatherings and traditional ceremonies.

Currently gaps still obtain with respect to technical information at national level required as input to public awareness efforts. At the local level, where availability of baseline data is even more critical, there is no comprehensive data on the status of ecosystems including biodiversity therein, making it difficult to carry out any monitoring work. Without monitoring benchmarks, it is difficult to determine the positive or negative trends in the environment and equally difficult to communicate to the public on matters of biodiversity conservation

#### **4.0 Coordinating Mechanisms for the Implementation of the CBD**

The coordinating mechanisms for the implementation of the CBD are rooted in the policy and legal framework for biodiversity conservation and management for the country and the coordination mechanisms are clearly outlined in the NBSAP and other biodiversity conservation initiatives.

#### **4.1 National Steering Institutions**

In view of the multidisciplinary nature of the NBSAP programme, implementation is guided by a Biodiversity Steering Committee (BSC). The BSC includes key stakeholders who guide implementation and address emerging issues in each of the main components of the NBSAP. Members of the steering committee include:

- Environmental Council of Zambia – mandated to control pollution and protect the environment from damage;
- Zambia Wildlife Authority which has taken over the mandate of the former National Parks and Wildlife Service and whose responsibility is to protect and ensure the sustainable use of wildlife;
- The Fisheries Sub-Programme under the Ministry of Agriculture Food and Fisheries with responsibility for the sustainable use of fish resources;
- Department of Forestry- mandated to protect forests and promote the sustainable use of forest resources
- Ministry of Agriculture Food and Fisheries – whose responsibility is to increase food productivity on a sustainable basis
- University of Zambia- representing institutions of higher learning and research
- Zambian Alliance for Women – an NGO intended to articulate issues relating to women
- Wildlife and Environmental Conservation Society- an NGO advocating for the sustainable management of the environment and wildlife
- Wildlife Producers Association- which promotes good ethics in the management of wildlife bred in captivity
- National Institute of Scientific and Industrial Research- a government agency established to initiate and coordinate industrial research

Local communities in forest areas, game management areas and fishing areas also participated in decision-making through the through local CBNRM committees including, Community Resource Boards, Joint Forest Management Committees and Fisheries Management Committees.

#### **4.2 Roles and responsibilities**

##### *Ministry of Environment and Natural Resources*

The Ministry of Environment and Natural Resources is the focal point on matters of biodiversity. The MENR played a coordinating role ensuring the integration of activities of the stakeholders. A full time Secretariat was established in the MENR to assist in coordination. The MENR regularly consulted with line ministries and other key stakeholders on matters relating to biodiversity conservation. The MENR also led the multi-disciplinary team established to monitor implementation of the NBSAP.

At the programmes operational level coordination has mainly concentrated with improving efficiency of actions through information exchange, facilitate government administrative procedures, mobilization of resources, avoiding overlapping activities, develop data bases, publication of newsletters and regular partner coordination meetings.

#### *Line Ministries and Departments*

Line Ministries and Departments implemented components of the NBSAP as for which they had capacity and comparative advantage. The main legal instruments for supporting the conservation and management of biodiversity include the following: EPPC Act, Zambia Wildlife Act, the Forestry Act, Fisheries Act, National Heritage Conservation Act, Lands Act; Water Act, Agriculture (Seeds) Act, and the Plant Pests and Diseases Act.

#### *Key Stakeholders in Biodiversity Management*

The main stakeholders in biodiversity were:

- a) Government Departments; the mother ministry, Ministry of Tourism, Environment and Natural Resources (MTENR), Ministry of Energy and Water Development (MEWD), Ministry of Agriculture and Cooperatives (MACO), Ministry of Lands (MoL), Ministry of Science and Technology, Zambia Wildlife Authority (ZAWA), Environmental Council of Zambia (ECZ), National Heritage Conservation Commission (NHCC), Water Development Board (WDB), National Institute for Science and Industrial Research (NISIR)
- b) Local Communities, especially those residing inside National Parks (e.g. Liuwa National Park), GMAs, Forests, near wetlands and water resources
- c) Non-Governmental Organisations (NGOs) and Community Based Organisations (CBOs) such as;
  - The World Conservation Union (IUCN)
  - Worldwide Fund for Nature (WWF)
  - African Wildlife Foundation (AWF)
  - David Shepherd Conservation Foundation (DSCF)
  - Frankfurt Zoological Society (FZS)
  - Kafue Anti-Poaching Company (KANTIPO)
  - Zambia Ornithological Society (ZOS)
  - Wildlife and Environmental Conservation Society of Zambia (WECSZ)
- d) Private sector companies and interest groups, such as Safari hunting operators, Photographic Tourism Operators, the Zambia Wildlife Producers Association (ZWPA), Timber Producers Association, Fisher folk

- Associations, Mining Companies, Zambia Electricity Supply Corporation (ZESCO), Zambia Sugar Company PLC.
- e) Cooperating partners, bilateral as well as multilateral donors, are important stakeholders contributing with technical and financial assistance for management of natural resources and biodiversity.
  - f) Institutions of Higher Learning: University of Zambia

### **4.3 Other Biodiversity Committees**

Zambia implemented several programmes in biodiversity conservation. The consultations between stakeholders were therefore critical to ensuring that coordination progressed smoothly. In order to achieve this various biodiversity management sub sectors introduced management structures for the implementation of sector programmes. These provided for stakeholders and Donor community to take an active role in the implementation, monitoring and evaluation of biodiversity management programmes. The management structures included Steering Committees, Forums, Supervisory Boards and Project Management teams. These fora provided a platform for discussion for Government, the donor community and stakeholders. Other key Biodiversity Committees include the following:

- The National Wetlands Steering Committee
- National UNCCD Coordinating Committee
- Biosafety Committee

### **5.0 International Cooperation and Collaboration**

Several multilateral, bi-lateral and other international organisations supported the conservation and management of biodiversity in the country, as national provisions for biodiversity continued to be inadequate during the period under review. In this regard the following cooperating partners contributed to the implementation of programmes under the CBD:

- UNDP, World Bank and NORAD facilitated preparation of the NEAP and ESP between 1993 and 1996, which provided the overall framework for the NBSAP;
- GEF\UNDP facilitated preparation of NBSAP between 1997 and 1998, coordinated by IUCN;
- UNDP and The Netherlands Government funded preparation of ZFAP in 1999, coordinated by FAO;
- FINNIDA funded preparation of PFAP in 2001 and has continued to facilitate its implementation in four provinces
- Several donors cooperated with World Bank\IDA in preparing ASIP which was finalized in 1996. Implementation of specific programmes under ASIP has continued to benefit from donor funding.

- Preparation of management plans in wildlife protected areas was facilitated by JICA, European Union (EU), NORAD, USAID, Frankfurt Zoological Society, WWF, David Shepherd Foundation and other cooperating partners;.
- Other cooperating partners that, have contributed finances for implementing CBD programmes in Zambia are IDA, IFAD, CIDA, ADB, NORDIC Development Fund and DANIDA.

Support from cooperating partners has been more in the area of planning rather than actual implementation.

At the sub-regional level, Zambia cooperated with other countries in the region on matters affecting conservation of biological diversity and is signatory to the Lusaka Agreement on Management of Elephants and other endangered species. Zambia also cooperated with neighbouring states through Joint Permanent Commissions, which periodically deliberate on management of biological resources especially fish, and wildlife. Currently joint commissions exist with Zimbabwe, Angola, D.R Congo, Tanzania, Mozambique, Namibia and Malawi.

In addition, Zambia has continued to support regional programmes such as the SADC Plant Genetic Resource Centre (SADC-PGRC) which is hosted in Zambia, whose responsibility is to collect and conserve the region's plant genetic material, in particular cultivated crops and their wild relatives. Zambia continues to participate and support activities of the SADC Agriculture Food Security and Livestock Sector, the Fisheries and Marine Resources Sector, Inland Fisheries Sector and SADC Environment and Land Management Sector. Zambia has been an essential contributor to and beneficiary from the Southern African Centre for Cooperation in Agricultural Research and Training (SACCAR) on important crops, agro-forestry and plant genetic resources. Zambia has also actively participated in the Southern African Regional Commission for the Conservation and Utilisation of the Soil (SARCCUS) in the areas of regional exchange of agriculture related technical and scientific information, expertise and know-how. At international level, Zambia has continued to be an active collaborator in FAO and IFAD programmes and activities.

Zambia participated in all Conferences of the Parties (COP) Meetings to the CBD which among other issues deliberated on and made decisions on matters related to biotechnology and biosafety. There are also three regional Biosafety initiatives, to which Zambia is affiliated: the Southern African Regional Biosafety (SARB) Programme; the AfricaBio and the Southern and East African Consultation on Biotechnology and Biosafety.

## **6.0 Capacity for Implementation of CBD**

The establishment of the Ministry of Environment and Natural Resources and the Environmental Council of Zambia (ECZ) in the early 1990 generally improved the capacity for implementation of the CBD. From a legal and institutional



perspective, the MENR has developed capacity for high level coordination and policy direction, while the ECZ has equally developed capacity for coordinating and managing sustainable environmental management by ministries and other agencies in addition to technical management of the environmental issues. Under the law the ECZ has the powerful mandate for overseeing the implementation and enforcement of the environmental policies, for setting, enforcing and monitoring standards and measures of pollution control.

Under several programmes and guided by the Environmental Support Programme the Zambian Government assessed the legal framework and enforcement capacity with the purpose of enhancing the ability of the Government to draw up and enforce laws and regulations for protecting biodiversity. Capacity for implementing the CBD was thus improved through the harmonisation of inconsistencies in legal frameworks and resolving of areas of conflicts and the identification of gaps in the legal frameworks in order to produce a consistent and mutually supporting environmental legislation. Under this effort, the following key actions were undertaken:

- reviewing the Environmental Protection and Pollution Control Act for clarifying the mandates and responsibilities of the institutions involved in environmental management and to reflect new initiatives at local and community levels;
- reviewing regulations for environmental impact assessment; and
- reviewing legislation related to environment, natural resources management, biodiversity and development to harmonise it with international instruments which included – the CBD, UNCCD, CITES, UNCED Declaration on Agenda 21 and the Convention on Wetlands of International Importance (Ramsar).

The strengthening of institutional enforcement capacity is ongoing and has been undertaken through knowledge management seminars and workshops, training programmes in environmental law, environmental assessment and monitoring, and enforcement techniques. Focal point persons were identified and trained in key ministries and agencies responsible for environmental activities including civil society.

The strengthening of community capacity for biodiversity management is also ongoing and aimed at increasing the capacity of communities to participate in environmental initiatives and to manage and police their own resources. This was achieved through the revision of legislation and by conducting local level workshops to raise community awareness of the values of biodiversity.

However, despite these achievements, Zambia still requires technical, financial and material assistance in the implementation of CBD and indeed other international biodiversity related instrument.

## **6.1 Human resources capacity**

Human resource development generally and for biodiversity management specifically is of high priority in Zambia. Special attention is paid to the development of human capital by ensuring improved access to education and health facilities. Particular attention is paid to capacity building for girls and young women especially in rural areas. Basic training for biodiversity conservation and related is available locally through tertiary training institutions i.e. colleges e.g. Natural Resources Development College (NRDC), Mwekera Forestry College, Kasaka Fisheries College, Wildlife Training Centres and higher institutions of learning which include the University of Zambia (UNZA) and the Copperbelt University (CBU). Specialist training is only available outside of the country. Specialist training needs have suffered from budgetary constraints.

A poorly performing economy, has negatively affected the access and quality of both education and health services, resulting in the substantial erosion of human capital formation. With jobs that can no longer be assured, the job market unattractive, and the purchasing power of professionals reduced, many qualified Zambians left the country for “greener pastures”, further compounding human resource capacities.

Human capital has also been adversely affected by HIV/AIDS as deaths from the pandemic are expected to lead directly to a reduction in the number of workers available. Deaths affect workers in their most productive years, and as younger, less experienced workers replace experienced ones, productivity is inevitably reduced (The Economic Impact of AIDS in Zambia in 1999). Furthermore, AIDS cause significant increases in labour costs, both direct and indirect. These include increased health care costs, burial fees, absenteeism (due to funerals) and training and recruitment of replacement employees.

## **6.2 Financial capacity**

For the period under review, the Government of Zambia continued to make annual budget provisions for the management and conservation of biological resources through various Ministries and agencies. The Government has continued to meet operational recurrent costs from the national budget while cooperating partners have been supporting the capital cost elements in most of the projects and programmes.

Reduced earnings from the export of goods and services and reduced government spending on programmes, making donor financial support for biodiversity inevitable. During the period under review Zambia was one of the world's most heavily indebted low-income countries. . With a high debt stock, debt service absorbed a significant share of resources meant for critical development programmes including programmes in biodiversity management.

### **6.3 Information Technology capacity**

Information services play an important role in the socio-economic development of the country. Information technological capacity is critical to the efficient flow of information between those that produce information and those that consume or use it. The main channels of information flow were through the print and electronic media and to this effect the main objective of the information sector was to enhance the use of the print and electronic media and information and communication technology (ICT) for the benefit of the country. The lack of access to modern ICTs affected timely and effective delivery of information as infrastructure remained inadequate. Radio communication and television remained limited and poor in the rural areas thus denying rural folk basic information.

A number of institutional reforms to improve information technology capacity were implemented. The key reforms have included the liberalisation of airwaves, facilitating the establishment of a number for private radio stations, rationalisation of public information services and the formation of media bodies to improve ethics and professional standards.

With improved information technological infrastructure in the country, the MENR, ECZ, ZAWA, and the Departments of Fisheries, Forestry and Agriculture were accessible through the Internet and able to communicate with outlying areas fairly better than before. Further the ECZ, WECSZ, UNZA and MENR were able to establish official websites.

### **6.4 Research and Training**

The importance of research and development of technologies for sustainable biodiversity use and sustainable development is important for the country. The main government institutions that led biodiversity research were the Department of Field Services (Crops, livestock and fisheries) under the Ministry of Agriculture Food and Fisheries; Department of Forestry and the Zambia Wildlife Authority under Ministry of Tourism Environment and Natural Resources. Other national institutions actively involved in biodiversity research and technology development are UNZA, Copperbelt University (CBU) and NISIR. In this respect several institutions were involved in environmental research and management. The Ministry of Tourism, Environment and Natural Resources spearheaded research in pollution monitoring and control methods, watershed management, energy saving and tree development. These research activities were undertaken in collaboration with the University of Zambia, National Industrial Research Council, Water Sector, Energy Sector, Zambia Wildlife Authority and Ministry of Agriculture, Food and Fisheries through various sector programmes.

Specifically, the Technology Development Unit of the University of Zambia in collaboration with the Energy Department and National Industrial Research

Council carried out studies on the accessibility of solar, wind and biogas energy to the local people. These institutions have continued to develop necessary technology that will save the country from high costs and minimize the polluting effects of oil and coal power stations.

The forestry sector most of research activities aimed at combating deforestation were basic and focussed on the development of efficient charcoal kilns and stoves, use of coal briquettes as a substitute to charcoal, agro-forestry techniques and identification of drought and termite/insect resistant plants. Research into finding solutions for the growing demand for forest products was also undertaken. The research challenge remained finding ways in which forests can continue to provide environmental services with in view of the growing demands on forest biodiversity. These critical services include the mitigation of local and global climate changes, protection of soil and water resources and provision of resources for livelihoods which may not be so obvious.

In land management, a number of research and training institutions such as the National Science and Technology Council, National Institute of Scientific and Industrial Research, University of Zambia, Department of Crop and Animal Research in the Ministry of Agriculture and the Ministry of Tourism, Environment and Natural Resources. Research in land management focussed on the development of extension approaches and conservation farming technologies. These included soil conservation technologies such as: minimum tillage, soil conservation works agro-forestry, vertiver grass bands, mulching, crop rotation, use of cow manure and inter-cropping. The deterioration of land is most emphasised in Southern, Eastern, Western, Central and Lusaka Provinces quite clearly linked to overgrazing, soil erosion and increased soil acidity due to over utilisation of chemical fertilisers.

Agricultural research has generated appropriate technologies for improving and sustaining the agricultural sector. In crops, research activities have emphasised the improvement and development of food crops, such as cereals, roots and tubers, vegetables and legumes and export crops such as cotton, cashew, tea, coffee and sugar canes. In the drier areas of the country research concentrated on improving the productivity of the farming systems that are traditionally based on finger millet, cassava and sweet potatoes.

Current research activities have mainly focused on resource inventories (fisheries and wildlife), resource monitoring (wildlife and forestry), and resource mapping. Some of the specific research undertakings are as follows:

- (i) Agro-forestry research of food and medicinal plants to improve living conditions for both rural and urban dwellers through improved availability of forest products.
- (ii) Conservation of Miombo ecosystems by assessing the structure and ecology of Miombo woodlands and closely monitoring changes over time.
- (iii) Research in seed production technologies intended to diversify food production and ensure sustainable crop production.

(iv) Wildlife resource monitoring especially in protected areas intended to observe trends in resource use.

(v) The gene bank programme aimed at collecting and preserving a broad diversity of plant species for future use.

(vi) Community-based natural resource management mechanisms being developed in different sectors as a tool for enhancing local community involvement in biological diversity management and promoting education and awareness through CBNRM approaches and concepts being developed in wildlife, fisheries and forestry sectors

## **6.5 Impact Assessment and Minimisation of adverse impacts**

High priority was accorded to impact assessment and the minimizing of adverse impacts to biodiversity. The specific EIA (or framework) law is the Environmental Protection and Pollution Control Act, No. 12 of 1990, and amended Act No. 13 of 1994 and the Regulations of 1997. Under the EIA Regulations of (1997), each developer is expected to meet the cost of undertaking an assessment, which reduced constraints in the regulating body in relation to resources required for implementing the article.

Schedules of projects for environmental briefs or full environmental impact assessments required have been developed. EIA has slowly been adopted as a planning tool although negative perceptions especially in industry abound. Governments through the Environmental Council of Zambia made tangible efforts to improve capacity to guide, administer and monitor EIAs.

Advanced tools such as SEA have not yet been utilised to create a better framework within which EIA can be applied. Although not yet widespread, public participation processes are beginning to be developed with progressive participatory opportunities during the scoping and review stages of the EIA.

## **7.0 Operations of the Convention**

### *Gender balancing in the Nomination of Experts for inclusion the Roster*

Gender balancing in biodiversity management remained a challenge as for many other sectors in country, even though the country has developed a Gender Policy, developed Guidelines for Gender Mainstreaming and acceded to the SADC Gender Protocol. Whereas women are mostly involved in supportive functions, their men folk were mainly involved in decision making activities for a number of reason. Biodiversity management in Zambia is male dominated and gender balancing was not considered. Many of the programmes and projects were not gender analysed because of unfamiliarity with the tools for Gender Analysis.

### *Involvement of local communities in the Nomination of Experts for inclusion in the Roster*

In view of the low levels awareness of and technical understanding of the issues relating to the Convention, members of the local communities are usually not nominated for inclusion in the roster.

*Participation in sub regional and regional activities*

Zambia has participated in sub-regional and regional activities in order to prepare for Convention meetings. The meetings were facilitated by funds from multilateral agencies and project funding.

*Review of national programmes and needs*

Most national biodiversity related programmes plan reviews after five (5) years. To date no comprehensive review of the NBSAP has been undertaken.

## **7.1 Activities carried out as direct result of being a Contracting Party**

Since Zambia signed and ratified the Convention, it has carried out the following activities to control the depletion of its biological resources some of which were reported in the First National CBD Report. -:

- i) Review of policy and development of national strategies and action plans to enhance capacities for conservation and sustainable utilization of the country's biological resources:
  - prepared and adoption a National Environmental Action Plan (NEAP) in 1994;
  - Design and implementation of Environment Support Programme (ESP) (1996-2001)
  - Preparation and implementation of the Zambia Forestry Action Plan (1997-2010)
  - Preparation and implementation of the National Biodiversity Strategy and Action Plan (NBSAP) (1999).
  - Development of the National Strategy and Action Plan for Conservation and Wise Use of Wetlands (1999)
- ii) Policy Development and Reform
  - Development of the National Wetlands Policy (1999) (in draft)
  - Revision of the National Parks and Wildlife Policy (1998)
  - Revision of the Forest Policy (1998)
- iii) Legal Development and Reform
  - Development of Environmental Impact Assessment Regulations (1997)
  - Enactment of a new Zambia Wildlife Act (1998)
  - Enactment of a new Forest Act (1999); implementation yet to be commenced.
  - Drafting of a new Fisheries Bill
  - Harmonisation of legal frameworks

(iii) Strengthening of links with neighbouring countries in conservation and sustainable utilization of Wildlife resources in border areas with Malawi, Zimbabwe and Botswana;

iv) Development of joint research and training programmes in fisheries with Zimbabwe on Lake Kariba and Tanzania, Zaire and Burundi on Lake Tanganyika.

v) Strengthening the system of in-situ conservation of biological resources by:

- Reorganization of the Ministry of Tourism Environment and Natural Resources
- Reorganization of the Department of National Parks and Wildlife into a functioning new Zambia Wildlife Authority
- Initiation of the development of proposals for a new Zambia Forest Commission

(iv) Implementation of appropriate measures for in-situ conservation of biological diversity in conjunction with the private sector and non-governmental organisations under specific initiatives;

vi) Continued refinement of community based approaches in wildlife, forests and fisheries management in support of biological conservation and sustainable use; and the facilitation of local level institutions for this purpose which included Community Resource Boards, Joint Forest Management Committees, Village Fisheries Committees under specific initiatives;

(viii) Strengthening and broadening of public awareness in conservation and sustainable use of biodiversity through national events (World Environment Day, National Wetlands Day, National Tree Planting Day etc.)

viii) Participation at COPs and other meetings of the Convention both at international and sub regional level;

ix) Strengthening the capacity of Zambian experts for implementation of the Convention through participation at international and sub-regional training sessions

viii) Securing financial resources for biodiversity conservation through governments own allocations, bilateral funding and multilateral funding. Zambia participated in Biodiversity Enabling Activity.