GOVERNMENT OF THE REPUBLIC OF ZAMBIA

PRELIMINARY FIRST DRAFT NATIONAL REPORT ON THE IMPLEMENTATION OF THE CONVENTION ON BIOLOGICAL DIVERSITY

MINISTRY OF THE ENVIRONMENT
AND NATURAL RESOURCES

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ABBREVIATIONS AND ACRONYMNS

ADEMADE	Adminstrative Management Design for Game Management Areas
CBD	Convention on Biological Diversity
CBNRMP	Community Based National Resources Management Programme
CITES	Convention for International Endangered Species
ECAZ	Environmental Conservation Association of Zambia
ECZ	Environmental Council of Zambia
EIA	Environment Impact Assessment
EPPCA	Environmental Protection and Pollution Control Act
ESP	Environmental Support Programme
GDP	Gross Domestic Product
GEF	Grobal Environmental Facility
GMA	Game Management Areas
IDA	International Development Association
IUCN	World Conservation Union
LTBP	Lake Tanganyika Biodiversity Project
MAFF	Ministry of Agriculture, Food and Fisheries
MENR	Ministry of Environment and Natural Resources
NCS	National Conservation Strategy
NCSR	National Council for Scientific Research
NEAP	National Environmental Action Plan
NGO’s	Non-Governmental Organisations
NORAD	Norweigian Agency for Development
NPWS	National Parks and Wildlife Service
PDF	Project Development Facility

RNG	Royal Netherlands Government
SADC	Southern African Development Community
SPC	Species Protection Commission
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WCSZ	Wildlife Conservation Society of Zambia
WWF	World Wide Fund for Nature
ZEEP	Zambia Environmental Education Project
ZFAP	Zambia Forest Action Programme

Executive Summary

Zambia signed the Convention on Biological Diversity on 28th May, 1993. The Convention came into force towards the end of 1993. As a Party to the Convention, Zambia like all other parties, is bound by the Articles of the Convention.

Zambia is endowed with an abundance of Natural resources and a rich biological diversity. It has been estimated that the country has more than 5,500 species of flowering Plants, 233 species of mammals, 731 species of birds, 145 species of repitiles, and over 200 fish species.

Zambia has had a long history in the conservation and management of its biological resources through an elaborate network of nature reserves which includes 19 National Parks, 32 Game Management Areas, and protected forests and woodlands covering about 8.6% of the country. Zambia's relative success in biological diversity conservation can be partly attribted to favourable climatic conditions, good vegetation cover and, a low population density averaging 12.2 persons per square kilometre over an area of 752,617 square kilometres.

While Zambia can still boast of having a fairly rich biological diversity, the country is facing a number of socio-economic problems with potentially negative impacts which could seriously deplete the country's biological diversity. Since signing the CBD, Zambia has embarked on measures to control depletion of its biological diversity by starting to address appropriate Articles of the Convention as follows:-

(i) Strengthening of links with neighbouring countries in conservation and sustainable utilization of Wildlife resources in border areas with Malawi, Zimbabwe and Botswana and developing joint research and training programmes in fisheries with Zimbabwe on Lake Kariba and Tanzania, Zaire and Burundi on Lake Tanganyika.

(ii) reviewing policy and developing national strategies and action plans to enhance capacities for conservation and sustainable utilization of the country's biological resources. For example, in 1994 Zambia prepared and adopted a National Environmental Action Plan (NEAP); in 1996 the country adopted an Environment Support Programme; and in 1997 the country prepared the Zambia Forest Action Plan (ZFAP) and secured funding from GEF for the preparation of the Biodiversity Strategy and Action Plan (BSAP). In 1997, Zambia developed Legislation on EIA which has now come into effect.

(iii) strengthening the system of in-situ conservation of biological resources by repealing appropriate laws. For example measures for repealing the Wildlife Act, the Forestry Act and the Fisheries Act have reached an advanced stage.

(iv) Initiating appropriate measures for ex-situ conservation of biological diversity has been done by involving the private sector and NGOs in the establishment of Game Ranches, Bird Sanctuaries, Crocodile Farms and herbaria and the

involvement of local communities in forest management through joint forest management mechanisms.

(v) Strengthening and broadening of public awareness and community participation in conservation and sustainable use of biodiversity is being promoted through establishment of CBNRMP such as the ADMADE, LIRDP, the UZNRMP, the Wetlands Programmes and Integrated Fisheries Management Programmes on Lake Kariba, Lake Mweru and Lake Bangweulu.

Implementation of different Articles of the convention are being pursued. However, the scarcity of resources and inadequancy of trained and experienced manpower has been a major constraint in the implementation of the CBD by Zambia. In this regard, the approval by GEF of Zambia's proposal to undertake Biodiversity Enabling Activity studies is most appreciated and is expected to enable Zambia move a step under in fulfilling her obligations towards the convention.

1.0 Country Background

1.1 Location and Size

Zambia is a landlocked country situated in the Southern African Sub-region. The Country is approximately 752,617 square kilometres in size and lies between latitudes 8 or 18 degrees south and longitudes 22 and 34 degrees east. Zambia is surrounded by eight (8) neighbouring countries namely Tanzania and the Democratic Republic of Congo to the north; Malawi and Mozambique to the east; Zimbabwe; Botswana and Namibia to the south; and Angola to the west.

1.2 Climatic Conditions

Most of Zambia lies between 1,000 and 1,600 meters above sea level. The highest parts of the country are in the north east with the plateau gradually sloping to the south east. The country's sub-tropical climate is characterised by three seasons; namely the hot dry season from August to October; the rain season from November to April, when temperatures range from 27^0c to 38^0c; the cool dry season which lasts from May to August and temperatures range from 16^0c to 27^0c. Mean annual rainfall rages from 700mm in the southern parts of the country to 1400 mm in the north.

1.3 Demography and Population Trends

The population of Zambia is estimated at 9.2 million (CSO, 1996). The annual population growth averaged 3.7 percent between 1980 and 1990 and has declined to 3.2 percent per year since 1990. 42% of the population lives in urban centres while 58% live in rural areas. Population density varies from province to province but averages 12.2 persons per square km. The country's population is characterised by extreme youthfulness with 49.6 percent being under 15 years of age (CSO, 1990).

1.4 Socio-Economic Trends

Zambia attained political independence from Britain in October, 1964. At the time of Independence, Zambia was considered one of the wealthiest nations in Africa. However, the Human Development Report (UNDP, 1996) shows that Zambia's GNP per capita now stands at US$ 270 compared with US$ 580 in 1975 when the economy started declining. The decline in economic performance has raised poverty levels in Zambia to about 70% of the population. In Zambia, poverty manifests itself through inadequate purchasing power and access to essential social services.

The 1990 National Census reported fertility at 6.5 children per female; mortality at 11.7 deaths per 1000. As at 1992, 27% of Zambians had no access to health services; 54% had no access to safe water; and 60% had no access to sanitation (Zambia Demographic Health Survey - ZDHS).

2.0 Environmental Issues in Zambia

With its land are of 752,617 km^2. Zambia's Natural Resources are the basis of the economy of the country, which is mainly based on Copper Mining, Agriculture and Eco-Tourism.

Biogeographically, Zambia falls in the Zambezian biome and has some afromontane elements in the Julbernadia and Isoberlinia species northeast. The country is dominated by miombo woodland of Brachystegia; Mopane Woodlands are found in the Luangwa and Zambezi Valleys and in the West; extensive Wetlands and Flood plains are scattered a cross the country with patches of lowland forests in the northwest; and montane forests and grasslands occur in the northeast. The country has a highly vascularized river system along with water bodies that cover as much as 6% of the total land area. The country belongs to the Zambezi River Drainage System.

It is estimated that at least 5,500 vascular plant species occur in Zambia (IUCN 1990). Also there are at least 233 species of mammals, 731 species of Birds, 145 species of reptiles and 200 species of fish. Three centres of endemism are known in the country: Luangwa valley, in the east; Mbala in the northeast; Solwezi-Mwinilunga in the Northwest. Twenty-two species of antelope occur in Zambia, including the Sitatunga, Waterback, Kafue Lechwe, Black Lechwe, Southern Reedbuck, Prikn, Sable Antelope, Cookson's Wildebeest, Blue Wildebeest, Litchestein's Hartebeest, Tsessebe, Oribi, Impala, Eland, greater Kudu, Roan, Sharpe's Gryrsbok and Klipspringer. At least 11 of these antelope species, which constitute the basis for Eco-tourism, are threatened. The country is also renowned for its large herds of elephants, hippopotamus, buffaloes and giraffes. Threats to biodiversity in Zambia come from poverty and dependence on natural resources exploitation, which are accelerating the rate of deforestation. Also poor conservation measures compounded by poaching, over fishing, overgrazing by livestock, uncontrolled bush fires, and soil erosion are altogether threatening biodiversity conservation in the country. However, Zambia has developed an extensive, but ill managed conservation area system covering as much as 30.4% of the country's land area. There are 19 national parks covering 8.4% of the country's land area), and 35 game management areas 22% of the country's land area, these are

managed under a National Parks and Wildlife Service (NPWS) and the ADMADE (Administrative Design for Game Management Areas) program, which involves rural communities.

Since 1985, the Government of Zambia has taken a number of important steps to preserve the environment and ensure conservation of its biological resources. These milestone steps have included:-

(a) the adoption of a National Conservation Strategy in 1985;

(b) the promulgation of the Environmental Protection and Pollution Control Act (EPPCA) in 1990;

(c) the creation of the Ministry of the Environment and Natural Resources (MENR) in 1991;

(d) the establishment of the Environmental Council of Zambia (ECZ); in 1992

(e) the formulation of a National Environmental Action Plan (NEAP) in 1995; and

(f) the inception of the Zambia Forestry Action Programme (ZFAP) and the Wetlands Conservation Programme.

(g) To provide backstopping for these steps, the country has recently adopted an Environmental Support Programme (ESP). The ESP is intended to successively prevent, assess and reverse environmental and natural resources degradation in the country. However in order to control the rate of depletion of biological resources, the country is committed to the development a sectoral policy for conservation; sustainable use, and benefit sharing of biodiversity resources.

2.1 Deforestation

The forest sector is potentially very important to National Development and Human Welfare. For example, woodfuel (firewood and charcoal) is the main cooking energy source for over 90% of the households in the country. The charcoal industry in 1991 was worth 5 billion Kwacha or 2.3% of GDP, while the rest of the forest sector contribute about 3% to the GDP.

It is estimated that charcoal production provides full-time employment to about 41000 people in rural areas and another 4500 are imployed in charcoal transportation, marketing and distribution. Forests are also sources of construction wood. In 1992 timber and pole production from industrial plantations was estimated at 67500 cubic metre (Central Statistical Office 1992). Forest food resources, such as fruits, vegetables, mushrooms, roots and tubers, which provide essential micronutrients are harvested from indigenous forests for subsistence needs and sale. Edible insects, such as Caterpillars and termites, and secondary products such as, honey and beeswax, are all prized forest products with promising potential in the country. Forests regulate the

flow of water to provide for industry, agriculture and households; they protect catchments from soil erosion and regulate global climate.

However, the potential of the forest sector has not been fully realised because forestry and natural resources institutions have little capacity to carry out research, develop and manage the country's forest resources.

About 80% of the country is potential forest and woodland but 20% has been converted to agriculture. The remaining 60% contains about 3,000 million (dry weight) of wood, with an annual increment of 30 million tonnes (Chidumayo 1993a)

Indigenous forests are rich in biodiversity, they contain about 5,500 species of flowering plants, 88 species of mosses and 146 species of ferns. The forests range from ever green forests (3 million ha) deciduous forests (1 million ha) deciduous savannah woodlands (53.5 million ha) and scrub (2.8 million ha) grassland covers 13 million ha. Of these vegetation types, the miombo (Brachstegia - Julbernardia) Isoberlinia woodland is the most extensive and covers 35.5 million ha.

With the exception of a few hard woods, such as Mukusi (Baikiaea Plurijuga) teak and Mukwa (Pterocarpus Angolensis), indigenous forests in Zambia are poor in commercial timber species, the stocking rate of these valuable hard woods ranges from 0.5 to 2.0t per ha and there are only five main commercial timber areas in the country. Indigenous forests have potential for small-scale commercial bee keeping in many parts of the country.

Although Government established forest plantations of pines and eucalyptus to meet the industrial timber needs of the country, timber imports have continued to augument local production. These plantations cover about 59,000 hectares throughout the country. In 1990 the country imported 51,000 cubic metres of coniferous and non-coniferous sawn and rough timber.

The Forest Act of 1948 and as amended in 1973 established local and national forests in which logging and collection of forest produce is regulated by the Forest Department. No settlers are allowed in forest reserves which cover about 10% of the country. These are intended for conserving and developing of forest resources and biodiversity to ensure secure supplies of timber and other forest produce. National forest reserves have the additional function of protecting water shed areas.

The major commercial forest produce from indigenous forests in Zambia is charcoal used for cooking by 83% of the urban households (Hibajene & Chidumayo 1993), the charcoal used by urban households represents 87% of total national energy consumption. Total charcoal consumption increased from 510,000t in 1980 to 588,000t in 1990 (Chidumayo 1993a). This represents a 1.5% annual increase in consumption compared to the population growth rate of 3.2%.

Deforestation occurs in both forest reserves and open forests. Deforested areas are not managed properly to enhance natural regeneration. Annual productivity of regenerating woodland is estimated at 2.5t per ha of which 40% is hard wood suitable

for charcoal production. Deforestation carried out by charcoal production is therefore as much a problem of management failure as it is of over exploitation.

The main factor limiting the productivity of indigenous forests is uncontrolled bush fires. In regenerating miombo woodland, late dry season bush fires reduce wood annual increment by 50% (Chidumayo 1993c). Bush fires also destroy industrial plantations. A total of 36,000 ha were affected and timber on 3,200 ha was destroyed by fires in the Copperbelt Province during 1975-1993.

Since bush fires are man induced, their control will have to involve local communities. Bush fires also generate large amounts of green-house and other reactive gases which may upset atmospheric chemistry.

Strategies for dealing with environmental problems in the forest sector are processed of addressing three issues, these are; Law and Institutional reform, Research and Training and Indigenous Forest Management.

2.2 Water Pollution

The major environmental issue in the water resources sector concerns domestic water supply. The recommended domestic water supply in Zambia is 310 litres per person per day (G.R.Z 1983) but actual supply is far below this level. In rural areas domestic water supply is estimated at 15 litres per person per day and only 33% of the rural population has access to safe drinking water. Domestic water supply is therefore a major environmental issue in Zambia and this has several implications for human health and general welfare. Since the country has rich potential in water resources, the problem of inadequate supply is related to abstraction, treatment and distribution, for example, abstraction of ground water in Zambia is less than 1% of the total yearly recharge (Therma 1985). However, in rural areas where the major sources of domestic water are shallow wells and surface water, availability is often scarce, especially in drought years, due to inadequate recharge and excess evapotranspiration.

Ground water reservoirs are depleted by both base flow and evapotranspiration. The latter occurs mainly during hot and dry period between August and October. Mean annual run-off is 10-25% of mean annual rainfall, but deforestation of catchment areas increases runoff by 10-20% (Mumeka 1986). In the Copperbelt area runoff is 50% higher than normal due to deforestation. Deforestation coupled with lack of soil conservation practices can increase sediment load in river flow. In the Luangwa river, the sediment load is estimated at 6 million tonnes per year due to a combination of deforestation and soil erosion on the eastern water shed. Regulation of land use practices is therefore important for maintaining water balance and quality in river basins.

Surface waters are of good quality for irrigation and drinking, except in some areas in the Chambeshi and Kafue basins. In the Chambeshi basin some river waters are acidic, as a result of acid geology and pedology. In the Upper Kafue basin, the level of pollution may be high and the water requires treatment to make it suitable for drinking, domestic and agricultural uses. Generally, fluoride levels in Zambian waters is inadequate and this contributes to dental disorders.

Although assessments indicate that there is enough water in all the major basins of the country, conflicts over water rights and use are emerging in the Kafue basin. This is due to high water demand for Hydro-Power, Agriculture development, increasing urban domestic and industrial demand. The situation is particularly critical in the Copperbelt area. Because river flow varies by a factor of 50 between the wet and dry seasons, the water supply situation is critical during the dry season, especially following successive drought years. The minimum river flow during the dry season in Kafue on the Copperbelt is 6.45 cubic metres per second, of which 58% is pumped from underground mines. Abstraction is 4.22 cubic metre per second while 0.32 cubic metres per second is lost through evaporation. If underground water pumping was reduced, there would be a deficit in availability with serious consequences for industry and urban domestic sectors.

2.3 Soil Degradation

Zambia is divided into three Agro-ecological zones based on annual rainfall. Region I, with 600-800 mm annual rainfall, covers the Zambezi and Luangwa valleys. Region II, with $800\text{-}100^0$ mm annual rainfall, covers the Central zone of the country. Region III with 1000-1500 mm annual rainfall, covers the northern and northwestern parts of the country.

The predominant soils in Region I have low nutrient reserves and retention capacity and are acid to strongly acid. The soils in Region II also have a high sodium and salt content, while those in Region III have high amounts of iron and aluminium oxides which reduce phosphate availability to plants. The common physical limitation of all these soils is the low water holding capacity and in Region I, a high erosion hazard, and limited soil depth in both Regions I and II. In spite of these constraints, there is great diversity of locally adapted crops that are suited to and produced in the different Regions.

The extent of potential arable land in Zambia is estimated at 42 million ha with only 2.5 million ha (6% of arable land) under cultivation. However, this potential arable land includes national parks forest reserves and low potential arable land. Given Zambia's current population growth rate of 3.2% per year, the need to manage cropland will continue to grow in the future, especially that current increase in food production is largely based on bringing new land under cultivation.

Environmental problems caused by crop production include soil degradation through acidification, nutrient loss, deterioration of structure, Soil erosion, salinization, pesticide and fertiliser pollution, and deforestation.

Clearing land for activities is a major contributor to deforestation in Zambia. Under the traditional slush and burn Chitemene shifting cultivation in Region III, about 0.5 million ha of woodland were cleared in 1990 alone.

In Zambia soil activity is naturally associated with extensive leaching, especially in Region III. As a result, acidity levels are higher in Region III. But pedogenic acidity due to nature of the parent material and soil texture also contributes to soil acidity.

The problem of soil acidification has been worsened by the use of nitrogenous fertiliser.

It is estimated that acidification due to fertiliser may account for the loss of up to 15% of arable land in 20 years in the Northern Province (Blackwell etal, 1991). Although the use of Nitrogen fertiliser increase soil organic matter, there are cases even in Region II, where continuous use of Nitrogen fertiliser destabilises the clay and enhances pan formation which impairs plant root growth while loses in organic matter of up to 80% may occur (Robinson 1978). High soil organic matter content is important for the maintenance of nutrient exchange between the soil and plants.

Eutrophication of aquatic systems caused by nutrients which run-off from over fertilised farm lands, although not widespread, also reduces biodiversity while promoting the productivity of noxious weeds.

There is currently little grazing management designed to assure sustainability of range lands in Zambia. This has resulted in low livestock productivity and localised over consumption of better range grassland. Over grazing is particularly conspicuous in the Gwembe Valley, east of Monze and Katete, with attendant soil erosion. Overgrazing is not only caused by overstocking, but also by poor grazing management.

Animal health activities also pose environmental danger, especially the uncontrolled disposal of wastes from chemical solutions used in cattle dips to control ticks. Very little is known about this problem in Zambia. Others include bush - clearing to control tsetse fly, ground and aerial spraying.

2.4 Air Pollution

Large scale mining of lead and zinc started at Kabwe in 1906 and that of copper at Kansenshi and Luanshya in 1908 and 1931, respectively. The industry has grown since then by opening many copper mines in the copperbelt area and a coal mine at Maamba, Southern Province, 1968/69. By 1992 the country had produced over 26 million tonnes of copper and 3.5 million tonnes of lead and zinc. Mineral production of this magnitude implies considerable impacts on the environment by way of land dereliction, water and air pollution.

Copper mining involves open-pit and underground digging, lead and zinc mining consists solely of underground operations while coal extraction at Maamba is by open-pit quarrying. Both the copper ore in the copperbelt and the coal tearing rocks at Maamba have high concentrations of sulphur. In 1982 a total of 32 million tonnes of ore was mined to produce 586,000 tonnes of copper while in 1990 about 23 million tonnes of ore were mined to produce 426,000 tonnes of copper. The mining of both copper and coal involves the pumping of and disposal of large volumes of water from both underground and open-pit operations.

Sulphur dioxide emissions from roasting and smelting operations and the burning of sulphur-containing fuels are the main sources of air pollution in the Copperbelt area. Concentrations of sulphur dioxide occasionally exceed recommended levels of 600 micrograms per cubic metre per hour or 200 micrograms per cubic metre per day.

However, because of favourable meteorological conditions, there is rapid dispersal of stack emissions and thermal inversions rarely persist for more than a few hours. As a result the sulphur oxides discharged by the Copper industry rarely build up to hazardous levels. In 1997 the mean ground-level concentration of sulphur dioxide within 7 kilometres at Rokana in Kitwe was 15-40 micrograms per cubic metre of air. At Luanshya and Mufulira concentrations of sulphur dioxide within 2 kilometres of smelters were 100 and 78 micrograms per cubic metre of air, respectively.

Dust pollution is the main problem of the lead and zinc mine at Kabwe. During 1975-78 lead concentration in the area within 2 kilometres northwest of the smelter was 11 micrograms per cubic metre. Wind blown dust is also responsible for the spread of pollution to other areas with consequential lead poisoning of humans and plants. Lead and zinc smelters are also sources of the poisonous thallium (Kaoma and Salter 1979).

To control wind-blown dust pollution, ore dumps are wet padlocked or overlaid by man dusting material combined with grassing where possible.

Quarrying operations are often associated with dust and noise pollution. Dust pollution is the main pollution problem at Chilanga Cement, south of Lusaka. This pollution has adversely affected agricultural experiments at Mt. Makulu Agricultural Research station because of limestone dust pollution by the cement company.

Air pollution, therefore adversely affects biodiversity and atmospheric chemistry, carries diseases, to humans and depletes natural resources.

2.5 Wildlife Depletion (Fish and Game)

Zambia is rich in fauna resources. The country has a protected area made up of 19 national Parks with a total area of 6.4 million hectares or 8.4% of the country. The major purpose of establishing these parks is for the conservation and wise use of the ecosystems to preserve biological diversity. The other objective is to generate economic activities by development and promotion of tourism through encouragement of public use.

There are more than 190 species of animals in Zambia. These include the megafauna represented by 31 species of game animals, 20 species of protected animals and 22 species of protected birds. Vertebrate species in the country are estimated at 1,330; 65 amphibians, 200 fishes, 145 reptiles, 731 birds and 233 mammals. This fauna diversity and its ecosystems are given legal protection in the 19 national parks and four bird sanctuaries.

The objectives of the wildlife sector have not been realised due to a number of problems which include:- illegal hunting, and over exploitation, land use pressures, dam development, road construction, mining and prospecting, logging activities, tsetse control, fishing activities, tourism development, lack of management plans and uncontrolled bush fires. Elephants which in 1980 were estimated at 100,000, were less than 22,000 in 1993. The population of rhino has declined from 15,000 in 1980 to less than 100 by 1993.

Fisheries of Zambia cover approximately, 45,000 square kilometre or 6% of the country. These consist of lakes, rivers and flood plains. Fish resources play a significant role in the national economy and human welfare. Fish is a major source of animal protein in the diet of Zambians. Zambia currently produces over 70,000 tonnes of fish annually.

The primary goal of the Department of Fisheries is to ensure sustainable use of Zambia's fish resources.

Over fishing is the major threat to sustainable fisheries production in Zambia, which is caused by both the overgrowing number of fishermen that is exerting intolerable fishing pressure on many fisheries and the use of bad fishing methods, such as the use of destructive fishing gear, fish poisoning and dynamites.

Other sectors have deleterious effects on the fisheries resource base, especially farming and industry which contaminate the fish habitat with fertiliser and discharge of industrial effluent. The impact of pollution in the fisheries has not been quantified but reduced first catches in some areas has been experienced.

3.0 IMPLEMENTATION OF THE BIOLOGICAL DIVERSITY CONVENTION (CBD) IN ZAMBIA

The Biological Diversity Convention (CBD) is one of the major out comes of the United Nations Conference on Environment and Development (UNCED) which was held in Rio de Janeiro, Brazil from 6th to 14th June, 1992.

The objectives of the CBD include the following:-

(i) the conservation of biological diversity,
(ii) the sustainable use of the complements of biodiversity and
(iii) the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.

The objectives of the CBD cover not only the ecological issues but also economic and social issues. The implementation of CBD is guided by 42 Articles.

Article 26 of the Convention calls upon each contracting party to present to the conference of the parties, (COP) reports on measures which it has taken for the implementation of the provisions of the Convention and their effectiveness in meeting objectives of the Biological Diversity Convention.

As provided for by this Article the present report has been prepared by Zambia for submission to the Fourth Conference of the parties.

Compliance measures taken by Zambia

The Convention on Biological Diversity was adopted at the UNCED Conference in June 1992 and entered into force at the end of 1993. The CBD has been recognised by

the International Community mechanism for implementation of the issues on biological diversity which are contained in Agenda 21; in particular chapter 15. By December 1996, more than 160 countries had ratified the convention.

Zambia signed the Convention on 11th June, 1992 and ratified it on 28th May, 1993.

Although the Convention has only been in force for four years, Zambia has taken steps to comply with the provisions of the convention by modifying some national policies and preparing ground for their implementation. Zambia is conscious that the realisation of biodiversity conservation objectives can only be measured by assessing changes in biological parameters as gene, species, habitats and ecosystems.

Bearing these limitations in mind, this report is an attempt to review preliminary measures taken to secure the biological diversity of the country and to review progress realised towards the implementation of the CBD.

In this context the report only focuses on components of the CBD where measurable progress is assessable.

Article 5: Co-operation

The article calls on each Contracting Party to cooperate with other Contracting Parties in the conservation and sustainable use of biological diversity. Zambia is implementing joint resource management programmes in shared water course systems along the Zambezi river basin; in particular

(i) Zambia is co-operating with Zimbabwe in developing regional programmes for the conservation and sustainable use of fish resources in Lake Kariba. Funding for this project has been provided by NORAD.

(ii) Zambia is co-operating with Burundi, Tanzania and the Democratic Republic of Congo in a GEF funded project for promoting the conservation of Biodiversity and Control of Pollution in Lake Tanganyika.

(iii) Zambia is co-operating with Zimbabwe, Botswana, South Africa and other countries in the region in the protection of threatened and endangered Wildlife species.

(iv) Zambia is a member and an active participant in all the programmes of SADC Environment and Land Management Sector.

Article 6 General measures for Conservation and Sustainable use of Biological Diversity

This Article calls on Contracting Parties to develop national strategies plans and programmes and for integration of conservation and sustainable use of biological

diversity into relevant sectoral or cross sectoral plans, programmes and policies. Since the Convention came into force, Zambia has taken steps to implement this article by:-

(i) reviewing the National Conservation Strategy and preparing the National Environmental Action Plan (NEAP)

(ii) formulating an Environment Support Programme which is a mechanism for the implementation of the NEAP

(iii) reviewing some sectoral policies to infuse biodiversity issues more explicitly (Water Policy, Wildlife Act, Forestry Act).

Article 7 Identification and monitoring

The Article calls on Contracting Parties to identify components of biological diversity important for its conservation and wise use, monitoring the components of biological diversity, identifying processes and categories of activities likely to impact on the conservation and sustainable use of biological diversity, and derived from identification and monitoring activities.

Article 8 In-Situ conservation

The Article calls upon all Contracting Parties to establish or strengthen a system of national protected areas and to develop necessary legislation, institutional capacities and other provisions for biodiversity conservation.

The Article seeks to ensure conservation and sustainable use of biodiversity to maintain viable populations of species in natural surroundings.

Prior to the coming into force of the CBD, Zambia had already established several institutions with functions appropriate to the implementation of the provisions of Article 8 of the Convention. For example the Ministry of Environment and Natural Resources, the Environmental Council of Zambia, and the National Council for Scientific Research. These and other institutions with related functions have worked in conjunction with the donor community, NGOs and the Community to identify plants, animals, habitats and ecosystems important for conservation and sustainable use. Since the coming into force of the CBD, Zambia has taken steps to make use of existing institutions to implement the CBD.

In this regard, policies and legislation pertaining to the management of forest, Wildlife, and fish resources are in the process of being amended.

The country already has 19 national parks covering about 8.4% of the total land area. Protected forest reserves cover a further 72,000 square kilometres (10%) of the total land area and two bird sanctuaries. Sectoral legislation contributing to the protection of biological resources in Zambia include:-

-the Wildlife Act (1991)

-Water Act
-Fisheries Act
-Forestry Act
-Natural Resources Act and
-the National Heritage conservation Commission Act.

In terms of protection of Wildlife resources, (all living and non-living things found in national parks), Zambia has in place a policy and legislation providing for the maintenance of game management areas which serve as buffer zones and are areas where limited consumptive utilisation of resources is permissible.

Article 9: Ex-Situ Conservation

The Article calls for adoption of measures for Ex-Situ Conservation of components of biological diversity and for other measures to be taken to establish and strengthen facilities for conservation of biological diversity outside natural protection areas.

In response to this Article, Zambia has taken steps by encouraging non-governmental organisations and the private sector to establish facilities for Ex-situ conservation and utilisation of biological resources. For example the establishment of crocodile farms, 19 game ranches, 1 rhino sanctuary, aviaries, and herbaria. Zambia working in partnership with other SADC member states established a gene bank for the Ex-Situ conservation of plant genetic resources. Although much potential exists for broadening the base the Ex-situ conservation and sustainable use of both fauna and flora, inadequate financial and technological resources have constrained the expansion of programmes for the ex-situ conservation of biological resources.

Article 10: Sustainable use of components of biological diversity

In line with Article 8 and 9, Article 10 calls for integration of conservation and sustainable use of biological resources into national decision making and adoption of measures to avoid or minimise adverse impacts on biological diversity. The Article further encourages the involvement of the private sector in developing methods for sustainable use of biological resources and involvement of local communities in conservation by applying indigenous knowledge systems.

In response to this Article, Zambia has its policy of integrating conservation and sustainable use of biological resources by adopting an Environmental Action Plan and a Forestry Action Plan. Zambia is also about to start implementing the Environment Support Programme (ESP).

The NEAP aims at integrating environmental concerns into social and economic development planning efforts by:-

(i) developing an environmental policy and action plan that would lead to the achievement of sustainable development in the country

(ii) developing an ESP which will support the implementation of the NEAP

(iii) building national capacity in environmental planning, management, monitoring and evaluation

(iv) promoting public awareness on environmental issues through training, workshops and information dissemination through electronic and print media.

The main components of the ESP include :-

(i) Institutional assessment
(ii) strengthening the legal framework and enforcement capacities
(iii) undertaking environmental education and public awareness promotion
(iv) establishing a pilot environmental fund to address local community financing needs for environmental conservation and awareness promotion.

The main components of the Zambia Forestry Action Plan (ZFAP) include:-

(i) identification of key issues affecting conservation and sustainable use of forest resources (wood based and non-wood products)

(ii) developing short and medium term National Action Programmes

(iii) Increasing public awareness on conservation and wise use of forest resources.

The provisions of Article 10 are also being addressed through broadening the base for Community Based Natural Resoaurces Management (CBNRM) of Wildlife Resources in Game Management Areas (GMA) through the ADMADE Programme, and of fish resources on Lakes Kariba, Mweru and Bangweulu, and of the Upper Zambezi Flood Plain.

Non-Governmental Organisations (NGOs) and the private sector organisations have also increased their involvement in conservation and wise use of natural resources. Examples of private sector involvement is more noticeable in the tourism sector where government has contracted the management of some National Parks and Game Management Areas and some private companies have opened up game ranches, crocodile farms, aviaries and botanical gardens. NGOs active in conservation of biological diversity include the Zambia Environmental Education Project (ZEEP), the Wildlife Conservation Society of Zambia (WCSZ) the Environmental Conservation Association of Zambia (ECAZ), the Ornithological Society of Zambia (OSZ), and other professional associations.

Although significant steps have been taken to comply with the provisions of Article 10, there is still a great deal required to be done to change peoples attitudes to favour voluntary conservation and wise use of biological diversity in Zambia. A major constraint in this direction is the lack of incentives to society, the NGOs and to the private sector.

Article 11: Incentive Measures

The Article calls for the adoption of economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity.

As far back as 1988, the Wildlife and National Parks Department in Zambia realised the difficult of trying to enforce Wildlife laws without the co-operation of the village inhabitants. The instant success of the CBNRP known as the Administrative Management Design for Game Management Areas (ADMADE) attracted managements of other institutions charged with the responsibility for the care of other biological resources such as water, fish, and forestry. In line with the provisions of Article 11, there has been accelerated interest in the country for adoption of CBNRP in many sectors charged with the responsibility for conservation and sustainable use of Zambia's biological diversity resources. Examples of CBNRP programmes adopted in recent years include:-

(i) The Upper Zambezi Natural Resources Management Programme whose main objective is the integrated conservation and utilization of natural resources (water, fish, forests, wildlife, land) with the active participation of all sections of the community. The programme is financially supported by the Royal Netherlands Government with the technical support of the World Conservation Union - IUCN

(ii) The Kafue Flats and Bangweulu Flats Wetlands Management programmes whose main purpose is the integrated conservation and wise use of biological resources with full participation of the local communities. The programme is funded and technically supported by the World Wide Fund for Nature International (WWF).

(iii) The Lake Kariba Integrated Fisheries Management Programme whose main purpose is to manage fish and other natural resources of the Kariba lakeshore areas in an integrated manner with full participation of stakeholders including the local community. The programme is financially supported by the Royal Norwegian Government.

(iv) Other CBNRMP under active consideration are in the water and forestry sectors.

Article 12: Research and Training

The Article calls on Contracting Parties to establish and maintain programmes for scientific and technical education and training, and to promote and encourage research which contributes to the conservation and sustainable use of biological diversity.

Zambia has a number of research and training institutions such as the National Council for Scientific Research (NCSR), the Biology Department at the University of Zambia,

the Tropical Diseases Research Center and research units in Departments under the Ministry of Agriculture, Food and Fisheries (MAFF) and the Ministry of Environment and Natural Resources (MENR). The Research and Training activities under these institutions are poorly co-ordinated and are limited in scope and relevance to the objectives of Article 12 of the CBD. Due to limited financial and technical capacities, Zambia's own programmes for scientific and technical education and training in measures for the identification, conservation and sustainable use of biological resources has been below expectation. However, of late support for the development of research and training programmes in conservation and sustainable use of biological diversity has come from the Governments of Norway, Netherlands and Sweden and from IUCN, and WWF. This assistance has continued to be sectoral in nature and falls short of the expectations of this Article. It is our hope that studies soon to be undertaken as part of the Biodiversity enabling activities programme funded by GEF could serve as a first step towards undertaking co-ordinated scientific research and training for conservation and sustainable use of biological diversity.

Article 13: Public Education and Awareness

This Article calls for the promotion and encouragement of understanding of the importance of and the measures required for the conservation of biological diversity. The Article also calls for co-operation with other states and international organisations in developing educational and public, awareness programmes.

Although some programmes such as Chongololo clubs were already in place at the time of adopting the CBD, much effort in promoting the aims and objectives of Article 13 have been adopted more recently. The following NGOs are involved in promoting public awareness ZEEP, PANOS, IUCN, WWF, WCSZ and ECAZ.

Public Institutions involved in promoting public awareness on conservation include MENR, ECZ, Species Protection Commission (SPC), and sector Ministries and Departments.

Activities include formal environmental education in schools, workshops, and communication through electronic and print media. One of the main constraints in implementing this article is the lack of co-ordination between programmes initiated sectorally.

The second part of this Article calls for co-operation with other states and with International Organisations. Notable achievement has taken place such as the on going resource assessment studies on fish in Lake Kariba in conjuction with Zimbabwe, on Lake Tanganyika with Burundi, the Democratic Republic of Congo, and Tanzania. In 1996, Zambia and other elephant and rhinoceros range states signed the "Lusaka Agreement" on the conservation of the two endangered species which are also listed by CITES on appendix 1. The first project in Zambia which is funded by GEF for the conservation and sustainable use of regional resources is the Lake Tanganyika Biodiversity and Pollution Control Studies (LTBP) which has been under implementation since mid 1995. This project is being implemented alongside the Fisheries Management Programme by Zambia, Tanzania, Burundi, and the Democratic Republic of Congo.

There is need for similar cross-boarder conservation initiatives to be established with other neighbouring countries such as Angola, Botswana, Malawi, Tanzania and the Democratic Republic of Congo with whom Zambia shares substantial boarder and land and water based biological resources.

Article 14: Impact Assessment and Minimising adverse Impacts

This Article calls for the introduction of appropriate procedures requiring environmental impact assessment of proposed projects likely to have significant adverse effects on biological diversity.

In response to this Article, Zambia established EIA regulations in 1996 and these came into force in July 1997. Implementating of the new regulations is still in its infancy and will require support and guidance from international organisations such as UNDP, UNEP, the World Bank and bilaterial donors..

4.0 Formulation of the Framework for the Biodiversity and Action Programme

As part of the process of implementing the outcomes of Agenda 21, in particular Article 6 Zambia embarked on the formulation of environmental conservation and sustainable management programmes in 1992. The starting point was the updating of the National Conservation strategy document which was prepared and adopted in 1985 with technical support from the World Conservation Union (IUCN). In 1994, Zambia received financial support from UNDP (Zambia), The World Bank (Zambia), and NORAD for preparing of the NEAP. Upon successful completion, the NEAP was adopted by the Government as a policy guiding document. In 1996, Zambia adopted the ESP as the main programme for the implementation of the NEAP. However, the country soon realised that biodiversity conservation imposes a heavy burden on developing countries given their limited financial resources for other development activities. While Zambia remained committed under Article 20 to provide new and additional financial resources and incentives in respect of activities which are intended to achieve the objectives of the convention, Zambia's current economic situation makes it impossible to raise the required financial resources.

In this regard Zambia has taken advantage of the existence of a financial mechanism under Article 21 to secure financial resources for purposes of carrying out enabling activities under CBD. In February, 1997 the Zambian Government applied for GEF support for Biodiversity Enabling Activities. The request was approved and a sum of US$ 289,440 has since been approved. Studies under this grant are scheduled to start in January 1998.

In the meantime, Zambia requested the IUCN regional office to finance a planning workshop to prepare ground work for the development of a framework. A framework for the studies has since been prepared.

5.0 CONCLUSION

Zambia, as a developing country is highly dependent on the exploitation of natural resources for the livelihood of its people. Since the early 1980, Zambia has witnessed rapid degradation of its biological resources due to over exploitation which has been caused by a decline in the general socio-economic situation of the country. The major biological resources that have been negatively affected are forests, wildlife and fish. Because of its dependence on biodiversity, Zambia was among the first countries to ratify the convention on Biodiversity. In the same vain, Zambia has now embarked on the implementation of the Convention. Among other measures, Zambia has prepared a NEAP and has now secured funding from GEF for preparing the BSAP.

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