



**TANZANIA**

**National Environment  
Action Plan**

**A First Step**

**10th June, 1994.**

MINISTRY OF TOURISM, NATURAL RESOURCES AND ENVIRONMENT



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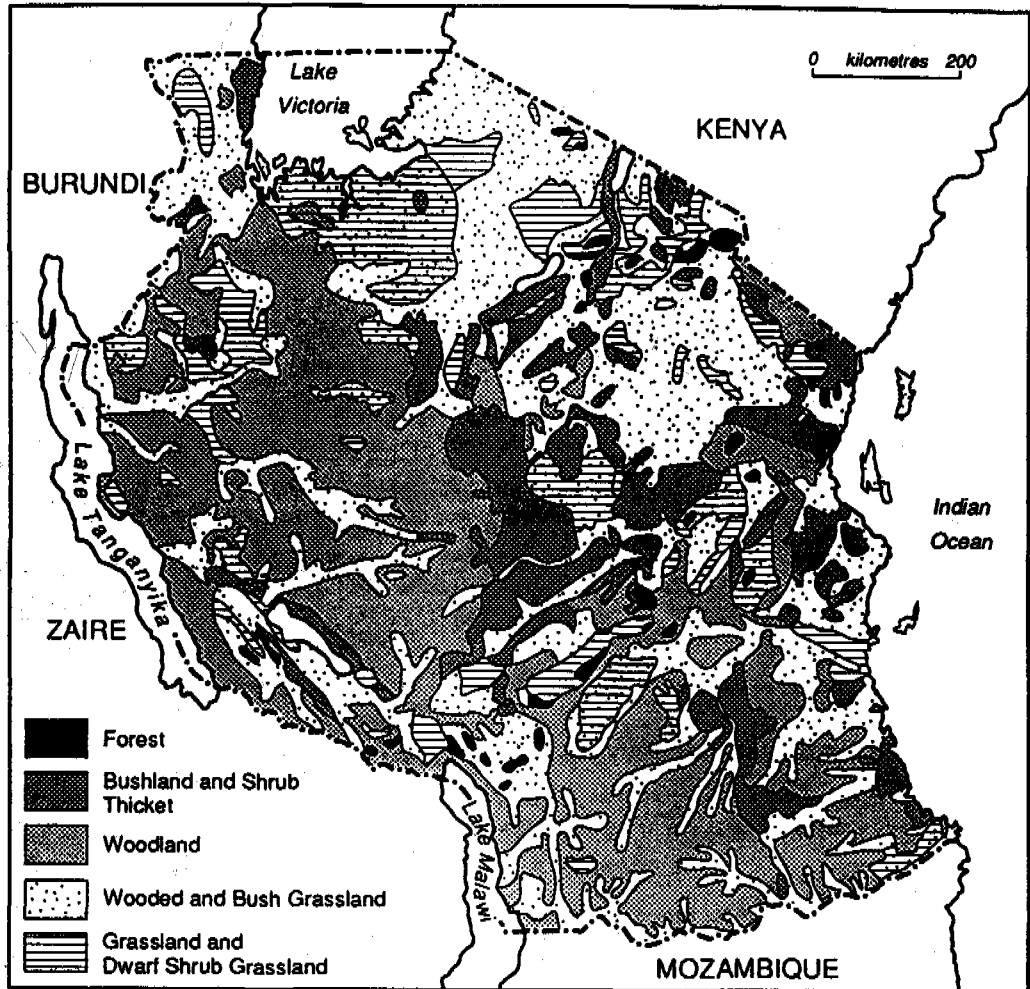
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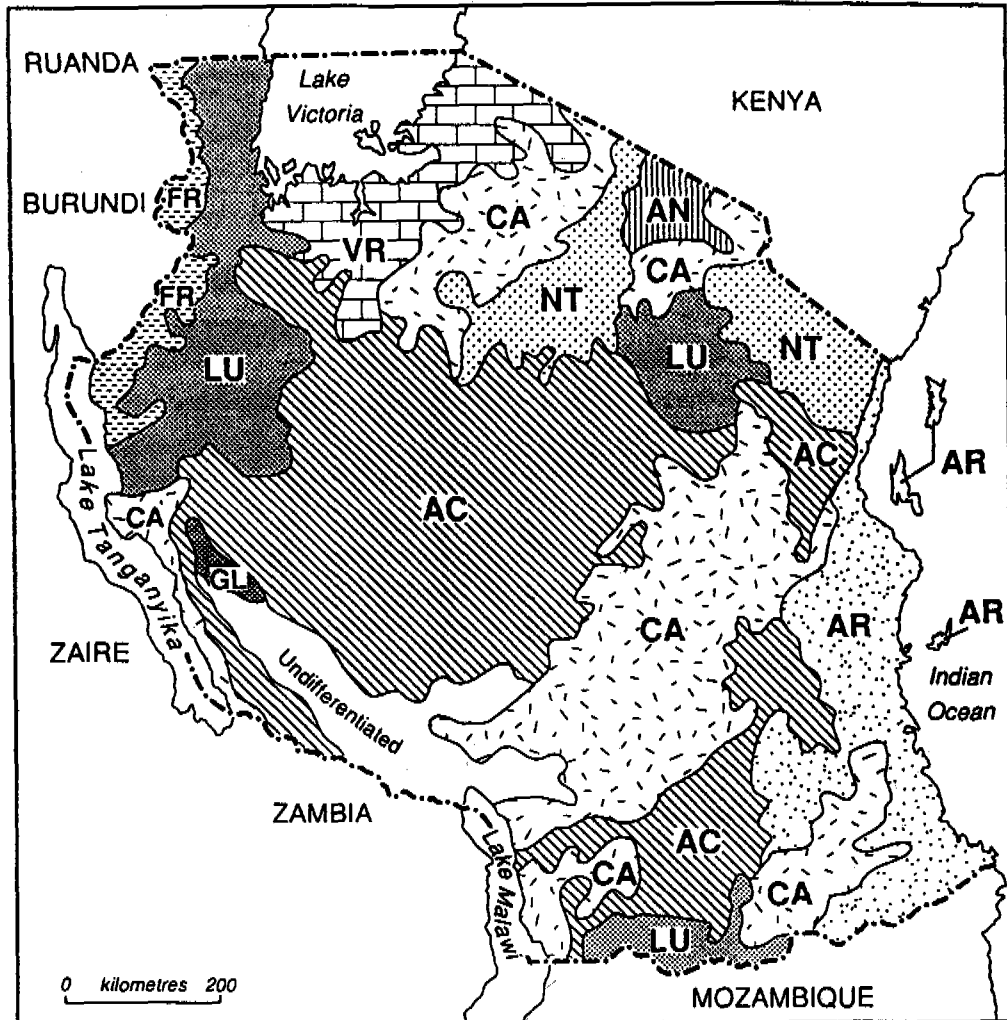


**Figure 5: Map of Major Vegetation Types**












Source: Adapted from Handbook of Natural Resources of East Africa, 1/4.0 million map of E. Africa, E. African Literature Bureau, Nairobi, 1976

## Soil Map of Tanzania

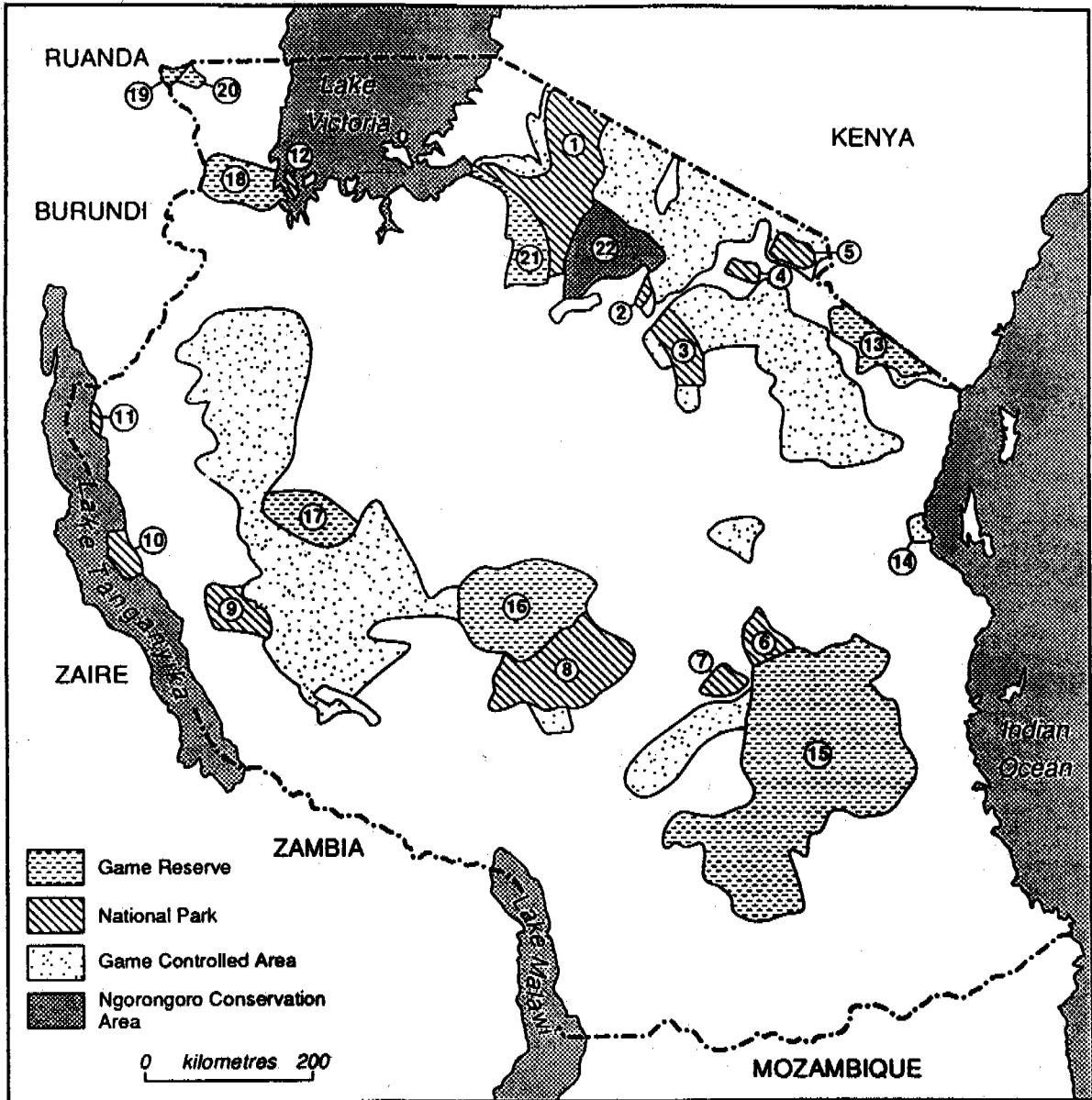


### Legend

- |   |  |
|---|--|
|  | <b>AC</b> Acrisols: Soils with an argillic B horizon (containing illuvial clay and clay skins) with base saturation < 50%          |
|  | <b>AN</b> Andosols: Soils developed from recent volcanic materials   |
|  | <b>AR</b> Arenosols: Very sandy soils which have an identifiable B horizon; clay < 15%   |
|  | <b>CA</b> Cambisols: Soils with a 'structural B horizon' but no argillic horizon   |
|  | <b>FR</b> Ferrasols: Soils with an oxic horizon with a CEC < 16 m.e./100 g clay  |
|  | <b>GL</b> Gleysols: Gleyed soils with hydromorphic properties dominating   |
|  | <b>LU</b> Luvisols: Soils with an argillic B horizon with base saturation > 50%  |
|  | <b>NT</b> Nitrosols: Soils with a deep argillic B horizon and merging horizon boundaries, strongly structured with shiny ped faces |
|  | <b>VR</b> Vertisols: Dark cracking clay  |

Source: Adapted from FAO-Unesco Soil Map of the World, 1977

## Map of Protected Areas of Tanzania



### Conservation Areas

- |                              |   |
|------------------------------|---|
| 1. Serengeti National Park   | 13. Mkomazi Game Reserve                |
| 2. Manyara National Park     | 14. Sedani Game Reserve                 |
| 3. Tarangire National Park   | 15. Selous Game Reserve                 |
| 4. Arusha National Park      | 16. Rungwa/Kizigo Game Reserve          |
| 5. Kilimanjaro National Park | 17. Ugala River Game Reserve            |
| 6. Mikumi National Park      | 18. Biharamulo and Burigi Game Reserves |
| 7. Udzungwa National Park    | 19. Ibanda Game Reserve                 |
| 8. Ruaha National Park       | 20. Rumanyika Game Reserve              |
| 9. Katavi National Park      | 21. Maswa Game Reserve                  |
| 10. Mahale National Park     | 22. Ngorongoro Conservation Area        |
| 11. Gombe National Park      |   |
| 12. Rubondo National Park    |   |



## TANZANIA MAINLAND FACT SHEET

1. Location (29° E - 41° E; 1° S - 12° S)

2. Land frontiers

To North: Kenya and Uganda  
 To West: Burundi, Rwanda and Zaire  
 To South: Zambia, Malawi and Mozambique  
 To East: Indian ocean

3. Area

(a) Land 881,289 sq km  
 (b) Water 61,495 sq km  
 Total 942,784 sq km

4. (a) Population  
 22,486,000 (1988 census)  
 25,151,000 (1992 estimate)

(b) Population density  
 22 people/sq km (1988)  
 29 people/sq km (1992)

(c) Population growth rate  
 1978 - 1988 : 2.8 %

5. Land use

	Ha. (millions)	Proportion
Small holder cultivation	4.1	5%
Large scale agriculture	1.1	1%
Grazing land	35.0	39%
Forests and woodlands	44.0	50%
Other lands	4.4	5%
Total	88.6	100%

6. Arable land (ha) 3,634,000

7. Major lakes

(a) Victoria 34,850 sq km  
 (b) Tanganyika 13,350 sq km  
 (c) Nyasa 5,600 sq km  
 (d) Rukwa 2,850 sq km

(e) Eyasi 1,050 sq km

8. Mountain summits (meters above sea level)

Mount Kilimanjaro	5,895
Mount Meru	4,566

9. National parks ( area in sq km)

(a) Serengeti	14,750
(b) Ruaha	13,000
(c) Ngorongoro	8,320
(d) Mikumi	3,320
(e) Tarangire	2,600
(f) Katavi	2,250
(g) Kilimanjaro	750
(h) Rubondo	450
(i) Lake Manyara	320
(j) Arusha	120
(K) Gombe	50
Total	45,130

10. Climate

(a) Rainfall

Main rainy season on the coast is from March to May but there is second season between October and December. Total rain increases towards the North around lake Victoria. Rainfall is well distributed throughout the year but there is a peak during March and May.

(b) Temperature

Average maximum temperature (degrees centigrade)

	Jan.	Apr.	July	October
Dar es Salaam	31.6	30.1	28.6	31.3
Arusha	28.9	25.3	21.1	27.3
Dodoma	31.4	28.4	26.0	30.2

Average maximum temperature (degrees centigrade)

	Jan.	Apr.	July	October
Dar es Salaam	23.3	22.9	18.3	19.3
Arusha	12.2	16.9	12.6	13.2
Dodoma	19.2	13.5	13.2	16.2

11.

Economic indicators

Gross Domestic Product at factor cost  
(billion shs.) 1992

At current prices 688.0  
At constant price 32.2

GDP growth rate at 1976 prices 1985 - 92: 3.69%

Per capita (shs.)  
At current prices 27,355  
At constant prices 1,280

12.

Foreign Trade

Major export	1992 (million shs.)
Coffee	19,500
Cotton	30,417
Sisal	416
Tea	7,387
Tobacco	8,787
Diamond	2,594
Gold	12,619

## FOREWORD

Environment is a major arena for intersectoral conflict. The past ten years or so have raised our understanding of the symbiotic relationship between development and environment and has lead people everywhere to embrace the concept of sustainable development.

The primary language of sustainable development is the integration of environmental considerations into economic development policies and programmes in ways that do not undermine or override environmental objectives. This involves the integration of policies, plans and programmes of interacting sectors and interest groups to balance long-term and short-term needs in the environment-development equation. It calls for a coherent policy context where priorities can be defined and set for the promotion of long-term economic growth, creating incentives for sustainable utilisation of natural resources and effective management of the environment.

For sustainable development therefore, a strategic approach that ensures that all stakeholders and interest groups take a combination of mutually reinforcing actions as priority actions on all the main fronts toward common objectives, is not only desirable but an imperative. Such approach must take account of all the main factors that influence achievement of desired objectives and must draw on the analysis of the interactions among sectors and interest groups for the integration of environmental, economic and social perspectives.

The lives of all Tanzanians is intimately connected to the environment: our survival and that of our future generations depends on the harmonious relationship with the natural elements. Towards this goal we have no choice but to strive to manage our environment and its natural resources in ways that enhance the potential for growth and opportunity for present and future generations. We do not have the luxury of ignoring the fundamental stresses at the interface of development and environment, or of believing that they are someone else's problem. A healthy economy and a healthy environment go hand-in-hand, and we need both for our survival and prosperity. In order to achieve both, a framework that seeks for the overall quality of life that development brings, not just the economic dimension, must be put in place.

The popular image of a paradise fed by an abundant bounty from nature is the established image of our country, and has led many tourists to enjoy its splendour and chronicle its many virtues. Today many parameters related to the environment and the use of its resources are changing, and changing fast. There are clearly visible scars, reflecting the pressure on the environment. Several measures have been undertaken and several others are on-going or underway in the field of environmental management. They include initiatives not only of Government at various levels, but of people and organisations outside Government. These represent the broad base of concern and the vibrancy of environmental activity. Perhaps even more significant they represent a clear indication of the growing sense of urgency and seriousness with which environmental problems are perceived and their solutions sought today in Tanzania. A brief description of some of the country's pressing environment-development issues and some of the responses to address the same is outlined in this document. Also reflected in the document is the growing realisation that the major issues at the interface of environment and development impede the process of the much needed economic growth, alleviation of poverty and response ability to environmental problems. The challenge is to protect the environment while allowing for the much needed economic growth. This challenge cannot be successfully addressed if environmental considerations are not effectively integrated in development policy and planning.

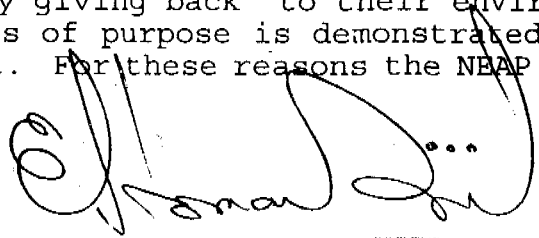
The NEAP strategic approach presented in this document provides the framework for making the fundamental changes needed to bring environmental considerations into the mainstream of decision-making in our country. The approach integrates several initiatives: the numerous project and policy responses to specific environmental concerns, the conservation strategy consultation process, Agenda 21 national plan consultation process, and the draft National Environmental Policy. It is at once the manifestation of these initiatives and takes them all as its starting point, placing them in the context of existing development planning framework. The NEAP is Tanzania's first comprehensive distillation of lessons and thoughts on environment and development from a national perspective, encompassing the need for definition of policies and action plans, their implementation mechanisms, monitoring and regular review. It is therefore the most important upshot of the growing concern over environmental degradation. The process it seeks to promote provides for the determination of priorities for action in every sector, evaluating costs and benefits, and the tradeoffs between often conflicting concerns affecting society. It provides for the undertaking of sectoral and cross-sectoral plans and policy analysis for achieving compatibilities and synergies among sectors and interest groups, and preventing or reducing those conflicts. The objective is to create a context in which development in one sector does not occur at the expense of development in another sector, or that development now is not bought at the cost of imposing an undue burden on future generations. It seeks to improve understanding of the

environment-development interlinkages and to build consensus so that decisions have strong support, encompass a broad spectrum of concerns, maintain a country-driven process, and engage everyone concerned to carry it out. Most important, it seeks to build capacities to handle these complex functions. It is therefore a major sustainable development policy initiative for Tanzania.

The ultimate product of the NEAP process is the attainment of its objectives. The intermediate products are the actions it sets in motion to achieve the objectives - participation, information assembly and analysis, policy formulation, action planning and budgeting, monitoring and evaluation, legislation, capacity-building, and others - to move environment and development solutions from a position of conflict to one of mutual support.

Policy making and planning will no doubt play a major part in the success of the process. But to achieve objectives emphasis must be directed at turning policies and plans into effective action. A crucial feature of the NEAP process is that it should not try to do everything at the same time. It must concentrate on priority issues, the key influences on those issues and employ the most effective ways of dealing with them. This is why development of an investment portfolio is critical for allocating limited resources efficiently. An early definition of "bankable programmes" is essential for the success of the NEAP process. The donor community is considered an integral part of the constituency of this strategic approach.

The task ahead is complex, and there are no quick or easy solutions. The NEAP process relies on cross-sectoral thinking and techniques for which there is very little tradition. It is necessarily comprehensive in scope; difficulties will be encountered because of the large number of interests involved and the logistical demands of managing a complex process. The broad scope and the task of combining and balancing environmental, economic and social concerns increases the technical complexity and political profile of the process. But the process builds on the energy the commitment and optimism which Tanzanians are already giving back to their environment. The Government's seriousness of purpose is demonstrated by its endorsement of this document. For these reasons the NEAP process holds promise.



J. H. OMAR (MP)

MINISTER FOR TOURISM, NATURAL RESOURCES AND ENVIRONMENT

## **Executive Summary**

1. The National Environmental Action Plan (NEAP) is Tanzania's first step towards a comprehensive incorporation of environmental concerns into the fabric of national planning and development. The importance of this step is the fact that most Tanzanians depend on the natural resources of the country for their livelihood and future generation will need those resources for their well-being. In towns and cities as well in the countryside the health and well-being of people depend on pollution free water, forests and trees, retention of soil fertility, grasslands, cleaner air and the reduction of pollution from industries. This means that economic development has to occur together with sustainable use of natural resources and environmental sustainability.

2. The current state of the Tanzania environment is matter of concern. This national analysis identifies six major problems for urgent national attention. These are problems of (a) land degradation; (b) lack of accessible, good quality water for both urban and rural inhabitants; (c) pollution; (d) loss of wildlife habitats; (e) deterioration of marine and fresh water systems; and (f) deforestation. Each of these is important to the economic well being of the country and the health of people.

3. Although precise information is not available analysis shows:

(a) that land degradation is reducing the productivity of soils in many parts of Tanzania.

(b) that despite considerable national effort, over half the people in towns and in the countryside do not have access to good quality water for washing, cooking, drinking and bathing.

(c) the pollution in towns and the countryside is affecting the health of many people and lowering the productivity of the environment.

(d) that the loss of habitats for wildlife is threatening the national heritage and creating an uncertain future for tourist industry.

(e) that the productivity of lake, coastal and river waters is threatened by pollution and poor management and,

(f) that Tanzania forest and woodland heritage is being reduced year by year through clearance for agriculture, for woodfuel and for other demands.

4. The reason for the current state of the national environment, include: inadequate land and water management at various levels, lack of financial and personnel resources, the inequitable terms of international trade, the particular vulnerable nature of some environments, the rapid growth of rural and urban population and past distortinary policies. These factors together are creating a new level of demand on all natural resources systems. Other important factors include lack of data and information, inadequate capacity to deal with environmental concerns and to implement programs, inadequate involvement of major stakeholders (eg, local communities,

NGOs, the private sector) in the management of natural resources, inadequate integration of conservation principles and approaches in national planning and development programs. Some issues such as the management of coastal resources, transboundary lakes and the Serengeti national park, for example have regional and global implications and require cooperation with neighbouring states.

5. To address the pressing issues of natural resource use and environmental management the Government has undertaken a policy and strategy formulation process including an action plan which provides the context for a first step long-term national approach to environmental sustainability. The three elements are summarized in this document. The overall goal of the National Environment Policy is to "achieve sustainable development that maximises the long-term welfare of both present and future generations of Tanzanians".

6. The following objectives follow from this goal:

(a) to ensure sustainable and equitable use of resources for meeting the basic needs of the present and future generations without degrading the environment or risking health or safety.

(b) to prevent and control degradation of land, water, vegetation, and air which constitute our life support system.

(c) to conserve and enhance our natural and man-made heritage, including the biological diversity of the unique ecosystems of Tanzania.

(d) to improve the condition and productivity of degraded areas including rural and urban settlements in order that all Tanzanians may live in safe, healthful, productive and aesthetically pleasing surroundings.

(e) to raise public awareness and understanding of the essential linkages between environment and development and to promote individual and community participation in environmental action.

(f) to promote international cooperation on the environment agenda, and expand our participation and contribution to relevant bilateral, subregional, regional, and global organizations and programs, including implementation of conventions.

7. The National Environmental Policy includes the following principles:

(a) That all development activities in the country shall be undertaken in such a way that the natural resources environment is utilized on sustainable basis. To achieve this, all utilization of natural resources should be based on a sound resource assessment and management plan.



(b) It is the policy of the government to involve all segments of the country in responding to environmental problems. While the Ministry of Tourism, Natural Resources, and Environment has important coordinating, planning and implementation roles, the prime responsibility for environmental management rest on many different people and agencies. At the central government level, sectoral ministries have responsibility for environmental issues under their control. The regional and district government have a vertical role to play in identifying priorities and action plans at local level. In addition, farmers, parastatals, business, NGOs and other private agencies are all expected to play a role.

(c) It is the policy of the Government to promote and encourage environmental education and awareness at all levels of society. The audience should include professional at all levels in government and business, the public at large and those in the education system from primary school through university.

(d) As information about the detailed state of natural resources and the environment is lacking in Tanzania it is the policy of Government to create information centres on environmental issue at both central and local levels. Such information will be available and communicated where possible to the public.

8. The key policy instruments will be:

(a) Environment Impact Assessment - to allow maximization of long-term benefits of development while maintaining the natural resource base.

(b) Environment Legislation - to implement the regulatory elements of policy objectives.

(c) Economic Instruments - these can be incentives through pricing, taxation, and subsidies, or in some cases can use the "polluter pays" principle.

(d) Environmental Indicators and Standards - monitoring of pollution and setting national guidelines for control.

(e) Public Participation - to make sure that the priorities identified are sound, that the problems are understood and that solutions are implementable.

9. To ensure that all government agencies are involved in the process of creating sustainable development, the following measures need to be taken:

(a) to review and/or define all sectoral policies relating to environmental issues and to designate officers responsible for such issues.

(b) to review laws and regulations governing the protection of natural resources and the environment, to update them and to define ways in which they can be

better enforced.

(b) All districts and regions are required to develop a list of priorities for environmental concerns in their areas and a plan for dealing with priority problems.

(c) Each ministry will report on their progress in dealing with environmental issues each year.

(d) The Ministry of Tourism, Natural Resources and Environment shall publish a report annually on progress being made with the environment action plan, at both the central and local levels.

(e) To improve the performance of the private sector, all industries, companies, and institutions are urged to review their operations to reduce destruction of the natural environment and the pollution of air, land, and water; companies are urged to appoint an environmental officer to deal with these issues. Steps will be taken to better ensure that enforcement procedures are in place where existing laws are being broken.

10. Two broad strategies will be utilized by the government of Tanzania in dealing with environmental problems. First, a number of cross-sectoral initiatives will set the national context, and second, each of the sectors of the economy will work to devise and implement components of the national policy.

11. Cross-sectoral strategies include:

- Environmental/Education, throughout the formal educational systems and also for professionals in and out of government and for the general public.
- Encouragement of public participation based on sound public information and increased awareness of the issues.
- Better information about the key issues and problems.
- Incentives for people, agencies and businesses to improve the environment.
- Law and regulation to deal with people and agencies who fail to comply with national goals.
- Development of a strong institutional structure to meet these new challenges.
- Cooperation with neighboring countries to deal with cross-boundary issues.

12. The action agenda for the near term includes fifteen specific activities requiring government approval, which would implement, the strategies set out in paragraph 5.2. In

addition the agenda lists 65 specific actions that ministries and other agencies need to take, to play their part in the implementation of the national environment action plan.

13. Implementation of the action plan will only be possible through the clear assignment of responsibilities and resources. Ministries with central roles are Agriculture; Water, Energy and Minerals; Lands; Health; Education; and Science and Technology. The Planning Commission, Prime Ministries' office, the universities and research institutions also have important tasks in this effort.

14. However, the Ministry of Tourism, Natural Resources and Environment has the key coordinating role. It is responsible for refining policy, developing effective legislation and regulation, coordinating the whole government's work in environmental protection, providing guidance for all environmental actions through environmental planning and formulation of programs, and publishing reports annually on progress in implementing the action plan. Some of its functions will best be facilitated through an interagency steering committee. The National Environment Management Council, in its advisory role to the Ministry, will be responsible for developing the enabling context for the implementation of the plan, particularly in monitoring environmental problems and developing the information system relevant both for problem definition and for policy and strategy refinement overtime. It will also keep under review the progress of implementation at the district level, maintain a dialogue with the same, and submit to the Ministry proposals on strategy and policy measures to support smooth implementation.

15. The above recommendations are based on the existing institutional arrangement so that the NEAP agenda can be initiated. However, a review of institutional responsibility and arrangement is an important part of the NEAP process and should be considered in the light of experienced gained in the implementation of the action plan.

16. The resources available to the Government of Tanzania as it goes through the process of economic restructuring are tightly constrained. Difficult choices will need to be made in assessing the trade-offs between the short lived economic growth and better based sustainable development. While limited new resources may be available existing resources and programs can be retargetted to the strategies and actions of the NEAP. This is often possible in ways which will improve both economic productivity and environmental protection.

17. This is an important turning point in Tanzania's economic and social development. If economic restructuring takes place in the context of national resources and environmental sustainability, the stage can be set for long term sustained growth. Most of the choices are those of the government and people of Tanzania. However, donors can help by targeting assistance on key elements of the action plan and by improving coordination of assistance to support natural resource management and environmental actions.

### 1.1 Introduction

Tanzania, a large and varied country, encompasses 942,800 square kilometres of land and water and is home to some 25 million people; a total which increases at 2.8 percent a year. About 21.5 million people (85%) live in rural areas, but the urban population of 3.5 million is growing rapidly at 7 to 8 percent a year. While Dar Es Salaam accounts for about 43 - 57 percent of the urban population, Mbeya, Morogoro, Mwanza, Arusha and Tanga, among others, are large and growing urban centres. Environmental concerns are important in both rural and urban areas.

Agriculture is the mainstay of the Tanzanian economy. It employs about 80% of the population work force and accounts for about 50% of the GDP and 75% of foreign exchange earnings. From the early 1960s to 1970s, overall economic performance was favourable with a GDP annual growth of about 5% annually. The period between 1973-1984 registered economic decline and severe macro-economic imbalances mainly due to a series of external shocks (quadrupling oil prices, droughts, break up of the East African Community, the Kagera War with Uganda and expansion in debt-servicing) combined with poor economic management policies. Encouraging signs of economic recovery started to set in during the course of the Economic Reform Programme period, with GDP annual growth ranging 4-5% since 1986.

The 3 - 4 million rural families mostly live in more than 8,000 villages (some of which have over 5,000 inhabitants). These rural families are the day-to-day managers of most of the Tanzanian land, water and vegetation resources. The rural environments which they use are very varied. They include the relatively rich upland volcanic soils of Kilimanjaro and Arusha; other high rainfall areas in the northern and western uplands; the southern highlands and around Bukoba, west of Lake Victoria; wide areas of marginally adequate and variable rainfall and marginally fertile soils; and some dry, mostly rangeland areas, especially in Dodoma, Shinyanga and Arusha. Approximately half of the land area is in forest and woodlands, about 40 percent is in grasslands and only 8 percent is cultivated at any one time. The resources that rural people use include:- wood for fuel, housing and fencing and sometimes for industrial processing such as tobacco curing, grazing resources, wildlife, soils, and water. The long-term continued availability of each of these resources is vital to sustainable production for most Tanzanians. Overall, the country has a low population density of about 26 people per square kilometre, but there is great internal variation. In some parts of the north and west highlands densities of several hundred people per square kilometre occur and land is in short supply, while in the dry areas and in the west-central area, population densities are very low.

For a small percentage of rural families, fishing is the main means of livelihood, either from the coastal waters or from inland fresh water lakes and reservoirs, the most productive being Lake Victoria.

The growing urban population is largely dependent on woodfuel or charcoal for energy;

on local water supplies, and is directly affected by the growing urban environmental problems of land, water, air and noise pollution. Urban industries have few pollution controls, waste disposal is organized only for a few, and unplanned urban growth now occurs in several parts of the country, as well as in Dar es Salaam. With the rapid growth of the urban population, food and other needed resources have to be transported to the towns which thereby creates new demands for communication and transport.

In these ways all Tanzanians are directly affected by the environmental issues discussed in this plan. Through the planning and implementation of the National Environmental Action Plan it is the intent to involve many sectors of government and society in better defining the problems, setting priorities and creating solutions. The aim is the long-term sustainability of the natural resources of the country for the continued welfare of all.

## 1.2 Overview of the Natural Resource Base

This section briefly describes the natural resource base in terms of the principal uses.

In mainland Tanzania, about 50 percent of the total land area is forest and woodland, 40 percent is grassland and scrub and 6 to 8 percent is cultivated. The terms forest and woodland are comprehensive and only 3 percent of the country is covered by dense closed forest. The following table demonstrates the patterns of land use for the whole country.

**TABLE 1**

LAND USE	HA (MILLION)	PERCENTAGE
Small holder cultivation	4.1	5
Large scale agriculture	1.1	1
Grazing land	35.0	39
Woodlands and Forest	44.0	50
Other land	4.0	5
Total	88.6	100

A large proportion of the woodland is the tse-tse fly infested miombo woodlands which occur over wide areas of west central Tanzania. Mangrove forests are also important resources which are environmentally significant even though they only occupy a relatively small area. The types of forests present in Tanzania are exhibited in Table 2, below.

**TABLE 2**

<b>TYPE OF FOREST</b>	<b>HA (MILLION)</b>	<b>PERCENTAGE</b>
Closed forest (excl. Mangrove)	1.4	3.2
Mangrove forest	0.1	0.3
Woodlands	42.9	96.5
<b>TOTAL</b>	<b>44.4</b>	<b>100.0</b>

Grassland and scrub includes most of the rangeland area of the country and supports a total of 13 million cattle and 10 million sheep and goats. However, almost 60 percent of this livestock holding is concentrated on 10 percent of the land in the north and central parts of the country. The cultivated area is largely worked by small holders. Shifting cultivation is still common particularly in the drier parts of the rainfed agriculture zone. About one percent of the total land area is held in large farms, which are concentrated in the northern parts of the country.

While only 6-8 percent of the total land area is cultivated, it is estimated that up to 9 percent of soils are medium to high fertility and 23 percent are low-medium fertility. The rest are of low quality. These statistics suggest that there is room for expansion of arable land if other conditions such as access to land and availability of markets are attainable. There is also potential to expand the area under grazing. Some estimates are that 68 percent of the total land area has grazing potential but much of this is now covered by woodland and bush, infested in part by tse-tse fly.

Aquatic resources are important for Tanzania. The country has the biggest lake and river systems in Africa, which include large portions of Lake Victoria, Tanganyika and Nyasa and a variety of other small lakes, swamps and floodplains forming a major wetland resource. Several dams also provide irrigation, fishing and hydroelectricity; the latter are the major power source for urban areas. Marine resources include fish stocks, coral reefs, sandy beaches, mangroves, marine grasses, salt resources and great biological diversity. Marine fisheries are mainly coastal but there is great potential for game fishing and some commercial fishing potential in deep off-shore waters. There is potential for off-shore oil and gas.

Wildlife is an important part of Tanzania's resource endowment, as Tanzania is one of the world's richest and most diverse countries in terms of habitat and animal and plant species. As a recognition of this fact, some 25 percent of the total mainland land area is set aside in protected areas, including forest reserves. The 13 National Parks, 16 game reserves and 50 game controlled areas are important global centres of biodiversity and four (Mt. Kilimanjaro, Selous Game Reserve, Serengeti National Park and Ngorongoro Crater) are World Heritage Sites. These protected areas form the major tourist base for the country.

Biodiversity is one of the country's greatest assets. Tanzania is among the five most diverse countries in Africa for mammals, birds and swallow tail butterflies. For plants, it is

second in Africa. But the country is also important for endemic species; that is species which are found nowhere else. Important sites for endemic species include the great lakes for fish and the "Eastern Arc" mountains, where one quarter of the surveyed flora is endemic.

Energy and mineral resources are another important component of the resource base. The major energy resources are woodfuel, hydropower and coal. There is also potential for natural gas, solar energy and wind energy. Petroleum imports supplement these national resources. The following table (Table 3) shows that the country depends heavily on woodfuel for primary energy use. Coal reserves are estimated at 2,200 million tons but little exploitation has yet taken place.

**TABLE 3**

<b>ENERGY SOURCE</b>	<b>PERCENT OF USE</b>
Woodfuel and Charcoal	90
Oil Fuel	8
Electricity	1.6
Coal and Others	0.4
<b>TOTAL</b>	<b>100.0</b>

Although minerals only make up a small part of GDP, mining of gold, diamonds, coal, tin, salt, gypsum, sand, lime, gemstones and exploration for gas all occur and have important local impacts on the environment.

### 1.3 Key Environmental Issues and Challenges

The process which led to the draft NCSSD document (1994) and the draft Policy on Environment for Tanzania all arrived at essentially similar sets of issues and challenges.

These can be summarized under the following framework:-

1. Land Degradation
2. Lack of Accessible Water Supply and Poor Water Quality - Rural and Urban
3. Environmental Pollution
4. Deterioration of Aquatic Systems:- Marine and Fresh Water

## 5. Loss of Wildlife Habitats and Biodiversity

## 6. Deforestation

These environmental problems have evolved over a long period of time, dispersed throughout the country. Although the costs relating to these problems have not been quantified because of lack of data, the economic and social costs are high. Moreover, environmental degradation has had, and continue to have, adverse impact on the quality of human life and health. A summary of the current understanding of these issues and challenges and responses to them follows. In each case, the gaps in existing knowledge are identified as a first step towards formulating strategies and action plans to deal with these problems.

### 1.3.1 Land Degradation

The processes of land degradation are varied and not all easily detected and measured. However, both national and district government officers recognize land degradation as a major issue for the country. In upland areas the severity of soil loss can be gauged by the red-brown color of the streams in flood as they wash away vital top-soil; in some of these areas it can also be judged by visible landslides. In flatter and drier areas the quantity of lost soil can be judged by the silting up of dams and reservoirs within a few years of construction and by the bare topsoil on many farmers fields.

As one example of the progressive nature of the problem, soil loss was measured in Shinyanga region over a long time period. Rates in the 1970's were very high and twice the rates of the early 1960's.

Average	1990 - 1960	1.4	tons/ha/year
	1960 - 1965	105	tons/ha/year
	1970 - 1980	224	tons/ha/year.

Measurements in Dodoma, Morogoro and Arusha regions suggest similar high rates of soil loss.

Perhaps the best measure is in the level of yields from the fields and the decrease in productivity over the years. While rainfall is also an important factor, it is estimated that yields per hectare fell by several percent between 1972 and 1980. Some of this fall is attributed to soil degradation and low inputs of fertilizer to counteract these losses. More specific data is needed to substantiate the extent and degree of land degradation. It is clear, however, that significant losses are occurring and that they affect most parts of the country. UNEP estimates that some thirty percent of the country may be affected by desertification. This estimate is for the drylands of the country but losses in productivity in the steeper higher rainfall areas may be even more important.



Because a large part of our population is directly dependent on agriculture and animal rearing it is clear why this problem is rated a high priority even though precise national data are lacking.

### **1.3.1.2 Contributing Factors**

A number of factors contribute to land degradation, some being more important in one region than in another. Among the factors most cited are: natural constraints of the soil and environment, inappropriate cultivation techniques, the growing population with unmatched provision of technology, the need for more land and also more energy resources from woodland, overstocking, and land tenure issues.

In the densely-peopled highland areas, average farm sizes have decreased and, in some rangeland areas, stocking rates have risen well beyond the capacity of the rangeland. Security to the land is an important prerequisite to good management and therefore it is important to address any unresolved land tenure issues.

External forces have also played a part as international terms of trade have worked against the Tanzanian farmer, lowering prices for farm products and increasing prices for farm inputs.

A summary statement on land degradation can safely conclude that it is a perceived and actual problem for many parts of the country in high, moderate and low rainfall areas.

### **1.3.1.3 Current Responses**

Concern for soil conservation pre-dates independence in 1961 and early initiatives included government schemes and a broad range of local agricultural practices. This recognition is also demonstrated by the creation of several bodies with the power to reserve land from use for conservation, to allow rejuvenation from soil erosion or otherwise for rehabilitation of land. Examples include provisions for the creation of Natural Resources Board, Range Development Commissions and later the empowerment of Local Governments to issue soil and water conservation by-laws. More recently recognition of the need to systematically plan land use and to separate incompatible uses is evident from the creation of the National Land Use Planning Commission in 1984. The commission was given authority to recommend land use policy to the government and to prepare regional physical plans.

As a result of growing awareness of the problem a number of new district and region based programs have been initiated. Examples of these include:-

- Land Management Program for Environment Conservation (LAMP) in Babati District: this attempts to deal with soil and water conservation through land management.

- Kigoma and Rukwa Integrated Development Program: dealing with all aspects of regional-based development.
- Hifadhi Ardhi Dodoma (HADO) and Shinyanga (HASHI): two Soil and Water Conservation projects run by the Forestry and Beekeeping Division and addressing forestry, land-use and livestock in an integrated fashion.
- Hifadhi Mazingira (HIMA): a regional-based soil and water conservation program in Iringa region currently concentrating on a few divisions of the region with later expansion planned.
- Soil Erosion Control and Agroforestry Program (SECAP): in Lushoto dealing with soil, land, and water conservation.
- Soil Conservation and Agroforestry Program (SCAPA): in Arumeru dealing with soil, and water conservation.
- National Plan to Combat Desertification: A coordinated plan to deal with soil, water and desertification.

As these projects cover a range of the environmental conditions of the country, they could form a basis for evaluation and feedback for other regions and districts.

Other responses include the draft National Soil and Water Program; the Tanzania Forestry Action Plan and National Plan to Combat Desertification. A number of initiatives have been taken by NGO's and in the private sector.

### 1.3.2 Lack of Accessible Water Supply and Poor Water Quality:- Rural and Urban

Tanzania is a well-watered country with moderate to good rainfall and with many rivers and lakes. However, this broad statement hides the problem. In most part of the country, rainfall is seasonal and water is not readily available in the dry season. In many rural areas and on the unplanned margins of all the main towns people have to pay dearly for water, either with scarce shillings in the towns or with heavy labor, usually that of women, in the rural areas. For many people, water, the daily necessity, is in short supply for drinking, washing, cleaning, garden watering and small-scale irrigation. There is a clear relationship between the lack of household availability of water and the incidence of many water-related diseases. The issue of water shortage is one of environmental health and the ability of people to work productively. Soon after independence, priority was given for universal water supply and preparation of water master plans. A target to provide water for all within 400 meters by the year 1991 was set. This target could not be reached due to financial constraints. By 1991 only 42 percent of rural people and 50 percent of urban population were served with water.

Water shortage for families is directly linked to water quality, e.g., the further from a

safe water source that a family lives, the more likely that water consumed will be polluted. In rural areas, water quality is compromised by too many people using untreated and often unprotected sources of water and in urban areas these problems are compounded by the presence of untreated or poorly treated industrial waste discharges and sewage. Even treated water in cities is liable to contamination by leaky old systems, and the presence of untreated wastewater. Cholera, typhoid and dysentery are the result and the latter is a major cause of illness and death in young children. Regional and district officers cite these problems as well as problems of agro-chemical run-off into rivers, mining-related pollution and the use of poisons in fishing as all contributing locally to water quality problems.

As demand on water systems grows both for rural and urban use, problems of water use conflicts have occurred, especially in the north and north-east of Tanzania. Here water needs for irrigation and rural supplies are in conflict with the fast growing need of Dar es Salaam and the other urban centres.

#### 1.3.2.1 Current Responses

Legislative responses to water pollution have existed since before independence. For example, prohibitions on discharge of certain substances into sewers were contained in the Public Health Sewerage and Drainage Ordinance. More recently, prohibitions on water pollution were included in several acts, and multiple bodies have been given the specific task of regulating pollution by proposing, issuing and enforcing standards or other regulatory controls:- the National Urban Water Authority, the Central Water Board, the Tanzania Bureau of Standards, the National Environment Management Council, the Radiation Protection Advisory Committee, Local Authorities and the Ministries responsible for fisheries and water. The Water Utilization and Control Act establishes standards for water quality and effluent emissions, as well as temporary domestic water quality standards. The Tanzania Bureau of Standards has also issued effluent standards for a few specific industries.

The government established a National Water Policy in 1993 and a Sewage and Sanitation Policy is being formulated. Also, as mentioned above, water quality standards have been established, and a new pit latrine technology is being used in some areas. The overall policy related to water is to provide clean and safe drinking water and then to satisfy other needs. A plan of action is also currently being formulated. The plan is to attempt to meet demands for potable water by 2002 but this will not be possible at current levels of resources. Local water harvesting is encouraged and water development boards are being established for the main river basins.

Actual responses to pollution problems have generally been uncoordinated, partly due to multiple authorities, but a number of different activities are taking place. The National Urban Water Authority, mentioned above, was established in the early 1980's, but is mainly serving Dar es Salaam. Fifteen towns, including Dar es Salaam, have had water supply improvements in the last decade, but still none have satisfactory coverage.

### 1.3.3 Environmental Pollution

Among the most important problems are:- urban pollution, industrial pollution outside urban areas, rural (mainly agricultural) pollution, mining pollution and coastal pollution.

Although different definitions of "urban" result in widely different estimates of the urban population, there is agreement that the urban population is growing very rapidly and that at least 3.5 million people now live in urban areas. Thus, urban pollution, poor sanitation and inadequate solid waste disposal are high priority environmental problems in the country today. Water quality problems in urban areas have been mentioned earlier, with 60 percent of urban housing unplanned and without services of either water delivery or waste disposal. In urban areas, solid waste management, effluent discharges and noise and air pollution are all major problems.

Industries in Tanzania have not been subject to environmental regulation and by most standards they are heavy polluters. As 80 percent of industry is located in urban areas this is a serious problem. Industrial waste may contain such unwelcome heavy metals as mercury, chromium, lead, cadmium, salts and pesticides.

Although there are very visible signs of heavy ground and water pollution in the main industrial areas, no systematic monitoring or quantification of the problem has taken place.

While data is not generally available, it is estimated that less than 13 percent of the solid waste generated in Dar es Salaam is collected. The rest (estimated at around 400,000 tons a year, much of it organic waste) is disposed of within the city. A growing proportion of this total is in the form of non-biodegradable plastic, glass and metals. The main official dump at Tabata was recently closed as a health hazard.

Some important industries are located outside the urban areas with similar problems of pollution control as those in the towns. In addition, agricultural industries such as sisal processing cause trouble with some pollution of water and land. With the increasing use of pesticides over the last two decades, improper use and disposal have resulted in soil and water pollution and human poisoning particularly in the cotton and coffee growing areas of the country. Major environmental problems related to mining include local deforestation and soil erosion, air and water pollution, and disturbance of vegetation and wildlife. Heavy metal pollution of water sources is a serious problem.

Coastal pollution exists from oil spillage and sewage and other sources. Waste disposal is serious problem on both ocean and lake shores.

Apart from direct industrial pollution and waste management problems, agro-chemicals (including pesticides and fertilizers) have added to soil pollution. In areas where there is indiscriminate application of agro-chemicals, in some cases accompanied with inappropriate mechanization, environmental problems have manifested themselves.

### **1.3.3.1 Current Responses**

In legislation, the government has long recognized pollution as a problem when it is above acceptable levels or concentrations. Indeed even the Penal Code prohibits air and water pollution, albeit with only minimal penalties. Creation of the Tanzania Bureau of Standards as a standard-issuing body, related to product quality and production processes, was one recent legislative response to the problem, as was formation of the National Environment Management Council, to monitor environmental quality and recommend pollution standards to the government. Local Governments have also been empowered to make by-laws regarding protection of public health and welfare and several local authorities have issued environmental sanitation and abatement of nuisances by-laws. Recent revision of the Mining Act also requires mining license applicants to submit programs for environmental protection in some instances, and some other acts (such as the Merchant Shipping Act) create specific prohibitions on pollution of the environment.

Specific programmatic responses to environmental pollution are underway. Dar es Salaam is the subject of a "Sustainable City" project through UN HABITAT (Dar es Salaam is a pilot project, the first of its kind in the world) and as part of this project, attempts are being made to use waste to generate electricity.

The review of the Agricultural Policy is expected to address issues such as land degradation from agro-chemicals. The integrated approaches to land degradation problems such as, SCAPA, SECAP and LAMP should reduce the incidence of agro-chemical pollution.

### **1.3.4 Deterioration of Aquatic Systems: Marine and Fresh Water**

*Aquatic resources include: Marine and freshwater ecosystems, mangrove forests, coral reefs, seaweeds and grasses, wetlands, lakes and rivers.* The biological resources associated with aquatic systems in Tanzania are an important part of the biodiversity of the region, they contribute to the livelihood of a significant number of people, they provide an important food source and they also contribute to the tourist industry. However, there is concern That these resources, like others, are being polluted, depleted, and misused.

#### **1.3.4.1 Coastal Fisheries Resources**

About 50,000 Tanzania coastal fisherfolk land a total of about 50,000 tons of fish a year, primarily from the Zanzibar and Mafia channels. The production estimate is exclusively for the territorial waters. It has been estimated That the territorial waters has a potential yield of about 100,000 metric tons, an indication of possible future production expansion.

Apart from fish resources, there are other resources which have significant production potential. These include:- shrimps, lobsters, crabs, octopus, squids, sea shells and beche de mer. Present annual production is estimated at 1400 tons.

Fishing is carried out with different fishing methods, some of which have proved to be

environmentally destructive. The most common ones are dynamite fishing, trawling, poisoning and the use of nets with smaller mesh sizes. The consequences of these practices include destruction of coral reefs which are critical habitats for a variety of marine organisms, catching juvenile fish which may lead to depletion of species, loss of aquatic biodiversity and indiscriminate killing of aquatic organisms as a result of poisoning.

Marine pollution has been mentioned above and is important especially around urban areas. Beach erosion has become a major problem in the last two decades. Important tourist beaches are being affected and seagrass and mangrove forest ecosystems removed. Coral reefs are being damaged not only by bad fishing techniques but also by coral and shell collection for the tourist industry.

Mangroves are an important marine resource currently being depleted by uncontrolled cutting of firewood and construction poles, the collection of medicinal products, rice production and the construction of salt pans.

#### **1.3.4.2 Fresh Water Fisheries Resources**

About 80 percent of total Tanzania fish production is fresh water fish which is an important part of the diet in many regions of the country. The most important environmental issues relate to the largest lakes. Lakes Victoria, Tanganyika and Nyasa are all currently threatened. As Lake Victoria is by far the largest production region, it is of greatest concern. Given the international nature of the lake this is an important trans-boundary issue. Among the problems is the change in the ecological balance caused by the introduction of exotic flora and fauna. The Nile Perch, a large fish with carnivorous feeding habits, appears to have been a major factor in the reduction of several smaller species. The water hyacinth is an exotic plant introduction which has grown into a major problem. The changes in the lake are also being influenced by the large amount of effluent discharged by all of the countries involved. This should be a high priority for international consultation and action.

#### **1.3.4.3 Current Responses**

Legislative enactments have attempted to address marine and freshwater fisheries issues. Limitations on fisheries offtake were established with the institution of a licensing system in the Fisheries Act of 1970. Furthermore, specific limitations were placed on methods of harvest by outlawing dynamiting and poisoning in the Fisheries Act regulations of 1973 and 1982. There is concern for the continued wide use of small mesh trawling and continuing damage to the coral reefs. The government currently does not have the resources and equipment to monitor this or the continuing pollution of coastal waters.

#### **1.3.5 Loss of Wildlife Habitats and Biodiversity**

Tanzania is one of world's great reservoirs of wildlife and biodiversity. The extensive national parks housing savanna and grassland fauna and flora are well known. But the "Eastern Arc" mountains, wetlands, the coastal forests, marine and freshwater ecosystems are also

habitats with outstanding reservoirs of plant and animal species.

A full biodiversity profile of the country has not been worked out yet, but available statistics indicate that of the 10,000 plant species so far recorded, over a quarter are endemic. The forests of Tanzania also harbour 31 endemic amphibians, 18 endemic species of lizard, 9 species of snakes and 10 species of birds. There are a number of wild varieties of several cultivated crops, including coffee, rice and millet. Tanzania has forty percent of the world's wild coffee varieties and about 80% of the famous African violet flower plant species. The oceans, rivers and lakes contain many species of fish, including about 600 fish species in the coastal waters, and 700 species of fish in the rivers and lakes.

The country is also famous in terms of game. The Selous Game Reserve has the largest concentration of elephants in East Africa. The tree climbing lions of Manyara National Park are unique throughout the world.

While the nation has been a leader in the designation of protected areas, Tanzanian wildlife resources and habitats are under threat. In some areas the threat is due to fragmentation and loss of critical ecosystem linkages, in some cases species are being overexploited. But in many areas the problem is the age-long conflict between the wild and the sown. In the Eastern Arc mountains there is considerable local pressure to extend agriculture at the expense of forest often for very short term gain. Poaching is a concern where people hunt large mammals for horn and ivory and hunting for tourism is beginning to make an impact in some areas.

A major problem is that while at the national level reserves are created and legislation passed, the concerns of local people often do not appear to be addressed. As solutions to this problem are sought, the issue of a visible stream of benefits to local people is critically important.

#### **1.3.5.1 Contributing Factors**

Although Tanzania has committed about 25% of her land area to protected area networks, many times these protected areas have been created without consideration of the demand of the surrounding communities (grazing areas, fuelwood, water, etc.). Neither are the surrounding communities benefiting from the proceeds accruing from the protected areas. This has been one of the reasons for land and natural resource use conflicts in such areas. As a result, local people have no incentives to respect protected area boundaries, and frequently disturb habitat through land clearance and natural resources extraction, and take wildlife for their own uses, such as food, skins, and to sell for profit.

#### **1.3.5.2 Current Responses**

Tanzania has a long-established and well-defined system of national parks and protected areas. The Wildlife Conservation Act also restricts utilization of wildlife by limiting users to those holding licenses. In some cases, habitat may be protected by restricting utilization of wildlife in certain areas, prohibiting certain methods of taking, or at certain times of the year.

Good management plans are already in place for some of these areas, others are in practice.

### **1.3.6 Deforestation**

Although it could be considered a part of land degradation, deforestation is more than that. The removal of woody vegetation may result in a net loss of resources to the country, may contribute in a small way to global loss of terrestrial carbon, and in addition often results in the subsequent degradation of the cleared land.

As stated earlier, it is estimated that only 3.2 percent of the total land area is covered by closed dense forest. This is a very important part of the resource heritage of Tanzania. These forests are almost entirely on upland high rainfall areas. They are important for biodiversity, for catchment and hill slope and for protection and carbon retention.

Most of the remainder of Tanzania forests are woodland of varying density including large areas of thorn-bush; the miombo woodland of central and western Tanzania. While encroachment on the closed forest occurs and should be halted where-ever possible, most of the reduction of forest area concerns woodland conversion. It is very difficult to get reliable information on the rate of this conversion, though it is clear That some regions are being dramatically affected.

At a national level, the sustainable supply of fuelwood is estimated at 19 million cubic meters per year while consumption is estimated at 43 million cubic meters.

But for this plan, that calculation is not the major issue:- the demand for wood for fuel, charcoal and agricultural processing is localized and it is in specific areas that woodlands are being depleted, shortages occur, and prices are rising.

Some examples of very visible and quantifiable loss of woodland occur around Dar Es Salaam, where wood and charcoal is now often brought from over 150 kilometres and around Tabora where tobacco curing has created a unsustainable demand for wood. In other areas, woodland is being converted to agriculture or grazing and the trees burned off as part of the clearing process.

Widely varying data are being used and some at least are likely to be exaggerated but it seems likely That there is a net annual reduction in Tanzania woodland resources. It is clear that this has major local and regional impacts. More data is needed to establish the overall picture.

#### **1.3.6.1 Contributing Factors**

Many factors contribute to deforestation. In the more densely populated areas, the need for more land for agriculture puts pressure on forest and woodland. In areas which supply wood



and charcoal to urban areas, the increasing demand for fuel and the scarcity of alternative sources is a major factor. In tobacco growing areas the demand for wood for the curing process has led to deforestation. It must also be noted that historically much of the woodland area of central Tanzania was pasture land before the rinderpest epidemic of the late 19th Century so That some of the woodland of the country is a feature of woodland expansion at the beginning of this century.

#### **1.3.6.2 Current Responses**

Legislative responses create legal limits on exploitation of the forestry resource by requiring licenses to harvest and/or sell any plant materials, from both public and private lands. Limits depend on the intended use of the materials.

While some planting of woodlots has taken place these still only total about 150,000 hectares some of which are of exotic species for wood products. This total is at the conservative end of estimates of annual losses of woodland. The revised Tanzania Forestry Action Plan (1993) has begun to address some of the issues involved. In general much remains to be done.

#### **1.4 General Policy Responses Relevant to Environmental Problems**

Since independence Tanzania has followed a consistent provision of basic services policy; Universal Primary Education (UPE), literacy campaigns and rural health care programs have all been important. UPE was achieved in 1978, the literacy rate today is 85 percent compared with 10 percent in 1965, and safe drinking water supply to rural areas serves 45 percent of the people. A network of health centres and dispensaries is now in place.

Although service provision has slowed with economic problems the Economic Reform Plan (1992-3 - 1994-5) emphasizes service provision and also ranks environmental protection as one of six main objectives.

The National Policy on Human Population, adopted in 1993, does recognize the close link between the demographic characteristics, the quality of the environment and the availability of social services. In recognition of this linkage, the policy urges sectors responsible for natural resources and environment to focus efforts on the following areas:-

- to review laws and regulations governing the protection of natural resources and environment.
- to undertake research on biomass energy conservation and conservation of natural resources.
- to enhance the protection of reserved areas from encroachment by agriculture, settlements and other land uses.
- to formulate a land policy to guide proper and balanced land utilization in the

country.

- to increase land productivity with a view to reducing the expansion of agriculture.

The 1985 National Policy on Science and Technology was revised during 1993. It recognizes essential links between sustainable development and sound environmental management. It therefore stresses the protection of the environment and rational utilization of natural resources. It sets the following environmental objectives:-

- (i) ensuring the maintenance of basic ecological processes upon which all productivity and regeneration of land and the sea depend.
- (ii) promotion of the sustainable use of renewable resources and rational use of non-renewable resources, and minimization of irrational use, contamination or destruction of resources.
- (iii) preservation of the biological diversity, cultural richness and natural beauty of Tanzania.
- (iv) ensuring That the quality of life of the people of Tanzania, present and future, is not harmed by destruction, degradation or pollution of their environment. The policy stresses the need to promote new and emerging technologies with the view of acquiring capability and capacity to embark on the technologies That will accelerate the national economy.

As detailed above, legislative responses to environmental problems, some of them dating before independence also demonstrate overall government commitment to their resolution. For example, several Ordinances and Acts give powers to the government to prevent land degradation. Licensing schemes established under other natural resource-related legislation attempt to prevent unchecked natural resources exploitation. Protected area legislation places similar limits on uses within specified areas. Furthermore, attempts have been made to limit water pollution by establishing water quality standards and by the setting up of water quality monitoring bodies. Worker health and safety were also protected under the Factories Ordinance, and early recognition of pollution as a nuisance resulted in prohibitions on air and water pollution and noxious trades. The recent establishment of the Tanzania Bureau of Standards demonstrates recognition of the need for standards for products and production processes. Further, creation of the National Environment Management Council with the task, among others, of advising the government on standards is a step towards better regulation of pollution. Trade in certain hazardous substances is also regulated, by requiring permits to sell, possess, use and transport substances such as pesticides, explosive materials and radioactive materials.

Awareness also exists that local management over environmental problems may be more effective Than central government authority; thus, the government created the Rufiji Basin Development Authority to act as an area manager for that river system. Local Governments were also empowered to pass by-laws related to many areas of natural resource and

environmental management.

Finally, it should be noted that the specific creation of both an advisory and a coordinating body for environment, the National Environment Management Council, and the Division of Environment, within the Ministry for Natural Resources, Tourism and Environment, attempted to link sectors and assist the government in efforts at cross-sectoral management.

A number of sectoral policy initiatives also are already underway, particularly in agriculture. The Agricultural Policy of 1983 put forward objectives related to environmental conservation and policies on livestock management and destocking were based on restoring degraded rangeland. The Ministry of Agriculture has developed a draft National Soil and Water Conservation Program (NSWCP) which sets out policies and strategies for dealing with land degradation and better agricultural water use. The Ministry of Water, Energy and Minerals, Energy and Mineral has policies for energy conservation including efficient use of charcoal as well as for water provision.

In an effort to promote water supply and sanitation, the Government of Tanzania formulated a National Water Policy and the Sewerage and Sanitation Policy. The overall policy objectives are to provide clean and safe drinking water to within easy reach of all citizens as a first priority, and then to satisfy water needs for other uses. This goes in hand with optimum use of the limited available water resources. Further, the policy objectives are to ensure that equal priorities are given to both urban and rural water supply and to improve all urban water supplies and establish efficient customer services. In order to ensure that these policy objectives are achieved, the strategies for implementation of the National Water Policy were formulated. A plan of action for their implementation is being developed.

A revised Mineral Policy Document (1993) exists in draft form. The policy document recognizes the impact of mining activities on the environment including health conditions and serious deforestation and environmental degradation resulting from mining. It makes recommendations to reduce these negative impacts.

The Forest Policy (1953) has been revised during 1993. The revised version continues to recognize the important roles of forests in the maintenance of the environment, provision of wood raw materials, watershed protection and preservation of biodiversity. In recognition of the above, this policy has identified five priorities including the need for further reservation of forest lands, proper management of natural forests, involvement of other institutions besides the government in tree planting, promotion of research and education.

Land tenure is an important policy issue, and the Regulation of Land Tenure Act attempted to clarify the relationship between customarily held lands and those held through granted rights of occupancy. The Act's constitutionality has been challenged and the issue of land tenure rights and authority awaits the resolution of this challenge.

The Energy Policy (1992) includes the goal of arresting woodfuel depletion by improving land management practices and to develop processes of utilizing forest and efficient utilization

of woodfuel and other alternatives of energy.

At present, no specific policies have been developed for industries, urban development, settled lands and pollution.

Recent legislative initiatives include reviews and draft revisions of the Forestry Ordinance, Electricity Ordinance, Wildlife Conservation Act, Fisheries Act, National Parks Ordinance and public-health related acts. In addition, new environmental protection legislation is being drafted, as are amendments to the Act which created the National Environment Management Council.

The National Environmental Policy is designed to provide the framework for planning and coordination. It will serve as a beacon for close consultation and co-operation among all actors, not as a substitute for such consultation and cooperation. It must be stressed that the policy is not intended to call into question the specific responsibilities of the different ministries and of other sectoral bodies. Rather it calls for better coordination and the need to deal with environmental concerns systematically and at a multi-sectoral level in order to achieve environmentally sound development.

The overall goal of the policy is "to achieve sustainable development that maximizes the long-term welfare of both present and future generations of Tanzanian people."

The following broad objectives follow from this goal:-

- (a) to ensure sustainable and equitable use of resources for meeting the basic needs of the present and future generations without degrading the environment or risking health or safety.
- (b) to prevent and control degradation of land, water, vegetation and air which constitute our life support systems.
- (c) to conserve and enhance natural and man-made heritage, including the biological diversity of the unique ecosystems of Tanzania,
- (d) to improve the condition and productivity of degraded areas including rural and urban settlements in order that all Tanzanians may live in safe, healthful, productive and aesthetically pleasing surroundings.
- (e) to raise public awareness and understanding of the essential linkages between environment and development and to promote individual and community participation in environmental action.
- (f) to promote international cooperation on the environmental agenda, and expand our participation and contribution to relevant bilateral, sub-regional, regional, and global organizations and programs, including implementation of conventions.

## **2.1 The Underlying Premise**

While both general national policies and many sectoral policies have given significant attention to some environmental issues, not all issues are dealt with. Even where they are, key weaknesses exist. Four basic considerations verify the need for a policy on the environment in Tanzania.

- The need to balance accelerated economic growth with more efficient and sustainable use of the environment and natural resources
- The need for environmental management considerations to be integrated into all sectoral areas of policy and action.
- The interconnectedness of the environment means that multi-sectoral approaches are vital.
- The need for new forms of cooperation among government, non-government organizations, private sector and local communities including an expanded role for women.

Specific policies which follow from these general goals are:-

- (a) That all development activities in the country shall be undertaken in such a way that the natural resource environment is utilized on a sustainable basis. To achieve this utilization of natural resources, they should be based on a resource assessment and management plans utilizing the best available information and on sound scientific principles.
- (b) That where past actions/inactions and policies have resulted in a deterioration of resources such as occurred to land, forests, woodland, wildlife, aquatic systems and coasts in many parts of the country, steps should be taken to adopt measures to halt the deterioration, and where feasible, to begin to restore the resource base.
- (c) It is the policy of the government to involve all segments of the country in responding to environmental problems. While the Ministry of Tourism, Natural Resources and Environment has important coordinating, planning and implementation roles, the prime responsibility for environmental management rests on many different people and agencies. At the central government level sectoral ministries have responsibility for environmental issues under their control. The regional and district governments have a very critical role to play in identifying priorities and action plans at a local level. In addition, farmers, parastatals, businesses, NGO's and other private agencies all have a role to play.

- (d) It is the policy of the Government to promote and encourage environmental education and awareness at all levels of society. The audience should include professionals at all levels in government and business, the public at large and those in the education system from primary school through university.
- (e) As information about the detailed state of natural resources and the environment is lacking in Tanzania, it is the policy of Government to create information centres on environmental issues at both central and local levels. Such information will be available and communicated where possible to the public.

## **2.2 Priority Instruments of Environmental Policy**

The following are considered priority policy instruments:-

- (a) Approved land and other resources plans, surveys and setting of harvesting quotas for natural resources in particular fisheries, game and forestry.
- (b) Environmental Impact Assessment - to allow maximization of long term benefits of development while maintaining the natural resource base.
- (c) Environmental Legislation - to implement the regulatory elements of policy objectives, including the "polluter pays" principle in some cases.
- (d) Economic Instruments - these can be incentives through pricing, taxation and subsidies or in some cases can use the "polluter pays" principle.
- (e) Environmental Indicators and Standards:- Monitoring of pollution and setting national guidelines for control.

### 3.0 STRATEGIES FOR IMPLEMENTING NATIONAL ENVIRONMENTAL POLICY

Until the last decade the dominant national strategy for dealing with environmental issues was for responsibility to be delegated to the various sectoral ministries.

With the greater awareness of the cross-cutting and complex nature of environmental problems and of their importance and severity, institutional structures are changing and so must strategies. It is part of policy and strategy to involve many elements of government and society but it is also important to ensure coordinated multipurpose approaches to environmental problems. In 1983 the National Environmental Management Act provided for the establishment of the National Environment Management Council as a first step into developing a cross-sectoral approach. In 1991, the Division of Environment was established to further strengthen direct government environmental coordination and action.

#### 3.1 Current Sectorial Strategies

##### *Land Degradation*

It is important to remember that some of the earliest colonial strategies for combating land degradation were top-down, ill-thought through and were eventually rejected by the people, who in their resistance initiated some of the political movement towards independence.

For this and other reasons it was the late 1970's before the realities for land degradation problems resulted in a new set of approaches. These took the form of soil conservation projects in severely eroded areas, destocking campaigns, rangeland development and improvement, pasture development and relocation of livestock.

In general, the basis for a well defined set of strategies is evolving but overall environmental action has had limited success so far. It is clear that in many parts of the country land degradation is still overtaking conservation efforts.

The National Plan to Combat Desertification in the drier parts of the country is essentially a coordinated plan to deal with soil, water and deforestation problems. It too has had limited implementation.

##### *Water Supply and Water Quality*

In the 1970's, the government of Tanzania developed a nationwide regional approach to water supply planning for rural populations; part of the rationale for the villagisation program was the more efficient supply of clean safe water. These were successful in greatly increasing rural access to water but still over half the rural population does not have access to improved water sources. In urban areas the rapid growth has meant that the urban water systems are inadequate.



### *Urban Population*

Although the Urban Water Supply Act, the Public Health and Sewerage Ordinance, the Factories Ordinance and other planning and zoning legislation all provide a framework for dealing with urban pollution, this is one area where up to now coordination has been weak and no overall strategies are in place. Master planning activities and land use plans have been formulated for the major towns but implementation has not been possible due to rapid growth and lack of resources.

### *Aquatic Systems*

Although a number of river basin planning activities have been carried out and coastal zone management is a concern, there has been no-overall strategy for the management of aquatic systems.

### *Maintenance of Wildlife and Biodiversity*

In this area the government of Tanzania strategy has been consistent over a long period of time. It can be summarized as being essentially a protection strategy. The National Parks Ordinance gives the President authority to designate protected areas and also establishes the National Parks Authority to manage the parks. The Wildlife Conservation Act of 1974 also establishes legal authority for protection of species and areas.

### *Deforestation*

In general the Government of Tanzania strategy has been to designate remaining dense forest areas as protected forests reserves which may be managed by local or central authorities. Other current strategies include those of developing alternative energy sources to wood and charcoal and to develop more efficient technologies of charcoal production and use.

This brief overview of past strategies highlights the need for definition and sharpening of overall strategies to implement environmental policy. A combination of cross-sectoral and sectoral approaches will be necessary.

### **3.2 Cross Sectoral Strategies**

National strategies on environment need to balance the short and the long term aims; the development needs of the present as population grows and the resource needs of the future. The objective is to set the development needs of the economy into the environment and natural resource context, not to articulate the development path and wonder later if the environment can survive. Thus, the environmental perspective needs to be woven into the fabric of all planning and development activity.

To insure that all government agencies are involved in the process of creating sustainable development, the following measures need to be taken.

- (a) Affected sectoral ministries are required:-
  - to review and/or define all policies for dealing with environmental concerns in the ministry and to designate a unit/department which will be responsible for such issues.
  - to review laws and regulations governing the protection of natural resources and the environment, to update them and to define ways in which they can be better enforced.
- (b) All districts and regions are required to develop a list of priorities of environment concerns in their areas and a plan for dealing with priority issues.
- (c) Each ministry concerned with environment issues will report on their progress in dealing with these issues each year.
- (d) The Ministry of Tourism, Natural Resources and Environment shall report annually on progress being made with the environment action plan, at both the central and local levels.
- (e) To improve the performance of the private sector all industries, companies and institutions are urged to review their operations to reduce destruction of the natural environment and the pollution of air, land and water. Companies are urged to appoint an environmental officer to deal with these issues. Steps will be taken to better ensure that enforcement procedures are in place where existing laws are being broken.

Five cross sectoral strategies need to be linked together:- environmental education, awareness and participation; fact finding and better understanding of the issues; incentives; planning; and law and regulation. These need to be complemented by clear strategies for institutional development and for dealing with international issues.

### **3.2.1 Education, Awareness and Participation**

As emphasized throughout this document, many different sectors, agencies and people are involved in environmental management in Tanzania. Most other elements of a national strategy will not move forward unless there is a broad understanding of the issues involved. The natural resource environment is the mainstay of the Tanzanian economy. Environment should be an essential component of the educational system from preschool to the university. In addition, there is a need for in-service training for professionals in sectors dealing with the environmental matters as well as those in the regions and districts. Finally public awareness should be improved at all levels of society.

### **3.2.2 Fact Finding and Development of Information Systems**

As we review the state of environment in Tanzania, the lack of consistent reliable information is a problem in all areas. If the nation has to deal effectively with these environmental problems a better understanding of their nature, degree of sensitivity and causes is a necessary beginning to the formulation of the solutions.

As a beginning, a national environmental information system is needed. This system should have centralized and decentralized components. There is a related need for monitoring of some of the more critical parameters, and once priorities are established, pilot monitoring schemes should be set up.

Finally, incentives should be created for policy oriented research on environmental issues. Tanzania is fortunate in having a good number of research institutions in resource assessment, fisheries, agriculture, forestry and engineering. These could be mobilized and encouraged to work on priority issues as defined in the plan.

### **3.2.3 Policy and Planning**

A more comprehensive approach to planning and implementation, to better include socio-economic and environmental issues is a key component to changing the way development activities take place in Tanzania. The Environmental Impact Assessment is one component of this approach but it is equally important to adapt flexible integrated and goal oriented planning approaches and to integrate environment concerns directly into the planning process.

In addition, it is important to follow through to the implementation phase of projects and activities, to ensure that the environmental components are properly addressed and to have monitoring processes which allow any unforeseen issues to be identified and addressed. Well-articulated management plans which include a balanced assessment of the stock of resources and sustainable utilization processes are a critical part of most sound planning. Development should not take place without them.

### **3.2.4 Legal Issues**

While incentives, awareness, fact finding and planning are vital, it is also necessary to create an appropriate legal framework to minimize environmental degradation and ensure that resources are managed sustainably. At present, there are over 80 relevant laws and related subsidiary legislation, but many are obsolete or over-lapping in terms of functional authority. Few contain requirements of public participation in environmental management, public right to enforce the laws, legal requirements for management planning with an emphasis on long-term sustainability of resources, environmental impact assessment and standards and licensing schemes for appropriate behaviour. Furthermore, issues such as tenure over natural resources and implementation of international conventions must be addressed.

A comprehensive environmental law is needed at the national level to implement the mandates and regulatory aspects of the overall environmental policy objectives. The sectoral legislation must also be reviewed and improved, and local authorities, where so empowered, must pass by laws to deal with their local environments in order to meet the requirements of policy objectives for the sectors.

### **3.2.5 International Cooperation**

Environmental issues cross national boundaries: Some are regional; others are global. For Tanzania, the main focus will be on problems shared by the neighboring states, with Lake Victoria as the priority international item. However, the country will continue to play an active role on global issues and develop internal policies consistent with good global management.

### **3.2.6 Integrated Approaches**

Most development has hitherto been on a single-sector basis, but most environments include a range of resources with the use and development of one linked to that of another. It is therefore good environmental management and good development to pursue an integrated approach to resource use. The opportunities for sustainable use of water, land, vegetation and wildlife, for example, are linked and a good development plan will consider each in an integrated way. It will be part of the government strategy to encourage integrated approaches to development in an environmentally sound and sustainable way.

## **3.3 Sector Oriented Strategies**

A blending of cross-sectoral strategies and local strategies is needed to ensure sustainable development. This section summarizes the needed sectoral strategies.

### **3.3.1 Land Use**

Land use strategies should include:-

- (i) A new comprehensive land policy for both rural and urban areas. The policy should focus on providing security of tenure for those holding land under customary law and on strengthening management capacity for public lands.
- (ii) A better definition of institutional roles between central and local government.
- (iii) Legal mechanisms to mediate land use conflicts.
- (iv) Incentives to encourage sustainable land use.

### **3.3.2 Agriculture**

In agriculture strategies should include:-

- (i) Appropriate intensification of production where possible together with measures to conserve and restore soil fertility.
- (ii) Development of integrated land use plans for agriculture, livestock and forestry, using agro-ecological zones and local culture systems as a basis for land use patterns.
- (iii) Provision of secure land tenure or land use rights for pastoralists and the incorporation of the traditional wisdom of pastoral systems into sound rangeland and livestock management systems.
- (iv) Improvement of livestock marketing infrastructure and promotion of attractive pricing structures for livestock.
- (v) Promotion of agro-forestry as a productive form of multiple resource use
- (vi) Promotion of diversification of agriculture, including horticulture
- (vii) Giving priority to research which can lead to increased productivity, seed improvements and reduction in pest and disease problems
- (viii) Promotion of integrated pest management (IPM) and integrated plant nutrition (IPN).

### **3.3.3 Water**

Environment related strategies should include:-

- (i) The development of a comprehensive, cross-sectoral water resources assessment with participation from potential users.
- (ii) Better definition of institutional capacity and responsibility to ensure affective management of water catchment areas.
- (iii) Enforcement of the Water Utilization and Control Act and other water quality standards and development of new standards where necessary.
- (iv) Development of a better fee structure for water use.

### **3.3.4 Urban and Industrial**

Environment related strategies should include:-

- (i) Development of environmentally sustainable industrial technologies.
- (ii) Encouragement of complementary resource use by projected and existing industry.
- (iii) Development of private sector provision of land service and of refuse and waste collection.
- (iv) Introduction of economic incentives for the promotion of alternative energy systems (other than wood and charcoal) in urban areas.

### **3.3.5 Wildlife and Biodiversity**

Strategies should include:-

- (i) Development of a unified institutional set up for more effective management of wildlife resources.
- (ii) Development of comprehensive management plans for areas where there are competing interests.

- (iii) Initiation of programs whereby wildlife conservation contribute to local development, using community based approaches.
- (iv) Development of wild-life accounting frameworks to calculate the benefits of alternative uses to local communities and the nation.

### **3.3.6 Forestry**

Strategies should include:-

- (i) Promotion and implementation of the concept of buffer zone management and inclusion of community participation in the management of forests.
- (ii) Promotion of the multiple use of forest and woodlands, including beekeeping.
- (iii) The designing of incentives such as pricing policies concession arrangement, revenue collection systems and property rights to minimize further depletion of forest resources.
- (iv) Implementation of the Tanzania Forestry Action Plan.

### **3.3.7 Fisheries**

Strategies should include:-

- (i) Development of environmentally sound fishing technologies.
- (ii) Regular assessment of the status of fish stocks with the aim of setting fishing levels and methods which do not deplete stocks.
- (iii) Encourage the use of alternative fish processing methods to reduce deforestation due to fish smoking.
- (iv) Reduction of post harvest losses through proper preservation and transportation methods.
- (v) Development of comprehensive management plans for fragile aquatic ecosystems and endangered species.
- (vi) Promotion of community participation in aquatic conservation through incentives such as fishing gear subsidies to fishermen.

### **3.3.8 Biodiversity**

Strategies should include:-

- (i) Strengthening such institutions as gene banks, botanical gardens and biodiversity services.
- (ii) Formulation of a more precise national strategy for this area.

### **3.3.9 Energy**

Strategies should include:-

- (i) Protection and development of hydro-electric power sources in an environmentally sound way.
- (ii) Introduction of economic incentives for the promotion of alternative energy systems.
- (iii) Promotion of conservation practices and efficiency

### **3.3.10 Mining**

Strategies should include:-

- (i) Regular EIA on mining activities.
- (ii) Education of and incentives to small-scale miners to protect the environment.

### **3.3.11 Transport and Communications**

Strategies should include:-

- (i) Overall efforts to reduce the negative environmental impact of network expansion and improvement.
- (ii) Reduction of pollution by setting and enforcing stringent standards for vehicle importation, especially used vehicles.
- (iii) Carry out rigorous EIAs for all new roads, railways, airports and harbours.



### **3.3.12 Tourism**

Strategies should include:-

- (i) Revision of tourism policies to reflect greater concern for the environment.
- (ii) Development of eco-tourism and high per person value tourism to minimize the impact of large numbers of people on sensitive environments.
- (iii) Encouragement of different forms of community involvement in tourist services.
- (iv) Institute mechanisms to ensure that private investors in this sector follow strict environmental guidelines.

### **3.3.13 Trade, Science and Technology**

Strategies should include:-

- (i) Review trade policy which ensure that environmentally degrading goods and technologies are controlled or prevented from import
- (ii) Strengthen legal and other mechanisms to ensure that the policy is followed

#### **4.0 INSTITUTIONAL ARRANGEMENTS FOR IMPLEMENTING THE NEAP**

4.1 The complexity of environmental problems mean that many sections of government and society are involved in any action plan to deal with these problems. This also means that it is very important that there is a clear definition of responsibilities.

The detailed actions spelt out in section 5 includes an identification of ministries and agencies in each case. It will be the responsibility of the designated ministry or agency to initiate the action described and to coordinate the involvement of other ministries or agencies where appropriate. Resources will need to be clearly earmarked for such work and where additional resources are needed internal reallocation and/or donor support will be necessary.

4.2 Apart from the Ministry of Tourism, Natural Resources and Environment which has a key coordinating role spelt out in paragraph 4.4 the following ministries and agencies have a major part to play in implementing the action plan.

- The Planning Commission
- The Ministry of Agriculture
- The Prime Minister's office (especially in its role dealing with regional and local administration)
- The Ministry of Water Energy and Minerals
- The Ministry of Lands Housing and Urban Development
- The Ministry of Education and Culture
- The Ministry of Science, Technology, and Higher Education
- The Universities
- The Ministry of Community Development, Women Affairs and Children.

4.3 Each of these ministries should designate a person or office which is responsible for environmental matters and as outlined in section 3.2, each will develop an implementation plan and report annually on progress made in that plan.

4.4 The Ministry of Tourism, Natural Resources and Environment is the coordinating body for all government matters relating to the environmental action plan. It will publish a report annually on the progress of the government in implementing the action plan and will present regular updates of the planning process. Every three years a major review of the NEAP will take place. Besides its coordinating role, the Ministry will be directly responsible for environmental policy, review of environment-related legislation, development of appropriate rules and regulations, reconciliation of EIA's with development of objectives and development of incentives to good environmental management together with a number of specific executive functions. The National Environment Management Council will have a major role to play in the implementation of the plan. It will be responsible for facilitating the planning process at the District level, particularly for developing the information, assessing the nature and extent of environmental problems, and promoting awareness-raising and participation in the

implementation of the plan.

4.5 An interagency Steering Committee under the auspices of the Ministry of Tourism, Natural Resources and Environment with representation of all involved ministries, will facilitate the coordination function within the government and will provide guidance to key agencies on environmental matters. Additionally, Ministry of Tourism, Natural Resources and Environment will be responsible for coordinating with donor agencies. The Planning Commission will ensure that the NEAP is fully integrated into the countries planning and programming. Finally, the line ministries will be responsible for the implementation of investment programs relating to natural resources and environmental management, enforcement of existing laws and regulations, and monitoring of environmental situations in the concerned sector.

#### 4.6 **Budget and Manpower in the Implementation of the NEAP**

The action plan set out in Chapter 5 is ambitious but it does include a number of activities which are already underway. This is a time of scarce resources for government, and careful targeting of available resources and of donor assistance is a necessity for most effective plan implementation.

An important requirement is for the Government to focus on capacity building and human resource development. To this end, the government should assure adequate staffing for the NEMC and for the Division of Environment. A second requirement is the designation of responsible individuals to deal with the environment in the key central government ministries and in the regions and districts. Rather than dilute scarce resources a few priority regions and districts would be identified and supported.

Donor support needs to be coordinated. The donor community appears willing to give environmental issues priority and to coordinate many of their programs. To make such a response effective it might be appropriate to consider a short medium term program of action in some detail. Such a program would be based on the plan of action, once approved, that would spell out in some detail a set of priorities with needed resources and a time frame for implementation.

## **5.0 ACTION PLAN TO IMPLEMENT ENVIRONMENTAL POLICY**

5.1. The following action plan is a logical sequence of the preceding analysis. In Section '1' of this NEAP, six major environmental problems in Tanzania were described. They were:-

1. Land Degradation
2. Lack of Accessible Water Supply and Poor Water Quality- Rural and Urban
3. Environmental Pollution
4. Deterioration of Aquatic Resources:- Marine and Freshwater
5. Loss of Wildlife Habitats and Biodiversity
6. Deforestation

In section 2, a summary of the proposed national environmental policy sets out the urgent need to create a new cross-sectoral framework to address the complexity of these environmental issues. In section 3, some general and sector specific strategies were outlined to guide the implementation of national environmental policy. In Section '4' the institutional structures and responsibilities were outlined.

Finally this specific action plan -- a first step of an evolving process -- creates an ongoing agenda for the government and people of Tanzania and as such needs regular assessment, feedback and readjustment. This is particularly important as wider public participation is sought and as more detailed information on the nature, the severity and the various local impacts of these problems becomes as available. It is important to remember that the priority environmental issues addressed are the cumulative result of actions and process taking place over a long time. They will not be solved easily or in the short run, but nevertheless their solution is vital to sustainability of the natural resource system of the country on which much of the country's economy depends.

### **5.2. Creating the Context for Specific Action**

The following actions, in keeping with the proposed timetable, need to be taken to begin to create the context for a long term national approach to the environment.

- (a) A continuation of the NEAP consultation process including all the major stakeholders (such as public agencies, the private sector, NGOs, academia, community organizations, local people, etc.) both at the national level and in the regions and districts (effective July 1994).

- (b) Finalization and adoption of draft National Environment Policy as well as NCSSD (June 1995)**
- (c) The intensification of a national environmental education and public awareness campaign (January 1995).**
- (d) The integration of the environmental policy and conservation strategy into the country's national planning and programming, and development plan (January 1995).**
- (e) Research and technology initiatives to better understand the priority issues (start September 1994).**
- (f) Strengthening of a National Environmental Information System (July 1994).**
- (g) The incorporation of an environmental assessment approach into all aspects of planning and decision making (July 1995).**
- (h) Establishment of an overall legislative framework and effective sectoral legislation pertaining to the environment (January 1996).**
- (i) Intensification of public participation, both as a means of determining priorities especially at the local level, and as a means of initiating environmental action (effective September 1994).**
- (j) Preparation of priority long-term investment program (including studies, pilot schemes, and investment projects) based on a national program-oriented approach to complement the existing development plan to address major environmental problems (July 1995).**
- (k) Performance of EIA on selected projects in the development plan (July 1995).**
- (l) Finalization and implementation of key policies relating to mineral sector, forestry, energy, soil and water conservation (March 1995).**
- (m) Preparation and implementation of a new land, forestry and wildlife protection acts (June 1995).**

- (n) Establishment of an effective mechanism for donor coordination (November 1994).
- (o) A clear definition of the institutional roles and responsibilities for environmental management, in terms of advisory roles, policy and legislation, planning, inter-agency coordination, enforcement, monitoring (July 1995).
- (p) Development of a process for specific national assessment of land and water degradation and possible remedial measures (January 1996).

### **5.2.1 The Continuation of the National Environmental Action Planning Process.**

The planning process for the National Conservation Strategy for Sustainable development (NCSSD) began in 1988 and the process for the development of the National Environment Policy have occurred in parallel. The NCSSD process involved very productive national level inter-sectional discussion and a good definition of national perspectives. However, feedback from the regions and districts representatives has only just begun and the translation of national priorities into specific regional, district, and local priorities and actions will need substantial further effort. It is, therefore important that the assessment and planning process continue. Responsibility for this action will be with Ministry of Tourism, Natural Resources and Environment and key collaborators are National Environment Management Council, Regional and District authorities the private sector and NGOs.

### **5.2.2 The Development and Implementation of a National Environmental Education and Public Awareness Programme.**

This action involves at least three distinct initiatives. First, measures must be taken to incorporate basic facts relating to the environmental dimensions of cultural, socio-economic and natural resource use into formal education at all levels. These measures should include the development of a basic set of materials adaptable for use at varying levels in the school system, the training of teachers and finally the modification of the curriculum at all levels. School work should include practical as well as theoretical knowledge. This is a task for the Ministry of Education and Culture with support from the Ministry of Tourism, Natural Resources and Environment, National Environment Management Council and the Universities.

Second, specific training courses should be developed for in-service professionals not only dealing with Environmental Impact Assessment, but also with the environmental issues directly related to their jobs. This training is just as (or more) important for professionals in the regions and districts as for those in the central ministries. This task should be the responsibility of the Universities, training centres, National Environment Management Council and the Ministry of Tourism, Natural Resources and Environment.

Third, public awareness needs to be generated by a combination of methods including radio press and local meetings. The press already reports extensively on environmental issues, but more education can be incorporated into such reports. Several good suggestions of detail are found in the NCSSD document. This task is one for the Ministry of Information and the Ministry of Women Affairs, Children and Community Development, supported by National Environment Management Council and Ministry of Tourism, Natural Resources and Environment.

### **5.2.3 Research and Technology Initiatives to Better Understand Priority Issues.**

One of the conclusions of the analysis of the state of the environment in Tanzania was that much remains to be known about the extent of most of the environmental issues described. As a follow up to this action, a list of priority fact finding and policy related research topics should be established. There are a number of national and parastatal institutions in Tanzania capable of doing this work including the universities, the Ministry of Science and Technology and the Commission for Science and Technology, as well as various research centres. Once the list is established, preferential support for research and fact finding in those priorities should be sought/allocated. This is a task for the Ministry of Science, Technology and Higher Education, with key collaborators the Commission on Science and Technology, National Environment Management Council, Ministry of Tourism, Natural Resources and Environment, in cooperation with the universities.

### **5.2.4 The Development of a National Environmental Information System.**

A key characteristic of environmental problems is that they are cross-sectoral and therefore their understanding requires information drawn from various sources. In traditional government systems, much information is collected by and stored on a ministerial basis. There is, thus, a need for a centre which has access to information collected on a sectoral basis, has the capability of collating and organizing information on a topical basis and is capable of disseminating it to regions, districts and sectoral ministries as needed. The location of such a system should serve all sectors and institutions. National Environment Management Council, and Ministry of Tourism, Natural Resources and Environment are possible locations.

Such a data-driven information system is best complemented with a documentation centre. The use of geographic information system technology is one possible approach to organizing such data and documentation.

### **5.2.5 The Incorporation of an Environmental Impact Assessment (EIA) approach into all aspects of planning and decision making.**

Successful implementation of the environmental policy and action plan requires the optimization of good development within and across sectors; that is, finding the right balance between the environmental constraints and the need for human action. The purpose of the EIA approach is to subject a proposed action to an examination of what the possible environmental impacts of that action would be and to find ways to mitigate any negative long term impacts. It is also a process which brings the proposed action into the public forum and provides an opportunity for comment and feedback. While in a few much published cases an EIA results in a project being abandoned, in most cases it results in a better project more in harmony with long term needs and with little negative environmental impact.

It has proved to be a most effective tool and should be part of the planning process of Tanzania. It will be proposed as part of the comprehensive legislative process. This is the responsibility of the Planning Commission, with key collaborator Ministry of Tourism, Natural Resources and Environment.

### **5.2.6 A Comprehensive Legal Framework for Environmental Issues.**

As noted above, there are over 80 pieces of legislation which relate to environmental issues; yet, many are outmoded and most are not understood or currently enforced. There is thus a need for a comprehensive review of environment-related legislation as a prerequisite for implementation of the regulatory elements of the policy objectives. A comprehensive legal framework and effective sectoral legislation should be established to address the following issues:-

- (a) Requirement of EIA for all major projects with a significant impact on the natural or human environment.
- (b) Requirement that all relevant permits/licenses contain environmental protection conditions.
- (c) Requirement that management plans be prepared by the relevant authorities for all land areas in Tanzania, including reserved, public and urban areas, based on principles of multiple use and sustained yield of natural resources. All existing management plans should be reviewed to ensure that they meet these criteria. It shall be a duty of relevant management authorities to manage according to approved plans.



- (d) Provision for set-asides of certain lands for:-
  - i) land rehabilitation
  - ii) conservation of biodiversity
  - iii) other purposes in the public interest.
- (e) Requirement of establishment of comprehensive regulatory pollution control programs, covering the following environmental media: air, land and water; and based on establishment of emissions and quality standards, as well as limits for the whole of designated areas (e.g. water bodies) to be established based on quotas for particular substances. Those emitting designated substances from designated processes, will be required to hold a permit from the relevant enforcement authority.
- (f) Requirement of establishing a system for public access to environmental information.
- (g) Requirement of establishing a process for public participation in government decision making pertaining to environment, including the requirement of notification, option to comment, representation on relevant Boards and Commissions, and establishment of separate public committees, commissions and review boards to mediate disputes, and provide government with information and advice regarding environment.
- (h) Provision for public enforcement of the Environmental Protection Act and other relevant Acts through allowing a) public challenge to government action or inaction (where the government has a duty to act), b) public enforcement against an alleged violator.
- (i) Establishment of an Environmental Court to hear cases brought under relevant Acts.
- (j) Provisions to increase penalties of relevant Acts, establish new penalties and create incentive mechanisms for sound environmental management.
- (k) Establishment of an environmental tax on permits, imports, and domestic goods, earmarked to the following areas:-
  - (i) Air pollution enforcement and subsidy programs;
  - (ii) Water pollution enforcement and subsidy programs;
  - (iii) Solid waste management/pollution enforcement and subsidy programs;
  - (iv) Protection of public health through enforcement of public health laws;
  - (v) Land reclamation activities.
- (l) Establishment of an integrated coastal zone management plan.
- (m) Establishment of a wetlands management and protection policy and plan.

- (n) Requirement of notification by sectors of intent to pass by-laws under specific environmentally-related acts.
- (o) Requirements and provisions for specific cross-sectoral coordination in environmental protection and management planning activities.
- (p) Provisions for implementation of international conventions related to environment (e.g. the Biodiversity Convention; the Basel Convention) to which Tanzania is a party.

The leading institution shall be the Ministry of Justice and Constitutional Affairs, with the key collaborator being the Ministry of Tourism, Natural Resources and Environment.

### 5.3 Specific Actions Related to the Six Priority Areas

In addition to the actions described above, the action plan directly addresses the need for to responding to the priorities defined earlier in this plan.

ITEM	REQUIRED ACTIONS	LEAD AGENCIES	KEY COLLABORATORS
<p><b>Combatting Land Degradation</b> By general agreement, land degradation is the most serious environmental problem facing Tanzania and should be given top priority by all relevant parts of the society as it not only affects a large percentage of the population but also impacts the macro-economy.</p>	<p>(a) Promote an integrated approach to planning and management of the land resource to optimize use and sustainable management.</p> <p>This will necessitate a review and strengthening of land tenure legislation, land allocation mechanisms and procedures and the powers of land allocation authorities.</p>	<p>Ministry of Lands</p>	<p>President's Office, Prime Minister's Office, Planning Commission, National Land Use Planning Commission, Ministry of Agriculture, Ministry of Tourism, Natural Resources and Environment, National Environment Management Council.</p>

ITEM	REQUIRED ACTIONS	LEAD AGENCIES	KEY COLLABORATORS
	(b) Strengthen institutional mechanisms to facilitate local involvement and participation on land use issues including district councils.	Prime Minister's Office (Local authorities)	NGOs, Ministry of Lands, Housing and Urban Development, Ministry of Women Affairs, Children and Community Development, National Land Use Planning Commission
	(c) Monitor the extent and nature of land degradation in the seven areas designated under the Plan of Action to Combat Desertification. Follow up on this plan.	National Environment Management Council	Institute for Resources Assessment, Ministry of Tourism, Natural Resources and Environment, NGO's, Ministry of Agriculture and Livestock Development, PMO (Local Authorities), National Land Use Planning Commission.
	(d) Review the Mining Act to reinforce land rehabilitation provisions. At the same time, explore ways to assist small-scale miners in using less damaging mining techniques.	Ministry of Water, Energy and Minerals	National Environment Management Council, Ministry of Justice and Constitutional Affairs, National Land Use Planning Commission, Ministry of Tourism, Natural Resources and Environment
	(e) Strengthen soil and water conservation activities as set out in the National Soil and Water Conservation Program (Draft 1992).		Ministry of Tourism, Natural Resources and Environment, Sokoine University for Agriculture, Ministry of Water, Energy and Minerals, Institute for Resources Assessment, National Land Use Planning Commission, National Environment Management Council

ITEM	REQUIRED ACTIONS	LEAD AGENCIES	KEY COLLABORATORS
	(f) Re-assess the practicability of conventional concepts of range management in the communal sector. Reappraise the functions of livestock marketing services and improve livestock marketing facilities.	Ministry of Agriculture.	Sokoine University for Agriculture, National Environment Management Council, National Land Use Planning Commission, Tanzania Pesticides Research Institute
	(g) Develop effective, environmentally friendly methods of tse-tse fly control other Than wholesale bush clearing which leads to land degradation.	Ministry of Agriculture	Sokoine University for Agriculture, Tanzania Pesticides Research Institute, National Environment Management Council, National Land Use Planning Commission
	(h) Improve water management in irrigation schemes.	Ministry of Agriculture	Sokoine University for Agriculture, Ministry of Water, Energy and Minerals, Institute for Resources Assessment, Rufiji Basin Development Authority
	(i) Review methodology of extension packages so That they can convey effective environmental messages on the importance of sustainable resource management.	Ministry of Agriculture	National Environment Management Council, NGOs, Ministry for Women Affairs, Children and Community Development, Ministry for Labour and Youth, Ministry of Tourism, Natural Resources and Environment
	(j) Establish legislative/regulatory programs for set aside of critically affected lands to allow for rehabilitation. Involve local affected people in land rehabilitation schemes.	Ministry of Tourism, Natural Resources and Environment	Ministry of Lands, Housing and Urban Development, Ministry of Agriculture, Ministry for Water, Energy and Minerals, National Land Use Planning Commission, Institute for Resources Assessment, PMO (Local Authorities)

ITEM	REQUIRED ACTIONS	LEAD AGENCIES	KEY COLLABORATORS
	(k) Assist Local Authorities (including villages) in enactment and enforcement of by-laws pertaining to land degradation.	PMO (Local Authorities)	Ministry of Tourism, Natural Resources and Environment, National Environment Management Council, National Land Use Planning Commission, Ministry of Lands, Housing and Urban Development, Institute for Resources Assessment, Ministry of Agriculture
	(l) Document, review and strengthen customary laws regarding land degradation.	Ministry of Justice	PMO (Local Authorities), National Land Use Planning Commission, Institute for Resources Assessment, National Environment Management Council.
	(m) Evaluate the rationality of existing land use practices with a view towards recommending appropriate uses. This includes mapping areas to identify and evaluate natural resources.	Ministry of Lands, Housing and Urban Development	Ministry of Tourism, Natural Resources and Environment, National Land use Planning Commission, National Environment Management Council, Institute for Resources Assessment

ITEM	REQUIRED ACTIONS	LEAD AGENCIES	KEY COLLABORATORS
<p><b>Water Shortage and Water Pollution</b> Adequate water supply of good quality, readily available for all Tanzanians has long been a goal of the Government of Tanzania. Apart from the social issues involved, this is also an issue of environmental health and a barrier to increased productivity. Actions to improve the current situation include the following:-</p>	<p>(a) Take action to carry out the main environmental requirements of the National Water Policy as follows:-</p> <p>(i) Improve protection of water source areas;</p> <p>(ii) Develop water quality monitoring programs;</p> <p>(iii) Improve allocation and monitoring of water use, paying special attention to illegal connections;</p> <p>(iv) Develop a system of charges for large scale water users That reflects the value of water sources;</p> <p>(v) Rehabilitate urban sewage systems.</p>	<p>Ministry of Water, Energy and Minerals</p>	<p>Ministry of Tourism, Natural Resources and Environment, National Environment Management Council, PMO (Local Authorities), Ministry of Agriculture, Ministry of Industries</p>
	<p>(b) Establish emergency notification programs to ensure That the public is not utilizing contaminated water.</p>	<p>Ministry of Health</p>	<p>Ministry of Water, Energy and Minerals , National Urban Water Authority, Central and other Water Boards.</p>
	<p>(c) Review water projects for environmental impacts and to ensure downstream availability of clean water.</p>	<p>Ministry of Water, Energy and Minerals</p>	<p>Institute for Resources Assessment, National Environment Management Council</p>
	<p>(d) Amend/replace laws governing water pollution to streamline authority for enacting/enforcing water quality and emissions standards and permitting provisions.</p>	<p>Ministry of Water, Energy and Minerals</p>	<p>Ministry of Justice and Constitutional Affairs</p>
	<p>(e) Develop appropriate small-scale water harvesting techniques to alleviate water shortages for domestic and agricultural purposes and also for schools and other public institutions.</p>	<p>Ministry for Water, Energy and Minerals</p>	<p>NGOs, PMO (Local Authorities), Institute of Production Innovation</p>

ITEM	REQUIRED ACTIONS	LEAD AGENCIES	KEY COLLABORATORS
	(f) Ensure That water prices reflect the economic value of water, with subsidies only where appropriate and where costs are well defined.	Ministry for Water, Energy and Minerals.	Ministry for Industries and Trade, Ministry for Agriculture
	(g) Ensure That supply of water from pipe points is adequately controlled, to prevent illegal connections.	Ministry for Water, Energy and Minerals	PMO (Local Authorities), NGOs.
<p><b>Urban Pollution</b> This is an area where policy has not yet been comprehensively developed. Thus, an overall objective of the action plan is to encourage the development of a national policy to deal with urban pollution. This process could be initiated by National Environment Management Council and Ministry of Tourism, Natural Resources and Environment in cooperation with PMO (Local Authorities), Ministry of Health, etc. In addition, the following actions are important.</p>	(a) Establish disposal, production, transport standards and permitting requirements for solid waste, enforceable by law.	Ministry of Tourism, Natural Resources and Environment	Tanzania Bureau of Standards, National Environment Management Council, Ministry for Industries and Trade, PMO (Local Authorities).
	(b) Establish a public participation mechanism, such as a citizen advisory board, to ensure That these matters are adequately dealt with.	PMO (Local Authorities)	Ministry for Women Affairs, Children and Community Development
	(c) Establish emergency notification procedures to prevent public exposure to hazardous processes/chemicals/wastes	Ministry of Tourism, Natural Resources and Environment	Ministry for Industries and Trade, National Environment Management Council, Ministry for Labour
	(d) Establish emergency sites for solid waste disposal, until permanent sites can be found.	PMO (Local Authorities)	Ministry of Tourism, Natural Resources and Environment, National Environment Management Council

ITEM	REQUIRED ACTIONS	LEAD AGENCIES	KEY COLLABORATORS
	(e) Establish regulatory mechanisms for preventing import of dangerous hazardous wastes. Implement the Basel Convention.	Ministry of Tourism, Natural Resources and Environment	Ministry of Foreign Affairs, Ministry of Trade, Ministry of Justice and Constitutional Affairs
	(f) Develop environmentally sound waste collection, transport and disposal systems for urban and protected areas.	PMO (Local Authorities)	Ministry of Works, Ministry of Health, Ministry of Water, Energy and Minerals, Ministry of Lands, Housing and Urban Development
	(g) Implement existing physical plans to prevent urban pollution. Where unplanned areas cannot be removed, explore the use of new sanitation technology for these special conditions. Develop physical methods of enforcement of plans, such as erecting barriers, posting signs, etc.	Ministry of Lands, Housing and Urban Development	Ministry of Tourism, Natural Resources and Environment, Ministry of Health, PMO (Local Authorities)
	(h) Establish facilities for final disposal of hazardous wastes, including expired pesticides.	Ministry of Tourism, Natural Resources and Environment	Ministry of Industries, Ministry of Agriculture, Tropical Pesticides Research Institute, National Environment Management Council
	(i) Conduct pilot projects on resource recovery, including recycling from waste. Promote the development and use of refuse based fuels.	Ministry of Industries and Trade	Tanzania Industrial Research Development Organisation Bureau of Standards, Commission on Science and Technology, Ministry of Tourism, Natural Resources and Environment, NGOs, Ministry for Water, Energy and Minerals



ITEM	REQUIRED ACTIONS	LEAD AGENCIES	KEY COLLABORATORS
	(j) Plan new industries in such a way as to minimize adverse effects of the environment. Use EIA as one tool to ensure this.	Ministry for Industries and Trade	Planning Commission, PMO (Local Authorities), National Environment Management Council, Investment Promotion Centre
	(k) Explore ways in which existing industry can improve its processing technology to reduce pollution and increase efficiency. Develop a systematic framework for the introduction of pollution prevention technology within industries in Tanzania.	Ministry for Industries and Trade	Ministry of Tourism, Natural Resources and Environment, Tanzania Industrial Research Development Organisation, Bureau of Standards, Institute of Production Innovation, National Environment Management Council
	(l) Promote the sound management of chemicals and chemical products. Harmonize and streamline the classification, labelling, packaging, transport, use, handling and storage requirements for chemicals. Strengthen the monitoring and control of imported chemicals.	Ministry of Tourism, Natural Resources and Environment	National Environment Management Council, Ministry of Health, Ministry of Industries and Trade, Tropical Pesticides Research Institute, Tanzania Bureau of Standards, Tanzania Harbours Authority, Ministry of Agriculture
	(m) Develop a monitoring system for industrial emissions and for urban air pollution.	Ministry of Tourism, Natural Resources and Environment	Ministry of Works and Communication, Ministry for Labour and Youth, PMO (Local Authorities), Ministry of Health
<p><b>Deterioration of Aquatic Resources:- Marine and Freshwater</b>  Conserving water resources, protecting aquatic and wetland ecosystems, and the sustainable production of fish are important to the health and well-being of many Tanzanians. In order to maintain these resources, the following actions are needed.</p>	(a) Establish licensing procedures which require That all coastal uses take into account environmental impacts on the zone, and include environmental mitigation conditions. Also, EIAs should be performed on major projects.	Ministry of Tourism, Natural Resources and Environment	Ministry of Lands, Housing and Urban Development, PMO (Local Authorities), Tanzania Fisheries Research Institute, National Environment Management Council, Tha

ITEM	REQUIRED ACTIONS	LEAD AGENCIES	KEY COLLABORATORS
	(b) Establish criteria for granting "Planning Consent" on Ecologically Sensitive Areas, especially wetlands and mangrove areas, as established under the Town and Country Planning Ordinance.	Ministry for Lands, Housing and Urban Development	National Land Use Planning Commission, Ministry of Tourism, Natural Resources and Environment, PMO (Local Authorities), National Environment Management Council
	(c) Require EIA for developments affecting water bodies, including wetlands.	Ministry of Tourism, Natural Resources and Environment	Ministry of Lands, Housing and Urban Development, PMO (Local Authorities), National Environment Management Council, Ministry of Agriculture
	(d) Develop legal permitting requirements and legally based management plans which base management on population, habitat conservation, and multiple uses and sustained yield of the resource.	Ministry of Tourism, Natural Resources and Environment	Tanzania Fisheries Research Institute, Tanzania Fisheries Corporation, Ministry of Justice and Constitutional Affairs
	(e) Establish region coordinating committees for rivers and lakes. Such water systems need to be viewed and developed as a whole and cross-regional and sometimes international coordination is needed. Priority should be given to systems where conflicts are already occurring or where there is pollution or are threats to biodiversity.	Ministry of Water, Energy and Minerals	Ministry of Foreign Affairs, Ministry of Tourism, Natural Resources and Environment, Planning Commission, National Environment Management Council.
	(f) Identify environmentally sound human activities for catchment areas, water sources, reservoirs so That multiple use can occur on a sustainable basis.	Ministry of Tourism, Natural Resources and Environment	Ministry of Agriculture, PMO (Local Authorities), Ministry of Water, Energy and Minerals

ITEM	REQUIRED ACTIONS	LEAD AGENCIES	KEY COLLABORATORS
	(g) Study the underlying causes of land use conflicts relating to wetlands utilization and identify appropriate property rights and incentives for more sustainable use of these resources.	Ministry of Tourism, Natural Resources and Environment	Ministry of Lands, Housing and Urban Development, Ministry of Agriculture, Ministry for Water, Energy and Minerals, National Environment Management Council, National Land Use Planning Commission, Planning Commission,
	(h) Consider the development of a wetlands policy or incorporate a specific wetlands policy into the National Environment Policy.	Ministry of Tourism, Natural Resources and Environment	National Environment Management Council, Ministry of Lands, Housing and Urban Development, Ministry of Water, Energy and Minerals, Ministry of Agriculture
	(i) Destructive fishing and processing methods should be controlled and moderated by both regulation and support, That is, by making available appropriate fishing gear at affordable prices.	Ministry of Tourism, Natural Resources and Environment	Ministry of Industries and Trade, Tanzania Fisheries Research Institute, PMO (Local Authorities)
	(j) Monitor aquatic ecosystems both, fresh water and marine, to ensure That fish stocks are not being depleted.	Ministry of Tourism, Natural Resources and Environment	TAFIRI, National Environment Management Council

ITEM	REQUIRED ACTIONS	LEAD AGENCIES	KEY COLLABORATORS
	<p>(k) Promote Integrated Coastal Zone Management. The coast is an area where urban development, tourism, industrial growth, agriculture and fishing all interact. It is important to assess all of these activities in an integrated way.</p>	<p>Ministry of Tourism, Natural Resources and Environment</p>	<p>University of Dar es Salaam, Ministry of Water, Energy and Minerals , Ministry of Works and Communications, Ministry of Lands, Housing and Urban Development, Ministry of Agriculture, PMO (Local Authorities), National Environment Management Council, Ministry for Industries and Trade.</p>
<p><b>Loss of Wildlife Habitats and Biodiversity</b> Many aspects of development pose a threat to the future existence of particular species and even ecosystems in Tanzania. These wildlife resources are important, scientifically, economically and culturally. Apart from the continuation of the well-established national system of parks and preserves the following actions should be taken:-</p>	<p>(a) Develop legal permitting requirements and legally based management plans which base management on population, habitat conservation, multiple uses and sustained yield of the resource.</p>	<p>Ministry of Tourism, Natural Resources and Environment</p>	<p>Ministry of Justice and Constitutional Affairs, Tanzania National Parks Authority, Serengeti Wildlife Research Institute, Tanzania Forestry Research Institute</p>
	<p>(b) Increase public awareness of the importance of wildlife and biodiversity. This can be done nationally but it is also important at the local level where the impact of conservation practices is most felt. One way to do this is through legally requiring public right to participate in management planning.</p>	<p>Ministry of Tourism, Natural Resources and Environment</p>	<p>Ministry of Education and Culture, NGOs, Ministry for Women, Children and Community Development, PMO (Local Authorities), National Environment Management Council</p>

ITEM	REQUIRED ACTIONS	LEAD AGENCIES	KEY COLLABORATORS
	(c) Develop mechanisms to ensure That local people gain benefit from the revenues occurring as a result of wildlife activities such as tourism. Involve local people in decisions about wildlife and biodiversity in their area. Create local incentives for wildlife protection and preservation of ecosystems.	Ministry of Tourism, Natural Resources and Environment	PMO (Local Authorities), Tanzania National Parks Authority, NGOs, Tanzania Wildlife Corporation.
	(d) Develop a national biodiversity profile, first as a baseline assessment and as an ongoing monitoring process. Include wetland and aquatic biodiversity as an important component.	Ministry of Tourism, Natural Resources and Environment	National Environment Management Council, University of Dar es Salaam, Tanzania National Parks Authority, Tanzania Fisheries Research Institute, Tropical Pesticides Research Institute, Institute for Traditional Medicine, Ministry for Agriculture, Serengeti Wildlife Research Institute, Tanzania Forestry Research Institute, Commission on Science and Technology, Sokoine University for Agriculture
	(e) Re-examine the entire protected area network in Tanzania to assess the needed ecological boundaries for long-term sustainability. Identify needed modifications and recommend special protection measures for area of high biodiversity value. This should be part of a national strategy for the conservation of biodiversity.	Ministry of Tourism, Natural Resources and Environment	Tanzania National Parks Authority, Serengeti Wildlife Research Institute, Tanzania Forestry Research Institute, National Environment Management Council, University of Dar es Salaam, Sokoine University of Agriculture

ITEM	REQUIRED ACTIONS	LEAD AGENCIES	KEY COLLABORATORS
	(f) Promote international cooperation to ensure That benefits occur to the country of origin in the transfer of genetic resources.	Ministry of Foreign Affairs	Ministry of Finance, Ministry of Justice and Constitutional Affairs, Ministry of Tourism, Natural Resources and Environment, Ministry of Trade and Industries, and Ministry of Agriculture, Commission on Science and Technology
	(g) Support international cooperation to curb trade in endangered species, including an exploration of economic incentives to curb such trade.	Ministry of Tourism, Natural Resources and Environment	Ministry of Industry of Trade and Foreign Affairs, Ministry of Home Affairs, Ministry of Justice and Constitutional Affairs
<p><b>Deforestation</b> As stated above, deforestation is not only a problem of resource loss but a contributor to problems of land degradation, lack of water availability and loss of biodiversity. The sustainable use of forest resources is an important national goal. Public and reserved areas should have proper management plans based on principles of multiple use, sustained yield.</p>	(a) The law should be reviewed/amended to require That public and reserved areas be managed through systematic planning and based on principles of multiple use/sustained yield.	Ministry of Tourism, Natural Resources and Environment	Ministry of Justice and Constitutional Affairs, Ministry of Agriculture and PMO (Local Authorities)
	(b) Rational development of forest resources accompanied by reforestation programs should be promoted to meet domestic consumption requirements and export trade in a sustainable way. To achieve this goal, afforestation activities should be strengthened.	Ministry of Tourism, Natural Resources and Environment	Ministry of Agriculture, PMO (Local Authorities), NGOs, Tanzania Forestry Research Institute, Tanzania Wood Industries Corporation

ITEM	REQUIRED ACTIONS	LEAD AGENCIES	KEY COLLABORATORS
	(c) Promote the efficient and rational use of forest and woodland resources. Coordinate land use activities to maintain woodland resources.	Ministry of Tourism, Natural Resources and Environment	PMO (Local Authorities), Ministry of Lands, Housing and Urban Development, Ministry of Agriculture, Tanzania Forestry Research Institute, NGOs
	(d) Promote alternative sources of energy whenever possible and also promote more efficient uses of wood and charcoal.	Ministry of Water, Energy and Minerals	Ministry of Agriculture, Ministry of Tourism, Natural Resources and Environment, Tanzania Forestry Research Institute, NGOs.
	(e) Farmers, business, communities, NGO's, school and other institutions should be motivated to tree planting on the basis of local plans and needs.	Ministry of Tourism, Natural Resources and Environment	PMO (Local Authorities), National Environment Management Council, NGOs, Ministry of Education and Culture and Culture, Ministry of Agriculture

## 5.4 Other Actions

The document has outlined actions needed to create an enabling framework for the implementation of the National Environmental Policy and it has reviewed direct actions needed to address the priority environmental problems. In this concluding section the issues of regional differentiation and international activities are addressed.

ITEM	REQUIRED ACTIONS	LEAD AGENCIES	KEY COLLABORATORS
<p><b>Regional Issues</b> This action plan has been formulated at the national level with input from regional and district authorities. The ordering of priorities reflects the national situation but it is on the ground within the regions and districts and the urban areas That the various problems and opportunities for action come together. It is important That each management unit in the country follow up the national action plan by examining the particular set of priorities for their area.</p>	<p>Therefore, as part of the plan, all regions, districts and urban areas will be encouraged to develop their own priorities in an integrated, multi-purpose way.</p> <p>In addition, regions, districts and urban areas will be identified for pilot programs of integrated resource management. The lessons learned from these pilot areas will then be extended to other parts of the country for pilot programs of integrated resources management.</p>	<p>Ministry of Tourism, Natural Resources and Environment</p>	<p>President's Office, Prime Minister's Office, Planning Commission, National Land Use Planning Commission, Ministry of Lands, Housing and Urban Development, Ministry of Agriculture, National Environment Management Council</p>
<p><b>International Issues</b> Tanzania shares boundaries with eight countries and a number of environmental issues involve cross and trans-boundary cooperation. At the present time two issues appear to need priority treatment.</p>	<p>(a) Cross-Boundary Wildlife and Biodiversity Issues</p> <p>The several of Tanzania's boundaries include important wildlife ecosystems which extend between Tanzania and another country. Part of this action plan is to work cooperatively with these countries on the preservation of these ecosystems. The development of agreements covering all aspects of environmental conservation will be a priority issue for East African regional cooperation.</p>	<p>Ministry of Tourism, Natural Resources and Environment</p>	<p>Ministry of Foreign Affairs, Tanzania National Parks Authority, National Environment Management Council, Serengeti Wildlife Research Institute</p>



ITEM	REQUIRED ACTIONS	LEAD AGENCIES	KEY COLLABORATORS
	<p>(b) The Sustainable Management of International Waters' Ecosystems</p> <p>Water bodies which are trans-boundary are currently suffering from the problem of pollution from towns, industries, agriculture, inappropriate resource utilization and also difficulties in managing migratory species. Each of the bordering countries contributes to these problems.</p> <p>It is, therefore, important to develop an international approach to dealing with each of these problems and Tanzania will work with other riparian states to develop a coordinated approach to this important international resource.</p>	<p>Ministry of Tourism, Natural Resources and Environment</p>	<p>Ministry of Foreign Affairs, Ministry of Agriculture, Ministry of Industries and Trade, Tanzania Fisheries Research Institute, Ministry of Water, Energy and Minerals</p>

## 5.5. Sources of Finance and Budgetary Requirements for Implementation of the NEAP

Adequate financing for implementation of the NEAP is critical. Many of the actions delineated above can be implemented by government; still others by NGOs and private individuals. Due to the limited lack of financial resources which hinder environmental programs in the country, it is especially critical to emphasize the need for government and donor commitment to these actions.

### 5.5.1. Government Commitment

Adequate financing for implementation of the actions above must first be sought within the government. The government is committed to carrying out the actions which will improve the quality of life for all Tanzanians, and ensure sustainable development of natural resources for future generations. As such, the government must commit human and financial resources as much as possible for the implementation of the actions spelled out in this plan. Specific investments will be identified in each of the main ministries involved to deal with environmental issues and to implement specific parts of the master plan.

### 5.5.2 Donor Support

Where government financing and allocation of personnel are hindered by lack of resources, it is expected That the policies and actions identified by the government in this document will provide guidance to the donor community in targeting the most needed areas for immediate action. Support of the donor community is crucial in filling the gap between existing domestic resources and achievement of the actions identified herein.

Donor support needs to be coordinated to avoid duplication of efforts in the environmental area. In light of this goal, it is expected That regular coordination and planning meetings will occur between and among donors and the government, at least two or three times per year.