

Forestry Outlook Studies in Africa (FOSA)



MINISTRY OF NATURAL RESOURCES
AND TOURISM

ZAMBIA



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This paper has been minimally edited for clarity and style.

SUMMARY

A Brief on the Forestry Outlook Study¹

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Zambia has an estimated population of 9.3 million people with an annual growth rate of 3.5% which is considered to be very high and has an effect on the forest resources.

The overall objective of the country is to reduce poverty through economic growth, investment in human resource development and protection of the environment. The forest sector objective is to enhance the quantitative and qualitative contribution of the forest sector towards the national socio-economic development.

Mining dominates the Zambian economy, followed by the agriculture sector. Forestry contribution to GDP is less than 1%. However, the forest sector has a lot of potential to the socio-economic development of the country if managed properly.

Forest resources although not assessed for the last four decades cover 60% of the total land area. Most of the forests are located in the customary areas, which are administered by the traditional leaders.

Apart from the forest resources, the country is endowed with substantial water and wildlife resources, which are vital to the rural communities and the nation as a whole.

The forest growing stock is estimated at 3.5 billion cubic metres as merchantable standing volume and 2.2 billion cubic metres is considered as commercial value timber.

Sawmilling is considered as a well-developed forestry industry in the country. About 400,000 cubic metres of saw logs per annum is the estimated demand for the sawmilling industry. The wood-based industry is steadily growing under the private sector. Pit-sawing has a lot of potential to support the informal sector.

Fuel-wood and charcoal have remained the major primary source of energy in most households. Figures available indicate that 95% of rural people depend on fuel-wood and 90% of urban households depend on charcoal. The demand for fuel-wood will continue to increase as the population continues to expand.

In order to improve forestry contribution to the national development, the country's forestry policy and legislation have been revised based on the principles of participatory approaches and employing broad-based approaches of management and utilisation of the forestry resources.

The Government has also developed a national framework for managing forest resources on a sustainable basis. The framework covers economic, social and ecological issues and it also addresses the institutional framework. The priority areas for interventions in the forestry sector are divided into the primary and supportive development programmes.

¹ Full country report available at:

FOSA website available at: <http://www.fao.org/forestry/FON/FONS/outlook/Africa/AFRhom-e.stm>

List of acronyms and abbreviations

CBOs	Community Based Organisations
DoE	Department of Energy
FAO	Food and Agriculture Organisation of the United Nations
FD	Forestry Department
FETP	Forestry Education and Training Sub-Programme
FINWFPDP	Forestry Industries and Non-Wood Forest Products Development Sub- Programme
FREDP	Forest Research and Extension Development Sub-Programme
GMAAs	Game Management Areas
GDP	Gross Domestic Product
GRZ	Government of the Republic of Zambia
Ha	Hectare
IFMBCP	Indigenous Forest Management and Biodiversity Conservation
MAFF	Ministry of Agriculture, Food and Fisheries
MENR	Ministry of Environment and Natural Resources
NGOs	Non-Governmental Organisations
NWFP	Non-Wood Forest Products
PFAP	Provincial Forestry Action Programme
SAP	Structural Adjustment Programme
ZAFFICO	Zambia Forestry and Forest Industries Corporation Limited

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1 BRIEF NOTES ON ZAMBIA

1.1 Location and terrain:

Zambia is a landlocked country found in the southern region of Africa lying between Latitudes 8° and 18° South of the Equator and Longitudes 22° and 34° East of the Greenwich Meridian. The country is surrounded by the Democratic Republic of Congo, Tanzania, Malawi, Mozambique, Zimbabwe, Namibia, Botswana and Angola. It has a surface land area of 752,614 Km² most, of which forms the highest parts of the plateau lying between 1,000 and 1,600 metres above sea level. The highest areas of the country are in the north-eastern part of the country, with the plateau gradually sloping to the south-west.

1.2 Climate and hydrology

Zambia's altitude puts it in the broad belt of temperate highlands, which moderates what would otherwise be a harsh tropical climate. The temperatures range from 16° to 27° C in the cool and dry season and from 27° C to 38° C in the hot and wet season. These characteristics result into two major climatic extremes, namely the semi-arid western region and the swampy Lake Bangweulu area in the north-eastern part of the country. The country's main drainage systems are the Zambezi, Kafue, Luangwa and the Chambeshi-Luapula Rivers, which together with the lakes provide Zambia's most important water, fisheries and tourism resources. The annual summer rainfall ranges from 500 to 1,500 mm during the period of November-March, varying with latitude and altitude. Mean annual rainfall decreases from the Equator towards the Tropical of Capricorn and from north and north-eastern to the south and south-west.

1.3 Vegetation

The ecosystem nomenclature in Zambia is based on vegetation types and Chidumayo and Marjokorpi (1997) have identified five forest types, namely the Dry evergreen, Dry deciduous, Montane, Swamp and Riparian Forests, and five woodland types – the Miombo, Kalahari, Mopane, Munga and Termitaria, and the Grasslands. In addition to the natural vegetation types, plantation forests of tropical pines and eucalyptus covering an area of about 61,000 hectares have been established countrywide with over 80% of these occurring on the Copperbelt Province. About 50,000 hectares of these industrial plantations are managed by a parastatal company called Zambia Forestry and Forest Industries Corporation Limited (ZAFFICO). At the Provincial level, The Forestry Department manages 7,000 hectares of the regional and local supply plantations, while the remaining balance is managed by private individuals at the semi-commercial and farm levels.

1.4 Fish and wildlife

Fish and wildlife are some of the country's most valuable natural resources. Although landlocked, the rivers and lakes of Zambia are known to support about 156 fish species. The country is also renowned for the extensive area and biological richness of its wetlands. There are about 190 species of wild animals in Zambia, and a large diversity of birds, reptiles and insects. For example, Zambia is known to be the only country with the rare Black Lechwe, a herbivore that thrives in swampy habitats.

1.5 Population

The estimated population for Zambia in 1990 was 7,383,097. With a growth rate of 3.1% per annum, population estimates for the years:

1995 - 9,095,000
 1996 - 9,397,000
 1997 - 9,712,000 and
 1998 - 10,036,000.

About 39.9% of the population is concentrated in urban areas, mostly on the Copperbelt and Lusaka where about two thirds of the total urban population lives. Other high population density areas are in the agricultural zones along the central, north-south line of rail. The population is, therefore, highly clustered in these areas. However, there are vast areas which are almost unpopulated and hence, on average, Zambia has low population density.

1.6 Agriculture

Agriculture in Zambia is characterised by a distinct contrast between the commercial and subsistence farming. Large-scale commercial farms are concentrated along the central line of rail, while subsistence farming is distributed through out the country. The level of mechanisation and use of animal draft power is not fully developed. Farming in Zambia is predominantly rain-fed with only about 1% of the potential agricultural land being irrigated. Maize is the main food and cash crop, followed by sorghum and cassava. Cattle production is limited by poor grazing land and high incidence of livestock diseases. Most of the cattle is under traditional herders and concentrated mainly in the upper Zambezi and middle Kafue areas, and the Eastern Province. Overstocking on grazing land has resulted in bush encroachment and severe soil erosion in some areas.

1.7 Minerals

Zambia has about 6% of the worlds proven copper reserves and ranks fifth in production. The country also produces cobalt, ranking second in the world production. Other minerals include lead, zinc, gold, silver, iron and uranium, most of them being produced in marginal quantities. Coal is also mined to a limited extent.

1.8 Economy

The current economy of Zambia is driven by the private sector, which has shares in major industries, supported by the economic policy that provides for a conducive environment for private sector investment in any business industry, including those that are forestry based.

1.9 Political

Zambia is a multiparty democracy country with about 34 registered political parties. The political climate is such that anyone who enjoys popularity and is a Zambian can form and register a political party.

2 INTRODUCTION

2.1 Objectives

This paper takes a forward look at the forestry sector of Zambia starting from the present status of forestry in the country. The paper seeks to visualise the most likely situation that will develop as regards forests and forest industries during the next 20 years – from 2001 to 2020 – and to assess the likely implications of the development in the sector by identifying the important forces of change (Change Drivers) and predict on how these are likely to affect the forestry sector.

The paper also indicates the assumptions made about the policy, institutional and technological changes while at the same time taking into considerations the inter-sectoral linkages.

2.2 Background

Zambia is well endowed with forest resources that can play an important role in the national economy and in improving the living standards of people. However, deforestation in the last three decades has contributed to the depletion of this valuable resource.

Forests produce a great variety of goods and services for the people of the country. Thus, forests have value to people and contribute to meeting human needs in a number of ways. The contribution occurs through the direct and indirect use of the forests and the mere existence of the forest or options for its future direct or indirect use.

The main land-use types in Zambia are forests, agriculture and settlements. Forests are dominant, covering 60% of the country's total land area. The main vegetation type is Miombo woodland, which covers 47% of the country's land area. The other types are the savannah woodland and grassland. Proper and up-to date country wide data on forests is not available since the last comprehensive forest resources inventory was carried out in the 1960s.

Agricultural land covers about 20% of the country's land area. This sector is the largest contributor to loss of forests in the country. For example, the 65% increase in maize production during the period of 1981 – 1991 in Zambia is attributable mainly to expansion of cultivated land rather than the increased yield per hectare of land. It is estimated that from 1992 to 1996, agricultural land-use increased by an average of 1.5% each year.

Woodfuel demands around big towns and along main roads has contributed to deforestation in the country. It is estimated that deforestation as a result of woodfuel production claimed about 25,000 ha in 1969. In 1980 and 1990, this figure rose to 38,000 and 53,000 ha, respectively (Chidumayo, 1996).

The original forest policy was formulated in the 1960s as a set of instructions to the Forestry Department. Of great concern in this policy was the lack of provision for community participation in the forestry sector development, but provided for Government control by way of policing over forest reserves.

In order to be consistent with the current overall Government policy of promoting private sector and community participation in forestry sector development, a new forestry policy was formulated in

1998. The major features of this policy are the emphasis on community participation in forestry development and the withdrawal of the exclusive powers of Government control, ownership, planning and management of the forest resources. This policy is also supported by the new Forests Act No. 7 of 1999 (CAP. 199 of the Laws of Zambia).

In Zambia, the annual rate of deforestation ranges between 250,000 and 300,000 ha. However, this estimate may be incorrect as it is based on the large-scale forestry inventory that was carried out in the 1960s. Moreover, it has not been changed for a number of years, ignoring the population growth and consumption of wood resources. Since deforestation is related to population growth, it is likely that the rate will keep on increasing in future.

The forestry sector in the country, if properly developed, has the potential to make a significant contribution towards the economic growth. The current underdeveloped state of the sector means increases can be substantial.

There are two major problems affecting the Zambian forest sector. Both arise from population growth and the basic needs of people. The increasing number of people means that food has to be produced for all, with energy for cooking and lighting. These two needs can not be avoided, but can mitigate their impact on forests.

At the national level, biodiversity conservation is relevant in terms of the economic benefits it brings about through the consumptive and non-consumptive use of forest based produce. Not only is it important from the stand point of the supply of forest and wood products to the wood based formal and informal industries but also of wildlife which attracts tourism.

The indigenous forests with an estimated wood volume of about 4 billion cubic metres and commercial plantations with another estimated wood volume of about 6 million cubic metres are the main source of sawn timber, poles and mining timber for both formal and informal enterprises, and the 7 million cubic metres of woodfuel consumed every year. The wood panel industry alone is worth about US\$ 2 Million per annum. Additionally, Zambia earned US\$ 1 Million from the export of wood products between 1990 and 1995.

Globally, Zambia's forests are as important as they are to the country. The forests protect the river basins of the major rivers, which flow beyond the country's borders with neighbouring countries. Sustainable supplies of benefits brought about by the rivers such as the Zambezi and Luapula to the countries concerned depend on the stability of these forests in Zambia.

3 THE CHANGE DRIVERS

The Zambian economy has had serious problems since the early 1980s. From the independence time, 1964, the economy had become increasingly centralised, with the public sector and parastatal companies forming the backbone of production and growth. National prosperity was almost entirely dependent on copper.

Poor economic management and falling world prices of copper has led to the decline in the industry over the last 25 years, which has a knock-on effect on the national economy. Government, during this period, began to borrow to finance public expenditure, notably the subsidisation of maize production and consumption.

For the last 10 years, the Government has tried to restructure the economy through a series of adjustment programmes. Subsidies have been discontinued and state owned enterprises privatised.

However, economic reforms bring certain hardships, many of which are shouldered by the poor.

3.1 Socio-economic changes

Deforestation and its associated environmental problems are a threat to ecosystem conservation, and hinder socio-economic development. This section looks at key aspects and trends on poverty, population growth, economic growth and the environment.

3.1.1 Poverty

Poverty in Zambia is wide spread. According to the World Bank report (1994a), about 68% of the population live in households where the income is not sufficient to meet the basic needs.

Rural poverty is more wide spread than urban poverty as illustrated in the following table which is adopted from the ZFAP, Volume II, (1998).

Table 1: The Poverty Groups of Zambia (% of Population)

Group	National	Rural	Urban
Core Poor	54	76	29
Poor	14	12	17
Non Poor	32	12	54
TOTAL	100	100	100

The stringent economic programme being implemented by the Government focuses on liberalisation and reduced State interference in the economy. This has been accompanied by reduced spending on the social services and cost sharing in the health and education services. The impact of these reforms has been harsh on the income, health and education of the poor.

The prevalence of poverty in rural areas has implications for rural development programmes such as agriculture and forestry. Poverty is greatest in Western and North-Western Provinces, followed by Eastern, Luapula and Northern Provinces although the potential for forestry-led rural development exists in these Provinces.

In Zambia, poverty has been exacerbated by high population growth, environmental degradation and the HIV/AIDS. These issues have delayed the prospects for poverty reduction by overburdening the social services, increasing the number of dependants for each productive person, and reducing the assets of future generations.

3.1.2 Population growth

The population of Zambia is ever on the increase with an estimated growth rate of about 3.1% per annum. Between 1980 and 1990, the population increased from 5.7 million to 7.8 million people. The table below summarises the key information.

Table 2: Some Attributes of the Zambian Population

	Year		
	1969	1980	1990
Population (millions)	4.0	5.7	7.8
Population Growth Rate/ Annum	2.9	3.1	3.2
Crude Death Rate (per 1,000)	19.7	16.7	14.0
Life Expectancy (years)	44.6	51	46
Fertility (unit)	-	7.2	6.7

Source: ZFAP, Volume II (1998).

The 1990 population figure was more than double the 3.4 million of the year 1963. By 1995, the population was estimated at 9.3 million. Dramatic increases are expected to continue.

The fertility rate at 6.7 per woman is still higher than the African average of 6.3. The crude death rate declined from 19.7 in 1969 to 14.0 per 1,000 persons in 1990.

High levels of fertility have resulted in the youthfulness of the Zambian population. In 1995, 46% of the population was under the age of 15 years.

The reduction in life expectancy from 51 years in 1980 to 46 years in 1990 reflects the HIV/AIDS epidemic, and the generally impoverished environment.

The population growth rate presents challenges to future developments. More than 42% of the population lived in urban areas in 1990. The over concentration of population in urban areas affects the provision of social services, and has serious repercussions on the environment, and forestry in particular.

The youthfulness of the country's population means that there will be a growth in numbers of households as they reach the marrying age. This, in turn, implies increased demand for forest products and services in the country.

3.2 Economic growth and environmental degradation

There is a two-way link between economic growth and environmental degradation. Deforestation and degradation have often been the result of mismanagement for short term and narrow gains. Policies promoting economic growth should encompass improved environmental management. Poor management of natural resources, especially forests, will constrain the development process, as short-term benefits become exhausted

The most pressing environmental problems in the forest sector of Zambia are deforestation and forest degradation, soil erosion and fertility loss, watershed degradation, and loss of biodiversity.

The contribution of the forestry sector to the national economy has been grossly undervalued. This is simply because there are few statistics on the forestry-based informal and formal sector activities. In addition to this, wood and wood-based products are classified under manufacturing leading to high distortion of the true contribution of the forestry sector to national economic development and gross domestic product in particular.

Most important of all, the traditional system of measuring economic growth by GDP fails to take into account the change of the natural capital of the country. A “ Green GDP “ would take into consideration the actual value of the forest exploited in a given year.

According to the available information, the forest sector contribution to the national economy was lower than any other sector between 1989 and 1993, as illustrated in the table below.

Table 3: Structure of the Zambian Economy based on the average GDP (US\$ Million)

Sector	1989 – 1993	Share I %
Agriculture	476.4	16.2
Forestry	26.2	0.9
Fisheries	36.7	1.2
Mining and Ceramic	216.1	7.3
Manufacturing Food, Beverage and Tobacco	389.2	13.2
Others	395.7	13.5
Electricity, Gas and Water	74.5	2.5
Construction	81.3	2.8
Wholesale and Retail Trade	234.6	8.0
Restaurants and Hotels	81.3	2.8
Transport, Storage and Communications	134.4	4.6
Financial Institution and Insurance	68.0	2.3
Real Estates and Business Services	228.6	7.8
Community, Social and Personal Services	496.9	16.9
Others	1.8	0.1
TOTAL	2,942.0	100.0

Source: Makano et al (1996).

The Zambian economy has been registering negative growth rates since 1992. Compared to the rest of the economy, the performance of the forest sector shows a consistent but slow progression. In terms of growth, the forest sector contribution to GDP increased from US\$ 15,200 in 1991 to US\$ 18,500 in 1995

3.3 Policy and legislation changes

The first forestry policy for Zambia was put in place in 1965. This policy was very restrictive, as it did not provide for a broad-based participatory approach to forest management and production that takes account of other sectors and stakeholders. Instead, all control of forest ownership, planning and management was given to the Central Government through the Forest Department. Being exclusive, it did not spell out roles and responsibilities for Local Authorities and communities in the management and use of the forest resources. The policy was also silent on gender issues, and as a result, it perpetuated the gross imbalance that exists between men and women with regard to matters of ownership, access, control, derivation of benefits, constraints and impacts of forest resources development and depletion.

In order to take care of the interest of all stakeholders, a new forestry policy has been formulated with effect from 1998. This policy has the objective of ensuring rational and sustainable protection, management, production and utilisation of the forest resources. It recognises the need for employing

broad-based participatory approaches to forestry sector development. The policy also seeks that all stakeholders are given recognition, and are active participants in the management and utilisation of the forest resources. Further, the policy pays closer attention to forests outside the protected or gazetted forest estates.

The new policy is based on the following principles:

- Trees are important to environmental preservation, ecosystem conservation and sustainable socio-economic development ;
- There is an inseparable relationship between humans, trees and land ;
- There is need to create responsible partnerships, with gender equity, among stakeholders in forestry activities, to ensure the permanence and stability of forests ;
- There is need to combine scientific and indigenous knowledge in the management and utilisation of the forest resources ; and
- There is need for enhanced private sector participation in forestry development.

The policy also addresses itself to four main areas of concern, namely:

- Resource management and development ;
- Resource utilisation ;
- Capacity building ;
- Gender equity.

The Policy objectives and strategies are set out in each area being addressed. This is done against a background of limitations to ensure that constraints to success are addressed.

3.3.1 Resource management and development

The major areas being addressed by the Policy under this are the:

- Enhancement of forest resources management

To be effective, a participatory forest management approach will be used by making the NGOs and other stakeholders become partners with Government agencies in devising, implementing and monitoring local forest resource management plans. The joint management of local forests will be enriched by the integration of the indigenous and scientific knowledge.

- Security of the forest estates

The Policy will help ensure that sufficient forest reserves exist for the protection of forests, water and soil resources. Stakeholders will be identified and involved in the process of establishing New Forest reserves by following clearly defined criteria, purpose and objectives.

- Expansion of plantations

Past neglect of the sound plantation management has created a future shortage of plantation round wood. Early action to prevent this shortage from being prolonged is being supported by the new Policy. Ideally, plantations will be established and managed by the Private Sector including individual farmers.

- Ecosystem conservation

The Policy provides for the conservation of biodiversity and ecosystems with unique species of flora and fauna, as this is essential for the maintenance of ecological and environmental balance and sustainability.

- Agro-forestry

Clearing land for agricultural expansion is the major cause of deforestation in Zambia. The Policy supports the creation of closer links between agriculture and forestry, as most rural people are peasant farmers. Agro-forestry programmes based on both scientific and indigenous knowledge can meet wood needs as well as enhance agricultural productivity.

- Forestry research and extension

Success in developing the forest sector depends on effective forestry extension and research services. The new Policy will promote these services which will:

- be demand driven ;
- include the private sector ;
- include forest products and processing ;
- reflect the need for community participation.

3.3.2 Resource utilisation

Forests are a source of raw materials for wood-based industries, of wood-fuel and of non-wood products. The new Policy ensures that the various uses are carried out rationally and sustainably. The Policy also supports the development of a pricing mechanism for forest products that incorporates issues such as cost and true economic value as well as externalities such as environmental standards.

Wood industries will be promoted to help the forest sector contribute more significantly to socio-economic development of the country through improved technology and management that will produce high quality finished and semi-finished wood and non-wood forest products for both the local and export markets.

The dependence on wood-fuel by most households increases pressure on the forests while alternative energy sources are not immediately available. The new Policy has put emphasis on the sustainable management of the charcoal industry through the promotion of good woodland management, and supporting the National Policy on Wood-fuel as embodied in the National Energy Policy of 1994.

3.3.3 Capacity building

Capacity building is essential to the development of the forest sector through the human resource development as well as institutional and structural reform. The sector needs educated and trained personnel - both foresters and stakeholders - for long-term success and in order to create a better understanding of the value of forests, the meaning of sustainability and approaches to good forest management.

The new Policy has, therefore, put emphasis on the need to have strong institutional and legal framework that will be based on having right linkages, capacities and incentives to deliver, and the implementation of sustainable forest management under the prevailing socio-economic conditions.

3.3.4 Gender equity

An understanding of different gender roles in forest management and utilisation is crucial for sustainability. The new Policy has recognised the need to integrate gender issues in order to correct

the imbalance in gender participation in forestry activities through the recognition of the following issues:

- Decision making

Women will be deliberately involved in decision making at all levels and stages of forestry project identification, planning, implementation, monitoring and evaluation.

- Extension

The number of women extension workers will be increased as they are generally better suited to dealing with female members of the community, who are the main users of forest resources at household level.

- Training

The number of women admitted to both the technical and professional training will be increased, as females will be encouraged to enrol.

- Women's Organisations

Women's Organisations at both national and grass-root levels will be encouraged to incorporate forestry management in their activities.

- Funding

Projects that target women in forestry, including agro-forestry, woodlots, conservation, wood and non-wood forest industries will be earmarked for funding.

The forest sector has several linkages with other institutions whose activities may be based, or to a large extent rely, on goods and services provided by forest resources. In order to implement the measures that are outlined in the new policy, it has been recognised that there will be need for effecting viable institutional reforms. The policy has, therefore, outlined the roles of the stakeholders as follows:

Central government

The role of the Government will be to formulate and review forest policy and co-ordinate its implementation. The Government shall also encourage the establishment of plantations and proper management of indigenous forests and provide a conducive environment for stakeholder participation.

Ministry of environment and natural resources

The Ministry will have the overall responsibility for forest resources development.

Zambia forestry commission

The Commission will be established to take over the functions of the Forestry Department.

The Commission will also be responsible for co-ordination, implementation and enforcement of rules and regulations pertaining to forestry development.

Local government

The role of the Local Government shall be to formulate bye-laws, enforce them and facilitate proper and smooth administration of forest estates, in conformity with the forestry policy and existing legal framework.

It shall also be involved in setting aside land for forestry purposes and participate in the implementation of the Joint Forest Management.

Traditional leaders and institutions

The Traditional Leaders shall be involved in the administration and management of forest estates within the area of their jurisdiction.

They shall also encourage the setting aside of land for forestry purposes and advise Government on policy formulation and implementation as well as facilitate local community participation in the management and utilisation of forest resources.

Political leadership

The Political Leadership shall be responsible for resource mobilisation, interpretation and implementation of Government policy and legislation.

Local communities

The Local Communities including the Community Based Organisations shall advise Government on policy formulation and implementation.

They shall be the key actors in the planning and management of forests at local levels.

They shall also be the implementers and determinants of the species and technologies to be used in community based forestry plantation establishment and management.

Traditional healers

The Traditional Healers shall participate in Joint Forest Management and foster sustainable utilisation, and provide indigenous knowledge on medicinal plant species for the conservation of biodiversity.

The private sector

Individuals and Organisations that are interested in business transactions that are related to forest estate management shall be partners in forestry development activities and will be expected to build capacity by providing financial resources for forest estate management and utilisation.

Non governmental organisations

These shall, together with Community Based Organisations, be partners in forestry development and management.

They shall also be supportive in popularising appropriate forestry technologies, build capacity and provide extension services.

Education and research institutions

These Institutions shall provide knowledge and appropriate forestry management practices.

Donors

These shall be partners in forestry development and shall be facilitators in building capacity and provision of finances.

In order for the new policy to be effective, Zambia has also managed to put in place the new Forests Act:- the Forests Act No. 7 of 1999, Cap. 199 of the Laws of Zambia – that supports the implementation of the new Forestry Policy.

The new Act has replaced the Forests Act of 1973 which emphasised the policing role of the Forest Department, and the exclusion or restriction of communities. This Act did not recognise the need for a participatory approach to the establishment and management of forest reserves, which have been “ fenced off “ from the adjacent communities as a means of preventing encroachment. This Act also took away all private ownership rights of trees, even where title to land was held. The Act also did not give rights, obligations and responsibilities to local communities and landowners.

This new Act advocates for the following:

- Establishment of the Zambia Forestry Commission and defining its functions ;
- Establishment of the National Forests, Local Forests and Joint Forest Management areas ;
- Participation of the local communities, traditional institutions, non-governmental organisations and other stakeholders in sustainable forest management ;
- Conservation and use of forests and trees for the sustainable management of forest ecosystems and biological diversity ; and
- Implementation of the Convention on International Trade in Endangered Species of Wild Flora and Fauna, the Convention on Wetlands of International Importance Especially as Water Fowl Habitat, the Convention on Biological Diversity, and the Convention to Combat Desertification in those Countries Experiencing Serious Drought and / or Desertification, particularly in Africa.

3.4 Developments in the agriculture sector and their implications on forestry

3.4.1 Agro-ecological zones

Zambia is divided into four broad agro-ecological regions and zones, based mainly on rainfall, altitude, climate, soils and suitability to crops, as shown in Table 2.4.1.

These regions are briefly described as follows:

Region I

This is found in the Luangwa-Zambezi Rift Valley (LZRV), and consists the low rainfall (semi-arid), low altitude, hot and dry areas.

In this region, the climate is hot and dry and the vegetation type is the Mopane or Miombo Woodland. The farming system is largely hand-hoe based. Trees are grown around homestead gardens for fruit production, fuelwood and pole production but rarely integrated with farming systems.

Region II a

This region consists of a sub-region of the medium rainfall plateau including main farming areas on the plateau of Central, Eastern and Southern Provinces.

In this region, the farming systems are characterised by open farming, with animals allowed to move freely on fields in the dry season. This poses a serious constraint to on-farm tree planting. The main vegetation type is the Miombo and Acacia Woodland.

The region suffers low soil fertility, dry season fodder shortage for livestock, and fuelwood shortage caused by agricultural expansion leading to extensive bush clearing and deforestation.

In many parts of this region substantial encroachment of protected forest areas is common. Charcoal production has contributed to the degradation of woodlands and bush-lands.

Region II b

This relate to the sub-region of the medium rainfall plateau comprising the Kalahari (Barotse) sand plateau and the Zambezi flood plains.

In this Region, the soils are good for growing trees such s the Cashew nuts and Mango. The main vegetation type is the Kalahari and Miombo Woodland, and swamp vegetation. The main crops grown are cassava and millet. Cattle's farming is a central part of rural life. Farm forestry development faces the problem of finding species suitable for tree establishment.

Region III

This consists of the Northern High Rainfall Plateau. The farming systems of this region are largely hoe-based. The vegetation type is the wet Miombo Woodland. A form of shifting cultivation, known as the Chitemene is practised traditionally. In this type of cultivation, trees are loped and branches burned to add potash and minerals to the soil.

Tree growing usually involving exotic trees and fruit trees is carried out on farms, forming part of the traditional perennial crop cultivation technology.

Table 2.4.1: Agro-Ecological Regions of Zambia

	I	II a	II b	III
Rainfall	Low, with less than 800 mm	Medium 800-1,000 mm	Medium 800-1,000 mm	High, with more than 1,000 mm
Altitude	400-900 m	900-1,300 m	900-1,200 m	1,100-1,500 m
Growing Season (70%Probability)	80-120 Days	90-150 Days	110-150 Days	130-200 Days
Soils	Valley Soils	Medium Soils	Kalahari Sands and Flood Plain Soils	Leached Acid Soils

The farming systems of Zambia vary between agro-ecological zones. As a result, tree-growing practices incorporated in these farming systems also differ considerably between regions.

The shifting cultivation systems are practised in many areas of the country mainly those with relatively low population densities and fragile low fertility soils. This system, also known as the Slash and Burn involves the clearing of a small piece of land by felling and burning the forest vegetation. During the first few years, farmers obtain excellent crops on the cleared land, the ashes of the burnt vegetation serving as fertiliser, and in the case of acid soils, also helping to raise the pH significantly.

However, after a period of about 2-10 years, the soils become exhausted, and the farmer clears another piece of forest, abandoning the first area to bush fallow which later is invaded by trees if sound forest management practices are followed. This farming system involves extensive cultivation practices with uncontrolled burning for land clearing and hunting. Environmental risks are present and the increasing population threatens the sustainability of shifting cultivation.

3.4.2 Agricultural performance

Zambia's agriculture is characterised by a contrast in investment and profitability between commercial and subsistence farming. Large-scale commercial farms are concentrated along the central line of rail, while subsistence farming is distributed throughout the country. In the commercial sector, high levels of inputs are used. Maize is the main crop in both sectors.

Agricultural performance has generally been poor in the country as the agricultural growth rate of 3.5% is far below the potential. Zambia has a grossly under-utilised agricultural resources base.

While the northern region practices shifting cultivation, the drier south uses more draft animal power to produce millet and sorghum, which are more tolerant of low rainfall than maize. Over-grazing, soil erosion, soil and water loss, and saltation of water reservoirs are the key environmental hazards.

The major constraint to smallholder production includes inadequate infrastructure, maize monoculture of unsuitable varieties and use of poor husbandry techniques.

In the light of sector liberalisation, other issues have also emerged such as prohibitive transport costs, high input prices, lack of land tenure security which makes credit inaccessible, and the insolvency of the traditional rural financial institutions which has left a gap in small farmer credit supply.

Livestock production is dominated by cattle raising with cattle accounting for about 80 % of total livestock, excluding poultry. Approximately, 80% of cattle are raised in the traditional sector, while the commercial ranching accounts for 20%. Estimate of livestock populations vary significantly from year to year.

Most of the national herd of 3.9 million depends on the natural grassland and browse for feed, although commercial herd is given supplementary feeds. Pressure on the rangeland resources is high especially in communal grazing areas.

Within the subsistence economy, men and women traditionally perform different tasks. Women are the main collectors of fuel-wood, which include woody biomass and occasionally animal dung or crop residues. Therefore, any initiatives by the household to grow trees on-farm and homestead would largely benefit women and youth as wood-fuel conservation measures.

Tree planting could assist in two respects by preventing soil erosion and land degradation. Secondly, the increased use of multi-purpose tree species would help increase agricultural yields through enhancing soil fertility and use as fodder for animals.

The consequences of poor agricultural performance have been low economic growth, poor standards of nutrition, unnecessary food imports, vulnerability to drought and degradation of the environment.

An improvement in productivity is a pre-requisite for agricultural and economic growth. To achieve this, farmers must adopt improved land and animal husbandry practices. Tree growing is an essential part of these improvements. There are various practices available for introducing trees into farming systems of Zambia such as homestead tree planting, farm woodlot, farm boundary tree planting, improved fallow, hedgerow inter-cropping, fodder banks and wind-breaks.

3.5 Changes in energy use and their implications on forestry

Forest products from the informal sector are still widely available. Most households have no alternative to firewood and charcoal. The increasing exploitation of trees for charcoal has contributed to deforestation. Planning for sustainable utilisation of wood-fuel is important.

In Zambia, the charcoal industry is more developed than the firewood market. The charcoal industry has a distinct form, and can, therefore, be the subject of intervention. Other possible areas of intervention include enhancing the wood supply resource base, and promoting household access to alternative energy sources.

3.5.1 Sources of household energy

In Zambia, households use four main types of fuel, namely firewood, charcoal, kerosene and electricity, table 2.5.1 refers.

Firewood and kerosene are mainly used in rural areas. The use of animal dung and crop residues is restricted to rural areas. Urban households mainly use charcoal, kerosene and electricity while firewood is used in lesser quantities.

Table 2.5.1: Contribution of different energy sources to household energy, 1990 to 1995

Year				Fuel contribution, %				
	Urban	Rural	Total	Charcoal	Firewood	Firewood And harcoal	Kerosene	Electricity
1990	648.8	2,031.8	2,714.6	16.9	79.9	96.8	1.3	1.9
1991	677.1	2,113.4	2,790.0	17.1	80.0	97.1	1.0	1.8
1992	698.8	2,156.8	2,855.6	17.0	80.4	97.4	0.7	1.9
1993	721.6	2,216.7	2,938.4	16.8	80.3	97.1	0.7	2.2
1994	743.6	2,276.7	3,020.3	16.5	80.5	97.0	0.6	2.3
1995	781.4	2,350.2	3,131.6	16.2	79.9	96.1	0.6	3.3

Source: ZFAP, Volume II, (1998)

Electricity is widely used in medium and high cost urban residential areas. Very few rural households have access to electricity. Electricity is used for a variety of end-uses among which are lighting, cooking, space cooling and heating, ironing, refrigeration and powering various other appliances like television sets, radios, telephones and computers.

3.5.2 Wood-fuel demand

According to Kalumiana, (1996a), the most significant factor affecting wood-fuel demand in Zambia is population as most wood-fuel is consumed at household level.

Kalumiana (1997) reports that wood-fuel is the largest source of energy in Zambia, followed by petroleum, electricity and coal. Overall total energy consumption in the country exceeds 4.5 million Tonnes of Oil Equivalent (TOE) per annum, with each fuel contribution being as follows:

- Wood-fuel 68%
- Petroleum 14%
- Electricity 12%
- Coal 6%

Current levels of energy demand in Zambia can be satisfied and where-ever possible enhanced by ensuring sustainable regeneration of forests and also by providing alternatives to wood-fuel such as biogas, solar power, hydro-electricity and petroleum products like kerosene. However, these are high capital investment ventures and will need total Government commitment in terms of subsidies, tax alleviation, credits and any such measures that may assist both the urban and rural poor to access these alternative energy sources. Careful analyses and detailed research into alternative energy sources, appropriate conversion technology and use of wood by-products would, therefore, be inevitable if the energy requirements of the country are to be met equitably and sustainably, without incapacitating the forest and other ecosystems (life supporting systems) in the environment.

4 FORESTRY SECTOR IN 2020

4.1 State of forests and plantations

In Zambia, forests serve different sections of society in various ways. Local people have always considered the forests as a free resource, which they can exploit for their daily needs for wood-fuel, materials for shelter and food, for their soil and water protection, and for farmland.

The State has viewed forests as a national property to supply society with wood and generate revenue. Industrial entrepreneurs see it as a source of raw materials for profit. For the hydro-electricity supply, forests are a water catchment area. Forestry institutions have focussed on industrial plantations while neglecting the potential of indigenous forests. Ecologists regard forests as a reservoir of biodiversity habitat, subject to welcome international pressures to control global warming and conserve biodiversity. Some of these interests are complementary but others are conflicting

Zambia is a diverse country with land assets encompassing arable land, forests, wildlife and wetlands. Estimates of national land use patterns have been quoted in a number of publications. However, as there has been no countrywide inventories since the 1960s, these estimates, particularly of the land cover are not very reliable. The estimated land area under good forest cover is about 44.6 million hectares or 60 % of the country's total land area. The forests are located in the

forest reserves, game management areas, national parks and customary land as shown in table 3.1 below.

Table 3.1: Land cover distribution in Zambia, 1992

Land-use, 1992	Extent (Million hectares)	
	Sub-Area	Total
Forests		
Forest Reserves	7.21	
National Parks	6.35	
Game Management Areas	15.64	
Customary / Traditional Land	15.35	
		44.55
Agriculture		15.09
Council and Settlements		7.25
Swamps and Grassland		7.55
Water		0.75
TOTAL		75.19

Source: Forestry Department, (1992)

Zambia lacks up to date forest resources inventories. The last national inventory was done in the 1960s. Current figures on forest cover and growing stock are based on estimates and assumptions of what has changed over the last 40 years. Although the area under forest reserve is known, the change in condition and extent of forest cover, affected by settlement, woodcutting and agriculture, is not well known. Reliability for all current figures is, therefore, low. Even the estimated deforestation rate of 0.5% or 300,000 ha per year is also probably low or questionable in present conditions.

The forest reserves cover about 7.1 million ha which include 50,000 ha of eucalyptus (20%) and pine (80%) plantations. Forest reserves are divided into two major categories: the national and local forest reserves. These forests are functionally categorised as:

- Production forests which are managed for the present and future production of forestry goods and services for social and economical development. This includes the provision of raw materials for small and large scale industries, fuel-wood, charcoal and agriculture ;
- Protection forests which are maintained as conservation areas for environmental stability. Mainly protects water catchment areas, species ecology, wildlife, cultural sites and soil erosion control.

In areas where there is population pressure and demand for additional agricultural land is high, encroachment into the forest reserves has occurred, but no statistical figures on the extent of the encroachment are available.

The management of natural forests is critical. The use of natural regeneration and silvicultural techniques can provide a high net economic return. Plantations, in comparison, have drawbacks, especially the establishment costs for plantations are high and financial returns are delayed for 10-20 years after planting.

In Zambia, plantations have been established since the 1960s to supplement the supply of timber from indigenous forests. The size of these plantations, unfortunately, has been declining every year as there are no deliberate replanting programmes.

According to Alajarvi (1996), the mean annual growth of pine has been 14.4 m³/ha/annum and that of eucalyptus 18.6 m³/ha/annum. The rotation periods have varied from 15 to 25 years. The average

stand volume in pine and eucalyptus plantations of 25 years is about 280 m³/ha and 300 m³/ha, respectively.

Currently, ZAFFICO is harvesting about 350,000 m³/annum that means that about 1,000 ha is cleared each year, assuming that no thinnings are done.

The Forestry Department has about 7,000 ha of plantations, which are distributed into several Provinces. In addition, it has been estimated that the private sector owns about 3,000 ha of plantations. Tree planting has not been an attractive business venture for the private sector in the country.

The pressure on the forest resources has been heavy. The most critical situation is found near big towns and along the main roads. Wood-fuel is still the most common energy source for most households, creating intense pressure on areas close to towns. With increased population, the demand for food is greater and areas under cultivation have expanded. The heavily populated Provinces of Lusaka, Central and Copperbelt have had the biggest deforestation rates, (Chidumayo, 1996a).

According to Alajarvi (1996), Table 3.2 presents projections for the forest area during the 1996 – 2016 period. This indicates that deforestation will take place on land under customary law. National Parks and Forest Reserves have traditionally been and will be better protected than traditional land.

Table 3.2: Forest and the land cover, 1996 – 2016, Current trends in Million Hectares

Area Type	1996	2001	2006	2011	2016
Forest in Open Areas	30.1	29.1	28.1	27.3	26.5
Forest Reserves	7.1	7.1	7.1	7.0	7.0
Plantations	0.1	0.1	0.1	0.1	0.1
Trees Outside Forests	15.9	15.4	14.7	13.8	12.7
National Parks	6.4	6.4	6.4	6.4	6.4
TOTAL	59.5	57.9	56.3	54.5	52.6

Source: Alajarvi, 1996

4.2 Wood demand and supply situation

It is generally observed that Zambia still has good amounts of the forest resources, although accurate information on the extent of the resource is lacking. It is also generally observed and agreed that the resource is under serious threat mainly from the expanding agricultural land and the indiscriminate cutting for timber and wood-fuel.

In this paper, two country scenarios have been used to give the future outlook of the forest resource situation in the country using various assumptions on the factors. That is the current trends in wood demand and supply, and the ZFAP scenario.

Table 3.2.1a: Annual Demand of Wood by Periods in Million M3

	1996	2001	2006	2011	2016
Households	19.4	22.1	25.1	28.6	32.5
Industry	3.1	3.6	4.3	5.1	6.1
TOTAL	22.5	25.7	29.4	33.7	38.5

Source: Alajarvi, 1996

Table 3.2.1b: Annual Demand of Wood by Periods in Million M3 (ZFAP Scenario)

	1996	2001	2006	2011	2016
Households	19.4	21.8	24.1	26.6	29.4
Industry	3.1	3.6	4.3	5.1	6.1
TOTAL	22.5	25.4	28.4	31.7	35.5

Source: Alajarvi, 1996.

This scenario indicates substantial increase in demand for wood if the current trends continue. The objective under the ZFAP scenario is to limit consumption through various interventions such as increasing charcoal production efficiency by 8%, and reducing consumption of wood by 20% as well as promotion of producing value added forest products to ensure optimal financial returns on sales and reduced exploitation of forest resources.

According to ZFAP (1998), the wood supply situations between 1996 and 2016 will be as outlined in the following tables 3.2.2a and 3.2.2b.

Table 3.2.2a: Cord-wood supply in Million M3 / Annum (Current Trends)

Land Type	1996	2001	2006	2011	2016
Forests in Open Areas	16.7	15.3	14.0	12.8	11.6
Forest Reserves	11.4	11.3	11.3	11.2	11.1
Plantations	0.9	0.8	0.8	0.8	0.8
Game Management Areas	16.6	16.6	16.6	16.6	16.6
Trees Outside Forests	1.6	1.5	1.5	1.4	1.3
National Parks	1.1	1.1	1.1	1.1	1.1
TOTAL	48.3	46.7	45.3	43.9	42.5

Source: Alajarvi, 1996.

Table 3.2.2b: Cord-wood supply in Million M3 (ZFAP Scenario)

Land Type	1996	2001	2006	2011	2016
Forests in Open Areas	16.7	17.4	18.7	20.5	22.7
Forest Reserves	11.4	12.6	14.0	15.6	17.3
Plantations	0.9	1.0	1.1	1.2	1.4
Game Management Areas	16.6	16.6	16.6	16.6	16.6
Trees Outside Forests	1.6	1.7	1.8	2.0	2.1
National Parks	1.1	1.1	1.1	1.1	1.1
TOTAL	48.3	50.4	53.3	57.0	61.3

Source: Alajarvi, 1996.

The 1996 cordwood supply level of 48.3 million cubic metres is expected to decrease to 42.5 million cubic metres in the year 2016 under the current trends due to deforestation, degradation and lack of management.

Under the ZFAP scenario, the annual cordwood supply is expected to increase to 61.3 million cubic metres by 2016 because of intensified forest management activities.

4.3 Wood supply and demand balance

According to Alajarvi (1996), the estimates of wood supply and demand balance for the country have been determined for the two alternatives, the current trends and the ZFAP Scenario. The balance of these two cases is as shown in the following tables 3.2.1a and 3.2.1b.

Table 3.3.1a: Annual Cord-wood Supply and Balance in Million m³/Annum, (Current Trends)

	1996	2001	2006	2011	2016
Supply from Production Areas	30.6	29.0	27.5	26.2	24.8
Supply from Protected Areas	17.7	17.7	17.7	17.7	17.7
Demand	22.5	25.7	29.4	33.7	38.6
Balance not sustainable	25.8	21.0	15.8	10.2	3.9
Balance sustainable	8.1	3.3	- 1.9	- 7.5	- 13.8

Source: Alajarvi, 1996.

Table 3.3.1b: Annual Cord-wood Supply and Balance in Million m³/Annum, (ZFAP Scenario)

	1996	2001	2006	2011	2016
Supply from Production Areas	30.6	32.7	35.6	39.3	43.5
Supply from Protected Areas	17.7	17.7	17.7	17.7	17.7
Demand	22.5	25.4	28.4	31.7	35.5
Balance not sustainable	25.8	25.0	24.9	25.3	25.7
Balance sustainable	8.1	7.3	7.2	7.5	8.0

Source: Algarve, 1996.

Theoretically, there are sufficient forest resources in Zambia to satisfy the demand, even after 20 years of growth in demand. However, this is not sustainable as the demand depends on supply from protected areas. In addition to this is that the supply and demand is not balanced regionally. The biggest deficits are now and will in future be in Copperbelt, Lusaka and Southern Provinces, whereas the supply is far away, notably in the North-western and Northern Provinces.

5 CHANGE FACILITATION : WHAT NEEDS TO BE DONE

There is considerable strain on Zambia's natural resources. Forest resources are affected since trees offer many short-term opportunities for benefit. However, forests must be conserved for their vital roles in biodiversity, soil and water conservation and other environmental functions.

The forest sector development objectives in Zambia incorporate the concerns listed as follows:

- To develop capabilities of women and men at all levels of government, the private sector and NGOs in forest sector policy analysis, planning, education, training, research and extension ;
- To improve the welfare of women, children and men living in rural and urban areas through equitable and complementary participation in sustainable forest resource management and utilisation ;
- To provide on a sustainable basis sawn-timber, fuel-wood, poles, fodder and non-wood forest products required by the society ;
- To increase the contribution to the national economy through generation of both formal and informal employment for both women and men engaged in the forest sector and the export of forest products ;

- To conserve forest ecosystems and biological diversity through sustainable management for the benefit of the present and future generations ;
- To protect watersheds in order to ensure sustainable hydro-power supply, overall surface and under-ground water conservation and climate stability ; and
- To support sustainable agricultural production and enhanced food security through improved land husbandry, including strategic and local level land-use planning, increased soil fertility and reduced land degradation.

In line with these concerns, it is essential that future forest sector interventions are based on a set of principles based on the current and objective realities of the country. These principles are as follows:

- Sustainable forest resource management ;
- Capacity development ;
- Participatory approach ;
- Gender participation ; and
- Sectoral integration.

The Action Programme designed to address these objectives within the bounds of the guiding principles is summarised through the four Core or Primary Development Programmes and the three Supportive Development Programmes, which are well detailed in the ZFAP Volume II: Strategies and Actions.

The following are the Core Development Programmes:

- The Indigenous Forest Management and Biodiversity Sub-Programme (IFMBC) which intends to manage and utilise the forest resources and biological diversity in forest reserves, open lands, national parks and game management areas on a sustainable basis ;
- The Tree and Forest Development Sub-Programme (TFDP) will promote the culture of tree / forest asset creation and ultimately increase the sustainable supply of forest products ;
- The Forest Industry and Non-Wood Forest Products Development Sub-Programme (FINWDP) which aims to promote forest industries and non-wood forest on the basis of principles of commercial viability, sustainable management and utilisation of forest resources ;
- The Wood-fuel Energy Development Sub- Programme (WEDP) which aims at end-use efficiency and reduces dependency on bio-fuels.

The Core Development Sub-Programmes are complemented by three Supportive Development Sub-Programmes with a series of forest sector policy and institutional reform initiatives. Each programme is designed to reinforce and facilitate realisation of objectives of the core development sub-programmes. These Supportive sub-programmes are as follows:

- The Forestry Education and Training Sub-Programme (FETP) intends to strengthen and promote gender sensitive, multi-disciplinary and sustainable forest resources management ;
- The Forestry Research and Education Sub-Programme (FREP) aims to strengthen capacity to generate, test and disseminate relevant technologies relating to the sustainable management and utilisation of the forest resources ;
- The Policy, Planning, Monitoring and Evaluation Sub-Programmes (PPMEP) aims at creating, developing and institutionalising policy, planning, monitoring and evaluation capabilities for the forest sector.

The total investment to support the forest sector development in the next 20 years would be US\$ 293.6 Million (ZFAP, Volume I, 1998). The private sector share of investment is projected to be US\$ 20.5 Million and the rest will come from the public sector.

Areas of investment include management and conservation of biodiversity and indigenous forests, industrial plantation development, wood-fuel energy and forest industries development, institutional strengthening and feasibility studies.

The Forestry Action Programme for forestry development in Zambia will only make a sustainable contribution to the economic development of the country if supported by various national policies, in particular the programme to control population growth, supported by agricultural, livestock and energy policies that alleviate the pressure on land resources.

Planning forestry development needs to consider that planting and use of trees should be balanced with other needs of land-use. An urgent need for land-use policies as well as institutional reform measures for strategic and local level land-use planning is required. Such policies would provide incentives for efficient land-use and management as well as guide development planning and resolve the existing land-use conflicts in the country.

6 SUMMARY AND CONCLUSION

Zambia has an estimated population of 9.3 million people with an annual growth rate of 3.5% which is considered to be very high and has an effect on the forest resources.

The overall objective of the country is to reduce poverty through economic growth, investment in human resource development and protection of the environment. The forest sector objective is to enhance the quantitative and qualitative contribution of the forest sector towards the national socio-economic development.

Mining dominates the Zambian economy, followed by the agriculture sector. Forestry contribution to GDP is less than 1%. However, the forest sector has a lot of potential to the socio-economic development of the country if managed properly.

Forest resources although not assessed for the last four decades cover 60 % of the total land area. Most of the forests are located in the customary areas, which are administered by the traditional leaders.

Apart from the forest resources, the country is endowed with substantial water and wildlife resources, which are vital to the rural communities and the nation as a whole.

The forest growing stock is estimated at 3.5 billion cubic metres as merchantable standing volume and 2.2 billion cubic metres is considered as commercial value timber.

Sawmilling is considered as a well-developed forestry industry in the country. About 400,000 cubic metres of saw logs per annum are the estimated demand for the sawmilling industry. The wood-based industry is steadily growing under the private sector. Pit-sawing has a lot of potential to support the informal sector.

Fuel-wood and charcoal have remained the major primary source of energy in most households. Figures available indicate that 95 % of rural people depend on fuel-wood and 90% of urban households depend on charcoal. The demand for fuel-wood will continue to increase as the population continues to expand.

In order to improve forestry contribution to the national development, the country's forestry policy and legislation have been revised based on the principles of participatory approaches and employing broad-based approaches of management and utilisation of the forestry resources.

The Government has also developed a national framework for managing forest resources on a sustainable basis. The framework covers economic, social and ecological issues and it also addresses the institutional framework. The priority areas for interventions in the forestry sector are divided into the primary and supportive development programmes.

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8 ANNEX

ANNEX I

List of major studies / reports on forestry and related areas produced within the last 10 years.

- Wood-fuel Review and Assessment in Zambia (1999)
- The Forests Act No. 7 of 1999
- Zambia Forestry Action Plan (1998)
 - Volume I: Executive Summary
 - Volume II: Challenges and Opportunities
 - Volume III: Strategies and Actions
- Report on the Zambian Forestry Statistics : A Country Report for the Proceedings of Sub-Regional Workshop on Forestry Statistics in the SADC Region (1998)
- National Forestry Policy (1998)
- Non-Wood Forest Products Review and Assessment in Zambia (1998)
- EU Forestry Sector Co-operation Strategy Study With the Countries of the SADC Region : Zambia Country Report (1997)
- The Role of Forests and Land Use: ZFAP Task Force Report (1996)
- Forest Management Planning and Inventory : ZFAP Consultant Report (1996)
- ZFAP Task Force Report on Wood-fuel in Zambia (1996)
- The Role of Women in Forestry Development : ZFAP National Consultant Report (1996)
- ZFAP Task Force Report on Gender in Forestry in Zambia (1996)
- Review of the Current Status of Forestry Extension, Research and Education in Zambia : ZFAP Task Force Report (1996)
- Study on the Restructuring of the Forestry Department into a Proposed Forestry Authority, MENR. (1996)

ANNEX II

Country socio-economic indicators

During the last decade, the economy of Zambia has been floundering through the structural difficulties, a difficult structural adjustment process, and other malign influences including soft markets for the export – copper -, bad weather that curtailed agricultural production in some years, and regional instability which encompasses the violent conflicts in the neighbouring Democratic Republic of Congo (DRC) and Angola. By the mid of the year 2000, at least 200,000 refugees from the DRC and Angola had entered Zambia, further straining the meagre resources of the country.

Zambia has a rather low overall population density, but high population concentrations in the Capital City of Lusaka and the Copperbelt Province Towns. The country is thus relatively urbanised by the African standards, and experiences a correspondingly high degree of the social, health and environmental problems associated with urbanisation in the Least Developed Countries (LDCs).

Zambia's resources also include the woodlands and various non-copper minerals. Tourism, to view the African Wildlife and the spectacular Victoria Falls, is another under exploited sector.

A GDP graph for Zambia in the 1990s, using the IMF estimates, has a saw-tooth pattern. Only once in the decade did the economy expand for two straight years, in 1996 and 1997, but this followed three straight years of decline, including a sharp 13.3% drop in 1994. More recently, GDP contracted by 2% in 1998 and inched up by 1.1% in 1999

Zambian debt represents 138% of GDP, and the country is among the first granted debt relief under the Bretton Woods institutions Heavily Indebted Poor Countries (HIPC) initiatives. Debt service payment currently amounts to some US\$ 125 Million yearly. The balance of trade in goods and services is marginally negative.

In terms of economic indicators, Zambia in 1999 had a gross domestic product (GDP) of US\$ 7,997 Billion, a population of 9.4 Million people and a GDP per capita of US\$ 851. In terms of global ranking, this placed Zambia 126 out of 191 countries in terms of GDP, 80 out of 191 countries in terms of population and 175 out of 191 countries in terms of GDP per capita. Other information is as summarised below.

Table Annex II: Zambia Macro-economic Activity

Year	Real GDP (Million US\$)	Real GDP Per Capita	Total Population (Million)
1994	7,004	799	8.76
1995	6,700	752	8.92
1996	7,132	787	9.07
1997	7,383	797	9.27
1998	7,239	765	9.46

Source : UNDP Country Profile on Internet of 4th January 2001