ENVIRONMENTAL MANAGEMENT IN ZIMBABWE

Have the National Conservation Plans Worked?

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ADA	Agricultural Development Authority
AGRITEX	Agricultural Technical and Extension Services
AZTREC	Association for Zimbabwe Traditional Environmental Conservation Trust
BUN	Biomass Users Network
CAMPFIRE	Communal Area Management Programme for Indigenous Resources
CBNRM	Community Based Natural Resources Management
CITES	Convention on International Trade in Endangered Species
CLFPA	Forest Act and the Communal Lands Forest Produce Act
COMMUTEC	Community Technology Development Trust
DEAP	District Environmental Action Programme
DNPWM	Department of National Parks and Wildlife Management
DNR	Department of Natural Resources
DR&SS	Department of Research and Specialist Services
EIA	Environmental Impact Assessment
ELMS	Environment and Land Management Sector (of SADC)
ENDA-Zimbabwe	Environment and Development Activities – Zimbabwe
FANR	Food, Agriculture and Natural Resources
GEF	Global Environment Facility
NAP	National Action Programme
NBSAP	National Biodiversity Strategy and Action Plan
NGOs	Non Governmental Organisations
ORAP	Organization of Rural Association for Progress
PWLA	Parks and Wild Life Act

RDCs	Rural District Councils
SADC	Southern Africa Development Community
SAFIRE	Southern Alliance for Indigenous Resources
WCED	World Commission on Environment and Development
WWF	World Wide Fund for Nature
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
ZEAP	Zimbabwe's Environmental Action Plan
ZERO	Regional Environmental Organization
ZIRRCON	Zimbabwe Institute of Religious Research and Ecological Conservation
ZNCS	Zimbabwe National Conservation Strategy

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Have the National Conservational Plans Worked?

1. INTRODUCTION

1.1 The Natural Environment

1.1.1 Environmental Baseline

Zimbabwe is a land-locked country in Southern Africa covering some 39 million hectares. Its population is estimated at 12.5 million with a density of more than 65 persons per km^2 in the higher rainfall areas receiving more than 1000 mm per annum, and 11 persons per km^2 in the lower rainfall areas that receive less than 450 mm per annum.

1.1.2 Land Ecosystem

Although well within the tropics, Zimbabwe's climate is moderated by high altitude to sub-tropical. Eighty percent of the country is above 600 metres above sea level. An outstanding feature of the country's landscape is the central plateau known as the highveld, which is about 650 km long and 30 km wide. On either side of this is the middleveld, which is between 600 and 1200 metres above sea level. The lowveld is below 600 metres above sea level.

Rainfall is the major climatic factor that influences the performance of sectors such as agriculture, forestry, wildlife and aquatic life in Zimbabwe. The rainy season stretches from November to March, while the dry cool season is between May and August. Frost is common during the winter season. October and November are the hottest months. Annual rainfall varies from an average of below 450 mm per annum in the low-lying areas to 900 mm over the central watershed and 1500 mm in parts of the highland areas.

Approximately 65% of the country's soils are derived from granite and are often sandy, light textured and of limited inherent agricultural potential. There is, however, a significant development of soils with heavier clay content in various parts of the country. Such soils are derived from basic igneous intrusions and have excellent cropping potential due to their inherent fertility. The extreme west of the country has large tracts of deep Kalahari sandy soils, which have very low agricultural potential.

1.1.3 Water Resources

Zimbabwe has few perennial rivers and no natural lakes. Water storage development is therefore dependent on run-off accumulated during the rainy season. There are over 8000 dams with a storage capacity of about 4900 million cubic metres (Ministry of Mines, Environment and Tourism 1998). Underground sources are usually the most economical and reliable for small to medium water supplies, particularly in the drier areas.

1.1.4 Biological Diversity and Renewable Resources

Zimbabwe is characterised by savannah woodlands interspersed with open-grassed drainage lines or *dambos*. Impeded drainage gives rise to limited areas of open grassland and a few patches of sub-tropical forests occur in the highlands. On average, 66% of the country is still covered by woody vegetation although some heavily deforested areas now have less than 30% forest cover (Forestry Commission 1996).

The presence of warm temperatures and of woodlands and open savannah grasslands as well as the availability of water from natural sources and artificial lakes provides an ideal environment for a wide variety of wildlife species in Zimbabwe. In addition, the country has one of the most sophisticated policies, legislative, management and administrative systems for wildlife in Africa. For example, the principle of sustainable use of wildlife resources forms the basis of the widely acclaimed Communal Area Management Programme for Indigenous Resources (CAMPFIRE).

The diversity of Zimbabwe's aquatic flora and fauna is directly related to the type and distribution of its wetlands, which include flood plains, riparian and artificial impoundments. Aquatic fauna of major importance to biodiversity conservation are fish genetic resources and to a lesser extent reptiles and ducks.

The country is very rich in domesticated plant genetic resources, which include cereals, pulses, industrial and horticultural crops, indigenous and exotic vegetables, roots and tubers, and medicinal plants. Cropped area is about 27% of the country and this area continues to increase as more forestland is opened up for cropping due to increasing population. Wild crops include cotton, rice, sorghum, pearl millet, finger millet, cowpeas and *bambara* nuts. However, very little work has been done to document the diversity and distribution of these wild crops. The main domestic animals kept are cattle, donkeys, horses, goats, sheep, poultry, and rabbits.

1.1.5 The Urban Environment

The urban environment has three major components, namely, the built-up areas; physical attributes such as soil, water and air; and biological components of flora and fauna. Most of Zimbabwe's urban settlements are concentrated around areas of high economic activity such as mining, industrial operations, manufacturing and retailing. Given the nature of these activities and the associated high human population concentrations, environmental degradation in these areas is unavoidable. Pressure is therefore being exerted on the land, water and atmosphere resulting in the accumulation of biological and chemical pollutants. Effects of such pollution are evident around or near fertiliser and chemical plants and other water bodies where the vegetation and aquatic life have suffered.

1.2 Significance of the Study

A major motivation for worrying about natural resources in Zimbabwe is their importance to the national economy and to human survival against a declining biodiversity base as illustrated by the following examples:

i) Zimbabwe's economy heavily depends on natural resources (i.e., forests, wildlife, aquatic life and agriculture) for generating employment, income and foreign exchange. The dominant sectors and their contribution to Zimbabwe's Gross Domestic Product in 1999 were as follows: manufacturing, 16%; agriculture, forestry and fishery, 26%; mining, 2%; and distribution, hotels and restaurants (which includes tourism), 19% (table 1). These figures show that the highest proportion of the GDP of the country is derived from its environment and natural resource base. Typical examples are primary agriculture; forestry and fishery, which are entirely dependant on fertile soils and farm ecosystems; indigenous and exotic trees; and various aquatic resources. Apart from their significant contribution at the national level, natural resources sustain rural livelihoods at the local level through the provision of a wide range of products and services.

Table 1. Contribution of various sectors to the Gross Domestic Product (GDP) in 1991 and 1999

	Share of GDP (%)		
Economic sector	1991	1999	Change
Agriculture, forestry and fishing	15.8	25.6	+9.8
Mining	4.7	1.8	-2.9
Manufacturing	28.8	15.9	-12.9
Energy and water	2.8	2.6	-0.2
Construction	3.2	2.5	-0.7
Finance and insurance	6.6	10.8	+4.2
Real estate	2.2	2.1	-0.1
Distribution, hotels and restaurants	17.6	18.8	+1.2
Transport and communications	5.5	8.5	+3.0
Public administration	5.7	4.3	-1.4
Education and health	8.0	7.1	-0.9

SOURCE: Calculations based on Reserve Bank of Zimbabwe figures (2001).

ii) Although forests provide a wide range of timber and non-timber products and services to the majority of the country's population,

provide habitat for wildlife and maintain the ecological integrity of the environment, they are being lost at an alarming rate. For example, it is estimated that about 70,000ha of Zimbabwe's forests are lost to agriculture each year.

iii) Wildlife is important source of meat especially in rural areas. However, this resource is disappearing fast in most communal lands where losses of habitats and uncontrolled hunting have virtually eliminated many wildlife populations especially those of large mammals and fish. In areas where the natural resource is protected (for example, national parks estate), there is considerable poaching.

iv) The commercialisation of agriculture has contributed to the disappearance of certain traditionally important food crops and farming systems such as agroforestry. Despite its unquestionable contribution to the national economy, "modern" agriculture tends to impact negatively on the farming environment, particularly in the smallholder sector.

In response to these problems, the government of Zimbabwe has put in place a number of conservation related strategies and plans aimed at ensuring sustainable use of the resources. However, experience from within and outside the country shows that such strategies and plans have had limited impact on conserving these natural resources.

Given the foregoing scenario, the need for regular auditing of the nation's natural resources cannot be over emphasised. The objective of the study is therefore to establish the extent to which Zimbabwe's natural resource conservation plans and policies have worked and how they can be improved. The study is based on literature reviews, general discussions with various stakeholders and structured interviews with selected individuals. It is hoped that the results of the study will provide new insights towards achieving the overall goal of sustainable development in the country.

2. BACKGROUND

2.1 Global Overview

Throughout history, people have benefited from the earth's resources. Technological advances have continued to improve the human capacity to reap economic wealth, but some of these advances have been accompanied by noticeable changes in the planet's ecosystems. There is now recognition that the global ecosystem (the ecosphere) has a limited capacity to support the rapidly growing population.

Ecological issues are increasingly appearing on both public and private sector agendas. Ecological problems such as pollution of freshwater,

contamination of food webs by toxic chemicals and changes in the composition of the planet's atmosphere and their solutions are a responsibility that must be shared by all people hence the international efforts to develop conventions and protocols on the environment since the early 1990s.

There is now an international moral consensus on an individual's right to a clean environment. The realisation of the global nature of the environment has been the driving force behind the emergence of frameworks designed to tackle international problems and challenges. The United Nations Environment Programme (UNEP) was created following the 1972 Stockholm Conference on Human Environment in 1972. UNEP was intended to co-ordinate activities on protecting global environment. However, it was realised that most environmental problems were either proximate causes or results of economic development.

To address the problems of the environment and development, the World Commission on Environment and Development (WCED) was set up in 1983 to examine the linkage between the two and to come up with specific recommendations. The Brundtland Commission confirmed the linkage between environmental issues and economic development processes and formalised the concept of sustainable development. It defined sustainable development as, development that allows present generations to meet their needs without compromising the ability of future generations to meet their own needs (WCED 1987).

Some 20 years after the Stockholm meeting, the United Nations Conference on Environment and Development (UNCED) was held in June 1992 in Rio de Janeiro to address issues of the environment and development. The Earth Summit, as it is popularly known, produced the Rio Principles, Agenda 21 and Forest Principles, which gave the global community's position on sustainable development issues. Agenda 21 outlines the actions necessary for the achievement of sustainable development at local, national and international levels.

Several international conventions including the UN Framework Convention on Climate Change, the Convention on Biological Diversity, the Convention to Combat Desertification and the Basel Convention (concerned with the control of transboundary movements of hazardous wastes and their disposal) have been adopted since the 1990s. Other agreements include the Montreal Protocol on the Ozone Layer and the Convention on International Trade of Endangered Species (CITES).

Most of these international agreements including Agenda 21 emphasise the need for methodologies that ensure the participation of all key stakeholders in the formulation, implementation and evaluation of action programmes.

2.2 Environmental Initiatives at Regional (SADC) Level

The Southern Africa Development Community (SADC) constitutes 14 countries of Southern Africa, including Zimbabwe. The objectives of SADC include sustainable utilisation of natural resources and effective protection of the environment.

SADC member states, as a group, have acknowledged that unsustainable human activities are exerting pressures on the environment at both national and regional levels. In 1993, the economic grouping adopted a Food, Agriculture and Natural Resources (FANR) policy and strategy with the following objectives:

i) To increase agricultural production and productivity and to ensure food security at the household, national and regional levels;

ii) To ensure sustainable utilisation, effective management and conservation of natural resources;

iii) To incorporate environmental considerations in all policies and programmes and to integrate sustainable utilisation of natural resources with development needs; and

iv) To ensure the recognition of the value of natural resources so that they can contribute optimally to the welfare and development of the region (SADC 1998).

The FANR strategy document has since been broadened to include, among other things, the recognition of economic and ecological diversity of the region (SADC 1998).

Other relevant sectors of SADC include environment and land management sector (ELMS), water, mining, energy, inland fishery, forestry and wildlife. Each sector including that of food, agriculture and natural resources is co-ordinated by a SADC member state; Zimbabwe co-ordinates the natural resource sector.

The Environment and Land Management Sector (ELMS), which is co-ordinated by Lesotho, has produced a SADC policy and strategy for environment and sustainable development whose broad goals are to:

i) Protect and improve the health, environment and livelihoods of the people of Southern Africa with emphasis on the poor who constitute the majority;

ii) Preserve the natural heritage, biodiversity and ecosystem in Southern Africa; and

iii) Support regional economic development on equitable and sustainable bases (SADC 1996).

To foster regional co-operation, SADC member states have also signed the following agreements: the Zambezi River Action Plan, protocols on shared watercourses, energy, trade, and transport, communications and meteorology. However, it is interesting to note that the region has not yet developed a protocol that specifically deals with the environment, as all the current initiatives have a sectoral approach to issues and not an integrated approach to environmental management. This is a reflection of the sectoral nature of the SADC structures.

2.3 Major Environmental Concerns at National Level

2.3.1 Land Degradation

Many areas of Zimbabwe are very susceptible to erosion because of their poor soils. Such areas have high population densities and their inhabitants often lack knowledge of good farming methods and capital to undertake conservation measures. About 65% of the country's land area is covered by sandy soils (Thompson and Purves 1978). These soils are infertile because they have low nutrient reserves and little capacity to retain nutrients due to their low clay and organic matter contents. The over exploitation of natural resources coupled with poor farming methods have worsened the soil infertility in some areas.

Over 90% of the severely degraded lands in the country are in communal areas compared to only 7% in the large-scale commercial farming areas. About 91% of the eroded cropland is in communal areas while only 8% is in the large-scale commercial farming areas. It is estimated that communal areas lose between 43 and 75 tons/ha/year of soil compared to 15 tons/ha/year in the large-scale commercial farming sector (Elwell 1985). These differences reflect the higher levels of conservation practised and the lower land utilisation on the large-scale commercial farms compared to communal areas.

Some of the major causes of land degradation in Zimbabwe are over cultivation, overgrazing and deforestation. Others are excessive tillage especially on *vleis* (wetlands) and dry soils, continuous cropping of shallow rooted crops and poor crop performance due to low rainfall. These have led to losses in the topsoil and nutrients. The decline in soil fertility has become a major limiting factor for agricultural production and economic growth particularly in communal areas. Furthermore, soil erosion is contributing to losses in biodiversity and habitats as well as to siltation of rivers and other water bodies.

The limited availability of good quality farmland has forced many poor families in communal areas to rely on small plots for their subsistence requirements. Such plots are being continuously cropped with limited use of inputs such as fertilisers and with few to no crop rotations, resulting in low

agricultural performance. Livestock performance has also been adversely affected by the inadequacy and low quality of grazing that is obtained in these areas. To address this issue, some rotational grazing schemes have been introduced in some areas. However, such schemes have had limited success, among other things, due to:i) high livestock numbers, which easily exceed the carrying capacity of the schemes after a few years of their implementation; and ii) the communal land tenure system that operates in the grazing areas, which does not motivate some individuals to invest their time for the success of the scheme given that the resultant benefits accrue to the community as a whole

Given that most communal areas are located in low rainfall environments, there is widespread cultivation of stream banks, waterways and *vleis* although this is prohibited under the Natural Resources Act of 1942. However, the cultivation of these moist areas provides food security to households, as they are able to plant crops well before the onset of the rains. Given this reality, emphasis is now being placed on the development and promotion of technologies that reduce the adverse environmental effects of cultivating such areas as opposed to the enforcement of the legislation in its current form.

Concerns regarding land degradation in Zimbabwe started in the 1930s. In 1938, a Commission of Inquiry was set up to assess the state of natural resource degradation in the country and to advise on measures to overcome the problem. The inquiry revealed that large areas had suffered from excessive soil erosion and it recommended that legislation governing the use of natural resources be put in place. This saw the passing of the Natural Resources Act in 1942 to ensure the conservation of natural resources. The Forest Act and the Communal Lands Forest Produce Act were later introduced to ensure the proper management of forest resources while the Parks and Wildlife Act was promulgated to control the exploitation of wildlife. Still, it should be noted that no comprehensive quantitative information exists on the state of land degradation in particular and the environment in general especially in the communal and resettlement areas. This makes it difficult to plan and monitor changes in the state of the environment. However, there are a number of institutions with functional Geographic Information Systems (GIS). They include the Forestry Commission, the Surveyor General's Office, the Department of Agricultural, Technical and Extension Services and the Environmental Remote Sensing System Institute. Unfortunately, some of these institutions are experiencing technical capacity problems in the utilisation of their GIS.

The scarcity of suitable agricultural land has been a major factor driving food insecurity, land degradation, encroachment into marginal cropping areas and the over reliance on natural resources in the congested communal

areas. This has given impetus to the current fast track land reform programme whereby the government intends to decongest communal areas by resettling some of the farmers on large-scale commercial farms.

2.3.2 *Population Growth and Distribution*

The population growth rate in Zimbabwe is 3.2% per year. Of the country's 12.2 million people in 1997, 47% were under 15 years. Such a growing population structure poses great challenges to the country's biodiversity, as the demand for natural resources will continue to increase in the coming decades. This is worsened by the fact that about 66% of the country's population resides in rural areas where, because of poverty, people tend to rely on natural resources for their survival. Zimbabwe has very high poverty levels. For example, the 1995 poverty assessment study shows that 61% of the country's households are poor with 45% of them living in absolute poverty as they can hardly afford basic food requirements.

Poverty is more prevalent in rural areas where 72% of the households are poor compared to 46% in the urban areas. Within the rural areas, poverty is more widespread in communal areas (where 81% of the households are poor) followed by the small-scale commercial farms, resettlement areas and large-scale commercial farms. Furthermore, the majority of such poor households are headed by women. There are also more people per unit area in the wetter than in the drier areas of the country. This has led to greater exploitation of natural resources through the opening up of large tracts of land for cultivation and increased demand on forest goods and services in the communal areas. Similar negative impacts of population concentrations on biological diversity occur in areas around urban and rural service centres. The resultant land degradation is contributing to the siltation of the major water sources, such as Save River.

2.3.3 *Infrastructural Development*

The rapid population growth and the related urbanisation are exerting pressure on the habitats and ecosystems surrounding cities, towns and rural service centres through the provision of infrastructural services such as houses, factories and roads. This is compounded by the current drive by the government to attract foreign investment, with tourism, agriculture and mining being the most lucrative sectors. Such investments could result in infrastructural developments that might crowd out various biological species from their habitats. For example, unless developments in the Victoria Falls area are controlled, they could destroy the ecosystem on which the very existence of the tourism industry depends.

Given that agricultural production in Zimbabwe is generally marginal,, there has been considerable investment in dam construction for irrigation purposes. Apart from submerging ecosystems, dam construction introduces

new ecosystems within and in the surrounding areas. For example, in addition to bringing in new aquatic life forms, dams modify land use systems in their areas of influence such as by providing sufficient water to grow cash crops, which require higher levels of chemical inputs. If improperly used, such chemicals can pollute surface and ground water and negatively influence aquatic ecosystems.

To minimise the adverse effects of infrastructural development on the environment, the government has instituted the Environment Impact Assessment Policy. Under this policy, projects with potentially adverse environmental effects are prescribed, making them subject to environmental audits.

2.3.4 Land Tenure, Property Rights and General Land Use Systems

The land holding rights and obligations find their expression in the country's four main systems of land tenure. These are freehold (private), state land, communal, and leasehold (resettlement) tenure systems. The tenure systems affect and shape the property rights and natural resource access regimes that exist today. With the exception of the resettlement tenure system, which is based on permits, the tenure systems are largely part of the colonial heritage.

The freehold tenure system is prevalent in the commercial sector, which consists of large-scale and small-scale commercial farms. This sector is characterised by individual ownership of land by virtue of a title deed issued under the Deeds Registry Act. The registered landowner has exclusive property rights and full control and responsibility over the land and everything attached to it; however, the extent of ownership and exclusive control over the land and some natural resources may be limited by statutory provision. Such limitations relate to changes in land use, controls over public watercourses, felling of indigenous timber resources and controls on wildlife. It is often argued that freehold tenure provides landowners with incentives to conserve and improve the natural resource base.

The communal land tenure system is governed by the Communal Lands Act and is applicable to 42% of Zimbabwe's land area, where approximately 66% of the country's population resides. Furthermore, 74% of the communal farming area is located in low rainfall areas while the bulk of the large-scale commercial sector is in high rainfall areas. According to the Communal Lands Act, all communal lands are vested in the State President who has powers to permit its occupation and utilisation in accordance with the Act. Communal area inhabitants thus have usufruct rights over communal land, while Rural District Councils have a dispensation to allocate land to qualified persons on behalf of the state.

Resettlement areas are a product of the post-independence period targeted at relieving population pressure in communal areas and have no title deeds. It is often argued that the communal land tenure system acts as a disincentive for long-term investment in agriculture and other key natural resources. Communal and resettlement areas currently comprise more than 60% of the country's total land area. The state also set aside 15% of the country as gazetted/protected forests and national parks.

2.3.5 Macroeconomic Structure and Policies

Zimbabwe is a developing country with a per capita income in 1996 of US$718 based on a total Gross Domestic Product (in nominal terms) of Z$85.5billion and a population of approximately 11.9million. However, in real terms, the GDP per capita has declined from US$271 in 1980 to US$201 in 1996 largely due to high inflation and the depreciation of the Zimbabwe dollar. The country's economy depends heavily on natural resources for generating employment, income and foreign exchange.

Zimbabwe's economy has been undergoing some changes during the last ten or so years due to the implementation of economic reform programmes. The seven major policy objectives of the reform programmes are:

i) Trade and investment liberalisation;

ii) Removal of trade restrictions;

iii) Deregulation of financial and labour markets;

iv) Removal of price control;

v) Attainment of a 5% annual growth in GDP;

vi) Reduction in the national budget deficit; and

vii) Reform of public enterprises and rationalisation of the civil service.

While the first four objectives have been largely met, the last three have been more difficult to achieve due to a number of constraints. These include persistent droughts, the government's assumption of parastatal debts, delayed disbursement of external financial support for reform programmes and increased social expenditures on issues such as the AIDS pandemic. Furthermore, the current economic structural adjustment programme is putting considerable pressure on biological resources as more people turn to them in response to declining real incomes from fiscal and monetary policy changes.

2.3.6 Social and Cultural Issues

About 98% of the population consists of indigenous Africans, while the remainder is mostly made up of whites and coloureds. The majority of the

male rural dwellers have migrated to urban centres in search of employment opportunities, leaving their families in rural areas. Such an arrangement guarantees the family's social security in the event of loss of a job or retirement. This "dual economy" system gives the indigenous people the right to a piece of land in the communal area even if they are gainfully employed elsewhere. It is often argued that such an arrangement leads to serious competition for limited resources as more people may claim pieces of land for cultivation and grazing rights for security and not for productive purposes.

2.3.7 Issues Emerging from the Environmental Degradation

The following are the key issues emerging from environmental degradation in Zimbabwe.

i) The communal tenure system appears to promote land degradation as it discourages individuals from investing in land restoration initiatives such as grazing schemes. This is largely because returns from investing within the context of a common property resource (land) cannot be internalised by individual households.

ii) There are very limited data on land use changes especially in the communal and resettlement areas. Where such data exist, they are often outdated and of limited use for monitoring and planning purposes.

iii) A number of national institutions have the hardware and software for detecting changes in the natural resources. However, some of these institutions are experiencing lack of appropriate work force.

3. ZIMBABWE'S NATIONAL CONSERVATION PLANS AND STRATEGIES

3.1 Evolution of Land Policies and Legislation

Land continues to be a major political and economical issue in Zimbabwe largely because of its skewed distribution whereby a small proportion of the country's population owns the bulk of the resource. This is against a background that land is finite and that it is fundamental for the economic empowerment process and ultimately for national development.

The land question has its origins in the colonial policies enacted in the country following the establishment of the British South Africa Company in 1890. These pieces of legislation discounted the majority of the country's population that was confined to marginal areas in terms of soil type and rainfall. The major land initiatives and policies enacted by successive colonial governments and their impact on land distribution patterns are summarised in this section.

i) The Lippert Commission of 1899: The British South Africa Company bought a concession that was used to appropriate land rights in the country. This marked the beginning of the official racial land allocation pattern that saw the establishment of two Native Reserves in the southern part of the country. The Reserves were meant for the black population.

ii) The Native Reserves Order of 1898: Under this order, the British parliament extended the concept of Native Reserves to cover the whole country. By 1902, some 96 Native Reserves had been established in low potential areas.

iii) The Land Apportionment Act of 1930: This act legalised the separation of land between the blacks and the white settlers. Some land was also set aside for national parks, forestry and other state uses.

iv) The Native Husbandry Act of 1951: This act was borne out of the conviction that the farming practices that were being used by the blacks were detrimental to the environment. The act was therefore aimed at enforcing private land ownership, de-stocking and land conservation methods on Native Reserves. The legislation was heavily criticised by blacks and it fuelled nationalism. It was therefore scrapped in 1961. However, it resulted in the creation of some Native Areas (the current small-scale commercial farming sector) where blacks were allowed to purchase and own land privately. Private ownership was seen as a way of fostering good land stewardship among the blacks.

v) The Tribal Trust Lands Act of 1951: This act changed the name Native Reserves to Tribal Trust Lands (the current communal areas), which because of their high population densities became degraded homelands.

vi) The Land Tenure Act of 1965: This act replaced the Land Apportionment Act of 1930. It heralded the final division of the country's land into approximately half for whites (who constituted less than one per cent of the nation's population) and the other half for blacks. The land given to the whites was private and it now constitutes the large-scale commercial farms while the land allocated to blacks was state land held under communal/traditional tenure and user rights. This land constitutes the current communal areas. Thus, Zimbabwe inherited a highly skewed system of agricultural land ownership at national independence in 1980.

vii) The Communal Lands Act of 1981: This act changed the tribal trust lands to communal areas. This effectively shifted authority

over this land from traditional leaders to the Rural District Councils.

viii) The Land Acquisition Act of 1985: This act gave the government the first right to purchase large-scale commercial farms for resettlement to decongest the communal areas, which were heavily degraded due to high population pressure on a very low potential land resource. Despite the programme's considerable success, it faced a number of constraints largely tied to the 1978 Lancaster House Constitution that brought independence to the country.

ix) The 1990 draft National Land Policy: This policy specified land redistribution targets for the main land use categories in the country. It proposed a decrease in the size of the large-scale commercial farming sector from 15.5million ha to 6.0million ha. The released land would be used for resettlement (8.3million ha) and for state land (1.2million ha).

x) The Land Acquisition Act of 1992: This act enabled the government to acquire land compulsorily from the large-scale commercial farms for resettlement purposes. It also defined the procedures for land acquisition and compensation.

xi) The Land Acquisition Act Amendments: From July 2000 to November 2001, a number of amendments were made to the Land Acquisition Act through Statutory Instruments under the Presidential Powers (Temporary Measures) Act. The amendments gave birth to the Fast Track Land Resettlement Phase of the land reform programme. Under this phase, some 114,830 households have been resettled on 4.32million ha since 2000.

As the resettled farmers take up the challenges of producing food for the nation, there is need for them to open up some forest areas for agricultural production. Unless such activities are properly planned and monitored, they could lead to serious land degradation. It is, however, heartening to note that the government has produced village development plans for the resettled areas. These plans provide an inventory of the resource base of the area and propose the appropriate land use system. It remains to be seen whether the new landowners will adhere to such plans.

Some key environmental conservation issues emerge from the land policy and legislation reviews.

i) Communal areas, which are home to some 65% of the country's 12.5 million people, were already heavily degraded and congested by the time of national independence in 1980. This is largely

because of the colonial policies that confined the majority of the population to a limited area with low rainfall and poor soils.

ii) Given the low agricultural potential of the communal areas, some of the inhabitants are unable to meet their food and cash needs from agriculture alone. Some communal area dwellers have therefore resorted to the over exploitation of natural resources for survival.

iii) The inhabitants of communal areas have no title to land while those in resettlement areas operate on a permit system. Their counterparts in the large-scale and small-scale commercial farms have title to their lands. It has been argued that this lack of individual tenure provides no incentives for the sustainable use of natural resources and for land restoration programmes. For example, the most successful afforestation projects in communal areas have been in areas where individuals have some measure of control. These include areas around the homesteads and gardens as opposed to the grazing areas. Thus, private land ownership is seen as fostering good land stewardship within the population, as is the case with the large-scale commercial farms.

iv) The "open access" nature of the communal sector within the context of a relatively small industrial base has led the sector to become a "sink" for the unemployed, old and destitute. This is placing additional pressure on an already stretched fragile ecosystem and its limited natural resources.

3.2 Evolution of Conservation Policies and Legislation

During the pre-colonial period, indigenous knowledge of the local environment and its benefits to communities coupled with an effective traditional authority system formed the basis for natural resource conservation in Zimbabwe. The Chief owned all the natural resources and there were rules, regulations and penalties that guided the sustainable use of these resources. Unfortunately, some of the traditional values that discouraged the unnecessary destruction of natural resources have broken down. Examples of such rules and regulations are summarised in table 2.

Environmental policy in Zimbabwe has shifted from a traditional approach of the pre-colonial period to a new tradition of parliamentary procedures of today. It has shifted from community participation to community representation at different levels (Chenje et al. 1998).

The enactment of laws in Zimbabwe has generally been *ad hoc* and sectoral, responding to different environmental crises over the past century. Crises in areas such as wildlife poaching, over-exploitation of resources and soil erosion have led to the introduction of laws to control the problems. Throughout the history of the country, environmental policy formulation

has always been the preserve of government. It is therefore no coincidence that many of the environmental laws are prescriptive and often punitive. The major legal instruments for the management of key natural resources in Zimbabwe are the Forest Act, the Communal Lands Forest Produce Act, the Parks and Wildlife Act, the Natural Resources Act, the Mines and Minerals Act and the Environmental Management Bill (to be tabled before Parliament soon).

Table 2. Examples of traditional rules and regulations used for managing natural resources

Natural resource	Values/rules/regulations	Objectives
Wells, rivers, water bodies	No one was allowed to bath in points meant for drinking purposes. These were regarded as sacred places for the spirits. No cultivation was permitted along the riverbanks.	To maintain clean supply of water To avoid unnecessary sand excavation
Mountains	Chiefs' burial places	To maintain the sacredness of the mountains To foster a culture of respect for natural resources
Wild fruits	People were not allowed to shake off fruit from a tree or to say anything defamatory about the taste of certain wild fruits	To avoid wastage of fruits To foster a culture of respect for natural resources
Animals and birds	The different totems of the African people were derived from names of animals and birds. In most cases, one cannot eat meat of the animal/bird from which his totem is derived.	To avoid massive killing of animals/birds
Grave sites	These are sacred sites. Plants and grass around them could not be burnt or cut.	To preserve plants.

SOURCE: Adapted from Chiwandamira, 2000.

3.2.1 Forest Act and Communal Lands' Forest Produce Act

The Forest Act and the Communal Lands' Forest Produce Act (CLFPA) are the principal pieces of legislation that govern the exploitation and protection of forest and woodland resources in Zimbabwe. This is achieved through the establishment of conditions for and regulation of the magnitude to which forest produce may be utilised. Despite post-independence amendments, the two acts largely retain the colonial approach to natural resources management based on racially determined principles. The CLFPA finds its application in the communal areas, which were assigned for the African population. Typically, this act imposes a rather strict regulatory framework that is highly state interventionist. On the other hand, the Forest Act, while seeking to be broad in its coverage of forest resources throughout the country, finds its primary focus on state forests and on forest resources occurring on private lands, most of which comprise the former "European" areas. The controls over private forests under the Act are less strict and provide a somewhat self-regulatory control mechanism for the management of private forest resources by their owners.

The Forest Act of 1948 provides for the establishment of demarcated forest areas and establishes a Commission to serve as the state authority mandated with the dual responsibility of providing advice to the Minister responsible for the administration of the Act and of performing regulatory functions. The regulatory functions deal with the control, management and exploitation of state forests, plantations and forest nurseries belonging to the state and any other land as may be acquired by the state for forestry purposes. Regarding forests occurring on private lands, the Act provides for their protection where the owner or occupier applies to the Minister for such protection. An application may only be made where the owner or occupier of the private land in question places all or part of the land under a system of forest management approved by the Commission.

The Minister is empowered to declare any species of tree or any produce of forests occurring in a state forest and on any other state land that has been declared a demarcated forest to be especially reserved. The Minister's powers do not include trees or produce occurring in the Parks and Wildlife Estate, plantations and communal land. This power is vested in the State President. The protection, control and management of state and private forests achieved through the establishment of a range of prohibited activities and offences. It is an offence to harvest or damage any forest produce on state and private protected forests without the written authorisation from the Minister. Harvesting of and damage to any protected tree or any tree in any forest or plantation that the President has declared to be protected is further prohibited, except where this is carried out in

accordance with the regulations or permission or direction of the Commission.

The Forest Act is directed primarily at the exploitation of the forest resource rather than at sustainable management. It has not been suitably modified to reflect the forest policy and current trends in forest management. The Act came into force in 1948 initially to control and regulate the mining industry, which has hitherto conducted unregulated timber extraction for some 50 years. The supremacy of the Mines and Minerals Act over all other resource use legislation meant that most of the indigenous forests of the country had been heavily logged by miners and their contracts at the time the Forest Act was passed (Scoones and Matose 1993). The Act however remains partial to the mining industry, as is the case with all other natural resource legislation in the country. It maintains that mine development is the pre-eminent land use and that minerals may be mined wherever they occur (Henly 1990). However, the Act provides for the formation of a Mining Timber Permit Board (MTB), which considers applications for permits for the extraction of timber for mining purposes.

The Forest Act *prima facie* prohibits the harvesting, injury or destruction of any indigenous trees or timber from private forests and forest produce from any state land except in terms of a valid mining timber permit issued with the consent of the appropriate authority for the land. However, a miner does not require a permit for the clearance of forestland where an access road to the mining claim is sought to be established or, where boundary roads are marked, and in instances where a part of the forest interferes with his mining activities. This general assumption may, however, be withdrawn by the MTB where it is satisfied that the miner is cutting, felling or removing forest produce, trees or timber in a manner resulting in undue damage to the locality concerned. Other criteria for the refusal to issue a mining timber permit include the situation where the taking of timber would adversely affect the timber supplies in that locality or Zimbabwe as a whole or where suitable alternative supplies of timber are available.

The Communal Land Forest Produce Act (CLFPA) gives the administration of exploitation of all communal area forest produce to the Minister. However, a range of authorities is provided for, and this covers licences, agreements and permits. Exploitation of forest produce by communal area inhabitants is restricted to "own use" and the sale or supply of any forest produce to any other person is prohibited. Furthermore, an inhabitant may not exploit forest produce in a protected forest, a reserved tree, or any produce over which an authority to exploit has been granted to any person and where a plantation has been established by any persons other than the inhabitant. However, these may be exploited in the course of clearing land

for residential and cropping purposes, where rights of occupation and use under the Communal Land Act have been granted.

The Act empowers the Minister to set aside areas of natural forests found in the CAs as protected forests. The Minister may further declare any tree to be a reserved tree and such a tree may not be exploited except with a special permit.

Special permits authorise a holder to exploit reserved trees outside a protected forest and in the case of an inhabitant, they authorise him to exploit reserved trees in a protected forest area in which he is a resident. Thus, the CLFPA effectively removes the management of natural forest resources from the inhabitants of its area of application. Firstly, the Minister is given the authority to exploit the forest resource on behalf of the state. In cases where a forest falls within the jurisdiction of a local authority, control over the resources therein lies with the appropriate Rural District Council, which has the right to grant concessions to outsiders to utilise forest products for commercial purposes.

In exercising his powers under the Act, the Minister is required to consult the local authority that may be affected by the exercise of his power. Unfortunately, no consultation mechanism exists for the inhabitants, as the law assumes the local authority is a representative of all interests of affected persons under its jurisdiction. The Minister is, however, required to have due regard for the interests of present and future inhabitants of communal lands that may be affected by the exercise of his powers. The concept, however, is not well supported by the Act, as it does not require the Minister to prepare inventories of forest produce existing as well as exploited for his guidance in issuing permits. The limitation of the right for inhabitants to exploit forest produce for "own use" prevents local level initiatives for resource sharing or exchange of resources and fails to acknowledge the centrality of woodland resources within the rural economy (Mohamed-Katerere 1996).

3.2.2 Parks and Wildlife Act

The Parks and Wild Life Act (PWLA) is the principal piece of legislation regulating the conservation and utilisation of the wildlife resources of the country. The Minister of Environment and Tourism is mandated with the Administration of the Act through the Department of National Parks and Wildlife Management (DNPWLM), which is the management and scientific authority for wildlife.

The conservation and preservation of wildlife, fish and plants is achieved through the establishment of a system of protected areas, which constitute the Parks and Wildlife Estate. The Act sets out six types of protected areas, namely, national parks, safari areas, sanctuaries, botanical gardens,

botanical reserves and recreational parks; each with a specific objective. The Parks and Wildlife Estate constitutes 13% of the land mass of the country and although the President may subtract or add to the estate, he may not reduce it by more than 1% of its land area.

The first schedule to the Parks and Wildlife Act constitutes eleven national parks totalling some 2, 718,010 hectares of state and trust lands. The purposes of the national parks are preservation and protection of the natural landscape, scenery of wildlife and plants and natural ecological stability of wildlife and plant communities found in the parks, while the ultimate objectives are public enjoyment, education and inspiration. The Minister is enjoined to control, manage and maintain national parks in accordance with the purposes for which they were established. All human activities in national parks are prohibited except as provided in a permit, licence or other authorisation issued by the authority responsible. The Minister may introduce any specimen of wildlife, fish or plant, but may not introduce any exotic species of plant or wildlife. Measures necessary or desirable for preventing or controlling human and animal diseases, controlling and limiting *quelea* birds and locusts or eradicating weeds within a national park may further be authorised.

The government regards wildlife utilisation as a valuable, legitimate and sustainable land use system, which may be most appropriate in agriculturally marginal areas. This is partly because wildlife makes better use of available vegetation compared to livestock and has many marketable uses apart from the provision of game meat. Furthermore, the local wildlife industry has a comparative advantage in world markets due to the presence of unique large mammals and high biological diversity. Thus, in 1975 the government took a bold positive step in the area of wildlife conservation by putting provisions in the Parks and Wildlife Act, which allowed the "custodial ownership" of wildlife to private landholders. The fact that landowners could benefit from the use of wildlife on their land encouraged them to invest in wildlife management by establishing game ranches. In addition, the Parks and Wildlife Act was further amended to give appropriate authority status to Rural District Councils (RDCs) so that they could manage and benefit from wildlife within the communal areas. This saw the inception of CAMPFIRE.

The Parks and Wildlife Act gives privilege to owners or occupiers of private land and Rural District Councils in the case of communal areas, to utilise and exploit plants and animals on their land. Such an arrangement has given these communities incentives to manage these natural resources through the formation of conservancies/game parks on private land and through participation in CAMPFIRE. With respect to conservancies on private land, the domestic stock predators such as lions, cheetahs and

leopards, which were being eradicated to safeguard domestic stock before the legislation and policy changes were put in place, have now started to increase in number. For example, surveys on 206 game and game/cattle ranches carried out in 1985 and 1996 show that the leopard population had increased from 1,050 to 1,550, while cheetahs monitored on 37 ranches increased from 220 to 700 (Heath 1996). Conservancies are mostly located in areas of low agricultural potential where wildlife is the only viable and sustainable form of land use.

Regarding CAMPFIRE, experience has shown fundamental changes in the attitudes of communities who live with wildlife. They now perceive wildlife as an asset and not merely as a threat to life, property, crops and domestic stock. Some communities are now willing to share land with and to bear costs of living with wildlife since the associated benefits outweigh the costs. On average, CAMPFIRE projects in Zimbabwe generate over Z$25 million annually. Ninety percent of this income is from hunting elephants, buffalo, sable, antelope, etc. More income could, however, be realised if ivory and other elephant products were marketed commercially, hence the excitement generated by the acceptance of Zimbabwe's proposal on the down listing of the elephant and the partial lifting of trade in elephant and elephant products by the CITES Conference of Parties (COP) 10.

In addition to income directly accrued to participating households from CAMPFIRE, local authorities have put up schools, mills, electric fences and sales depots using revenue from the programme. Given such successes, the CAMPFIRE model is now being extended to other natural resources such as forests, fisheries and *velds* (for grazing purposes). Community managed eco-tourism is also a new development of the CAMPFIRE concept. Under this dispensation, efforts are underway to link tourism to rural development and conservation projects.

3.2.3 Natural Resources Act

The Natural Resources Act of 1942 governs the functions of the Department of Natural Resources and covers the conservation and improvement of all natural resources including forests, water, soil, air and minerals. The department's functions generally involve monitoring, regulating and enforcing rules on environmental conservation. However, the enforcement of some of the regulations has proved difficult. For example, the legislation against stream bank and *vlei* cultivation has been difficult to enforce because such areas are important for household food security in the dry areas. Furthermore, the penalty imposed for breaking the law is too small to act as an effective deterrent.

3.2.4 The Environmental Management Bill

During the 1980s and 1990s, it became apparent that some of the environmental laws in place had failed to reduce natural resource degradation. A number of stakeholder meetings convened by the Ministry of Environment and Tourism showed some of the reasons.

i) Environmental laws are fragmented with 19 pieces of legislation being administered by five different ministries. Furthermore, some of the legislation is sometimes overlapping and conflicting. This had contributed to the fragmented approach in dealing with natural resource management issues in the country.

ii) Existing laws do not consider the environment in its totality and do not take into account the relevant international agreements to which the country is a signatory.

iii) The penalties for causing environmental damage are not sufficiently large to act as a disincentive for breaking the law.

iv) There are no significant incentives to encourage environmentally sound management practices within the population.

To address some of the foregoing realities, Zimbabwe has designed an Environmental Management Bill that will soon be tabled in Parliament. This Bill is viewed as an omnibus law that will incorporate and co-ordinate different pieces of legislation that are related to the environment. It proposes the establishment of an Environmental Management Agency, which will be the central institution responsible for controlling and regulating pollution and for sustainable management of natural resources. It also has provision to establish an Environment Fund for environmental management services and restoring polluted and degraded environments. Proceeds for the Fund will be from levies imposed on people or organisations whose activities impact on the environment.

According to the Bill, policy making on environmental matters will fall under the Environmental Council. The Council will consist of representatives from relevant government ministries and the private sector.

3.2.5 Issues Emerging from the Review of Conservation Policies and Legislation

The following are some of the issues that emerge from the reviews of policies and legislation related to the natural resources sectors.

i) Some pieces of legislation such as the Forest Act and the Communal Lands Forest Produce Act retain their oppressive colonial nature regarding the non-involvement of local communities in the sustainable management and utilisation of gazetted and communal