

TRANSITIONAL GOVERNMENT OF ETHIOPIA

NATIONAL CONSERVATION STRATEGY

VOLUME II

NATIONAL POLICY

ON

NATURAL RESOURCES

AND THE ENVIRONMENT

National Conservation Strategy Secretariat
Ministry of Natural Resources Development
and Environmental Protection
Addis Ababa

July 1994

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CHAPTER I

INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION TO THE ETHIOPIAN NATIONAL CONSERVATION STRATEGY

The Ethiopian National Conservation Strategy takes a holistic view of natural, human-made and cultural resources and their use and abuse. It seeks to integrate existing and future Central and Regional Government planning in all sectors that impinge on the environment, including agriculture, forestry, wildlife, fisheries, soils, water, minerals, energy, urban planning and cultural heritage conservation, into a coherent whole.

A sound partnership has been sought between planners, decision makers and the majority who manage our natural resources for ourselves and our children. All sections, groups and classes of people have been consulted and have participated in the formulation of the Strategy.

The policy making phase encompassed broad ranging discussions and a full debate at the central and regional levels in order to arrive at a national consensus. The process was launched by the Government in May 1990 at a National Conference held in Addis Ababa. The Conference provided an opportunity for issues to be considered at all levels. Representatives from every Government department attended, together with delegates from the business community, United Nations, and donor and NGO agencies. Experts from many fields provided their powers of analysis and acted as sources of local knowledge.

The Conference was followed by the creation of task forces and regional workshops and a deeper analysis of the issues raised. The regional and zonal task forces took the action into the countryside through a series of field visits and grass roots level consultations. In this way regional and community needs and priorities have been effectively addressed.

The National Conservation Strategy will be implemented by the Government of Ethiopia through a coordinated investment programme. A complete review of legislation that may affect conservation is in progress. Laws will be modified or enacted to support the process of conservation without hindering development.

This is an umbrella strategy which considers all sectors of human activity and enhances the capacity and effectiveness of existing and subsequent strategies. In this respect the NCS will play an important role of coordination of sectoral strategies.

The National Conservation Strategy recognizes the very low standard of living of the majority of the people and thus also their minimal ability to invest in activities that do not yield quick returns. It is therefore realistic and works towards enhancing their **ability** and **will** to invest in conservation.

1.2 INTEGRATING ENVIRONMENT WITH DEVELOPMENT

Development is essential for every nation if it is to improve the quality of life and to satisfy the needs of each person. However a short term view can destroy the very development a country sets out to achieve. But given the chronic poverty which pervades in Ethiopia and the urgent need to achieve rapid economic growth, does pursuing a sustainable environmental policy involve sacrificing economic growth and the alleviation of poverty?

Any country can maximise economic growth over a very short term by depleting non-renewable resources, by harvesting more than the sustainable yield of its renewable resources (eg. forests) and by disposing of wastes into ecosystems that cannot assimilate them and thus degrading its soil and aquatic resources. But basing economic growth on such a policy would be like building a house on shifting sand. Already the country's chronic poor live in the worst urban environments, occupy and work the most marginally productive land, have least access to clean water and fuelwood and are most at risk of starvation. Pursuing a policy of environmentally unsustainable economic growth would thus only exacerbate the living conditions of today's poor and bequeath to future generations an impaired natural resource base and an environment in which it would be impossible to live.

Thus given the high degree of dependence that Ethiopia has to place on its natural resources and environment in order to achieve economic and social development and having regard to the magnitude of the processes of environmental degradation there is a clear and urgent need to integrate environmental protection and sustainable natural resource management with development policies, strategies and their implementation. Environmental concerns cut across all sectors and levels of development and thus a policy framework for sustainable environmental management must be comprehensive in scope and scale. This is not to say it becomes the "National Economic Development Policy" but rather that it should provide a solid and firm foundation

for ensuring that the nation's economic and social development will be sustainable.

Sustainable environmental management and thus sustainable development incorporates three necessary and complementary elements: environmental sustainability, social sustainability and economic sustainability. Development planning hitherto has mostly concentrated on economic systems, to a much lesser extent on social systems and hardly at all on environmental systems. Similarly environmental planning has mostly concentrated on environmental systems, to a much lesser extent on social systems and hardly at all on economic systems. The policy presented here seeks to integrate the three systems on an equal footing into a framework for sustainable development.

Agriculture has been identified in the country's Agricultural Development Led Industrialization Strategy as the lead growth sector. This strategy depends on sustainable agricultural development. Sustainability in agricultural development depends on the sustainable development, use and management of the nation's natural resources and environment. The strategies presented in this Policy are thus of vital importance in achieving a successful implementation of the national economic development strategy.

1.3 THE IMPACTS OF POPULATION, POVERTY, GOVERNMENT POLICIES AND THE LACK OF PEOPLES' EMPOWERMENT ON NATURAL RESOURCES AND ENVIRONMENTAL MANAGEMENT

1.3.1 A Complex Web of Relationships

The detailed linkages between population and poverty, the role of government and empowerment of people and the sustainability of management of natural resources and the environment are extremely complex. However a number of discernible strands can be recognized. Poverty is characterised by a lack of access to resources, goods and services for the satisfaction of basic needs, in particular to land or employment, clean water and health and educational services. These linkages also have quantitative and qualitative characteristics. Thus although a person has access to land it may be insufficient in extent and quality. Herein often lies the connection between unsustainable use and management of natural resources and poverty although the relationships are not absolute.

Poverty and access to basic resources also have close and complex relationships with the degree of individual and community empowerment to control access to,

use and manage their resources and environment. This complex area of relationships includes such issues as the role of government in environmental management and the degree and effectiveness to which it provides an enabling policy framework and the degree to which it actively intervenes in and regulates environmental management. Included in this complex set of issues are security of resource access and tenure rights, local democracy, resource management institutions and participatory development.

Finally population growth in the context of increasingly scarce natural resources provides the destabilizing factor in the dynamics of resource use and management systems, access to resources and the satisfaction of basic needs and thus in the final analysis, maintains or worsens poverty. Also involved are the spatial relationships between population, natural resource endowment and the changing resource use and management systems.

1.3.2 Population and the Sustainability of Environmental Management

The current (1993) estimated population of 53.6 million is increasing at an annual rate of 3.1% and if current trends in fertility and mortality rates continue then the Ethiopian population can be expected to double by the year 2010.

In terms of spatial distribution some 88% of the population live in the Highlands which constitute only 43% of the country's land area. Current average densities in the Highlands are 89 persons per km² although there are significant variations with densities generally being higher in the north and central highlands. However the highest densities (over 400 per km²) are found in the enset areas of the Southwest Highlands.

The Ethiopian Master Land Use Plan estimated that at current rates of population growth and existing levels of agricultural technology by the year 2010 three quarters of the pre-1987 Highland awrajas will be unable to meet their subsistence food needs. Another population-resource analysis estimated that a livestock crisis will occur in 2004 when all potential Highland grazing land will be fully utilized and a cropland crisis by 2017 when all potential cropland will be utilized. These estimates do not take into account the decline of resource productivity caused by land degradation and deforestation.

Population growth rates in the pastoral lowlands are much lower than in the highlands. The long term total livestock numbers probably oscillate above and below the ecological carrying capacity of the rangelands. However in these fragile environments frequent droughts, loss of vital grazing resources to rainfed and irrigated agriculture, war and civil conflict have combined with human population increase over the twentieth century to cause a reduction in many household's

livestock assets to well below subsistence requirements. This has caused increasing numbers of marginalised pastoralists to take up precarious rainfed cropping to supplement food supplies from dwindling livestock assets. Here in this ecologically fragile environment rainfed cropping is causing soil erosion on unsuitable soils and increasingly sedentarized herds are causing both soil and pasture degradation.

1.3.3 Poverty and the Sustainability of Environmental Management

In 1992 it was estimated that 8.7 million people needed relief assistance in Ethiopia. The situation has been compounded by the demobilization of more than 400,000 former soldiers with an estimated 800,000 dependants, and nearly 1.5 million refugees, returnees and internally displaced persons.

Ethiopia ranks as one of the poorest countries in the world with a per capita GDP of about US\$120 a year. A recent study on poverty in Ethiopia estimated that approximately 27 million people fall into one poverty category or another. Some 13 million rural people who are mainly subsistence farmers on very small farms or with no land at all constitute the major group of chronically poor. However even in the urban areas the chronically poor number about 4 million (out of an urban population of over 7 million). This all pervading poverty is exemplified by some of the worst social indicators in Africa. These are shown in Table 1.

1.3.4 Previous Government Involvement and Interventions in Natural Resources and Environmental Management

In 1975 an economically "laissez faire" centralist government was replaced by a "command economy" centralist government. Between 1976 and 1985 it has been estimated that some 600,000 km of soil and stone bunds were constructed on cropland, some 500,000 kms of terraces on hillsides, 500 million tree seedlings planted and about 80,000 ha of hillsides closed for regeneration. Reafforestation was implemented on nine catchments of nine regions and peri-urban plantations established at Nazareth, Dessie and Debre Berhan. The cutting of trees by peasants was banned. However despite these and other massive intervention and regulation by the post-1975 state in the economy. Despite massive intervention and regulation by the post-1975 state in the economy as a whole and in environmental management in particular, natural resource and environmental degradation continued unabated. Those government interventions and their negative environmental impacts can be usefully grouped into three sets of "policy or government failures":

- policy and regulatory interventions which had direct or indirect negative environmental impacts

| TABLE 1. WELFARE AND SOCIAL INDICATORS | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------|----------------------|----------------------------|
| Item | Unit of Measurement | 15-20 Years Ago | Most Recent Estimate | Sub-Saharan Africa Average |
| GNP per capita (1990) | US\$ | 90 | 120 | 340 |
| Medical care: | | | | |
| Population per physician | persons | 86,100 | 78,777 | .. |
| Population per hospital bed | persons | 3,500 | 5,391 | .. |
| Access to medical care | % of population | .. | 44 | .. |
| Immunization (<12 month): | | | | |
| Measles | % | .. | 23 | 49 |
| DPT | % | .. | 26 | 38 |
| Oral rehyd. therapy | % | .. | 32 | 36 |
| Education: | | | | |
| Gross enrolment: | | | | |
| Total Primary | % | 24 | 38 | 69 |
| Total Female | % | 15 | 30 | 60 |
| Total Secondary | % | 6 | 15 | 18 |
| Access to safe water: | | | | |
| Total | % of population | 8 | 14 | 36 |
| Urban | % coverage | 58 | 69 | 76 |
| Rural | % coverage | 1 | 9 | 24 |
| Sanitation: | | | | |
| Total | % min. facil. | .. | 8 | .. |
| Urban | % min. facil. | .. | 60 | .. |
| Rural | % min. facil. | .. | 1 | .. |
| Population growth rate: | annual % | 2.5 | 3.3 | 3.0 |
| Fertility: | | | | |
| Crude birth rate | per '000 population | 43.1 | 51.4 | 45.9 |
| Total fertility | births per woman | 5.9 | 7.5 | 6.5 |
| Mortality: | | | | |
| Crude death rate | per '000 population | 19.2 | 17.9 | 15.6 |
| Infant mortality rate | per '000 live births | 151.4 | 131.6 | 107.3 |
| Under 5 mortality rate | per '000 live births | .. | 195.6 | 166.8 |
| Life expectancy: | | | | |
| Overall | years | 44.1 | 48.0 | 50.6 |
| Female | years | 43.3 | 49.8 | 52.4 |
| Sources: World Bank International Economics Department, April 1992. Water & sanitation estimates derived from TGE documents, quoted in EFAP Report Volume II. | | | | |
| a/ Minimum facilities refers to pit latrines (Private or communal) | | | | |

- the failure to implement policies and regulations which would otherwise have had direct or indirect positive impacts
- the lack of policies or regulations, the default producing negative environmental impacts

Perhaps the most important policy and regulatory interventions in terms of their negative impacts on the environment were those which increasingly and cumulatively eroded the rights of individuals and communities to use and manage their own resources.

For about a century prior to 1975 social, economic and cultural constraints were put in place to ensure the subjugation of the peasantry and popular participation was not allowed beyond religious and ritual ceremonies. The impacts of these on natural resources and the environment have been analyzed in Volume I.

The creation of Peasant Associations in 1976 with the power to allocate and control their own resources created for the first time an agrarian structure which established local units of administration and self-determination. However from 1977 onwards the central organs of the state increasingly assumed control of resource use and management.

Policies and regulations which were formulated and implemented from the centre such as collectivization, villagization, resettlement, state controlled grain marketing and set quotas, centrally organised campaigns for re-forestation and soil conservation and prohibitions on tree cutting all combined to usurp local control from communities and individual farmers over the use and management of their resources.

The frequent reallocations of plots institutionalized the insecurity of tenure that had been created by the feudal system and led increasingly to a perception by individual farmers of a complete alienation from their crop and grazing lands and their produce and any trees planted on them. The consequences were that soil conservation structures were not constructed and those that had existed or were constructed by coercion were not maintained. Trees found or planted on communal lands were, though communally owned, divorced from community authority. The prohibition on cutting trees, making both the community and the individual loose interest in protecting them, led to these becoming "open access" resources, owned by nobody, and to be "illicitly but by anybody. Thus because farmers and communities did not have any control over trees they might plant, either they did not plant any at all, or when coerced to plant, did not maintain or care for them. In this way many community woodlots planted with great physical effort resulted in little gain.

State demarcation and management planning of forest land which often encompassed farming communities was undertaken with little or no participation of those communities. This, coupled with the inability of the government forestry agencies to effectively "police" all the protected forest lands, led to them being increasingly encroached upon and cleared and turned to farmland. Because this farm land was "illicitly" obtained farmers perceived that they had even less security of tenure to it and consequently had no desire to invest in soil conservation works. Thus illdefined tenure rights on the part of both the state and the farmers over forest land and the inability of the state to enforce its own regulations led to the massive and often haphazard destruction of natural forests.

The lack of, or at best the implementation of incorrect, policies and their negative impact on natural resources was exemplified by the lack of appropriate pricing policies with respect to water. Irrigation water used on the state farms in the middle Awash valley was never costed leading to excessive usage without proper drainage and eventually the salinization of land and its abandonment.

In retrospect, a major characteristic of the rural programmes and campaigns which were implemented between 1977 and 1991 is seen to have been their lack of sustainability. In particular many of the villagization and producer cooperative programmes, the physical soil conservation works and community forests have all but collapsed. Between the fall of the Military Government and the consolidation of power by the Transitional Government the pent up feeling of resentment of the rural people was released resulting in much forest and wildlife destruction.

1.4 CURRENT TRENDS IN THE USE AND MANAGEMENT OF NATURAL RESOURCES AND THE ENVIRONMENT IN THE CONTEXT OF THE NATIONAL ECONOMY

1.4.1 The Natural Resource Base

Natural resources are the foundation of the economy. Smallholder peasant agriculture, in some areas including forestry, is the dominant sector accounting for about 45% of the GDP, 85% of exports and 80% of total employment. As such agriculture has been the main source of the stagnation and variability in GDP growth caused in the main by policy failures and exacerbated by recurrent drought, civil war, natural resource degradation and poor infrastructure.

Renewable natural resources: i.e. land, water, forests and trees and biodiversity, which meet the basic needs for food, water, clothing and shelter have now deteriorated to a low level of productivity. In many areas of Highland Ethiopia the present consumption of wood is in excess of unaided natural sustainable production. Estimates of deforestation which is mainly for expansion of rainfed agriculture vary from between 80,000 to 200,000 hectares per annum.

The burning of dung and not using it as a soil conditioner is considered to cause a reduction in grain production by some 550,000 tonnes annually. Accelerated soil erosion is causing a progressive annual loss in grain production estimated in 1990 at about 40,000 tonnes but which unless arrested will reach about 170,000 tonnes by 2010. Livestock play a number of vital roles in the rural and national economies but according to one estimate some 2 million hectares of pasture land will have been destroyed by soil erosion between 1985 and 1995.

Land degradation is estimated to have resulted in an annual loss of livestock production in 1990 equivalent to 1.1 million tropical livestock units (TLU's), and unless arrested will rise to 2.0 million TLU's by 2010 or 10 percent of the current national cattle herd.

In economic terms soil erosion in 1990 was estimated to have cost (in 1985 prices) nearly Birr 40 million in lost agricultural (ie crop and livestock) production whilst the burning of dung and crop residues as fuel nearly Birr 650 million. Thus in 1990 approximately 17% of the potential agricultural GDP was lost because of physical and biological soil degradation.

The permanent loss in value of the nation's soil resources caused by soil erosion in 1990 was estimated to be Birr 59 million. This is the amount by which the nation's soil "capital" should be depreciated in the National Accounts or put another way which should be deducted (as capital depreciation) from the country's Net National Income (NNI).

The Ethiopian Forestry Action Programme (EFAP) estimated the full value of forest depletion in 1990 to be about Birr 138 million or some 25% of the potential forestry GDP of Birr 544 million.

Despite the presence of mineral resources in quantities and qualities suitable for exploitation they currently only contribute about 2% of the GDP.

Only 1 to 2 % of the potential of Ethiopia's vast water resources for irrigated agriculture and hydro-power generation have been developed. The energy sector is one of the least developed in the world with 90% of energy needs being met from biomass fuels, particularly wood, charcoal and increasingly animal dung. The genetic diversity of Ethiopia's domesticated plants and its unique flora and fauna is increasingly being eroded in the face of an expanding population and the needs of agriculture.

1.4.2 The Urban Environment

The current urban proportion of the national population is relatively low at only 15% although the annual rate of urban population growth is 5.4% and the national proportion of urban population is likely to rise to 30% by the year 2020. There is a high proportion of female headed households in urban areas.

About 31% of households in Addis Ababa have no sanitation facility, whilst in other urban areas the proportion is about 48%. The serious deficiencies in sanitation services, the lack of treatment of sewerage collected by the limited collection service and random defecation in urban areas have created dangerous

health and environmental problems. Rivers and streams in the vicinity of Addis Ababa and other large urban centres have become open sewers and one of the main sources of infection causing diarrhoea. During the rainy season raw sewerage is washed down hillsides past and even through the poorer houses. Women carry water and clean the latrines. Privacy for women is almost impossible as many latrines are shared among many people and even simple doors are often absent. The current stock of urban housing is both insufficient and of very poor quality.

1.4.3 Natural and Cultural Heritage

Ethiopia's rich natural and cultural heritage permeates every facet of daily life and provides a powerful and socially cohesive force in the national consciousness. It can also provide a major attraction for tourists and an important element in the development of a tourist industry. However much of this heritage and culture is under threat through neglect, decay, removal or destruction as well as through the less visible and tangible impacts of changing socio-cultural values, foreign ideas and imported technologies.

1.5 THE NEW ROLE OF GOVERNMENT IN ACHIEVING THE SUSTAINABILITY OF ENVIRONMENTAL MANAGEMENT

Any potential role for government in achieving sustainable environmental management by individuals, communities, private organisations and state agencies will have three distinct but overlapping and complementary dimensions:

- an enabling role
- an interventionist role
- a regulatory role

The role of the Transitional Government has been defined in the various macro policy and strategy documents which are described more fully below. Essentially the TGE has as its major economic objective the transformation of the previous centrally planned economy to a market based one. In the context of the three dimensional conceptual framework outlined above this involves:

- an increased enabling role for government to ensure that the fundamental conditions exist for markets to function by: (i) rectifying previous policy failures which have caused or exacerbated market failures which have in turn resulted in a lack of sustainable

management of resources and caused environmental damage and economic stagnation and even decline; (ii) exercising prudent macro economic management and ensuring that other macro policies do not have a negative environmental impacts; (iii) making available market information where this is lacking; and (iv) reforming and/or establishing as the case may be legal frameworks and democratic institutional structures which provide clearly defined and secure natural resource access and tenure rights and a framework for constructive partnership, dialogue and negotiation between government on the one hand and resource users and developers on the other,

- a reduced interventionist role in direct economic and production activities except in investment in the development of key strategic resources (eg. large scale hydro electricity generation, large scale mining) and confining its other interventions to (i) investment in the provision of "public goods" which the private sector would or could not otherwise provide such as infrastructure, education, training to the state and to private sectors, credit, research, and technology development and extension; and (ii) enhancement of the enabling environment through the use of specific policy instruments such as taxes, incentives and charging full user costs for previously "unpriced" resources (eg. water, forests);
- as an adjunct to its reduced interventionist role government will adopt a relatively minimal and cost effective monitoring, regulatory and, where all else fails, coercive role which is always within its capacity to enforce in order to minimise the perpetration of environmental damage and thus act as the nation's "environmental guard".

Thus whilst the new primary economic role of government is to provide an enabling environment for the market economy it is recognised that there may be many cases where markets will fail in the allocation, efficient and sustainable use of natural resources and in care for the environment. These "market failures" provide, therefore, a rationale for government intervention.

But a "market failure" is a necessary condition not a sufficient one. The benefits of any government intervention or regulation should exceed the costs of its planning and implementation. As indicated above the previous centrally planned economy saw many examples of intervention where the costs to government greatly exceeded the benefits.

The new government structure takes power away from the centre to regions and localities. The relative roles of government at the different levels (Central, Regional

and Local) in terms of powers and duties, including on fiscal matters, have been defined by Proclamations 33 of 1992 and 33 of 1993.

The duties and responsibilities of the Central Government are to:

- initiate policies, prepare plans and allocate budget and implement same;
- ensure the enforcement of laws, regulations and directives of the Central Government;
- undertake studies and research; collect and compile statistical data;
- give assistance and advice to Regional self-Governments, and follow up the proper implementation of laws, regulations and directives by their executive organs;
- enter into contracts and international agreements in accordance with the law.

Powers and fields of activities of Regional Bureaus are to:

- prepare and implement plans and allocate budgets;
- ensure the implementation of laws, regulations and directives;
- undertake studies and research, collect and compile statistical data; and transmit same to the concerned central executive organs;
- enter into contracts in accordance with the law;
- submit to the concerned regional and central executive organs periodic activity reports.

1.6 THE NEW MACRO POLICY AND STRATEGY FRAMEWORK

1.6.1 Ethiopia's Economic Policy during the Transitional Period

November 1991 the Government issued **Ethiopia's Economic Policy During the Transitional Period**. Its stated objectives are to establish peace and security and to reduce poverty by encouraging growth. The broad strategies that the policy advocated are the replacement of the previous centrally planned with a market-

orientated economy; a reduced role for the state sector; popular participation in the development process; the promotion of private investment; and the mobilization of external resources. There are a number of policy elements of importance to the National Conservation Strategy.

1.6.1.1 Rural Land Tenure

The Policy recognizes two opposing views on the ownership of rural land: continuation under state ownership or changing to private ownership with the right to sell and exchange. Given the political and economic problems associated with the issue the question will be addressed through a national referendum after the new constitution has been adopted. It is also being debated throughout the country in the context of formulating the Constitution.

During the transition period there will be no changes (except for three minor amendments) in the current policy of public ownership. This policy was originally established by **Proclamation 31 of 1975**. The last policy amendments to land tenure were made at the 11th Plenum of the Workers Party of Ethiopia in March 1990 and it must be assumed that these together with the three amendments in the Transitional Economic Policy define the current policy. The 1990 announcements confirmed the policy changes announced the previous year that all further new land allocations and plot re-allocations of existing holders should cease. All existing land use rights for peasant farmers were confirmed. Existing holders were permitted to transfer holdings by inheritance to legal heirs. Cooperatives were to be democratically based and commercial (ie. private commercial) agriculture permitted. State control of grain marketing was abolished and farmers were permitted to sell their produce where and how they pleased. In order to implement the new policy a set of regulations and directives were issued by the Council of Ministers.

The Transitional Economic Policy confirms that there should be no reallocations of land except to the landless and that there should be no further fragmentation of holdings. Whilst preventing the sale or mortgage of land the policy upholds the rights of peasants to lease land, to pass it on to kin, to freely sell their produce, to hire labour and to be compensated fully if expropriated. There are three new elements in the transitional policy: (i) permitting new land allocations to the landless, (ii) the right, which was not openly expressed in the pronouncements of the 11th Plenum, to lease in or out land and (iii) the right for existing land holders to be compensated fully if land is expropriated by the state. In practice allocation to the landless has largely been confined to demobilised soldiers and returning refugees and settlers and not to the landless already within the community. In some areas state farms have been formally handed over to the relevant Regional Government.

"There have been a number of legal instruments issued with respect to the leasing of land, to water and to mineral exploitation.

Proclamation 15 of 1992 (A Proclamation to Provide for the encouragement, Expansion and Coordination of Investment) provides for investors to have access to sufficient land and water commensurate with their investment. The conditions of the use of the land and water are to be governed by lease agreements. The Proclamation provides for government incentives in the form of tax and other exemptions for investment in agriculture, natural resource development as well as protection and preservation, the construction and building industry and rural transportation.

Council of Ministers Regulations 120 of 1993 provides for the issuance of licences for investors wishing to engage in agricultural activities. Agricultural activities include the production of annual and perennial crops, animal and fish resources, forests, wildlife and wildlife products. An investor must first obtain land on a lease agreement entered into with the Regional Government and no land will be given in a manner prejudicial to the rights and interests of peasants. The investor will also have to provide a feasibility study which should include "conditions regarding environmental protection".

The Mining Proclamation 52 of 1993 provides for state ownership of all mineral resources and sets out responsibilities in ensuring the conservation and development of mineral resources. The Proclamation sets out the conditions for prospecting, exploration and development licences and distinguishes between artisanal mining (of a non mechanised nature); small scale and large scale mining the difference between the two to be defined later under Mining Regulations. The Proclamation sets out the different ways in which prospecting, exploration and development licences and discovery certificates may or may not be transferred.

1.6.1.2 Development of Agriculture

The Policy confirms a re-orientation of government support away from state farms to peasant agriculture, in particular for construction of rural infrastructure (roads, etc), expanded distribution of inputs and provision of extension services. The policy also indicates a significant increase in Government support to the previously neglected "areas with special problems". Previous Government policy had been to focus support almost exclusively to "surplus producing woredas". Included in the areas with special problems are the lowland pastoral areas.

The role of the state farms will be reduced and that of private modern farms expanded on "open and fertile lands" made available on a concessionary basis

provided that no existing peasant, pastoral or shifting cultivators will be evicted or their interests affected (see Minister Regulation 120 of 1992 above).

1.6.1.3 Conservation and Development of Natural Resources

The Policy gives priority to the conservation and development of natural resources. Priority will be given to the conservation and development of forestry resources, soil and water conservation and livestock development. Policies will be issued with respect to public participation in forestry development and conservation; land use; wildlife preservation; soil and water conservation; and the proper use and development of livestock. Participation of peasant farmers will be a key element of all these policies.

1.6.1.4 Resettlement and Villagization

Although recognizing the problems associated with previous resettlement programmes the Transitional Policy acknowledges that voluntary resettlement where it does not create conflict with local populations will be required to assist in relieving shortages of land and high population densities. However no programmes will be instituted during the transitional period. Where settlers on current schemes wish to return to their original areas they will be assisted. For those who wish to remain efforts will be made to promote goodwill between the settlers and the local peoples and to enhance their self-reliance.

No further villagization programmes will be instituted unless based on the free will of the people and only when the necessary infrastructure is in place.

1.6.2 Policy Framework Paper

September 1992 the Government presented its **Policy Framework Paper 1992/1993 - 1994/95 (PFP)** to the IMF and the World Bank as a major step in implementing its economic policy. The Policy will be implemented in three overlapping phases: stabilisation, structural reform and further structural reform.

It comprises a new macro-economic package which includes the devaluation of the Birr, improved incentives for the agricultural sector to produce and export a surplus and the promotion of sustained growth of the economy. The PFP includes the formulation of a **National Conservation Strategy** in its package of policies and strategies for structural adjustment.

Of the 18 policy areas covered in the PFP, 8 are dealt with directly or indirectly by the National Policy on Natural Resources and Environment. The linkages are indicated in tabular form below:

| PFP Policy Area | Related NCS Sectoral and Cross-Sectoral Programmes |
|---------------------------------------|-----------------------------------------------------------------------------------|
| (a) Sectoral Programmes: | |
| Environment | Improved Land Husbandry, Forestry, Biodiversity, Environmental Education |
| Agriculture | Sustainable Agriculture, Improved Land Husbandry, Forestry, Rangelands Management |
| Water Supply & Sewerage | Water Resources Development, Urban Environment |
| Mining | Mineral Resources Development |
| Energy | Energy Development |
| (b) Cross-Sectoral Programmes: | |
| Human Resource Development: | |
| - Education | Environmental Education |
| - Population | Population and Resources |
| Investment Policy and Industry | Mineral Development, Energy Development, Environmental Economics |
| Pricing and Distribution | Water Supplies, Minerals, Energy, Forest Industries, Environmental Economics |

1.6.3 The Long Term Strategy of Economic Development for Ethiopia

1.6.3.1 The Overall Strategy:

The country's long term economic development strategy is termed **Agricultural Development Led Industrialisation (ADLI)** and has been formulated within the framework of the Transitional Economic Policy. The goal of this strategy is to achieve rapid and sustainable economic growth by improving the productivity of the agricultural sector and building up an agro-based industrial sector which is labour intensive and utilizes local raw materials.

The export of firstly agricultural, but increasingly, mineral products, will be the main initiators of growth, which will in turn provide the means for a self-generating process of inter-dependant agricultural and industrial development. The strategy thus has two layers: "an outer crust of export led growth and an inner core of ADLI".

1.6.3.2 The Agricultural Development Strategy:

The ADLI strategy focuses primarily on agricultural development to be attained through improved productivity of peasant agriculture and the establishment of large scale private commercial agriculture particularly in the lowlands.

Peasant agriculture is envisaged to develop in three stages with stages 1 and 2 taking place in the short to medium term. Stage 1 involves improvement to existing crop and land husbandry practices and techniques. Stage 2 consists of the development of agricultural infrastructure such as small-scale irrigation and the introduction of fertilizers and agro-chemicals.

Stage 3 is a long term strategy which envisages increasing farm sizes which will occur as the population moves out of agriculture to non-agricultural activities. The strategy sees that the sustainability of agriculture in the long term can only be realized by sufficient industrial employment generation so as to absorb a rural population which is no longer able to enter into, or is moving out of, agriculture.

1.6.3.3 The Industrial Development Strategy:

The industrial development strategy relies predominantly on an expansion of the manufacturing sector directed primarily for the domestic market, using labour intensive technology and, to the maximum possible, domestically available raw materials. According to the ADLI strategy, people in the agricultural sector will become a major market for domestically produced consumer goods. Manufacture of goods for export will play a relatively minor role in industrial development strategy.

1.6.4 The National Population Policy

The **National Population Policy** was issued in April 1993. The policy has the following general objectives:

- (i) Closing the gap between high population growth and low economic productivity through planned reduction of population growth and increased economic returns;
- (ii) Expediting economic and social development processes through holistic and integrated development programmes designed to expedite the structural differentiation of the economy and employment;
- (iii) Reducing the rate of urban migration;

- (iv) Maintaining and improving the carrying capacity of the environment by taking appropriate environmental protection and conservation measures;
- (v) Raising the economic and social status of women by freeing them from the restrictions and drudgeries of traditional life and making it possible for them to participate productively in the community at large;
- (vi) Significantly improving the social and economic status of vulnerable groups (women, youth, children and the elderly).

Specific objectives of relevance to the NCS are:

- (i) Ensuring spatially balanced population distribution patterns with a view to maintaining environmental security and extending the scope of development activities;
- (ii) Improving productivity in agriculture and introducing off-farm non agricultural activities for the purpose of employment diversification;
- (iii) Mounting an effective country-wide population information and education programme addressing issues pertaining to the small family size and to its relationship with human welfare and environmental security.

1.6.5 The National Policy on Women

The **National Policy on Ethiopian Women** was issued in March 1993 and has the following objectives:

- (i) To ensure and respect women's rights to equality in every aspect of life;
- (ii) To create an environment which will enable women to equally initiate ideas and participate in the formulation and implementation of development and economic plans;
- (iii) To eliminate, step by step, centuries old gender based discriminatory attitudes and practices towards women;
- (iv) To ensure the supply of basic services necessary for women as well as for the overall development of society.

The policy stresses three major objectives which must be part of all other policies, plans or laws:

- (i) Laws, regulations, systems, policies and development plans that are issued by the Government shall ensure the equality of men and women. Special emphasis shall be given to the participation of rural women;
- (ii) Economic, social and political policies, programmes and activities shall ensure the equal access of men and women to the country's resources and the decision making process and benefit fully from all activities carried out by central and regional institutions;
- (iii) Development institutions, programmes and projects shall ensure women's access to and involvement in all interventions and activities.

1.7 THE FORMAT OF THE NATIONAL POLICY ON NATURAL RESOURCES AND THE ENVIRONMENT

This policy document comprises three main sections:

- Overall policy goals and objectives and a number of key guiding principles
- Cross sectoral policy objectives, principles and strategies
- Sectoral policy objectives, principles and strategies

Within the last two sections each cross sectoral or sectoral area is presented as a logical sequence flowing from a "*Situation Synopsis* " which leads to a "*Policy Objective* ". This leads to a set of "*Guiding Principles* " from which logically follows a set of "*Strategies* " for implementation. The strategies lead logically to a set of "*Prioritized Actions* " in Volume IV with a corresponding set of "*Investment Programmes, Components and Elements* " in Volume V.

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CHAPTER II

**THE NATIONAL POLICY
ON
NATURAL RESOURCES AND THE ENVIRONMENT**

2.1 SITUATION SYNOPSIS

The Transitional Government has established a macro economic policy and strategy framework. Sectoral development policies and strategies have been, or are currently being, formulated. Environmental sustainability is recognized in the national economic policy and strategy as a key pre-requisite for success. However there is as yet no overall comprehensive cross-sectoral and sectoral policy framework on natural resources and the environment to guide their sustainable development, use and management. Therefore given the current stage of the nation's political and policy development the time is most opportune for developing a comprehensive environmental policy on natural resources and the environment.

2.2 THE OVERALL POLICY GOAL

The overall policy goal is to *improve and enhance the health and quality of life of all Ethiopians and to promote sustainable social and economic development through the sound management and use of natural, human-made and cultural resources and the environment as a whole so as to meet the needs of the present generation without compromising the ability of future generations to meet their own needs.*

2.3 SPECIFIC POLICY OBJECTIVES

The policy seeks to:

1. *Ensure that essential ecological processes and life support systems are sustained, biological diversity is preserved and renewable natural resources are used in such a way that their regenerative and productive capabilities are maintained and where possible enhanced so that the satisfaction of the needs of future generations is not compromised; where this capability is already impaired to seek through appropriate interventions a restoration of that capability;*

2. *Ensure that non-renewable resources are so exploited that the benefits are extended as far into the future as can be managed, and minimize the negative impacts of their exploitation on the use and management of other natural resources and the environment;*
3. *Identify and develop natural resources that are currently under-utilized by finding new, and/or intensifying existing uses;*
4. *Incorporate the full economic, social and environmental costs and benefits of natural resource development into the planning, implementation and accounting processes by a more comprehensive valuation of the environment and the services it provides, and by due consideration of social and environmental costs and benefits which can not currently be measured in monetary terms;*
5. *Improve the environment of human settlements to satisfy the physical, social, economic, cultural and other needs of their inhabitants on a sustainable basis;*
6. *Prevent the pollution of land, air and water in the most cost effective way, so that, for example, if the cost of effective preventive intervention exceeds the benefits to the economy that would accrue from a polluting enterprise, that enterprise is disallowed;*
7. *Conserve, develop, sustainably manage and support Ethiopia's rich and diverse cultural heritage;*
8. *Ensure the empowerment and participation of the people and their organizations at all levels in environmental management activities; and*
9. *Raise public awareness and promote understanding of the essential linkages between environment and development.*

2.4 THE KEY GUIDING PRINCIPLES

Underlying these broad policy objectives are a number of key principles. Establishing and clearly defining these guiding principles is very important as they will shape all subsequent policy, strategy and programme formulations and their implementation. Sectoral and cross-sectoral policies and environmental elements of other macro policies will be checked against these principles to ensure consistency.

The key guiding principles are that:

- ◆ Every person has the right to live in a healthy environment.
- ◆ Sustainable environmental conditions and economic production systems are impossible in the absence of peace and personal security. The surest way of bringing this about is through the acquisition of power by communities to make their own decisions free from external forces on matters that affect their life and environment.
- ◆ The development, use and management of renewable resources should be sustainable.
- ◆ The use of non-renewable resources should be minimized and where possible their availability extended (eg. through recycling).
- ◆ Appropriate and affordable technologies which use renewable and non-renewable resources efficiently should be adopted, adapted, developed and disseminated.
- ◆ When a compromise between short term economic growth and long term environmental protection is necessary, then development activities should minimize degrading and polluting impacts on ecological and life support systems. When working out a compromise, it is better to err on the side of caution as rehabilitating a degraded environment is very expensive, and bringing back a species that has gone extinct is impossible.
- ◆ Full environmental and social costs (or benefits foregone or lost) that may result through damage to resources or the environment as a result of degradation or pollution should be incorporated into public and private sector planning and accounting, and minimized where possible.
- ◆ Market failures with regard to the pricing of natural, human-made and cultural resources, and failures in regulatory measures should be corrected through the assessment and establishment of user fees, taxes, tax reductions or incentives.
- ◆ Conditions that will support community and individual resource users to sustainably manage their own environment and resources should be created.

- ◆ As key actors in natural resource use and management, women should be treated equally with men and empowered to be totally involved in policy, programme and project design, decision making and implementation.
- ◆ Security of land and resource tenure is a fundamental requirement for sustainable natural resource management.
- ◆ Social equity should be assured particularly when allocating or alienating resource use and property rights.
- ◆ Regular and accurate assessment and monitoring of environmental conditions should be undertaken and the information widely disseminated among the population.
- ◆ Increased awareness and understanding of environmental and resource issues by policy makers, government officials and by the population should be promoted and the adoption of a "conservation culture" in environmental matters among all levels of society should be encouraged.
- ◆ Local, regional and international environmental interdependence should be recognized.
- ◆ Natural resource and environmental management activities should be integrated laterally across all sectors and vertically to all levels.
- ◆ Species and their variants have the right to continue existing, and are, or may be, useful now and for all generations to come.
- ◆ The wealth of crop and domestic animal as well as wild plant and animal germplasm is an invaluable and inalienable asset that must be cared for.
- ◆ The integrated implementation of cross-sectoral, sectoral, national and regional policies and strategies should be seen as a prerequisite to achieving the objectives of this Policy on Natural resources and the Environment,

CHAPTER III

CROSS SECTORAL POLICY OBJECTIVES, PRINCIPLES AND STRATEGIES

The integration of all sectors into a coherent and consistent system of planning, management and sustainable utilization of natural resources and the safeguarding of the environment is a pre-requisite for sustainable economic development. To accomplish this policies are needed which address cross-sectoral environmental management issues. The following cross-sectoral policies are prioritized based on two criteria: (i) the seriousness or urgency of the problem the policy is to address; and (ii) the potential contributions of the policy to the economy and social well being of the people and the integrity of the environment. Strategies are presented in the order of their priority for action.

Often a strategy formulated in the context of a sectoral or cross sectoral issue will have an impact on other sectoral or cross sectoral issues. To avoid repetition of statements, such strategies will be cross referenced in the document.

3.1 POPULATION GROWTH AND DISTRIBUTION AND ITS IMPACT ON NATURAL RESOURCES

Cross References: 3.5, 3.11, 4.1, 4.2, 4.3, 4.4, 4.5, 4.7 and 4.8.

Situation Synopsis:

The current (1993) estimated population of 53.6 million is increasing at an annual rate of 3.1% and if current trends in fertility and mortality rates continue then the population can be expected to grow at a rate of 3.6% during the second decade of the next century.

In terms of spatial distribution some 88% of the population live in the Highlands which constitute only 43% of the country's land area.

At current rates of population growth and existing levels of agricultural technology the Ethiopian Master Land Use Plan estimated that by the year 2010 three quarters of the pre-1987 awrajas will be unable to meet their subsistence food needs. Another population-resource analysis estimated that a livestock crisis will occur when all potential grazing land will be fully utilized in 2004 and a cropland

crisis by 2017 when all potential cropland will be utilized. These estimates do not take into account declining resource productivity caused by land degradation and deforestation caused in turn by the ever increasing pressure on the natural resource base.

In 1993 the Transitional Government published its National Population Policy which aims at harmonizing the interrelationships between population dynamics and other development factors through a planned reduction of population growth. Of importance to the National Policy on Natural Resources and the Environment is the objective of maintaining and improving the carrying capacity of the environment by taking appropriate protection, improvement and conservation measures. There is therefore a direct linkage between the National Population Policy and the National Policy on Natural Resources and the Environment.

Objective:

To maintain and improve the human carrying capacity of the environment by managing population growth and distribution in such a way as to match people and resources in a manner which is environmentally sound, economically sustainable, both economically and biologically productive and socially and culturally acceptable.

The Guiding Principles are that:

- ◆ as there is a great deal of empirical evidence that indicates that fertility rates decline as women's level of education rises young women should be given greater access to education and literacy programmes,
- ◆ to achieve a sustainability of lifestyles, population planning, resources management and rehabilitation of and care for the environment should be integrated,
- ◆ the issues of poverty, health, education and empowerment are interlinked with those of population growth, availability and access to resources and the wellbeing of the environment and should therefore be tackled simultaneously,
- ◆ the decisive role of women in managing population growth and in looking after the environment and their right to equal opportunities and responsibilities with men should be recognized in all planning, implementation and management activities,

- ◆ since virtually all values and the discipline of work are established during childhood, the education and care of children should be given due attention, especially in the context of development and the sustainable use of natural resources, and
- ◆ voluntary migration and resettlement, where it does not create conflict with local populations will be required to assist in reducing population pressure and relieving shortages of land, but these should be on an entirely voluntary basis, the role of government being that of facilitation through the provision of basic infrastructure, social services and technical support.

The Strategies are to:

1. Increase access to family planning and maternal and child health care programmes, targeting both men and women in order to lower the population growth rate to make it compatible with economic growth and to relieve pressure on natural resources and social services.
2. Complete the empowerment of women especially to enable their full participation in population and environmental decision making, resource ownership and management.
3. Integrate population concerns into all programme and project planning and implementation.
4. Give a high priority to raising the status of women by increasing female participation in the education system at all levels,
5. Give high priority to the welfare and education of children, especially to the inculcation of the values required for hard work and the sustainable use of natural resources, as well as for the appreciation of the need for a balance between population and the economy.
6. Promote off farm income generating programmes which aim at the alleviation of poverty, especially amongst women and the landless.
7. Undertake a comprehensive and nationwide assessment of the human carrying capacity of the natural resources and the environment to identify potential areas for voluntary resettlement.
8. Integrate national, regional and local population plans with the strategies for sustainable development of natural resources for

increased agricultural production specified in the sectoral policy areas I, II, III, IV, V and VI found in chapter 4 of this national policy on natural resources and the environment.

3.2 PEOPLES' PARTICIPATION IN SUSTAINABLE DEVELOPMENT AND MANAGEMENT OF NATURAL, HUMAN MADE AND CULTURAL RESOURCES AND THE ENVIRONMENT

Cross References: 3.5, 3.6, 3.9, 3.10, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, 4.11 and 4.12.

Situation Synopsis:

During the long history of the feudal system, social, economic and cultural constraints were put in place to ensure the subjugation of the peasantry and popular participation was not allowed beyond religious and ritual ceremonies. The creation of Peasant Associations in 1976 with the power to allocate and control their own resources created an agrarian structure which established local units of administration and local empowerment.

However from 1977 onwards the central organs of the state increasingly assumed control of resource use and management. Policies which were formulated and implemented from the centre such as collectivization, villagization, resettlement, state controlled grain marketing and set quotas, campaigns for re-forestation and soil conservation and prohibitions on tree cutting all combined to usurp local control by communities and individual farmers over the use and management of their resources.

Between the fall of the Military Government and the consolidation of power by the Transitional Government, the pent up feeling of resentment of the rural public was released resulting in much forest and wildlife destruction. Now, some genuine popular participation is taking place, and the scene seems set for consolidating it. However the previous soil conservation and community forestry campaigns have left a legacy of mistrust on the part of farmers towards outside "assistance" which will have to be overcome in implementing any new participatory initiatives

Objectives:

To ensure sustainability by empowering and supporting natural resources users at all levels to be in charge of their own development efforts and thus to develop, use and manage their natural, human-made and cultural resources responsibly.

The Guiding Principles are that:

- ◆ effective peoples' participation depends on free and open communication among local communities, resource management professionals and government decision makers,
- ◆ effective participation involves a genuine joint effort to set resource management priorities and to resolve resource use conflicts,
- ◆ effective participation requires a clear definition of the distinct decision making powers and responsibilities of local communities, resource management professionals and government institutions,
- ◆ the local management of resources maximises access to relevant specific knowledge and to concerned user responsibility,
- ◆ all phases of environmental and resource development and management, from project conception through design and implementation, to monitoring and evaluation should be undertaken based on the decisions of the resource users and managers,
- ◆ resources users and managers should be assisted in identifying and mobilizing existing and new resources to implement decisions emanating from the diagnostic and design process led by themselves,
- ◆ to minimize needs for new resources and maximise harmonization existing community and local institutional mechanisms should be used and built upon wherever possible, and
- ◆ local indigenous knowledge should be identified, evaluated, used and/or developed wherever possible.

The Strategies are to:

1. Develop the necessary legislation, training and financial support to empower local communities with the ability to employ their own development workers to prevent the manipulated imposition of external decisions in the name of participation, and to ensure genuine grass roots decisions in resources and environmental management with the process repeating at all organisational levels all the way upto the central government, each higher level taking decisions on issues that arise at that level.

2. Develop effective methods of popular participation in the planning and implementation of environmental and resource use and management projects and programmes.
3. Authorize all levels of organisation to raise funds locally from the use of natural resources to fund the development, management and sustainable use of those resources.
4. Reorient the resource management professionals employed in natural resource and environmental extension programmes to embrace participatory development, and strengthen their communication skills so as to more effectively disseminate both the results of scientific research and the practical experience of local farmers.
5. Increase the number of women extension agents in the field of natural resource and environmental management.
6. Ensure that Development Agents, especially those working in areas occupied by disadvantaged minorities and communities with distinctive life styles are drawn from among them.
7. Design programmes that involve and benefit the most disadvantaged groups, particularly women, children, the disabled and the landless.
8. Ensure information flow among all levels of organisation including the central and regional Governments and the people at the grass roots by developing a two way mechanism for data collection and dissemination.

3.3 RURAL LAND AND NATURAL RESOURCE TENURE AND ACCESS RIGHTS

Cross References: 3.4, 3.5, 4.1, 4.2, 4.3, 4.4, 4.5, 4.9, 4.12 and 5.2.

Situation Synopsis:

The Land Reform of 1975 which gave "land to the tiller" was instrumental in providing security of tenure to existing land users, bringing an end to grain, labour and other contributions to land lords in southern Ethiopia and to the constant litigation in the northern rist areas. However the agrarian policies from 1977 onwards and the frequent re-allocations of land they caused, increasingly combined to give the land users strong feelings of insecurity of land tenure. The

resolutions of the 11th Plenum of the Workers Party of Ethiopia in March 1990 revoked most of these agrarian policies. Further land allocations were stopped although in some areas where discredited Peasant Association committees were unable to prevent it, considerable areas of communal land were ploughed up by individuals who were either landless or took the chance to acquire more land.

The old practice of considering woody plants open property resources for the taking by anyone has so far made it impossible for peasants to plant trees and for the state to look after the trees it had forced the peasants to plant. This has reduced security of tree tenure and caused the deforestation of the country.

Since March 1990 no further actions have been taken with respect to rural land tenure. The policy of the Transitional Government with respect to rural land tenure is to defer any new decisions until after a constitution comes into force and a referendum on the issue is carried out. However anticipating it and judging by the views being expressed by political parties and farming communities it seems that security of tenure is assured. This promise of security of tenure has encouraged a country-wide spate of tree planting.

Objective:

To provide security of tenure for land and natural resource users by clearly defining and strengthening land and other natural resource tenure rights and responsibilities so as to support sustainable agricultural, pastoral, forestry and fisheries production and a sustainable urban environment

The Guiding Principles are that:

- ◆ pending the national referendum and within the guidelines established in the Economic Policy of the Transitional Period, communities should decide on the rural land tenure system they prefer,
- ◆ a comprehensive rural land policy should encompass property rights not only to rural land (in the strict sense) but also to other renewable natural resources (eg. trees, water, wildlife and rangelands),
- ◆ where customary rights of land and natural resource tenure and use which are constitutionally acceptable and socially equitable are preferred by local communities, these should be recognized and protected where ever possible,
- ◆ where constitutionally acceptable and socially equitable traditional community institutions for resource management exist and are

preferred by local communities then these should be legally empowered to regulate the use and management of natural resource in their areas,

- ◆ any proposed alienation of legally held individual or communal rights by the state should be subject to judicial review.

The Strategies are to:

1. To undertake as a matter of urgency studies, consultations and discussions into existing and potential mechanisms for providing security of access to and tenure of land and other natural resources.
2. To study the experience of other countries with similar socio-economic conditions with respect to the institutional structures, legal systems and any other interventions for the cost effective administration of land tenure systems.
3. As a basis for formulating National and Regional Strategic Land Use Plans, undertake a national survey of the major categories of existing land users and uses: eg. in smallholder agriculture; in communal lands of pastoralists, among agro-pastoralists and shifting cultivators; in land under different government ministries; in designated state forests, National Parks and other protected areas; in designated urban areas, etc.

3.4 A NATIONAL LAND RESOURCE USE POLICY AND STRATEGIC PHYSICAL LAND USE PLANNING

Cross References: 3.3, 4.1, 4.2, 4.3, 4.4, 4.5, 4.9 and 4.12.

Situation Synopsis:

Hitherto land development has not occurred within a medium to long term strategic planning framework. In the state sector this has often resulted in uncoordinated land development with conflicts among the objectives of various state sector agencies. For example soda extraction from Lake Abiyata is in direct conflict with the conservation objectives of the Abiyata-Shala Lakes National Park, whilst the Bebeke State Coffee Farm was developed in one of the Priority State Forest Areas.

There have been state sector land developments undertaken with little or no consideration for or participation of existing peasant or pastoral sector users and

their land use systems. Examples of these include the delineation of National Parks in areas used by pastoralists and agro-pastoralists, development of large state fuelwood plantations in areas of mixed smallholder agriculture, large scale irrigation schemes in vital pastoralist dry season grazing areas, the alienation of large areas of smallholder agriculture for state farms, and the establishment of resettlement schemes in areas unsuitable for rainfed agriculture.

There has been uncontrolled expansion of smallholder agriculture into areas either used by pastoralists for wet season grazing or by the state for the conservation of natural forest or of wildlife. Examples include the expansion of rainfed agriculture into the grazing areas of the Afar in eastern South and North Wello Zones and into those of the Somali Pastoralists in western and southern areas of Jigjiga Zone; the expansion of agriculture into the natural forests in the Kefa Region and the Bale, Arsi and Illubabor Zones in the Oromiya Region; and the intrusion of livestock into the Bale Mountains National Park.

Objectives:

To achieve coordinated, integrated and participatory local plans and land use decisions to achieve ecologically, socially and economically sustainable state and private sector land utilization.

The Guiding Principles are:

- ◆ Using the National Policy on Natural Resources and the Environment as a basis, National and Regional Strategic Physical Land Use Plans should only define broad land use and land user categories together with generalized resource management recommendations which can then be used to guide the formulation of detailed local resource use and management plans,
- ◆ recommended land use categories should be based on the criteria of both biological, chemical and-physical factors (carrying capacity, vulnerability to erosion, wetlands values, biodiversity values, pollution hazards, etc) and social and economic considerations,
- ◆ given the need to facilitate and harmonize potentially conflicting state and private commercial and communal sectoral demands on natural resources and the environment the institutional responsibility for undertaking strategic land use planning at the central and regional level should not be within a single line ministry but in an agency which can be impartial to all.

The Strategies are to:

1. Collate all national surveys of natural resources, farming and pastoral systems and the results of the existing user survey, and define the most appropriate broad land use categories for use in the national and in the regional strategic land use plans.
2. Establish broad management guidelines for specific types of natural resource located in specific agro-ecological zones and farming systems for each of the broad land use categories.
3. Develop draft Regional Strategic Land Use Plans based on each region's strategy for natural resources and the environment and through a process of local, wereda and zonal level consultations.
4. Develop a draft National Strategic Land Use Plan based on the draft Regional Strategic Land Use Plans and the National Policy on Natural Resources and the Environment in close collaboration and agreement with regional administrations.
5. Following agreement between central government and regional administrations finalize the Regional and National Strategic Land Use Plans.
6. Use the Regional Strategic Land Use Plans to coordinate and integrate state, private commercial and community sector land utilization.
7. Within the overall framework of the Regional Strategic Land Use Plans assist communities develop their own land use plans and land and water management agreements.

**3.5 INTEGRATION OF SOCIAL, CULTURAL AND GENDER ISSUES
IN SUSTAINABLE RESOURCE AND ENVIRONMENTAL
MANAGEMENT**

Cross References: 3.1, 3.2, 3.9, 3.11, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7 and 4.9.

Situation Synopsis:

It is now clear that a major characteristic of the rural programmes and campaigns which were implemented between 1977 and 1991 was their total lack of social

sustainability. In particular the villagization and producer cooperative programmes and the physical soil conservation works and community forest campaigns have all but totally collapsed. Social and cultural concerns were in most cases disregarded. In addition a number of large scale irrigation projects (in particular in the middle and lower Awash Valley) developed over the past three decades have had very severe negative social impacts on pastoral societies. Efforts to integrate pastoralists into these large capital projects have failed.

Women play a vital role in the Ethiopian society not only as child bearers but as main actors in the country's economic, social, cultural and political sectors. However, despite this immense contribution women do not usually benefit fully from the fruits of their labour and are not given an equal chance to compete with men.

Objective:

To ensure that the disadvantaged stakeholders, especially local communities and women at all levels of society are fully involved in the development, management and use of the natural, human-made and cultural resources and the environment and thus social, cultural and economic sustainability is achieved.

The Guiding Principles are that:

- ◆ because the planning and execution of projects in sustainable development are of a long term nature, peace and security as well as a feeling that the future does not hold surprises are essential and in order to achieve this, communities should be in full charge of their own affairs of peace, security and administration,
- ◆ all policies, programmes and projects should include impact assessments to maximise equity for economic, ethnic, social, cultural, gender and age groups, especially the socially disadvantaged: eg. immigrants, the disabled, lower castes and the poorest,
- ◆ formal and informal training in environmental and resource management should include methodologies and tools for analysis and elimination of inequities, and
- ◆ environmental awareness and public education programmes should include both men and women in all social, economic and cultural groupings of society.

The Strategies are to:

1. Place administration, including regulation, planning and implementation in the control of communities, and open to annual popular review all administrative, managerial, planning and executing activities at all levels of government ensuring that all social and economic groupings and all women and men and as appropriate, all youth and children are fully involved.
2. With the participation of the users, study and, where indicated, improve existing and adopt, adapt or generate new appropriate technologies to lighten the household chores and the farming and herding activities of women.
3. Develop effective procedures and methods of social, economic and cultural impact assessment for policies, programmes and projects.
4. Collect and dis-aggregate gender information related to the environment and to natural and manmade resource use and management.
5. Facilitate the participation of women across all sections of society in training, public awareness campaigns, formal and informal education and decision making in environment and resource management.

3.6 ENVIRONMENTAL ECONOMICS, MACRO ECONOMIC POLICY AND NATIONAL ECONOMIC DEVELOPMENT

Cross References: 3.4, 4.1, 4.3, 4.3, 4.4, 4.5, 4.6, 4.7 and 4.8.

3.6.1 Environmental Valuation and Accounting

Situation Synopsis:

The National Accounts are used to measure the value of the country's output, ie. those goods and services which have a market price traded over one year. The normally quoted measure is the Gross Domestic Product (GDP). This measure is "gross" because it does not account for the depreciation of capital assets. To calculate the Net National Product (NNP) or the Net National Income (NNI) consumption or depreciation of capital assets used in production must be deducted from the GDP. The current methodology depreciates only human made capital and not the country's natural capital: soil, forests, water, minerals, etc.

However the depletion of such renewable resources as forests through logging, or of such non-renewable resources as gold through mining are shown in the National Accounts as income and not as depreciation of capital. Soil erosion is loss of natural capital but is not deducted from the national accounts. It is estimated that deforestation represents an annual loss of natural capital worth EB138 million per annum and that soil erosion in 1990 represented a loss of natural capital valued EB60 million. The National Accounts should therefore be adjusted to reflect this depreciation of natural capital if they are to truly reflect the nation's sustainable income.

In the economic appraisal of a development project the costs of environmental and natural resource benefits foregone as a result of the project's activities are rarely included in the calculations. For example the value of the loss of wet season grazing and thus the value of livestock production foregone in the middle and lower Awash Valley should be set as a cost against the development of irrigation. Similarly the value of the biodiversity loss should be set against the value of the soda ash extracted from Lake Abiyata.

Objective:

To integrate environmental costs and benefits into economic planning, development and accounting at all levels of government in order to reflect the true costs and benefits of development and to ensure that the full costs of using or misusing the environment and natural resources are fully reflected in economic assessments.

The Guiding Principles are that:

- ◆ environmental costs and benefits including the values of benefits foregone which are thus costs, should be included in the development planning process including programme and project preparation,
- ◆ accounting procedures at the macro and micro levels should take environmental gains and losses into consideration,
- ◆ even though estimating environmental costs and benefits is often imprecise both because of the lack of accurate information and because of the lack of standardized methodologies, nevertheless these costs should be accounted for using the best available information and methodologies,
- ◆ using a renewable natural resource beyond the capacity of that resource to renew itself should be recognized as a reduction of the

nation's natural capital assets rather than as revenue. Thus depletion or degradation of natural resources should enter the National Accounts as depreciation of capital,

- ◆ however until internationally recognized environmental accounting procedures are established an effective approach should be the development of a set of "satellite" environmental accounts,
- ◆ because environmental impacts have long time spans, usually to be reckoned in decades, the time frame in economic analysis should reflect this.

The Strategies are to:

1. Initiate a pilot project on the application of environmental accounting in Ethiopia.
2. Develop a capacity in environmental economics in the Ministry of Planning and Economic Development, the Ministry of Natural Resources Development and Environmental Protection, in line Ministries, in the National Environmental Protection Authority, in Institutes of Higher Learning and in corresponding regional institutions in order to be able to more effectively develop and review project proposals, national and regional resource allocations, and national accounts to ensure that the costs of natural capital depreciated and the value of benefits forgone are taken into account.
3. Develop a capacity in the Ministry of Planning and Economic Development and its regional bureaus to be able to prepare satellite environmental accounts as part of the National Accounts.
4. Explicitly consider in 5, 10, 50 and 100 year scenarios the economic costs and benefits to the environment in the planning of all major development programmes, projects and activities.

3.6.2 Correcting Market Failures and Avoiding Policy Failures

Situation Synopsis:

In 1975 an economically "laissez faire" centralist government was replaced by a "command economy" centralist government. In the post-1975 period despite massive intervention and regulation by the state in the economy as a whole and

the management of the environment in particular, natural resource and environmental degradation continued unabated. These government interventions and their negative environmental impacts can be termed "Government" or "Policy" Failures:

Perhaps the most important policy and regulatory interventions in terms of their negative impacts on the environment were those which increasingly and cumulatively eroded the tenure rights of individuals and communities to use, manage and develop their own resources. This resulted in a total lack of incentives to invest in resource conservation and development measures.

The new economic policy proposes a change to a mixed market economy where generally the "market" will determine prices. However in Ethiopia markets for natural resource and environmental goods and services are either poorly or not all developed, and thus either no prices or incorrect prices prevail. These "market failures" provide, therefore, a rationale for government intervention. But government interventions to correct market failures need to avoid the policy failures outlined above.

Objective:

In situations where free market prices fail to reflect the full costs to society, to ensure that renewable natural resources degradation and environmental damage arising from pollution, erosion and other factors are rectified by government interventions including policies and legal frameworks which clearly define and uphold resource tenure rights, through policy instruments such as taxes, incentives and charges, through regulations which are cost effectively enforceable and through investment programmes for providing those "public goods" which the private sector would not or is unable to provide.

The Guiding Principles are that:

- ◆ a priority role of government in a mixed or market economy should be to intervene through policy and regulatory means when markets fail in the allocation and efficient use of natural resources and in safeguarding the environment rather than be an implementing agency for resource management activities,
- ◆ when government intervenes in or regulates the market its intervention should outperform the free market or at least improve resource allocation,

- ◆ the benefits of any government intervention or regulation should exceed the costs of its planning, implementation, monitoring and enforcement as well as any indirect costs that may be inflicted by the intervention on other parts of the economy,
- ◆ government interventions in terms of investment programmes should focus on the provision of "public goods" which the private sector will not or can not provide such as infrastructure, education, training, credit, research, and technology development, extension and the development of selected key resources (eg. large scale hydro power development, strategic minerals),
- ◆ in Ethiopia a distinction needs to be made between the private commercial sector which aims to maximize cash income and which is still small and the community sector which, though all private, aims at a self-sufficient or subsistence production and is by far the largest and most important producer and consumer but which operates outside the formal economic and pricing system and market structure,
- ◆ it follows therefor that a key role for government in dealing with "market failures" in this situation should be the establishment of a legal framework and democratic institutional structures which provide clearly defined and secure natural resource access and tenure rights and a framework for constructive partnership, dialogue and negotiation between government and resource users and developers in the community sector,
- ◆ where possible the tax structure should be such that it provides to the private commercial and to the community sectors positive incentives for environmentally desirable activities and negative incentives for actions which damage the environment,
- ◆ conditional contracts, leases, concessions and performance bonds should also be used to regulate the private commercial sector's use and management of natural resources,
- ◆ Government should adopt the "Polluter Pays Principle" which requires for example that before being allowed to operate a factory, a processing plant or a farm the operator be made responsible for any costs or damage to the environment,
- ◆ Government should adopt the "User Pays Principle" which requires that prices reflect the full cost to the country as a whole of using a

resource such as charging appropriate stumpage fees for logging trees, tourist fees for visiting protected areas and water charges for irrigation,

- ◆ resource taxes in the same product group should be used in a differentiated way between different products which have differing environmental impacts: eg. diesel might be taxed more than electricity which is derived from hydro power,
- ◆ subsidies should be selectively used to cover costs of achieving sustainability above the amount that specific resource users can be expected to pay: eg. poor farmers constructing soil conservation structures, however
- ◆ a careful environmental, social and economic impact assessment should be undertaken to determine any potential negative impacts wherever subsidies are so used, and the types or levels of subsidy which encourage waste or misuse should be avoided.

The Strategies are to:

1. Withdraw or reform government policy interventions that have been shown previously to result in environmental mis-management and degradation.
2. Establish a formal system of review to evaluate all government policies and public investment proposals in order to prevent direct and indirect environmental damage.
3. Develop mechanisms to reduce the implementation responsibilities and costs to government and non-government agencies as well as to improve effectiveness by involving local communities and the peasant sector in natural resource management and environmental protection of local significance.
4. Assess and charge the appropriate level of user and access fees and performance bonds eg. to national parks, for use of closed grazing areas, for water use and consumption and for logging in order to sustainably maintain the resource or the environment, and identify the appropriate target groups and assess and provide subsidies, taxes or tax concessions to achieve the sustainability of the use of natural resources and the environment (natural and human-made): eg. soil

conservation works, agro-chemicals, installing pollution treatment facilities.

5. Explore the possibility of using at the national, regional or community levels medium term development concessions with conditionalities to the private sector by granting exclusive rights to use a public or community resource, and so incorporate the public or community costs of resource management into the costs of the user: eg. private lodges in national parks, hunting concessions issued by wereda councils in controlled hunting areas within their domain.
6. Develop the capacity of government agencies to analyze the impact of user fees and incentives and to monitor contracts, leases, concessions and performance bonds used for achieving sustainable resource management and environmental protection.
7. Improve the capacity of the tax administration at the national and regional levels to effectively assess, collect and handle proposed tax incentives/dis-incentives used to encourage sustainable resource use and management.

3.7 ENVIRONMENTAL INFORMATION SYSTEMS

Cross References: 3.8, 3.9, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, 4.11 and 4.12

Situation Synopsis:

The sustainable development and management of natural resources, the urban environment and cultural heritage requires information. Currently there is considerable information but it is scattered in various agencies. It is often not available and often knowledge of its existence is confined to a few people if at all. A number of specialized computer based resource data management and geographical information systems have been established and more are proposed. At the present time the content of their information is not widely known and a formal system for information exchange among them does not exist. Neither the documents nor the computerized systems are thus available to the decision makers.

Objective:

To collect, analyze, store and disseminate on a continuous basis, reliable information relating to resource and environmental issues, including the assessment and conservation of natural resources, the condition of the urban and industrial environment, the state of the nation's cultural heritage and the quality of its life support systems.

The Guiding Principles are that:

- ◆ the right to live in a clean and healthy environment carries with it the right to be informed about environmental issues,
- ◆ environmental information should be available as a legal right to all interested parties except where the release of such information would compromise national security or the intellectual rights of local communities,
- ◆ information generation should be based on an identification of user needs: i.e. it should be demand driven,
- ◆ the introduction of new information technologies should be appropriate and compatible with the information needs of the country,
- ◆ all environmental data collection and analysis and information dissemination should be coordinated and as far as possible standardized but not centralized,
- ◆ the primary institutional responsibility for specialized data collection should remain in the concerned sectoral ministry or agency, but
- ◆ nevertheless there should be a central point or agency at which it is possible to have access to widely used information and to ascertain the type and location of any specialized data and information.

The Strategies are to:

1. Provide clear legislation and guidelines on environmental data and information generation, collection and dissemination specifying the nature of restrictions required (if any).
2. Designate a central point or agency to collate, store and disseminate information on the types and whereabouts of any special natural,

human made, cultural and socio-economic or environmental data or information and to develop a country-wide environmental information network.

3. Strengthen specialized environmental data and information collection agencies and units through training and logistical support and formally link them to the central information network.
4. Document, evaluate, store, and, subject to the respect of community intellectual rights, disseminate and utilize indigenous and traditional knowledge and technology of resource use and management and environmental protection.

3.8 ENVIRONMENTAL RESEARCH FOR SUSTAINABLE DEVELOPMENT

Cross References: 3.7, 3.9, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6

Situation Synopsis:

Whilst there has been some effort to cater for research at the sectoral level (eg. soils, water, forestry, etc) this is usually weak, especially in the forestry sector, and there are a number of deficiencies with respect to cross-sectoral research in the field of natural resource and environment. In particular there is a need to undertake research into the complex and inter-related fields of resource degradation and poverty, government policies, population pressure on resources and the need for resource use and management systems to change, environmental economics, gender relations in the context of resource use, the management of industrial effluent and water pollution and the establishment of safe standards.

The linkages among "strategic research" which addresses issues wider than those specific to a set of field conditions and whose outputs are usually knowledge from which can be drawn technologies, "applied research" which generates technologies from a body of knowledge and "adaptive research" which adjusts technologies to specific agro-ecological and socio-economic conditions have been weak. All three need to be more developed and functionally dovetailed.

Objective:

To carry out demand driven strategic, basic and applied research required for the sustainable, environmentally sound, biologically and economically productive and socially and culturally acceptable use, development and management of the nation's natural, human made and cultural resources.

The Guiding Principles are that:

- ◆ strategic, basic and applied research should be undertaken within the context of an overall integrated research system,
- ◆ strategic research should aim at identifying the social, economic and technical factors which influence resource management,
- ◆ environmental research programmes for technology generation and application should be demand driven and prioritized,
- ◆ it is important therefore that as well as being technically competent researchers are familiar with the agro-ecological and socio-economic conditions of the potential end users,
- ◆ there should be a system of monitoring and feed back on how research outputs have performed in practice,
- ◆ there should be an appropriate information exchange system and institutional structure which facilitate closer inter-action among farmers, pastoralists, government professionals, development NGO's and researchers,
- ◆ research on appropriate technologies should be conducted through a partnership between scientists and potential end users, so as to benefit from the universal knowledge of the former in science and technology and the unique knowledge of the latter of the very often site specific conditions which obtain in Ethiopia,
- ◆ existing traditional systems of research and learning should be co-opted into a new system which incorporates both modern and traditional components, and
- ◆ existing government and non-government research organizations and agencies should be fully utilized before new ones are created.

The Strategies are to:

1. Establish an Environmental Research Fund to support strategic, applied and adaptive research programmes and projects on a contractual basis.

2. Establish Science and Technology Associations in all communities to identify and support their traditional systems of research and development and provide a channel for feed back of information concerning the suitability or otherwise of research outputs.
3. Promote and support applied and adaptive research and development programmes to adopt, adapt or generate appropriate technologies, including the use and/or incorporation of indigenous technologies, for sustainable environmental management and resource use.
4. Support environmental research by non-government agencies (eg. Universities) through research contracts, and establish linkages with relevant international research and development institutions, universities and other institutions with proven experience.
5. Support traditional and rural institutions of science and technology by building in them the capacity to record and report results.

3.9 SCIENCE AND TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

Cross References: 3.2, 3.3, 3.5 and 3.7

Situation Synopsis:

Developments in science and technology underlie any economic or socio-political development. It is thus critical that a country consciously develops a strategy for science and technology, especially if it wants its development to be sustainable.

Ethiopia has two parallel systems of science and technology: firstly the traditional system which services virtually the whole of the peasant agricultural and pastoralist sector, and virtually all the crafts and cottage industries, and secondly the modern sectors, which serves only the few factories, transportation system and modern installations. The latter enjoys formal recognition and government support, whilst the former is usually ignored and even suppressed. The net result is that in spite of its pervasive application, it is weakened without even a mere notice of the fact being formally made. For example, when the situation of crafts was studied in Tigray by the Tigray Peoples' Liberation Front in the struggle years, it was found that blacksmithing had come to a virtual stop because years of neglect had made anvils unavailable and there were less than 20 in the whole region! The situation was presumably roughly the same throughout the whole of Ethiopia. It may even still be so; nobody has studied the issue.

Environmental, social and cultural conditions vary considerably within Ethiopia and a new technology may or may not fit in a given setting. Even an existing technology may fail to fit in a given society because of changes that have taken place. The ultimate test for suitability is its acceptance by the people.

Objective:

To support and help evolve the existing traditional system of science and technology and to select and introduce modern science and technology ensuring that the two systems are mutually supportive of each other and to lead them towards a new synthesis for a sustainable economic, social and cultural development.

The Guiding Principles are:

- ◆ the traditional system of science and technology, on which most Ethiopians depend, should have a high priority of support from both government and the public,
- ◆ this support should include breaking down the barriers in the form of castes, eg. among blacksmiths, potters and tanners, and the correcting of deficiencies,
- ◆ the choice of a new technology should be based on its suitability to the natural environment, its ability to solve the problem as realized by the potential users (not the makers) and to fit in with the other existing technologies (new and traditional) in combination with which it will be used, the availability of appropriate raw materials, the existing knowledge and skills of the potential users, their financial capability, their socio-cultural conditions and other related variables,
- ◆ because it will be difficult to make *a priori* decisions on the successful performance of a new technology due to the many and varied considerations, its introduction should be made on a pilot basis in trials involving a large enough sample of users,
- ◆ because the monopolization of a technology by a section of the population produces entrenched advantage if associated with power, or entrenched disadvantage if associated with weakness, care should thus be taken to ensure that new technologies do not exacerbate or even create inequities,

- ◆ in particular since men tend to run new technologies even when aimed at the traditional work of women, e.g. men run grinding mills, a conscious effort should be made to ensure women's access to technology.
- ◆ the interests of both users and non-users should be taken into consideration before technologies are disseminated and promoted to ensure that the latter are not adversely affected,
- ◆ because a genuine self-sustaining development is not possible if there is complete dependence on imported technologies, technology generation within the country should be fostered,
- ◆ because a strong scientific base is essential to evaluate and strengthen traditional technologies and to generate new ones, higher education and research in all fields of science should be fostered, however
- ◆ there should be periodic reviews to identify particular fields of science and technology in which to invest more effort either to strengthen sectors of Ethiopia's comparative advantage, or emerging fields in which Ethiopia could compete with the rest of the world by starting early at the formative stage of the science and/or technology and the chosen sectors should enjoy special attention, and so
- ◆ the capacity to monitor developments throughout the world should be developed in order to obtain information on them on a continuing basis as well as to alert the appropriate institutions, organisations, ministries, or sections of the public on these developments.

The Strategies are to:

1. Foster and financially and logistically support the development of Science and Technology Associations from the community up to the national level to document, review and recommend developments on science and technology.
2. Support existing and establish new institutions of research and development in science and technology as recommended by the Science and Technology Associations, getting the directions and priorities of their research from these Associations.

3. Ensure that empirical knowledge and technology existing in communities is fully considered and integrated with modern knowledge and technology in the planning and execution of projects that affect the environment and/or are aimed at bringing about development.
4. Establish an information centre for new technologies which will keep updating the information base of these societies, whose recommendations on what new technologies to adopt will be given due weight in decision making on technology research and imports,
5. Establish credit schemes and help develop markets for supporting artisans.
6. Foster the development of artisan guilds to ensure standards of quality and access to credits, raw materials and markets.
7. Establish a monitoring centre for new technologies and products to provide an early warning system about technological developments in the world that would affect Ethiopia beneficially or adversely, or ones that are new and appropriate for Ethiopia to join in their further development.

3.10 ENVIRONMENTAL IMPACT ASSESSMENT OF POLICIES, PROGRAMMES AND PROJECTS

Cross References: 3.1, 3.2, 3.3, 3.5, 3.6, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, 4.12

Situation Synopsis:

Currently there is no formal system requiring environmental impact assessments on policies, programmes or projects. Present requirements for the incorporation of environmental concerns in development planning and implementation are ad hoc and not coordinated. Thus developers in urban areas may be called upon to give details of industrial processes under the town planning legislation. EVDSA now incorporates environmental and social impact assessments in its River Basin Master Plans. The Ministry of Mines and Energy has draft mining regulations which includes environmental protection requirements as does the draft Water Code. However there is no overall coordination or supervision of environmental impact assessment, and no legal requirements for environmental impact statements or for environmental audits.

Increasingly international and bi-lateral funding and development agencies are requiring some formal environmental impact assessment as part of the project cycle.

Experience from other countries where environmental impact assessment is a formal requirement indicates that the usefulness of EIA is considerably enhanced if it adequately involves the private sector and local community participation.

Objective:

To provide a system of Environmental Impact Assessment (EIA) and Environmental Audit so that adverse environmental impacts can be foreseen, monitored, eliminated or at least mitigated and environmental benefits are enhanced.

The Guiding Principles are that:

- ◆ the fundamental purpose of Environmental Impact Assessment is to provide a framework for the systematic consideration of environmental management and planning concerns early in the development planning process,
- ◆ Environmental impact assessments should not consider only physical and biological impacts but also address social, socio-economic, political and cultural conditions,
- ◆ public and private sector developments should recognize any environmental impacts early and their containment incorporated into the development design process,
- ◆ public consultation is an integral part of EIA and EIA procedures should make provision for both an independent review and public comment before consideration by decision makers,
- ◆ an environmental impact statement should always include mitigation plans for environmental management problems and contingency plans in case of accidents,
- ◆ at specified intervals during project implementation environmental audits including monitoring, inspections and record keeping should be mandatory for activities where these have been required by the Environmental Impact Statement,

- ◆ the environmental impact assessment process should be administered, coordinated and monitored independently of institutions with sectoral mandates,
- ◆ the preliminary and the full EIA's should be undertaken, if in the public sector, by the relevant sectoral ministries and departments, and, if in the private sector, by the developer.
- ◆ it should be the role of the independent EIA coordinating agency to be responsible for the EIA process, to approve/disapprove projects on environmental grounds, set conditionalities and subsequently monitor conditionalities and take action where they are not being met.

The Strategies are to:

1. Create by law an EIA process requiring as appropriate Environmental Impact Assessments and Environmental Audits for private and state development projects which includes the following:
 - all projects and programmes to produce a preliminary EIA,
 - based on the preliminary EIA the EIA coordinating agency at national or regional level to decide whether a full EIA is required,
 - should a full EIA not be required the EIA process is complete and no further action is required,
 - where a full EIA is required it will be undertaken by the programme/project preparation agency and a report (ie. an Environmental Impact Statement) produced,
 - based on the Environmental Impact Statement the national or regional EIA coordinating agency will either:
 - authorise the go ahead with no conditionalities
 - authorise the go ahead with additional conditionalities
 - refuse the project
2. Establish the institutional framework at the national and regional levels and determine the linkages of its parts for undertaking, coordinating and approving EIA's and the subsequent system of environmental audits required to ensure compliance with conditionalities.

3. Develop detailed sectoral technical Guidelines in Environmental Impact Assessments and Environmental Audits.
4. Ensure that social, socio-economic, political and cultural conditions are considered in environmental impact assessment procedures and included in sectoral guidelines.
5. Develop EIA and environmental audit capacity and capability in the Environmental Protection Authority and in sectoral ministries and agencies.

3.11 ENVIRONMENTAL EDUCATION AND AWARENESS AND HUMAN RESOURCE DEVELOPMENT

Cross References: 3.2, 3.5, 3.7, 4.1 - 4.12.

Situation Synopsis:

A pilot environmental education project has been operating in the Ministry of Education for five years. However there is no national strategy for environmental education at all levels embracing all subjects though the texts in sciences and in geography do often highlight environmental issues. The environmental issues raised in the present curricula at primary, secondary and tertiary levels are inadequate. There is no specialised environmental studies programme at the tertiary level. There is no overall strategy for promoting public environmental awareness.

Objective:

To provide education, training and awareness programmes to increase public awareness and understanding of the need for the sustainable use and management of the natural, human-made and cultural resources and the environment and to prepare a work force equipped with environmental and resource management skills and technical abilities to implement national and regional programmes of sustainable resource and environmental management.

The Guiding Principles are that:

- ◆ on the whole, environmental education should be taught on a multi-disciplinary basis and integrated into the on-going curricula of schools

and colleges and not as separate or additional subjects, though this should be done at the tertiary level,

- ◆ environmental education and awareness programmes should be targeted to the public, particularly those involved in public and private sector activities that have significant environmental impact,
- ◆ given the extreme variability of environmental conditions and problems in Ethiopia environmental awareness programmes should address specific environmental problems of particular localities and so be relevant to the people of the area,
- ◆ special programmes to develop the required human resources should be launched at tertiary level institutions, and
- ◆ given the physical problems of access and communications in Ethiopia the mass media has an important role to play in creating and promoting environmental awareness.

The Strategies are to:

1. Incorporate environmental education into the curricula at all levels of formal education with a special focus on teacher education.
2. Develop environmental training materials as a first priority for primary schools and then for all training institutions.
3. Encourage the local development of environmental awareness associations and programmes specific to particular agro-ecological zones and support them with scientific inputs.
4. Develop environmental awareness programmes for urban environments for dissemination by the mass media and foster the development of urban environmental awareness associations.
5. Develop and conduct programmes for the retraining of teachers in environmental issues.
6. Strengthen existing higher level training and education institutions so that they can offer programmes and courses in sustainable resource and environmental management for economists, planners, lawyers, engineers, sociologists and medical practitioners as well as for natural resource and environmental scientists.

7. Provide in-service training in such specialized subjects as environmental economics, environmental law, environmental monitoring, geographical information systems, pollution monitoring and control, and hazardous waste management.
8. Initiate, encourage and support the involvement of local community, and religious leaders in programmes to promote environmental awareness.
9. Develop and strengthen the capacity of the mass media to effectively create and promote environmental awareness nationwide through the provision of training, technical information and logistical support.

CHAPTER IV

SECTORAL POLICY OBJECTIVES, PRINCIPLES AND STRATEGIES

The sectoral policy objectives, principles and strategies presented below do not represent the "development policy and strategy" for any particular sector. Rather these are a necessary sub-set of policies and strategies designed to ensure the "sustainability" of such sectoral development strategies when implemented. The order of presentation of the Sectoral Policies in this Chapter reflects to a large degree the orders of magnitude of the overall resource and environmental problems. As with the Cross Sectoral Policies, strategies are presented in the order of their importance and priority for action respectively.

4.1 IMPROVED SOIL, CROP AND ANIMAL HUSBANDRY FOR SUSTAINABLE AGRICULTURAL PRODUCTION

4.1.1 Improved Soil Husbandry for Sustainable Agricultural Production

Situation Synopsis:

Land degradation and the associated threats to the ecological support systems underpinning agricultural production is the most serious environmental problem facing Ethiopia. However land degradation is not a new phenomena. While upto 40 percent of the landscape may have once been covered by high forest, deforestation has occurred progressively over the millennia though historical trends have accelerated over the past three decades in response to rapidly growing human populations.

Land degradation has many expressions including soil removal by sheet and gully erosion, nutrient depletion due to burning of dung and other forms of biomass, nutrient loss due to crop removals without replacement and the continued loss and degradation of forest areas contributing to all of the above. Some 80 percent of the crop losses due to land degradation result from breaches in the nutrient cycle. Dung and crop residues are burnt because of the lack of wood for fuel. In the past, organic matter management has been relatively neglected in soil and water conservation efforts. There is a rich inventory of indigenous land husbandry and soil conservation technology which in the past has been little studied, let alone used and built upon.

The underlying and deep rooted causes of land degradation have been to a very large degree the result of government and policy failures over the millennium with particular respect to natural resource tenure and use rights. These have been examined in detail in many of the Cross Sectoral Policy areas in Chapter III. However the analysis also pointed to the need to address land degradation not only at the macro policy level but also at the farm and community levels. Land husbandry on individually farmed land and on adjoining communal grazing and forest lands are linked technically as well as socially. These linkages have important implications for extension and research.

Objective:

To promote improved soil conservation practices that enhance and maintain land productivity for the sustainable development of agriculture and, in general, biomass and biodiversity.

The Guiding Principles are that:

- ◆ reforms to clarify land tenure rights and promote a feeling of tenure security on the part of farmers and pastoralists should be given immediate priority so as to remove the existing artificial constraints to the widespread adoption of, and investment in, sustainable land management technologies,
- ◆ where possible increased agricultural production should be based on sustainably improving and intensifying existing farming systems by developing and disseminating technologies which are biologically stable, appropriate under the prevailing environmental and socio-cultural conditions for farmers, economically viable and environmentally beneficial or at least benign,
- ◆ appropriate organic matter and nutrient management for improving soil structure, nutrient status and microbiology should be key elements in any improved soil conservation and land husbandry strategy,
- ◆ in order to safeguard the integrity of the soil and protect its physical and biological properties, cultural management practices for the production of crops and livestock should play particular attention to the proper balance in amounts of chemical fertilizers and organic fertilizers, including green manures, farm yard manures and compost,
- ◆ effective ground cover should be seen as one of the most important factors in soil erosion control and a wide range of sustainable

agronomic, pastoral and silvicultural approaches used in various areas of Ethiopia provide potentially flexible alternatives to mechanical soil conservation systems,

- ◆ in drought prone and low rainfall areas water conservation is as important as physical soil conservation for more secure and increased biomass, including crop, production,
- ◆ for reasons of cost and acceptability, improvements of land husbandry should build on existing husbandry systems and indigenous technology and knowledge,
- ◆ given the heterogeneous environment of the Ethiopian Highlands agricultural research and extension should have a stronger focus on farming and land use systems and so support an immediate strengthening of traditional land management systems,
- ◆ for the relatively more environmentally uniform Ethiopian lowlands a long term approach to agricultural research programmes should be adopted to develop appropriate farming and land management systems that yield higher outputs,
- ◆ planning for agricultural development should incorporate the potential costs of soil degradation through erosion and salinization, and soil and water pollution in economic cost benefit analysis,
- ◆ inputs should be as diverse and complementing as the physical, chemical and biological components of the soil require, and should not focus solely on a quick and transitory increase in plant nutrients to the long term detriment of soil structure and microbiology,

The Strategies are to:

1. Build on indigenous systems of soil management to develop and promote improved technologies for increasing the quantity and improving the quality of soil organic matter, soil structure, soil nutrients and soil flora and fauna and in particular exploit the complementary effects of chemical and organic fertilize sources, e.g. farm yard manures, green manures, compost, biological nitrogen fixation, in order to improve soil quality and structure, minimize soil pollution and increase crop production.

2. Through a combination of agricultural residues, on-farm produced fodder and the cutting and carrying of grass and browse from meadows and hillsides, institute the stall feeding of domesticated animals in order to encourage revegetation of grazing lands and the reduction of soil erosion.
3. Develop forestry on the farm, around the homestead and on eroding and/or eroded hillsides to increase the stock of trees for fuel wood, construction material, implements and crafts, for forage and for other tree products by developing complementing agro-forestry practices using trees appropriate for improving the soil and crop micro-climate when planted around and scattered within fields, and for protection and building up the soil as well as for providing other useful products: eg. fruits, nectar for bees, medicines, dyes and raw materials for crafts.
4. Given the reported reluctance of farmers to construct physical soil conservation structures in some areas, through a programme of farmer participatory research, determine for specific agro-ecological zones the relative efficiencies and economic advantages of physical and biological soil conservation systems to determine the biological or physical measures or the mixes of both which are the most suitable for soil conservation.
5. Enhance and strengthen a holistic approach to research, extension and training of farmers, extension workers and researchers in land husbandry by addressing the needs of the entire farming system,

4.1.2 Improved Crop and Animal Husbandry for Sustainable Agricultural Production

Cross References: 3.1, 3.2, 3.3, 3.4, 3.5, 4.1, 4.3, 4.4, 4.5 and 4.7.

Situation Synopsis:

Traditional crop and animal varieties, breeds and strains have developed over millennia and have achieved a fine adaptation to the extremely varied and variable environmental conditions in Ethiopia, including tolerance to drought, waterlogging, low soil fertility, low and variable animal feed quality and quantity, and resistance and tolerance to diseases and pests. Similarly the husbandry techniques and tools and implements have been appropriately developed to suit the environment and the personal resource assets of farmers and pastoralists.

Production under these environmental, economic and technological conditions has been relatively low but relatively secure. These systems of crop and livestock husbandry thus meet farmer and pastoralist production objectives of risk spreading and the minimisation of total production losses.

However these husbandry systems are increasingly under pressure from the increasing size of the human population. In the past the relatively larger area of land, supply of animal feed, distances among crop fields and smaller number of animals were sufficient to maintain an adequate level of crop and animal production with a minimum impact of pests and diseases on crops and animals and a low level of soil erosion. Now however land and feed is increasingly in short supply and crop fields and domestic animals more crowded leading to an increasing incidence and prevalence of pests and diseases and to dramatically increased soil erosion. The introduction of crops with narrow genetic bases replacing the farmers' varieties which have broad genetic bases, where this has happened, has exacerbated the problem. The net results are that levels of crop and animal production per household are falling and, despite increasing numbers of farm households, total agricultural production is stagnating.

Under increasing population pressure and with an increase in the area of cropland at the expense of the area of grazing land, crop and livestock production systems are becoming integrated even more through a greater dependence of livestock on crop residues and on-farm production of fodder. The value of the straw component of crops in relation to the grain component is increasing. This has important implications for crop breeding for improved quality and quantity of straw and more efficient crop residue storage and utilization. As livestock production intensifies there are important implications for the enclosing of crop fields, on-farm fodder production, and more efficient and more intensive utilization of communal lands for fodder and wood production.

Objective:

To increase crop and animal production whilst maintaining the diversity, the security, the in-built safety mechanisms and thus the sustainability of crop and animal production systems.

Guiding Principles are that:

- ◆ development of improved crop and animal husbandry for sustainable agriculture should start with the involvement of the intended beneficiaries in the identification of problems and the characteristics of the types of solutions which would be acceptable to them,

- ◆ improvements to crop and animal husbandry systems should seek to expand the range of technical options not narrow them,
- ◆ crop and animal breeding programmes should recognize the multiple production objectives of farmers and include these in the evaluation of potential adoption by farmers,
- ◆ crop and animal breeding programmes should recognize the multiplicity and variability of environments (natural, social and economic) facing farmers and incorporate them accordingly,
- ◆ plant breeding programmes should develop not only high yielding varieties for favourable environments but, equally, varieties which will perform satisfactorily under adverse conditions and low input technologies,
- ◆ development of improved crop varieties should first exploit the suitability of existing varieties in or outside the country before embarking on a more expensive and time consuming plant breeding programme,
- ◆ crop and animal research and extension programmes should recognize the strengthening integration of crop and animal production systems, which is taking place at the farm level under decreasing area of grazing land,
- ◆ whilst genetic engineering is being suggested as the solution to problems of low crop yields and transgenic organisms can do wonders, it is also true that they can cause unthought of havoc, and they should therefore, be used with the appropriate precautions being taken,
- ◆ the time tested system of minimizing pest and diseases through maximizing the variation in crop species and genetic variation within crop species and the use of "break" crops and cultural methods such as crop rotation, planting time, weeding time, sanitation, closed seasons, etc. should be augmented rather than eroded as has been the recent tendency,
- ◆ to safeguard the health of domesticated animals and so minimize the use of drugs and other chemicals a broad genetic base should be maintained and environmental management used as far as is possible.

- ◆ an integration of biological, cultural, resistant or tolerant varieties or breeds, pheromones or sterile males should be used as a pest and disease management method in preference to chemical controls,
- ◆ but non-indigenous predators, parasites and pathogens should not be introduced unless their potential effects on indigenous flora and fauna have been thoroughly assessed,
- ◆ where chemical control methods have to be applied they should be used selectively and in minimal quantities, and
- ◆ adequate regulation of agricultural (crop and livestock) chemicals should be provided to safeguard human and environmental health.

The Strategies are:

1. With the involvement of farmers in the identification of problems and the types of solutions which would be acceptable to them undertake participatory research, diagnostic studies and technology evaluation of existing agronomic, socio-economic and environmental constraints to sustainably developing agriculture.
2. Shift the present focus of agricultural development and extension on maximising crop yields utilizing high cost technology requiring imported agricultural inputs, to ones of producing yields which will meet most or all of farmers' production objectives through the judicious use of locally available and/or imported inputs.
3. Given the increasing shortages of livestock feed and the need to integrate crop and livestock production more closely, focus on increasing livestock production as much as on crop production in development planning, research and extension.
4. Develop and promote livestock production systems which use as far as possible stall feeding on on-farm produced forage, crop residues or agro-industrial by-products, or tethered grazing in fields in order to reduce pressure on grazing land.
5. Study the effects of shortage of crop and grazing land on the stability of existing peasant agricultural systems (eg. dropping pulses from the crop mix) to identify vulnerabilities and to design methods of compensation.

6. Shift the emphasis in crop breeding from single line plant varieties and animal breeds to multiple lines involving as many different but adapted lines as possible in order to increase both plasticity in adapting to environmental variations, and resistance to pests and diseases.
7. Promote changes in crop and livestock husbandry that increase production and can be effected at no or minimal additional cost in money or labour.
8. Promote in the process of participatory land use planning for the planting in mosaics of the whole range of crops that will grow in the area and avoiding the planting over wide areas of a single crop even when that crop is a farmers' or a multi-line variety.
9. Undertake research and development into cost effective and preferably simple methods of improved pest management.
10. Undertake research and development of tools and implements based on existing technologies to ease and improve on the application of human and animal power to agricultural and domestic operations, particularly those undertaken by women.
11. Undertake research and development into simple and cost effective methods of crop residue treatment and utilization of agro-industrial by-products which are appropriate for smallholder production systems.

4.2 RANGELANDS MANAGEMENT AND PASTORAL DEVELOPMENT

Cross References: 3.1, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2, 4.4, 4.5, 4.6 and 4.7.

Situation Synopsis:

The Ethiopian Rangelands are located in the lowlands and comprise some 60 percent of the country's land mass and accommodate about 10 percent of the population comprising mainly of pastoralists and agro-pastoralists in the arid and semi-arid northwest, northeast, southeast and south, and sedentary and shifting cultivators in the moist malaria and tsetse infested southwest and west. Yet despite their hostile environment the Ethiopian rangelands play an important role in the national economy. The pastoralists use efficiently the range resources for livestock production which amounts to 20 percent of the country's total. Above their subsistence needs they supply to the adjacent highlands draught animals, beef cattle, goats and sheep, and supply the majority of animals for the export

market. Most of the potential for irrigated agriculture on a large to medium scale is in the rangelands. The southwestern and western rangelands offer potential for expanded agriculture and settlement.

There are a number of misconceptions regarding pastoralists and the way in which they use and manage the rangelands. These misconceptions have in the past incorrectly guided Government policy and development planning. They include: that movements of people and animals are haphazard and irrational, that pastoralists keep far more livestock than they need for survival, that pastoralists are resistant to change and that their production systems contribute little to the national economy.

Over many decades of this century the pastoralists have faced an increasing number of problems including the loss of vital grazing areas, military and civil conflicts, disruptive international borders, the lack of access to, and difficulties in, the provision of services and little or no participation in rangeland or livestock development planning undertaken by the state. Given the increasing pressures on resources in the highlands as well as the rangelands and the development potential of the lowlands there is need for a clear development policy and strategy for these areas which integrates with those for the adjacent highland areas.

Objective:

To manage the nation's rangelands resources within their capacity to sustainably maximise the production and wise use of livestock, crops, woodlands, water and wildlife resources.

The Guiding Principles are that:

- ◆ it should be recognized that sustainable management and development of the Ethiopian rangelands will depend in large measure on supporting increased agricultural productivity in the Highlands and the effective management of agricultural expansion in the Lowlands,
- ◆ the formulation of policies for sustainable development of rangelands and pastoral areas should fully reflect the needs and view of the communities,
- ◆ any programme for improved rangeland management and pastoral development should be based on the existing traditional system of resource use and management and should be undertaken with the empowerment and under the control of the existing rangeland users,

- ◆ the lack of ecological and socio-economic knowledge of the Ethiopian rangelands should be clearly recognized prior to any major development planning and the precautionary principle of not advocating major changes in life styles without assessing potentially damaging impacts should be adhered to in decision making,
- ◆ a holistic approach should be adopted to rangeland development research, planning and extension incorporating ecological, social, economic and production elements and concerns,
- ◆ new technical recommendations should be compatible with existing pastoral and agricultural systems, agro-ecological conditions and the prevailing socio-economic environment,
- ◆ new technologies or management practices should not disadvantage vulnerable groups or sections of the community or the family (eg. women or children), and
- ◆ as far as it is possible secure and mutual inter-group "Resource Management Agreements" should be made with respect to shared resources and grazing areas during programme or project preparation.

The Strategies are to:

1. Strengthen the capacity of Regional and local governments to study, plan and implement programmes of sustainable rangeland use in terms of trained human resources and infrastructure.
2. Strengthen the capacity of the Extension Service to undertake the required surveys and the locally driven participatory development planning and implementation.
3. Undertake full environmental, social and economic impact assessments of all existing irrigation schemes in the Ethiopian rangelands and establish a programme of correcting their negative environmental, social and economic impacts.
4. Negotiate with local communities on the benefits they will derive from existing and future irrigation projects and the support they will give to those projects.
5. Strengthen the livestock economy by improving: market support, the availability of basic goods and commodities, animal health services,

forage and water supplies and access to social services, and appropriate technologies.

6. Improve capability for mutual communication and responsiveness to the needs of the pastoral and other communities of the lowlands with due recognition being given by the central and regional governments to the internal authority of the communities.
7. Develop with local communities and groups new management plans for, and tourist facilities in, protected areas in the rangelands, and formulate mechanisms of revenue sharing supported by law to benefit local communities which in turn will enable them to protect the areas.
8. Undertake detailed natural resource, ecological, socio-economic, livestock and existing infrastructure surveys in the Ethiopian rangelands as a basis for development planning.
9. Undertake surveys of, and establish a data base on, exclusive and shared wet, dry and reserve grazing territories of the various pastoral and agro-pastoral groups, and identify and survey existing rangeland resource management systems, inter-group access agreements and institutions.

4.3 FOREST, WOODLAND AND TREE RESOURCE MANAGEMENT

Cross References: 3.1, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2, 4.3, 4.4, 4.5 and 4.7.

Situation Synopsis:

Climax forest in Ethiopia which covered some 40 percent of the country had been reduced to about 2.7 percent by 1989 and are currently being destroyed at an alarming rate. It has been projected that at the current rates of destruction they will be reduced to scattered and heavily disturbed patches in very remote parts of the country within the first quarter of the next century. The primary cause of natural forest destruction is agricultural expansion.

Woodland totalling 5 million and bushlands 20 million hectares are largely located in the moist western and the dry eastern Lowlands respectively. Large parts of the woodlands are now threatened by shifting cultivation, the spread of sedentary agriculture and having to meet the urban demands for increasing amounts of construction materials, fuelwood and charcoal.

In the cereal plough farming systems of the Eastern, Central and Northern Highlands trees grown by farmers have not been an important element of the farming system, though until this century uncultivable hillsides have had woodlands, groves or even forests forming mosaics with cultivated land. Now however the forests and woodlands have largely been destroyed and fuelwood deficits are widespread. The lack of security of tree tenure has not encouraged individual farmers to plant trees. The centrally driven "community forestry" woodlots established in the 1980's with little or no participation have been cut down at alarming rates over the past two years.

Industrial plantations established by Government amount to only 135,000 hectares. Expansion of these has been constrained by the limited capacity of the state to establish and operate commercial forestry undertakings. The incremental yield of wood production in Ethiopia is estimated to be 14.5 million cubic meters set against a national demand for 47.5 million cubic meters.

Objective:

To conserve forest ecosystems and genetic resources and to increase the production on a sustainable basis of forest resources, including sawn timber, fuelwood, poles, fodder and minor forest products as well as to increase soil fertility and decrease land degradation through the planting of appropriate trees thus improving agricultural production.

The Guiding Principles are that:

- ◆ the complementary roles of communities, private entrepreneurs and the state should be recognized in forestry development,
- ◆ the state should not undertake the execution of forestry projects and programmes when either communities or entrepreneurs can do so, but it should create an enabling environment for their participation,
- ◆ forestry development by individual farmers, communities and private entrepreneurs should be encouraged through research and extension, the provision of infrastructure, appropriate pricing policies and increased security of land and tree tenure,
- ◆ individuals, communities and the government should be actively involved in the planning and implementation of forestry programmes to ensure sustainability, to minimize cost, and to forestall conflict,

- ◆ forestry development strategies should integrate the development, management and conservation of forest resources with those of land and water resources, energy resources, ecosystems and genetic resources, as well as with crop and livestock production,
- ◆ afforestation with exotic species should be restricted to backyard woodlots, to peri-urban plantations and to plantations for specific industrial projects; otherwise afforestation should use local species as these are in tune with the environment and thus ensure its well being,
- ◆ afforestation of uncultivable areas should only be assisted with judiciously selected planting as the bulk of the local species will re-establish through natural processes provided that felling and grazing are controlled, and
- ◆ "sustainable forest management" is achieved when social acceptability and economic viability have been achieved and the volume of wood harvested in a given period is about equal to the net growth that the forest is capable of generating,

The Strategies are to:

4.3.1 Forest Resource and Ecosystem Management

1. Increase the data on the types and extent of forests, woodlands and trees through comprehensive surveys and studies.
2. Develop a partnerships between central/regional government and local governments whereby communities are included in benefit sharing including the provision of social and infrastructural developments, and obtaining forest products and other items for household consumption which in return will make them willing to protect the forest.
3. Promote conservation of natural forests and expand the existing network of protected areas by concentrating efforts on establishing and implementing management plans for Forest Priority Areas; determining which are for habitat protection, for conservation and for production so that the existing network of protected areas is expanded, endemic and rare species, unique ecosystems and watersheds are adequately protected and wood production is carried out on a sustainable basis.

4. Plant selected scattered exposure tolerant trees in uncultivable areas to afford shade to the trees that demand it, and plant scattered trees that give food and habitat to forest tree seed dispersing animals and so facilitate natural forest regeneration and, to make this possible, ensure that local species of trees for seed supply are available nearby: eg. in church groves or by specially planting trees.
5. Pursue agricultural and other policies and programmes that will reduce pressure on fragile woodland resources and ecosystems.
6. Promote changes in agricultural and natural resource management systems which will limit the need for free grazing of animals in protected forest areas.

4.3.2 Tree and Forest Production

1. Develop agreed partnerships between local communities and the private entrepreneur or the state (whichever operates the plantation forest) whereby the community benefits financially and so affords protection to the forest.
2. Ensure a rapid build up of seedling supply by initially expanding production capacity at state run nurseries and increasingly promoting farmer/community production of seedlings, including through the transfer of state nurseries to community or individual farmer operation.
3. Establish incentives that promote private sector development of industrial plantations and farmer and community investment in farm forestry, hillside protection forestry, woodlots and peri-urban fuelwood plantations.
4. Reorganize and strengthen forestry research and extension to ensure effective integration of agro-forestry practices (at farm and community levels) with land management and farming systems, and to secure active involvement of local communities and farmers in land use planning.
5. Reduce government's involvement in industrial and peri-urban plantations by gradually transferring management rights to private interests; restructure remaining state plantations to ensure commercial viability or privatize them.

6. Make it mandatory that wood processing industries use only wood from plantations and not from natural forests unless deliberate exceptions are made by the Central Government based on a thorough impact assessment study and forest management plan that clearly shows the sustainability of the logging programme.
7. Through tax or other incentives support wood using industries to establish their own forests or to develop firm contracts with wood producing plantations, and where such industries establish their own forests make the replanting after harvest a condition of any land lease.

4.3.3 Technology Development and Dissemination

1. Improve the dissemination of research results through the extension services.

4.3.4 Capacity Building and Institutional Development

1. Develop a revised school, institute and university curriculum in forestry management and conservation.
2. Implement the revised curricula through technical assistance to schools, institutes and universities.
3. Provide short term training courses for national, regional and wereda level staff in forestry and natural resource management.
4. Strengthen forestry training institutions through the provision of teaching materials, equipment, training for trainers and/or translation of text books, etc.

4.4 GENETIC, SPECIES AND ECOSYSTEMS BIODIVERSITY CONSERVATION AND MANAGEMENT

Cross References: 3.1, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2, 4.3, 4.4, 4.6 and 4.7.

Situation Synopsis:

Ethiopia has a world importance for the diversity of its domesticated and wild floral and faunal genotypes and species as well as for varied and unique ecosystems. Whilst the conservation of domesticated crop genetic resources is relatively well catered for there are deficiencies in the system for the conservation

of genetic resources of medicinal plants, forest resources, microbial resources, naturally occurring plants, domesticated and wild animals. Erosion of the genetic resource base is being caused by the destruction of habitats, the introduction of a narrow genetic spectrum of crop varieties, and recurring droughts, war and conflicts. There is a lack of legal and policy guidelines with respect to germplasm ownership, accessibility, exploration, collection, distribution, introduction, testing, exchange, utilization and intellectual property rights.

Wildlife conservation initially focused on the larger fauna with the conservation of associated flora and smaller fauna happening incidently. Approximately 32,000 km² or 2.7% of the country is under strict protection (ie National Parks and Sanctuaries), although only two of the 9 National Parks are gazetted. Lack of facilities and human resources have meant that in the Parks there is little infrastructure development for tourists. A number of Parks and Sanctuaries suffered severe damage either during the war or during its immediate aftermath. National and regional wildlife surveys are currently two or more decades out of date.

There are growing conflicts between biodiversity conservation and the increasing demands on land for agricultural and livestock development. These growing conflicts must be seen within the context of the levels of chronic poverty which exist in the rural areas.

Objective:

To preserve, develop, manage and sustainably use the diversity of Ethiopia's wild and domesticated floral and faunal gene pool and species, and its natural and human-managed ecosystems in support of national social and economic development and the integrity of the biosphere.

The Guiding Principles are that:

- ◆ biological diversity should encompass natural and human-managed ecosystems, domesticated and wild floral and faunal species and the genetic variation within individual species,
- ◆ *in situ* systems should be the primary target for conserving both wild and domesticated biological diversity; but *ex situ* systems in gene banks, farms, botanical gardens, ranches and zoos should be used to supplement *in situ* conservation,

- ◆ the *in situ* conservation of crop and domestic animal biological diversity requires the conscious conservation of samples of agricultural systems even when agriculture as a whole is changing,
- ◆ the conservation of human-made and managed ecosystems will likewise require a conscious continuation of certain management systems in the face of change,
- ◆ the value of scientific information about biological systems derived from biodiversity should be realized in taking decision on conservation,
- ◆ in order to strengthen the planning process for biodiversity, the knowledge base on its extent, nature, status and location should be updated and broadened and the adequacy of the current protected area network reviewed,
- ◆ the importation, exportation and exchange of genetic and species resources should be subject to legislation, e.g. quarantine law and regulations,
- ◆ access to biological diversity should be ruled by the provisions of the Convention on Biological Diversity which has been ratified, exchanging biological diversity with financial and technological benefits and inputs into capacity building when dealing with industrialized societies and exchanging biological diversity with other biological diversity when dealing with farming communities,
- ◆ conservation of biological diversity should be seen as natural resource management which has as its primary goal the maintenance of national biological resources to meet the needs and aspirations of present and future generations,
- ◆ factors such as the level of vulnerability, uniqueness, importance and economic and environmental potential of the genome should be taken into account in determining priorities in conservation
- ◆ the conservation of genetic resources *in situ* maintain a dynamic system of conservation of genetic variability in an environment of constant selection pressure,
- ◆ local communities inside and outside protected areas should be involved in the planning and management of such areas,

- ◆ the conservation of biological diversity outside the protected area system should be integrated with strategic land use plans, local level plans and sustainable agricultural and pastoral production strategies,
- ◆ protected areas should include as wide a range of ecosystems and habitats as possible and where appropriate should be linked by corridors of suitable habitats along which species can migrate,
- ◆ eco-tourism should be seen as one way of conserving biological diversity while at the same time earning revenue,
- ◆ pricing policies and instruments should support conservation of biological diversity,
- ◆ national park, forest and wildlife conservation and management programmes which conserve biological diversity on behalf of the nation should allow for a major part of any economic benefits deriving therefrom to be channelled to local communities affected by such programmes, and
- ◆ it should be recognized that certain faunal and floral species are vermin, pests or may be a reservoir of disease to humans, crops and livestock, and should thus be contained.

The Strategies are to:

1. Enact and enforce legislation for the preservation, conservation, management and sustainable use of genetic and ecosystems resources to provide for the conservation of biological diversity in its widest sense.
2. Ensure the decisive participation of local people in the planning, management and protection of protected areas and the flora and fauna they contain; establish a range of flexible mechanisms for protected area management which includes local communities as on site managers and ensure that a significant proportion of any benefits accrue to those local communities.
3. Undertake a systematic evaluation of the biodiversity status of natural and near natural areas both inside and outside the existing protected area network in order to define priorities for both the management of the existing protected areas and the designation of additional areas.

4. Identify valuable areas of biological diversity outside the formal protected area system and in consultation with local communities explore ways and means of protecting and conserving the genomes, species and ecosystems in such areas.
5. Develop effective and sustainable integrated national, regional and local *in situ* and *ex situ* systems including protected areas, botanical gardens, zoological parks, aquaria and gene banks to acquire, conserve and utilize the genetic resources of crops and their wild relatives, forage plants, medicinal plants, timber trees, domesticated animals and their wild relatives, wild plants and animals and microorganisms.
6. Support local communities to set aside and protect samples of non-agricultural area free from human interference.
7. Support communities to institute *in situ* conservation of samples of their agricultural systems in the face of change.
8. Assert national sovereignty over Ethiopia's biological resources by enacting and enforcing legislation for the regulation of the transfer of genetic resources (including modified organisms and alien species and races) into, out of and within the country and establish the international linkages required.
9. Recognize, identify and exempt from protective legislation certain plant and animal species which may be pests or vermin outside strict protection areas.
10. Coordinate sectoral institutions concerned with the conservation of biological diversity.
11. Foster public support for the conservation of biological diversity by encouraging private investment in wildlife conservation.
12. Enhance public awareness in the area of biodiversity conservation at all levels as part of the broader environmental education strategy.
13. Strengthen links to international conventions on biological diversity: eg. CITES, Ramsar, World Heritage, etc.

4.5 WATER RESOURCES DEVELOPMENT FOR IRRIGATION, HYDROELECTRICITY AND WATER SUPPLIES

Cross References: 3.1, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2, 4.3, 4.4, 4.7 and 4.9.

Situation Synopsis:

The expansion of irrigation is a key element in agricultural development whilst the provision of water supplies is a priority element of environmental health development.

However whilst estimates of the potential irrigable land in Ethiopia vary between 1.8 and 3.7 million hectares only 75,000 hectares of large scale and 72,000 hectares of small scale irrigation have been fully developed. A complex of policy, institutional and financial problems have hindered irrigation development. A number of policy problems have been identified including the lack of an overall irrigation policy and strategy, a poor information base, weak institutional capacity, the previous restrictions on private sector participation, lack of cost recovery mechanisms, lack of land tenure security, a complex institutional structure with overlapping responsibilities and poor coordination, lack of clarity of responsibilities of irrigation scheme operators and the previous macro pricing and monetary policies which treated water as a free good. Finally until very recently there was no legal framework.

Deforestation and poor land husbandry practices have resulted in accelerated run-off, reduction in the recharge of groundwater reserves, increased sediment load of rivers and siltation of reservoirs and increased incidence and degree of flooding.

The present infrastructure for water supply systems is at a low level of development. Clean water for domestic use is provided to only 27 percent of the total population. Only 19 percent of the rural population and 76 percent of the urban population have clean water.

Objectives:

To develop water resource for the increase of sustainable agricultural production, for the generation of hydro electricity and for the health and well being of the population.

The Guiding Principles are that:

- ◆ water resource development for basic domestic and subsistence purposes should have overriding priority,
- ◆ the "drainage basin" should be used as the basic planning and development unit with priority being given to watershed management to control, conserve and regulate the water balance in the catchments,
- ◆ however given the decentralization of administration into self governing regions it should be recognized that there will be a need to establish suitable institutional arrangements involving central and regional Governments,
- ◆ an integrated approach to water resource development should be adopted thus emphasizing on multi-purpose projects,
- ◆ as most large/medium scale irrigation potential is located in the rangelands of the lowlands the opportunity costs of irrigating important dry season livestock grazing areas of the pastoralists should be considered in any cost benefit analysis,
- ◆ water resources should be sustainably managed at the lowest appropriate government or community level,
- ◆ technologies for small scale irrigation and village water supplies should always be simple, acceptable and easy to handle by local communities, should be affordable to local communities and should suit the local conditions and the environment of a particular area,
- ◆ water resource users, particularly women and animal herders, should be involved in the planning, design, implementation and follow up of water policies, programmes and projects which should be carried out without affecting the ecological balance,
- ◆ surface and groundwater uses should be planned to maximize quantity and to improve quality of water, and allocations to domestic, industrial and agricultural uses should not exceed the sustainable supply,
- ◆ priority for state assistance should be given to small and micro irrigation schemes (i.e. less than 200 hectares) in line with the Government's economic policy to allocate the greater share of resources to peasant agriculture,

- ◆ the amount of water used for irrigation should be kept at the minimum required to maintain soil conditions suitable for plant growth,
- ◆ the control of environmental health hazards should be a necessary condition in the design, construction and use of dams and irrigation systems,
- ◆ natural ecosystems (particularly wetlands and up-stream forests) are fundamental in regulating water quality and quantity and their rehabilitation and protection should be integrated into the conservation, development and management of water resources,
- ◆ any proposed introduction of exotic species into water ecosystems should be subject to detailed ecological studies and environmental impact assessment, and
- ◆ the interface between water bodies and land should be protected (eg. lake shores, river banks and wetlands).

The Strategies are to:

4.5.1 River Basin and Irrigation Development.

1. Undertake comprehensive and integrated resource surveys and assessments and make proposals for land and water development and management on the basis of the river basin.
2. Establish institutions with Central and concerned Regional representation for inter-Regional river basin master planning and project implementation in order to avoid conflicts.
3. Subject all major water conservation, development and management projects to the environmental impact assessment process and include the costs and benefits of protecting watershed forests, wetlands and other relevant key ecosystems in the economic analysis of such water projects.
4. Promote an integrated approach by concerned government agencies and NGO's in the implementation of conservation and protection measures in catchment areas to control soil erosion and siltation and to maintain productive water environments.
5. Reappraise all previous large and medium scale irrigation feasibility studies in the light of the new economic and environmental policies.

6. Develop plans for small scale and micro irrigation within the context of regional, sub-regional and local level agricultural planning and development in the closest collaboration and participation of local communities.
7. Rehabilitate and up-grade the hydrological monitoring network, strengthen the information management system for resource planning, and establish a national groundwater monitoring network as well as a monitoring system for irrigation schemes.
8. Strengthen and develop the institutional capacity to undertake water resources assessment.
9. Provide technical and credit support to the private sector in water resource development activities.
10. Establish appropriate laboratories for hydraulics and hydrology and, for evaluating water resources as well as for monitoring water quality.
11. Develop the capacity in the Regional/Zonal Water Resource Development Departments to undertake irrigation design and implementation and through the Regional Women in Development desks ensure that the interests of women are duly reflected in this.
12. Promote, through on-site training, effective water management techniques at the farm level for improved performance of medium to large scale irrigation schemes.

4.5.2 Water Supply Development

1. Develop a national strategic plan for water supplies indicating priority areas, target populations, technologies, the needs for rehabilitating existing schemes, appropriate systems of repair and maintenance, funding requirements and institutional responsibilities.
2. Generate information on water quality in rivers and groundwater reserves and on water resources particularly in drought prone areas.
3. Empower rural communities and urban municipalities to ensure local ownership of water supplies through the formation (if not already in existence) of local representative water committees in rural areas and municipal technical units in urban areas and pass to them responsibility for day to day management and maintenance.

4. Develop a local technical capacity for rural community and urban municipality management and maintenance of water sources and for measures to prevent health hazards around water points.
5. Adopt, adapt or develop and promote simple and easy to use technologies which are appropriate for the local conditions in rural and urban situations, and acceptable to, as well as affordable, by local communities,

4.6 ENERGY RESOURCES DEVELOPMENT AND MANAGEMENT

Cross References: 3.1, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2, 4.3, 4.4, 4.6 and 4.9.

Situation Synopsis:

Ethiopia's energy consumption per capita is one of the lowest in the world and yet only 1% of the country's hydro-electric and geothermal potential has been realized. Natural gas and coal reserves have been proven but are as yet not developed. Over 95% of domestic energy needs are met from bio-fuels contributing to deforestation, loss of soil nutrients and organic matter and thus to physical and biological land degradation.

The incremental fuelwood needed to match present requirements would involve the equivalent of 2.1 million hectares of block plantation and this would rise to 6 million hectares in 2014. These areas represent 10 and 30 times the combined areas of existing industrial, peri-urban and community woodlots, with the latter figure being the equivalent of an average annual establishment rate of some 400,000 hectares over the next 15 years. This scale of tree planting does not appear to be realistic even under ideal conditions. The energy sector will therefore need to promote an integrated approach to tree planting, promotion of end-use efficiency with traditional fuels and the substitution of modern commercial fuels for traditional fuels wherever possible.

Objectives:

To augment the supply of energy commensurate with the country's energy demand and to reduce the growth rate of that demand through increasing supplies of energy and improving efficiency of production and conversion.

The Guiding Principles are that:

- ◆ an inter-sectoral process of planning and development which integrates energy development with energy conservation, environmental protection and sustainable utilization of renewable resources should be adopted,
- ◆ energy development should be decentralized as far as is possible in order to minimize transportation costs and to enhance development in isolated or remote areas,
- ◆ institutional, pricing and regulatory arrangements should ensure that the organisation of the energy sector provides an effective framework for the private commercial sector and communities to engage in energy production,
- ◆ increasing reliance should be placed on energy efficient technologies, sustainable use of renewable resources and the development of indigenous energy resources,
- ◆ the development of renewable energy sources should be preferred to the use of fossil energy sources both for ensuring sustainability and for protecting the environment; and fossil fuels, when used, should be minimized to ensure their continuation into the future,
- ◆ local level energy planning and decision making should involve the primary users such as women, charcoal makers and large institutional consumers (eg. schools, bakeries), and cottage and large scale industries (eg. brick makers, potters, tea and tobacco curers, fish smokers),
- ◆ energy development should be included at all levels of planning but especially in Wereda and local development plans,
- ◆ the private sector should be supported and encouraged to participate in the design, development and dissemination of energy technologies,
- ◆ energy resource assessment, investment planning and investigation of least cost investment programmes should be undertaken as a joint effort of all state and private sector agencies involved,

- ◆ where feasible, incentives should be used to encourage institutions and industries which consume large amounts of wood fuel to establish or contract for their own woodlots, and
- ◆ Government leases for private entrepreneurs should be encouraged for fuel woodlots in peri-urban areas.

The Strategies are to:

4.6.1 Development and Conservation of Biomass Energy Resources:

1. Ensure that energy plans adequately address fuelwood.
2. Link the implementation of energy policies and strategies more closely to the implementation of policies and strategies on agriculture and forestry and in general on biomass and renewable resources.
3. Focus extension programmes on farm and homestead tree planting to ensure that each homestead grows enough trees to satisfy its wood requirements,
4. Set aside land, especially in peri-urban areas, for long term leases for private sector woodlots.
5. Boost technical and social research on the design of improved cooking stoves.
6. Promote local manufacturing and distribution of improved charcoal and biomass stoves.
7. Locate, develop, adopt or adapt energy sources and technologies to replace biomass fuels.

4.6.2 Development of Alternative Energy Resources and their Utilization:

1. Develop alternative energy sources (eg. solar power, wind, biogas, agricultural bio-fuel, liquid bio-fuel or small hydro electric plants) for towns and villages remote from the national grid.
2. Acquire, develop, test and disseminate appropriate alternative and improved energy use technologies (eg. improved stoves, charcoal kilns, solar powered cookers and heaters).

3. Demonstrate and support the use of other energy (eg. geothermal, solar, etc) sources in the various economic sectors where it is currently little used: eg. transportation, irrigation, crop-drying, food processing, fish drying, thermal heating.
4. In establishing factories that require hot water opt for their siting in areas with hot springs giving due consideration to the overall environmental, economic and social advantages.

4.6.3 Development of Electricity:

1. Promote the appropriate development of electricity in accordance with a prioritized energy investment programme.
2. Ensure that feasibility studies for hydro-electricity facilities and other significant generating facilities include rigorous environmental impact assessments to allow informed decision-making that maximises benefits to the community and to the country at large.
3. Adopt energy pricing policies that promote the sustainable development of a local electrical goods industry capable of producing affordable lamps and cooking and heating appliances.

4.6.4 Capacity Building and Institutional Strengthening:

1. Strengthen research, planning and project implementation capability of the national and regional energy agencies.
2. Review current institutional, pricing and regulatory arrangements in the energy sector to suggest reforms that will better meet community energy needs and maximise the opportunities for private commercial and community sector initiatives to develop and market environmentally sound energy sources.
3. Formulate an integrated national energy master plan.
4. Establish a centre for testing alternative and efficient energy sources, technologies and appliances.
5. Promote and assist the private sector to assemble and manufacture energy development facilities and end-use appliances.

4.7 MINERAL RESOURCES DEVELOPMENT

Cross References: 3.2, 3.4, 3.5, 3.6, 4.10

Situation Synopsis:

Despite the presence of a wide range of useful minerals of exploitable grades and extent, the mining sector is small and undeveloped. In the context of the New Economic Policy and the Agricultural Development Led Industrialisation Strategy minerals can play important roles through the provision of primary and intermediate inputs for construction, industry as well as for direct exports.

Objective:

To increase the contribution of mining to the diversification and expansion of the economy and to export earnings, and to increase mineral use in manufacturing, construction, agriculture and services through the development of a self-sustaining and environmental friendly private and state sector mining, mineral processing and mineral based manufacturing.

The Guiding Principles are that:

- ◆ mineral resources are finite and should be used as frugally as possible in order to extend their use as far into the future as possible,
- ◆ as mineral resources are depleted sooner or later long term agricultural and agro-industrial production should not be undermined by desire for short term benefits from careless mining,
- ◆ as mining activities can very easily be permanently destructive of the environment, agricultural production and human health, very stringent safeguards should be in place to ensure that environmental damage does not occur,
- ◆ mineral development should be integrated with the development of the sectors of the economy which are end-users of minerals, with those sectors that provide inputs and support to the mining industry,
- ◆ the important role of women as participants in, and beneficiaries of, mineral development should be recognized and integrated into the development programming and project preparation activities,

- ◆ rural communities in mineral bearing areas should be given priority and encouraged and supported in artisanal and smallscale mining for gold, salt and other minerals amenable to artisanal operations and smallscale groundwater exploitation,
- ◆ mining communities should be advised and trained in methods of environmental protection, reclamation of abandoned mining areas, and
- ◆ given the increased role of the private sector and of possible foreign investment in large scale mining the capacity of the state sector mining agencies to regulate and administer environmental protection should be strengthened

The Strategies are to:

4.7.1 Increasing Productive Capacity

1. Compile and maintain a public data base on mineral production and exploration required for planning and disseminate this within the industry.
2. Undertake detailed petroleum exploration in known areas; and collate, compile, standardize and make available existing geological, geochemical, gravimetric and magneto-telluric sounding information in order to promote petroleum exploration in virgin areas.
3. Increase the coverage of regional geological, hydrogeological and detailed geochemical mapping and mineral exploration surveys.
4. Adopt mechanisms for attracting venture capital investment in mineral development.
5. Create a simplified and efficient system for permitting investors to operate, including negotiation, licensing, land rights acquisition, dealing with other agencies, inspection and control.
6. Attract foreign investment in large scale mining in order to facilitate the acquisition of technology, investment capital and access to export markets for minerals by publishing information on the country's geological and mineral assets.
7. Strengthen the capacity of the central and regional institutions for the survey, monitoring, regulation and administration of the planning and

implementation of mining operations by communities, entrepreneurs and state agencies.

8. Decentralise decision making for the issuance of licences for the collecting of surface minerals, including panning for gold, drilling for ground water and for quarrying to the municipal authorities in urban areas, to wereda councils in rural areas and to regional councils for mining large salt deposits.
9. Provide technical assistance and information to the private sector developments in smallscale mining (eg. salt extraction, lignite mining, brick making, gemstone mining, etc.)
10. Establish good working relations with existing artisanal gold miners, provide technical assistance to improve output, support handicraft and jewellery making and improve the environmental management.
11. Promote and support the local manufacture of mining equipment in particular for the smallscale and artisanal mining sectors with technical assistance and training, and through facilitating financing of mining service industries.
12. Provide support to women in mineral development with special practical training and technical assistance particularly in smallscale and artisanal mining.

4.7.2 Environmental Management and Protection:

1. Implement a continuous programme of public and industry education, environmental monitoring and provision of technical advice and assistance in environmental management during mining operations.
2. Provide technical and material assistance to artisanal miners to improve environmental protection and output efficiency.
3. Use conditions of contract to motivate and ensure licensed mining operations, prepare pre-development environmental impact studies, adopt sound environmental management practices during operations and undertake appropriate mitigation and reclamation measures both during and after operations.
4. Prepare and enact specific mining environmental protection legislation.

5. Prepare environmental management plans for areas earmarked for artisanal and smallscale mining.
6. Assess the degradation of lands due to past mining operations and seek local community assistance and participation in restoring these lands to productive use.

4.8 HUMAN SETTLEMENTS, URBAN ENVIRONMENTS AND ENVIRONMENTAL HEALTH

Cross References: 3.1, 3.2, 3.4, 3.5, 3.6, 4.6, 4.7, 4.10 and 4.12

Situation Synopsis:

The current urban proportion of the national population is relatively low at only 14.7 percent. The annual rate of urban population growth is 5.4 percent and the national proportion of urban population is likely to rise to 30 percent by the year 2020. There is a high proportion of female headed households in urban areas. Some 4 million urban dwellers (approximately 60 percent) are classified as "chronically poor".

About 31 percent of households in Addis Ababa have no sanitation facility, whilst in other urban areas the proportion is about 48 percent. In Addis Ababa shared toilet facilities constitute 24.8 percent of all units, whilst in other urban areas the proportion is about 34.8 percent. On the other hand sewerage services are absent in all towns except Addis Ababa which is limited to only 800 establishments or 1 percent of households. The serious deficiencies in sanitation services, the lack of treatment of the sewerage collected by the limited collection service and random defecation in urban areas have created serious environmental problems. Rivers and streams in the vicinity of Addis Ababa and other large urban centres have become open sewers. During the rainy season raw sewerage is washed down hillsides past and even through the poorer houses. Women carry water and clean the latrines. Privacy for them is almost impossible as many latrines are shared among many people and even simple doors are often absent. All of these now present an increasing public health hazard of terrible proportions.

The current stock of urban housing is both insufficient and of very poor quality. In 1974 about 60 percent of the housing stock was nationalised and allocated on fixed rents which have now become low. For the past twenty years there has been little or no maintenance leading to a deterioration of the existing housing stock. In addition there has been a very low rate of housing construction leading to

considerable overcrowding. Many areas do not have vehicle access which results in poor or no service provision (eg. pit latrine emptying). Annual housing need over the past two decades was estimated at 77,600 units. The actual supply has been 6,000 indicating a deficit of 92.3 percent.

Hitherto the government has taken the lead role in housing and infrastructure provision but is now finding that it is unable to keep pace with the increasing demand. Given the very high rates of poverty private sector involvement in sanitation and other habitat improvements is likely to be difficult to promote.

Objectives:

To plan and manage human settlements and their environments so as to satisfy the physical, social, cultural, health and other needs of their inhabitants on a sustainable basis.

The Guiding Principles are that:

- ◆ rural-urban migration, human settlement and environmental health concerns should be incorporated into regional, wereda and local level planning and development activities,
- ◆ planning, development and management of urban areas should seek to harmoniously integrate the human-produced and the natural elements in order to maintain the natural ecosystems,
- ◆ improved environmental sanitation should be placed highest on the national and regional agendas for achieving sustainable urban development,
- ◆ the first priority for improved sanitation should go to urban areas, second to smaller towns and villages and third to dispersed rural areas,
- ◆ maximum reliance should be placed on communities and individual families to make improvements to their immediate habitats, to construct their own houses and to provide human and domestic waste disposal facilities,
- ◆ however given the very high levels of poverty in urban areas security of tenure of houses and land to encourage investment in sanitation should be recognised as an essential incentive in such individual and community sector involvement,

- ◆ the importance of behavioral change through education and public awareness of environmental sanitation problems should be recognized in trying to achieve "demand" driven community led programmes of improved urban environments and the sustainable use and maintenance of sanitation facilities,
- ◆ methods used to raise public awareness should be participatory and interactive and also be action orientated focusing on "learning by doing",
- ◆ the government's role should be confined to ensuring security of tenure of houses and land, formulation of an enforceable environmental regulatory framework and provision of basic infrastructure and sanitation and health services, and as appropriate, incentives,
- ◆ however there should be sound partnership between the government and communities in the development of an integrated sanitation delivery system, and the potential supplementary role in this of NGO's should be recognized,
- ◆ housing and sanitation technologies and regulatory standards should be set at such a level and cost as to be within reach of the users and flexible enough to be adaptable to the very varied socio-economic, epidemiological, climatic and physical site conditions which are found in urban areas,
- ◆ in developing urban sanitation programmes the interactions among the various environmental problems should be recognized: eg. poor surface drainage and random solid domestic waste disposal in drainage lines,
- ◆ equal priority should be given to waste collection services and its disposal as well as to its environmental impacts,
- ◆ the importance of adequate water supply as an important component in achieving a sustainable and healthy urban environment should be recognized; on the other hand the minimization of the need for water should figure high in the choice of sanitation technologies,
- ◆ there should be clear lateral and vertical operational linkages among the central sectoral administrations and the regional/local administrations which are responsible for the urban environment,

- ◆ local citizen groups and neighbourhood centres should be encouraged and supported to provide advice on health care, hygiene, family planning, self help housing, efficient use of energy and water,
- ◆ the symbiotic relationship between an urban area and the surrounding rural areas should be recognized and integrated into regional, urban and rural local land use planning, and
- ◆ these principles should apply to existing and new settlements schemes and as far as is possible to temporary camps.

The Strategies are to:

1. Establish an institutional framework which ensures clear mandates and coordination of responsibilities among the various government agencies active in the fields of planning and developing urban areas, providing water, sanitation and other urban environmental infrastructure and services.
2. Promote environmental sanitation, education and the creation of awareness in the community to foster a sense of responsibility and determination to acquire and maintain a relatively higher standard of environmental sanitation.
3. Develop a national sanitation plan which addresses the problems of the provision of sanitation services and includes such components as sanitation promotion, self help strategies, low cost sustainable technologies, participation of women, urban and rural differences, areas of priority and define the yearly implementation rates required to meet demand.
4. Encourage the creation of and support local citizen groups and neighbourhood centres to establish a partnership with government agencies for developing sustainable sanitation delivery systems and providing advice and creating awareness of issues of health care, hygiene, family planning and the efficient use of energy and water.
5. Develop and promote through local citizen groups and neighbourhood centres the wider applications of appropriate and affordable technologies for infrastructural development, building materials, sanitation facilities and water supplies.

6. Develop and enhance the capacity of central and regional government institutions for upgrading and coordinating all the urban sanitation, water supplies and environmental health programmes being undertaken.
7. In the low income and very high density housing areas of Addis Ababa and the older towns construct shared VIP latrines with frequent emptying by tankers supported with government funds augmented, where possible with NGO funds, integrated with programmes on health and user education and hygiene awareness with follow up maintenance and cleaning, all implemented as a component of a broader urban environmental upgrading programme including storm water drainage and access.
8. In lower density urban and peri-urban areas (i.e. less than 700 people per hectare) construct family latrines as a conditionality of the house plot lease and integrate with health and hygiene awareness programmes.
9. In the new housing areas construct latrines at the time of house construction as a conditionality of the lease.
10. Establish revolving credit funds for families, housing groups and communities to purchase the necessary materials for latrine construction and for private entrepreneurs to undertake latrine emptying services.
11. Formulate appropriate legislation with housing, sanitation and technology standards which are enforceable and affordable for low cost housing areas.
12. Improve road access to residential areas to allow the efficient provision of sanitation and other environmental and social services.
13. Undertake studies to identify suitable sanitary landfill sites in the major sites and towns of Ethiopia.
14. Plan and create green spaces within urban areas, including community forests and woodlands for fuelwood as well as for recreational amenity, providing habitats for plants and animals and ameliorating urban micro climates.

4.9 CONTROL AND MANAGEMENT OF POLLUTION FROM INDUSTRIAL WASTE AND OF HAZARDOUS MATERIALS

Cross References: 3.4, 3.6, 3.10, 4.6, 4.7, 4.8, 4.9 and 4.10

Situation Synopsis:

Although the degree of industrialisation is still relatively low in Ethiopia, industrial plants are causing problems of waste management and pollution locally. The most offending industries are the leather, textile and some food (particularly meat) processing plants. Currently there is no legislation regulating waste management or discharging of effluent or airborne pollution.

Thus whilst the threat to environmental quality posed by industrial activities is generally not excessive notwithstanding a number of local problems, it will be important to put a regulatory system in place to prevent more widespread threats in the future as industrialisation increases under the national economic development strategy.

Objective:

To limit the release of hazardous materials and other pollutants into water, land and air from domestic and industrial sources to levels compatible with the economic benefits accruing and with the wellbeing of humans and the receiving environmental.

The Guiding Principles are that:

- ◆ the precautionary principle of minimizing and where possible preventing discharges of substances that could be harmful should be adhered to, and the discharge of very harmful substances should not be allowed,
- ◆ pollution standards should be enforceable and capable of being monitored, and as much as possible measurable,
- ◆ authority for pollution prevention and control should reside in a single agency,
- ◆ the "polluter pays" principle should be adopted and polluting industries and municipalities should ensure that enterprises provide their own appropriate pollution control facilities,

- ◆ clear linkages to other policy areas including: water resources, human settlements, health and disaster prevention and preparedness, should be established,
- ◆ adequate regulation of agricultural (crop and livestock) chemicals should be provided for,
- ◆ as the most insidious form of pollution is biological since it is self regenerative and usually impossible to contain once allowed to get out of control, the aim in dealing with polluting biological materials should be prevention,
- ◆ as the problems of non-biological pollutants increase with potency and longevity, pollution control should be the aim with efforts commensurate with the potency and longevity of the pollutant, and
- ◆ when dealing with substances that accumulate in higher order carnivores, eg. DDT, it is the control of the concentration in the tissues of the higher order carnivores that should be the focus of regulatory decisions.

The Strategies are to:

4.9.1 Regulatory Framework for Pollution Control and Management of Hazardous Materials.

1. Review and evaluate all existing legislation in the context of the National Policy on Natural Resources and the Environment to determine overlaps, omissions and duplications, and prepare umbrella "enabling" environmental legislation for environmental protection and the institutional framework required to implement it.
2. Review and establish environmental standards for water quality and waste disposal into water, land and air.
3. Review and establish environmental standards for methods of the safe handling and storage of hazardous and dangerous materials and incorporate these into regulations.
4. Review and establish standards of public hygiene that public services should follow and incorporate these into regulations and enforce them.

5. Review and prescribe minimum standards of environmental safety in mining operations, including the development of mine contingency plans, and the disposal of mine tailings and dumps and incorporate these into regulations.
6. Establish safe limits for the location of sanitary landfill sites in the vicinity of wells, bore holes and dams and incorporate these into regulations.
7. Stipulate procedures for the reclamation and restoration of land, top soil and vegetation of mined out areas to be followed by mining companies and enforce this through the use of adequate performance bonds and monitor the recovery of such areas.
8. Review, develop and institute safety and health codes of practice and guidelines based on the hazard levels of various industry types.
9. Review and develop guidelines for waste disposal, public and industrial hygiene and techniques to enable the cost-effective implementation of defined standards of control.
10. Formulate and implement a national strategy and guidelines on medical waste management and disposal.
11. Review and develop contingency plans and guidelines for environmental emergencies,
12. Establish a system for monitoring compliance with land, air and water pollution control standards and regulations, the handling and storage of hazardous and dangerous materials, mining operations, public and industrial hygiene, waste disposal, and water quality.
13. Maintain an up to date register of toxic, hazardous and radio-active substances.
14. Maintain regular environmental audits to ensure the adoption of environmentally sound practices in all development activities including industrial and mining operations.
15. Enforce the exhaustive labelling, detailing the contents of foods, drugs, cosmetics, other chemicals, and when any of the contents are poisonous, the fixing of a strikingly visible label to that effect.

16. Promote waste minimization processes, including the efficient recycling of wastes wherever possible.

4.9.2 Capacity Building, Institutional Strengthening and Increasing Environmental Protection Awareness

1. Strengthen the capacity of the National Environmental Protection Authority to develop appropriate legislation, regulations and standards, to undertake environmental audits and to coordinate national and regional systems of environmental impact assessment through the provision of training.
2. Develop and strengthen the capacity of the mandated line ministries and regional bureaus to systematically monitor and regulate legally established environmental standards and regulations, and to undertake environmental impact assessments as part of the project preparation process through the development of technical guidelines, and the provision of training.
3. Strengthen institutional and technical capacities for enforcing land, air and water pollution control standards and regulations, for the handling and storage of hazardous and dangerous materials, for mining operations, for enforcing standards of public and industrial hygiene, waste disposal, and water quality and enhance institutional coordination.
4. Hold as legally liable an employer who deploys labour using or handling hazardous materials without adequately training the workforce on how to deal with the hazard and without adequate equipment to protect it.
5. Train and encourage extension workers, and through them, farmers and extension workers in the safe and proper use of agro-chemicals,
6. Encourage better understanding of the dangerous effects of chemicals through the provision of information in a form understandable to users, and provide information on the appropriate methods and technologies for the treatment and disposal of wastes.

4.10 CONTROL OF ATMOSPHERIC POLLUTION AND CLIMATIC CHANGE

Cross References: 3.1, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2, 4.3, 4.4, 4.5 and 4.7.

Situation Synopsis:

In the geological timescale climate keeps changing. Ethiopia has often been wetter or drier than it now is. There also seem to be cyclic changes of varying time scales which are not well understood.

Climate is a major natural resource that affects nearly all human activities. Because of its complexity and variability climate is one of the key factors affecting the fate and prospect of humankind. Due to heavy emissions from energy generating plants, industrial and other sources, greenhouse gas concentrations have been increasing resulting in the warming of the atmosphere. This enhanced concentration of greenhouse gases coupled with the unwise use of natural resources is anticipated to cause a change in climate.

Should a climatic change take place, its impact on the whole of nature and civilization could be devastating, whether the change is along a wetter or drier or whether along a warmer or colder trend. It is for this reason that the world has taken very seriously the indications that the earth's climate is warming up. The culprits are believed to be the atmospheric green house gases, mainly carbon dioxide, which has dramatically increased since the industrial revolution, emitted from factories, fossil fuel fired electricity generators, motorized vehicles, homestead fires, bush fires etc. Since green house gases generated from biomass would be taken up in the replacement generation of that biomass in the next growing season, it is believed that the main source of incremental green house gasses is the burning of fossil fuels.

Ethiopia has one of the lowest per capita rates of consumption of fossil fuel in the world. Its contribution to climatic change is, therefore, negligible. But it has one of the most vulnerable climates in the world. Its concern, therefore, should be one of the most acute. For these reasons, it should be active in trying to check climatic change, looking more at the mistakes it should avoid in its future industrialization and at the diplomacy it can play in the world.

Objective:

Through a national programme which includes climatic monitoring to minimize the emission of pollutants into the atmosphere to levels which are as close as possible to being compensated by their removal by green plants

and other natural phenomena so as to minimize their contribution to climatic change.

The Guiding Principles are that:

- ◆ as the country is highly sensitive to climatic variability, it is necessary that a climatic programme be promoted.
- ◆ Ethiopia has large arid and semi arid areas which have already suffered much from the vagaries of climatic variation and are likely to suffer seriously if a shift in climate does occur,
- ◆ although compared with the rest of the world Ethiopia's contribution to atmospheric pollution that causes climatic change has been negligible, its impact is going to increase with the growth of industrialisation,
- ◆ even at an insignificant level of contribution to atmospheric green house gases, a firm and visible commitment to the principle of containing climatic change is essential for a moral position from which to deal with the rest of the world in a struggle to bring about its containment by those countries which produce large quantities of green house gases,
- ◆ Ethiopia's environmental and long term economic interests coincide with the need to minimize atmospheric inputs of green house gases as it has a large potential for the harnessing of hydro-, geothermal and solar energy, none of which produce pollutant gases in any significant amounts,
- ◆ as a highland country Ethiopia already has a thin protective atmosphere and is liable to suffer agricultural losses and adverse health effects from exposure to ultra-violet rays, it should actively participate in protecting the ozone layer and thus comply with the Vienna Convention, the Montreal Protocol and its London amendment,
- ◆ the continued use of biomass for energy production makes no contribution to atmospheric pollution so long as at least equal amounts of biomass are produced annually to compensate, and the expansion of reforestation to produce appreciably more biomass than is burnt as fuel will help clean the atmosphere of pollution contributed by industrialized countries, and

- ◆ the revegetation of the land, especially reforestation, affects the climate beneficially not only through sequestering excess carbon dioxide from the atmosphere, but also through enhancing the hydrological cycle and thus ameliorating micro-climate and even improving rainfall.

The Strategies are to:

1. Maximize the standing biomass in the country through a combination of reforestation, agro-forestry, the rehabilitation of degraded areas, a general re-vegetation of the land and the control of free range grazing in the highlands and seek financial support for this from industrialized countries for offsetting their carbon dioxide emissions.
2. Develop environment friendly technologies, such as the harnessing of hydro- and geo-thermal resources, in order to safeguard the atmosphere.
3. Reduce to the minimum possible the use of fossil fuel for energy production.
4. Adhere to the international conventions and protocols designed to protect the atmosphere.
5. Develop appropriate evaluation techniques to assess alternative measures and programmes designed to avoid climatic change.

4.11 CONSERVATION AND PROTECTION OF THE NATION'S CULTURAL AND NATURAL HERITAGE

Situation Synopsis:

Ethiopia's rich national heritage and culture permeates every facet of daily life and provides a powerful and socially cohesive force in the national consciousness. It also provides a potentially valuable "resource" in terms of tourism. However much of this heritage and culture is under threat through neglect, decay, removal or destruction as well as through the less visible and tangible impacts of changing socio-cultural values, foreign ideas and imported technologies. Unregulated and badly planned tourist development presents an additional and potentially very dangerous threat. Much of Ethiopia's built heritage is part of contemporary religious and cultural life: eg. the churches of Lalibela.

Objective:

To preserve, conserve and sustainably manage Ethiopia's cultural heritage including its ancient and historical sites, monuments and artifacts, oral and written history, traditional arts and design, indigenous languages and social culture, and indigenous knowledge and technologies as well as natural heritage so as to retain their heritage significance and to contribute to a new modern synthesis of culture.

The Guiding Principles are that:

- ◆ heritage significance indicates historic, aesthetic, social, scientific or other values for past, present and future generations,
- ◆ heritage is living and is not a museum of protected objects but part of peoples' lives,
- ◆ heritage is a continuum of cultural expression from natural wilderness to urban areas,
- ◆ heritage conservation should be seen as part of, and integrated with, Ethiopia's general social and economic development,
- ◆ the national heritage should not be seen as the responsibility of government alone and so communities should play a leading role in assessing and nominating places or items of heritage significance and in conserving them, and
- ◆ a sustainable heritage conservation and management programme should seek to understand all the elements of the system, their interrelationships and the ways in which each contributes to social and economic development.

The Strategies are to:

1. Initiate a programme of nominations of places or items of heritage significance by all levels of Ethiopian society ranging from the community to the nation and assemble a register of these.
2. At each level of administration establish criteria for assessing places, structures or objects of historic, aesthetic, social, religious, scientific or other significance, according to rarity, to representativeness or degree

of association to past or present phases or events within that level in Ethiopia's history.

3. At each level a Heritage Conservation Committee should consider all nominations of heritage significance according to the criteria established for inclusion or otherwise on a heritage register for that level so that there will be registers ranging from the community levels to the national level.
4. Establish for each item the type of required heritage management and give priorities for action.
5. Develop a heritage action plan and investment programme for each level together with management plans for each heritage site or item.

CHAPTER V

POLICY IMPLEMENTATION

Policy implementation involves the successive detailing of policy from the level of very broad intent as expressed in this framework down to laws and regulations. This is done by the structuring of actions, in an action plan, and the detailing of investment support, in an investment programme. The first prerequisite is the creation of an appropriate institutional framework and a second is the development of an appropriate legal framework. Once these actions are undertaken then the development of a monitoring and evaluation system to measure the impact of policies on the environment, the population and the economy will be required.

5.1 INSTITUTIONAL FRAMEWORK, RESPONSIBILITIES AND MANDATES

Situation Synopsis:

The Transitional Period Charter has affirmed the right of nations, nationalities and peoples of Ethiopia to self-determination and to self-government to determine and manage their own affairs themselves. Proclamation 7 of 1992 provided for overall political power regarding the internal affairs of the respective regions to reside in elected regional councils. Proclamation 41 of 1993 defined the powers and duties of the central and of the regional executive organs of the Transitional Government. The goals of decentralisation include increased administrative efficiency, increased local participation in development planning and management and the allocation of resources so that they reflect more closely the development priorities of local populations.

The sectoral bureaus of the regions and zones remain in their early build-up stages and have as a consequence gained only limited experience in planning and implementation. However during the formulation of the Regional Conservation Strategies, inter-sectoral Regional Conservation Strategy Steering Committees have been established and have gained experience in coordinating Zonal Task Forces undertaking the local level consultations and studies and provided the institutional mechanisms for regional strategic planning.

Proclamation 41 of 1993 defined the powers and responsibilities of the Ministry of Natural Resource Development and Environmental Protection and the central and Regional levels. This placed the responsibility for environmental development and management and for environmental protection within the same Ministry.

Objective:

To strengthen the existing institutional mechanisms needed to implement the National Conservation Strategy for Ethiopia.

The Guiding Principles are that:

- ◆ coordination of natural, human-made and cultural resources and environmental management requires political and popular support for effectiveness at the national, regional, zonal, wereda and community levels,
- ◆ the national and regional coordinating bodies down to those of the community level should enjoy universal respect and acceptability among government ministries and bureaus and other governmental and non-governmental organizations,
- ◆ the national and regional coordinating bodies down to those of the community level should be representative of concerned line ministries and bureaus, as applicable to the level of organisation, including those of Natural Resources Development and Environmental Protection, Planning and Economic Development and External Economic Cooperation, as well as regional and municipal Governments, appropriate level elected councillors, non-governmental organizations, community representatives, representatives of professional or other environmental associations and the private sector,
- ◆ whenever possible existing institutional structures should be used to the maximum,
- ◆ institutional arrangements for the on-going formulation of conservation and natural resource development and management strategies, legislation, regulation, monitoring and enforcement should be determined by the following criteria:
 - (i) Conformity with the Constitution, especially with respect to decentralization policy;

- (ii) Harmonization of sectoral interests;
 - (iii) Integration of environmental planning with development planning
 - (iv) Minimization of incremental financial requirements
- ◆ conflicts of interest should be avoided by assigning responsibilities to separate organisations for environmental and natural resource development and management activities on the one hand and environmental protection, regulatory and monitoring activities on the other
 - ◆ enforcement of government laws and regulations with respect to environmental protection should remain the responsibility of central and regional administrations or other government entities; nevertheless, where government's own development activities are controlled by laws and regulations, the relevant activities of specific ministries and other government entities should be monitored by the government organisation responsible for environmental protection and regulation, and the monitoring of such laws and regulations to ensure compliance.

The Strategies are to:

1. Separate the institutional responsibilities for natural resource and environmental development and management on the one hand, and for environmental protection and regulation on the other, and therefore, to separate the present Environmental Protection Authority from the Ministry of Natural Resource Development and place it outside and above any line ministry with sectoral development interests: ie. under the Prime Minister's Office.
2. Create a National Council for Environmental Protection (NCEP) chaired by the Prime Minister or his designate and responsible to the Council of Ministers, with the new National Environmental Protection Authority (NEPA), headed by a senior member of the Prime Minister's staff with the rank of Minister, acting as Secretariat to the Council.
3. Mandate the Ministry of Planning and Economic Development to continue coordinating the planning, programming and consolidating of the overall investment programme and annual capital budgets in accordance with the National Policy on Natural Resources and the Environment; such action programmes forming an environmental sub-

set of the overall national development programme, and regional planning bureaus exercising identical functions with respect to regional action plans and investment programmes.

4. For the implementation of the various development and management aspects of the National Policy on Natural Resources and the Environment maintain the present inter-Ministerial Environmental Policy Coordinating Committee of which the Minister of Natural Resource Development and Environmental Protection is Chairman, but with a legal status and with a clear mandate to coordinate the nationwide implementation of the National Policy on Natural Resources and the Environment, expanding the National Committee's current membership to include at least one representative of non governmental organizations, one community elder and one member representing the private business/industrial sector.
5. Give legal status to the current NCS Steering Committees which have been established at the regional level as "Regional Environmental Coordinating Committees" with the mandate to coordinate the implementation of their respective Regional Policy on Natural resources and the Environment, expanding the current membership of the Regional Steering Committees to include at least one representative of non governmental organizations, one community elder and one member representing the private business/industrial sector.
6. Legally establish lower level environmental coordinating committees at the zonal, wereda and community levels.
7. The Community Environmental Coordinating Committee will, in addition, act as a Science of Technology Association (referred to in section 3.9 of this Policy) for the monitoring and documenting local knowledge, science and technologies on the environment and, in general, on development; with a teacher from the nearest school selected by the committee will act as its secretary, for which he/she will be remunerated.
8. Continue the mandates of line Ministries to implement those components of the overall policy and strategy for which they are responsible as under Proclamation 41 of 1993 as follows:
 - (a) **Ministry of Planning and Economic Development** : to monitor the overall implementation of the policy framework and in

cooperation with the concerned ministries review programmes and projects based on the framework,

(b) **Ministry of Natural Resources Development and Environmental Protection:**

Catchment Development and Land Use Planning Department : Community Forestry, Land and Water Management (with Ministry of Agriculture), Biological Resources (with MoA), Land Tenure (with MoA), Land Use Policy and Planning (with MoA),

Water Resources Development Department: Water Resources and River Basin Development,

- (c) **Ministry of Agriculture:** Land and Water Management (with MNRDEP and MSF,TCD), Rangelands, Land Use Policy (with MNRDEP), and Plant Genetic Resources,
- (d) **Ministry of Mines and Energy:** Mineral Resources, Energy (with MNRDEP and MoA),
- (e) **Ministry of Public Works and Urban Development:** Urban Settlements (with MoH and MoI), Control and Management of Domestic and Industrial Waste (with MoH and MoI),
- (f) **Ministry of Education:** Environmental Education (with MNRDEP and MoA),
- (g) **Ministry of Information:** Environmental Awareness (with MoE, MNRDEP and MoA),
- (h) **Ministry of Culture and Sport:** Cultural Heritage (with MPWUD and ENTO),
- (i) **Ministry of Industry:** Control and Management of Domestic and Industrial Waste and Hazardous Materials (with MPWUD, MNREP/EPA and MoH),
- (j) **Ministry of Health:** Population, Health and Human Settlement (with MPWUD, MoI and MNRDEP/EPA).

5.2 LEGISLATIVE FRAMEWORK

Situation Synopsis:

Although a preliminary assessment was undertaken as part of Phase I of the NCS process there is a need for a comprehensive and in-depth review of environmental legislation and the legal responsibilities of institutions in the state and private sectors. At present there is no comprehensive legislation for the majority of areas of environmental management and protection and in other cases there is duplication or the legislation is out of date. While devolution of powers and responsibilities could facilitate effective implementation of legislation, inter-sectoral coordination at all levels will continue to be vital.

Objective:

To create a legal framework for the implementation of the National Policy on Natural Resources and Environment.

The Guiding Principles - the Law should:

- ◆ complement programmes that motivate the peoples of Ethiopia into restoring, protecting, managing and sustainably using the natural, human-made and cultural resources and the environment of the country,
- ◆ be made within the constitutional, political, social, cultural and economic framework prevailing in the country and should not compromise the principles of sustainable development,
- ◆ assure all people living in the country of their fundamental right to an environment adequate for their health and well-being,
- ◆ provide a framework for formulating, reviewing and up-dating sectoral laws on the restoration, protection, management and sustainable use of the natural, human-made and cultural resources and environment,
- ◆ provide a broad framework for both punitive and incentive measures, and
- ◆ provide a framework for encouraging popular participation by the people of Ethiopia in the development of national and regional policies, laws and plans for the sustainable use and management of the natural, human-made and cultural resources and the environment.

The Strategies are to:

1. Enact a framework law on the management of natural, human-made and cultural resources and environment which will, among others, create rights for individuals, communities or organizations to bring action to prevent and/or stop activities likely to damage resources and the environment.
2. Establish the necessary legislation to give legal authority to the institutional arrangements specified in Section 5.1 of this Chapter.
3. Review and update sectoral laws in conformity with the principles of this national policy.
4. Establish a broad framework for national and regional resource and environmental planning.
5. Provide a broad framework for environmental monitoring and evaluation.
6. Establish a framework for environmental standards including establishment of standard criteria for the management of natural resources, hazardous materials and toxic chemicals and substances.
7. Provide a framework for the minimization and control of pollution.
8. Ensure that the true costs of environmental pollution are borne by the polluters.
9. Enact domestic legislation to enable the enforcement of international treaties, agreements and conventions on the environment.

5.3 MONITORING, EVALUATION AND POLICY REVIEW

Situation Synopsis:

Currently there is no monitoring, evaluation and policy review system in place which covers all the cross-sectoral and sectoral areas of this Policy Framework. Effective implementation and appropriate amendments will require feed backs on the progress and impact of the policies, legislation, action plans and investment programmes.

Objective:

To monitor the impact of this National Policy on Natural Resources and the Environmental and to adapt and modify it as necessary, and to ascertain the progress and effectiveness by which to evaluate the environmental investment programme which emanates from it.

The Guiding Principles are that:

- ◆ individual programme and project monitoring should be the responsibility of the implementing and/or mandated agency,
- ◆ responsibility for monitoring the overall impacts of the implementation of the National Policy on Natural Resources and the Environmental on the nation's renewable natural resources and environmental support systems and making recommendations for any modification that is required should be consistent with the institutional arrangements specified in Section 5.1 of this Chapter.
- ◆ line ministries and Regional and lower level bureaus and branches of bureaus should monitor the overall impact of the implementation of this Policy on those sectors and elements for which they have the legal mandate under Proclamation 41 of 1993,
- ◆ the Ministry of Planning and Economic Development should be responsible for the overall monitoring of the total Policy and should have the responsibility for proposing modifications that are necessary to the Policy and to the overall investment programme in consultation with the mandated line ministry, and having them approved by the Inter-Ministerial Environmental Policy Coordinating Committee,
- ◆ at least annually, communities in village level meetings with their Environmental Coordinating Committees, the Wereda and the Regional Environmental Coordinating Committees, through to the National Environmental Policy Coordinating Committee should evaluation these reviews and make their recommendations,
- ◆ the Ministry of External Economic Cooperation should continue to be responsible for coordination of any external technical assistance and funding required for the implementation of this Policy.

The Strategies are to:

1. Develop internal environmental monitoring and evaluation systems in all responsible line ministries and the Ministry of Planning and Economic Development and in the relevant bureaus at lower administrative levels.
2. Produce annual reports on the environment and development by the Ministry of Planning and Economic Development as well as by the MNRDEP at the national level, and by the respective bureaus at the regional and lower levels, with the community level report being produced by the Community Environmental Coordinating Committee.
3. Discuss in annual meetings of communities at the community level and the Environmental Coordinating Committees at successively higher levels up to the national level, the appropriate level reports, particularly noting whether the major issues raised by the lower level reports have been addressed and policy measures and activities recommended.
4. As part of, and as an adjunct to, the formal monitoring process to receive presentations and submissions on environmental matters affecting communities, weredas and regions from the Science and Technology Associations at the various levels.
5. Prepare, by the Prime Minister's Office, annual reports to the Parliament on environment and development and the state of the nation.