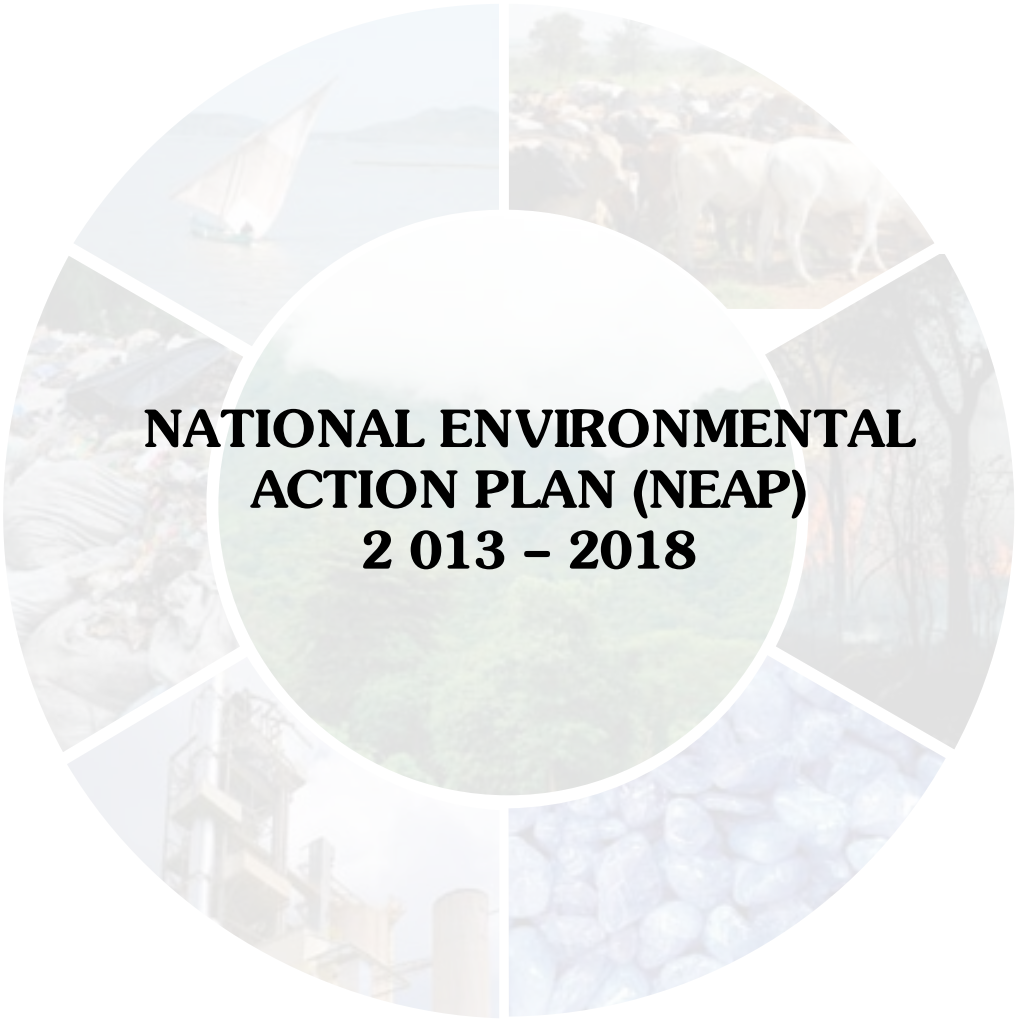


NATIONAL ENVIRONMENTAL ACTION PLAN (NEAP) 2 013 – 2018

VICE PRESIDENT'S OFFICE MAY, 2013

NATIONAL ENVIRONMENTAL ACTION PLAN (NEAP)

FOREWORD

Mainstreaming environmental concerns into development policies, plans and strategies is one of the priorities in Tanzanian's Sustainable Development Agenda.. One of the initial mainstreaming efforts has been the preparation of National Environmental Action Plan (NEAP) in 1994. This was a response to the recommendations by the Earth Summit in 1992 held in Rio de Janeiro, Brazil. At this Summit, countries were required to prepare and implement National Environmental Action Plans.

The Environmental Management Act No. 20 of 2004 (EMA) also provides for preparation of NEAP in the interval of five years. According to the Act, NEAP is the basis for integrating environmental concerns in formulation and implementation of development plans and programmes. In addition, the EMA 2004 requires Sector Ministries and Local Government Authorities to prepare their respective Environmental Action Plans in conformity with the NEAP so as ensure environmental mainstreaming at respective levels.

Since the preparation of NEAP (1994), the Government has undertaken various initiatives to improve environment management in the country. These include; formulation of the National Environmental Policy (1997); enactment of the Environmental Management Act No. 20 of 2004; mainstreaming of environment into MKUKUTA I (2005-2010) and II (2010-2015); and formulation of the sectoral policies, strategies and plans. These initiatives aim to ensure environmental consideration in the country's development processes..
In addition to requirements of EMA 2004, the NEAP (2012 - 2017), has been prepared to update information on natural resources and environment, and in devising strategic interventions, taking into account emerging issues which have a bearing on the environment such as climate change, Genetically Modified Organisms (GMOs), biofuels, Invasive Alien Species (IAS) and electronic waste.

Preparation of this version of NEAP was participatory. It involved various stakeholders from Sector Ministries, Local Government Authorities (LGAs), public and private sectors, actors, NGOs, media and local communities. These consultations provided another opportunity for stakeholders to provide inputs that shaped the NEAP according to their needs and thus enhancing ownership. The consultations also offered a platform for awareness Raisng on environmental issues to stakeholders especially at Local Government level.

The revised NEAP highlights the state of the environment identifying key environmental issues. These include Land degradation; Water resources degradation and pollution; Aquatic resources degradation; Loss of wildlife habitats and biodiversity; Deforestation; Urban pollution; Climate change; Modern biotechnology; E-waste; Invasive alien species; and Biofuels. Furthermore, the NEAP sets targets and indicators for tracking implementation progress.

In view of the highlighted issues I wish to emphasize that NEAP is an important document for guiding sustainable development of Tanzania. I call upon all stakeholders to participate fully in the implementation of the NEAP in order to improve the quality of life while maintaining environmental sustainability for the present and future generations.

Dr. Terezya L. Huvisa (MP)
Minister of State – Environment
Vice President's Office

ACKNOWLEDGEMENT

The successful preparation of the National Environmental Action Plan (NEAP) is a result of commitment and hard work by many individuals and institutions who deserve our appreciation. Since it is not possible to mention them all by names, I would like to confirm our heartfelt appreciation and that we value their cooperation and support.

I would like also to express my sincere gratitude to stakeholders who participated in the review of the draft NEAP, which was prepared by a Task Force under the coordination of the Vice President's Office. These include experts from the President's Office – Planning Commission; Vice President's Office; Ministry of Finance; Ministry of Agriculture, Food Security and Cooperatives; Ministry of Water; Ministry of Transport; Ministry of Education and Vocational Training; Ministry of Community Development, Gender and Children; Ministry of Natural Resources and Tourism; Ministry of Livestock and Fisheries Development; Ministry of Works; Ministry of Information, Youth, Culture and Sports; Ministry of Industry, Trade and Marketing; Dar es Salaam City Council; Ilala, Kinondoni and Temeke Municipal Councils; Tanzania Meteorological Agency (TMA); University of Dar es Salaam – Institute of Resource Assessment (IRA); National Environment Management Council (NEMC); and Dar es Salaam Water Supply and Sewerage Authority (DAWASA).

I am thankful to Eng. Ngosi C. X. Mwihava, Deputy Permanent Secretary, Vice President's Office; Director of Environment, Assistant Directors and members of the Task Force for their inputs on finalising the NEAP.

Finally, I am grateful to the Government of Japan and United Nations Development Programme (UNDP) through the Africa Adaptation Programme (AAP) for financial support in the revised NEAP preparation process.

Sazi B. Salula
Permanent Secretary
VICE PRESIDENT'S OFFICE

EXECUTIVE SUMMARY

Introduction

Country Profile: The United Republic of Tanzania has a total area of 945,087 km2 of which surface land in Tanzania Mainland is 883,749 km2 and 2,460 km2 in Zanzibar. The country is comprised of 59,050 km2 of inland water bodies. About 40% of the total land area in Tanzania constitutes protected area where wildlife protected areas (including game controlled reserves) cover about 28% and forest reserves account for about 15%. Tanzania is characterised by tropical climate with varied temperatures from one place to another depending on the geographical location. The mean annual rainfall ranges from 500mm to 2,500mm and above. The population of Tanzania in 2010 was estimated to be 43.2 million, out of which 42 million (97%) are from Tanzania Mainland while 1.3 million (3%) from Tanzania Zanzibar. Tanzania's real GDP recorded an average growth rate of about 7% in 2001-2010. Currently, agriculture contributes about 25.3% of the GDP but absorbs 74% of the labour force.

Background and Justification: The Environmental Management Act (2004) provides for preparation of NEAP in every five years. The NEAP elaborates the implementation of the National Policy Agenda in its totality. Furthermore, Sector Ministries and Local Government Authorities are obliged to prepare Environmental Action Plans, in conformity with the NEAP. Since the preparation of the first NEAP in 1994, many environmental challenges have emerged or intensified including climate change, modern biotechnology, biofuels, Invasive Alien Species (IAS), and Electronic Waste (E-Waste). Cognisant of the adverse impacts of these challenges to the environment and human health, revision of the NEAP became necessary in order to, among others, address these emerging environmental issues.

Development Process: The preparation of the revised NEAP involved assessment of the implementation of the first NEAP (1994); literature review; consultations with key stakeholders including Sector Ministries, Local Government Authorities (LGAs), Academic and Research Institutions, Non-Governmental Organizations (NGOs), and Private Sector. The NEAP was finalized by a team of experts coordinated by the Vice President's Office.

Environmental Management Initiatives

Policies: There are several policies that influence environmental management in Tanzania. Among these include; the National Environmental Policy (1997); Agriculture and Livestock Policy (1997); Livestock Development Policy (2006); National Fisheries Sector Policy and Strategy Statement (1997); National Forest Policy (1998); Beekeeping Policy (2008); Wildlife Policy (2007); National Tourism Policy (1999); National Land Policy

(1995); National Population Policy (1992); National Human Settlements Development Policy (2000); Sustainable Industrial Development Policy (1996); National Water Policy (2002); National Irrigation Policy (2010); National Health Policy (2007); National Energy Policy (2003); Mineral Policy (2009); National Investment Promotion Policy (1996); Education and Training Policy (2005); National Transport Policy (2003); National Research Policy (2010); Women and Gender Development Policy (2000); Community Development Policy (1996); Disaster Management Policy (1990); National Information and Communication Technology (ICT) Policy, 2003; National NGOs Policy (2002); National Biotechnology Policy (2010); Construction Industry Policy (2003); and Tanzania Development Vision 2025.

Legislation: There are several legal and regulatory instruments which are relevant to the environmental management in Tanzania. These include Environmental Management Act No. 20 of 2004; Wildlife Conservation Act No. 5 of 2009; Marine Parks and Reserve Act No. 29 of 1994; Fisheries Act No. 22 of 2003; Forest Act No. 7 of 2002; Grazing Land and Animal Feed Resources Act No. 13 of 2010; Fertilizer Act No. 9 of 2009; Industrial and Consumer Chemicals (Management and Control) Act No. 3 of 2003; Water Resources Management Act No. 11 of 2009; Water Supply and Sanitation Act No. 12 of 2009; Tourism Act No. 29 of 2008; Beekeeping Act No. 15 of 2002; Mining Act No. 14 of 2010; Land Act No. 4 of 1999; Village Land Act No. 5 of 1999; Public Health Act No. 1 of 2009; Occupational Health and Safety Act No. 5 of 2003; Plant Protection Act No. 13 of 1997; Merchant Shipping Act No. 21 of 2003; Rural Energy Act No. 8 of 2005; Urban Planning Act No. 8 of 2007; Road Act No. 13 of 2007; Local Government (Urban Authorities) Act No. 8 of 1982; and Local Government (District Authorities) Act No. 7 of 1982.

Institutional framework for environmental management: The Environmental Management Act No. 20 of 2004 sets up the institutional framework for environmental management in the country. The Act establishes National Environmental Advisory Committee (NEAC) with the role of advising the Minister responsible for Environment, on matters relating to protection and management of environment. It confers the role of enforcement to the National Environment Management Council (NEMC). The Act directs establishment of Sector Environmental Sections with the role of overseeing environmental management relevant to such respective sectors. It also gives power to the Regional Secretariats to designate Regional Environmental Management Expert (REME) charged with responsibility to advice and oversee implementation and enforcement of EMA. Furthermore, it empowers LGAs (City, Municipal, District, Township) to designate or appoint Environmental Management Officers to oversee implementation of EMA at respective levels. In addition, the Act establishes Environmental Committees at LGAs levels to advise and oversee the implementation of EMA within their jurisdiction.

Multilateral Environmental Agreements: Tanzania has ratified and is implementing various Multilateral Environmental Agreements (MEAs). These include Convention on Biological Diversity (1992); United Nations Convention to Combat Desertification (1994); Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal (1989); Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movements of Hazardous Wastes Within Africa (1990); United Nations Framework Convention on Climate Change (UNFCCC) (1992); Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES) (1973); Kyoto Protocol to United Nations Framework on Climate Change (1997); Vienna Convention for the Protection of the Ozone Layer (1985); Montreal Protocol on Substances that deplete the Ozone Layer (1987); SADC Protocol on Wildlife Conservation and Law Enforcement (1999); World Heritage Convention (1972); Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora (1994); Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (1985); Convention on Migratory Species (CMS) (Bonn) (1985); Convention on Wetlands of International Importance (Ramsar Convention) (1971); Agreement on the Conservation of African-Eurasian Migratory Water birds (AEWA) (1999); Convention on Sustainable Management of Lake Tanganyika (2003); Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1998); Stockholm Convention on Persistent Organic Pollutants (POPs) (2001); Cartagena Protocol on Biosafety (2000); African Convention on the Conservation of Nature and Natural Resources (1968); and United Nations Convention on the Law of the Sea (1982).

Regional Cooperation: Tanzania is a member of several regional blocks including Southern Africa Development Community (SADC); East Africa Cooperation (EAC); African Union (AU); and Indian Ocean Rim-Association for Regional Cooperation (IOR-ARC).

Milestones achieved from NEAP (1994)

Since preparation of NEAP (1994), the Government has undertaken various initiatives to improve environmental management in the country. These include: formulation and implementation of the National Environmental Policy (1997); enactment of the Environmental Management Act, 2004; mainstreaming of environment into National Strategy for Growth and Reduction of Poverty (NSGRP) I (2005-2010) and II (2010-2015), sectoral policies, strategies, plans, and programmes. Despite of these achievements, environment management in the country is still a challenge due to inadequate resources, inadequate mainstreaming of environmental issues in sectors and low level of awareness of the public on the importance of conservation.

State of the Environment

Land Resource: The present land use is categorized into seven major land types, namely, forests, woodland, bushland, grassland, cultivated land, open land and water features. Forests and woodland occupies more than 40 percent of the total land area of the mainland, whereas protected areas occupy nearly 30 percent of the whole area of the country. The country has continued to face a number of environmental challenges including land degradation due to unsustainable farming and mining; encroachment of wetlands; overgrazing; uncontrolled tree and bush clearing and wild fires.

Forests and Woodlands: Tanzania has about 35.3 million hectares (ha) of natural forests or about 38% of the total land area. Furthermore, forests and woodlands do provide other goods and services to people such as food, natural herbs for medicine and water. The forest resources are facing a number of environmental challenges including over exploitation, bush fires and encroachment.

Water Resource: Tanzania has about 59,050 km2 of inland water bodies. It is estimated that 6% of land area is covered by Lake Surface and numerous rivers draining into major water basins. Groundwater plays a major role in meeting the demand of water especially in rural areas. The total renewable water resources are estimated at 80 km3/year of which 30 km3/year is groundwater resources. The main environmental challenges include access to clean and safe water; sedimentation of reservoirs and waterways; pollution; encroachment of water sources; and climate change impacts. Human activities such as unsustainable fishing, agriculture and mining have been the major sources of pollution of many water sources especially the lakes, rivers and dams.

Biodiversity: Tanzania is the fourth country in Africa having the largest number of mammals, with at least 310 mammal species. Also, it is among the countries in Africa with the highest species richness of birds, plants, amphibians and reptiles. Moreover, it is one of the biodiversity hotspot areas in the world in particular from the Eastern Arc Mountains. Threats on biodiversity include: human encroachment in biodiversity sensitive areas; pollution of rivers, lakes, and ocean; over-exploitation; invasive alien species; and climate change impacts. This has contributed to loss of wildlife habitats and biodiversity.

Genetically Modified Organisms (GMOs): Commercial introduction of GMOs in the country is yet to take place apart from few research activities involving GMOs. The country has put in place legal and administrative framework to regulate GMOs. Challenges facing the safe use of modern biotechnology in the country include low public awareness; inadequate human resource and infrastructural capacity as well as funding.

Urban Environment:, The rapid growth of urban population in Tanzania has resulted in emergence and growth of informal settlements occupying about 60% of housing in urban areas. It is estimated that about 70% of the urban population in the country live in unplanned settlements which present potential public health risks and flooding hazards mainly as a result of poor urban planning. Other issues related to urban environment include:e-waste, municipal waste, traffic congestion, air and noise pollution.

Energy Resources: Tanzania is endowed with diverse energy sources including biomass, natural gas, hydropower, coal, geothermal, solar and wind power, much of which is untapped. The total annual energy used in Tanzania is 92% biomass-based and 8% is commercial energy, mainly electricity and petroleum-based fuel. This means energy use is characterized by very low per capita consumption of commercial energy and high dependence on biomass. Challenges faced include high initial costs of environmentally and socially sound energy technologies; and inadequate human and institutional capacities.

Climate Change: In Tanzania, the impacts of climate change are already evident in most socio-economic sectors. Impacts are already being experienced almost in each and every sector. Examples are countless and increasing. Severe and recurrent droughts in recent years triggered devastating power crisis. Other impacts of climate change includes melting of glacier over Mt. Kilimanjaro, submerging of Maziwe Island in Pangani and Fungu la Nyani in Rufiji due to sea level rise and intrusion of seawater into freshwater wells along the cost of Bagamoyo. About 80% of the glacier on Mount Kilimanjaro has been lost since 1912. It is projected that the entire glacier will be gone by 2025.

Climate change has also brought its opportunities, particularly as it relates to increased efficiency and diversification of the sources of energy. New technologies related to renewable energy, better industrial efficiencies, better agricultural processing, better management of natural resources including Forestry sector have all helped to redefine a better sustainable development path in the name of Climate Change Mitigation.

Climate change adaptation and mitigation activities are hindered by inadequate funding, low public awareness, inadequate institutional and human resources capacities, inadequate national specific adaptation capacities including nationally research based adaptation technologies and technological challenges.

Environmental Disasters: Environmental disasters in Tanzania are aggravated by some natural actions such as floods, droughts and human induced disasters. For instance, the floods that occurred in April, 2011 in Kilombero, Morogoro and those of December 2011 in Dar es Salaam caused several deaths and considerable property and infrastructure damage of 26 bridges of more than 886km, which costed 17 billion Tanzanian shillings in maintenance. In 2009-2010 a severe drought occurred in Arusha region which led to death

of a total of 316,437 cattle, 236,359 goats and 92,640 sheep. TAZAMA oil spill in River Mwega in Kilosa districts that happened in June 2011 affected the river environment, aquatic biodiversity and **community life around the river.**

Invasive Alien Species (IAS): Invasive Alien Species (IAS) are among the key drivers of environmental change causing biodiversity loss in many ecosystems and are considered difficult to be eradicated. Since 1960s the spread of IAS has been increasing in the country in the last few decades and is causing substantial threat to biodiversity and ecological integrity of native habitats and ecosystems. Tanzania has 67 reported IAS of different categories including plant pathogens, pests, aquatic and terrestrial weeds, animals and trees.

Biofuels: The use of biofuels in Tanzania is still at an infancy stage. There are initiatives to prepare policy and legal framework for sustainable biofuel development. The national vision for the development of biofuel sub-sector is to contribute to the reduction of fossil fuels in transport sector and to stimulate socio-economic development.

Implementation Plan

A plan of action has been developed to address environmental issues by providing priority actions, expected output, timeframe, key actors provide indicators for tracking progress. The time-frame for implementation is categorized as short term (up to 2 years), medium term (2 to 5 years) and long term (5 years and above). The environmental challenges addressed include land degradation; water resources degradation and pollution; degradation of aquatic resources; loss of wildlife habitats and biodiversity; deforestation; urban pollution; climate change; modern biotechnology; electronic waste; Invasive Alien Species (IAS); and biofuels.

Implementation Strategies

Stakeholder's Involvement: The public will participate in planning, implementation, monitoring and evaluation of the NEAP under the coordination of the Vice President's Office. Stakeholders are obliged to prepare and submit annual progress report by March of each year.

Funding: Potential sources of funding may include: National Environmental Trust Fund; Constituency Development Fund; Central and Local Government Budgetary allocations; Global Environment Facility; Bilateral arrangements, and Support from NGOs; CBOs; Faith Based Organisation (FBOs); locally and internationally available resources as well as contributions from private sectors and the public in general.

Monitoring and Evaluation: The implementation, monitoring and evaluation of the NEAP will be carried out using participatory approach. Evaluation of the implementation of the NEAP will be done annually and atits end i.e, that is after five years.Sectors and stakeholders will contribute in reporting as per EMA 2004.

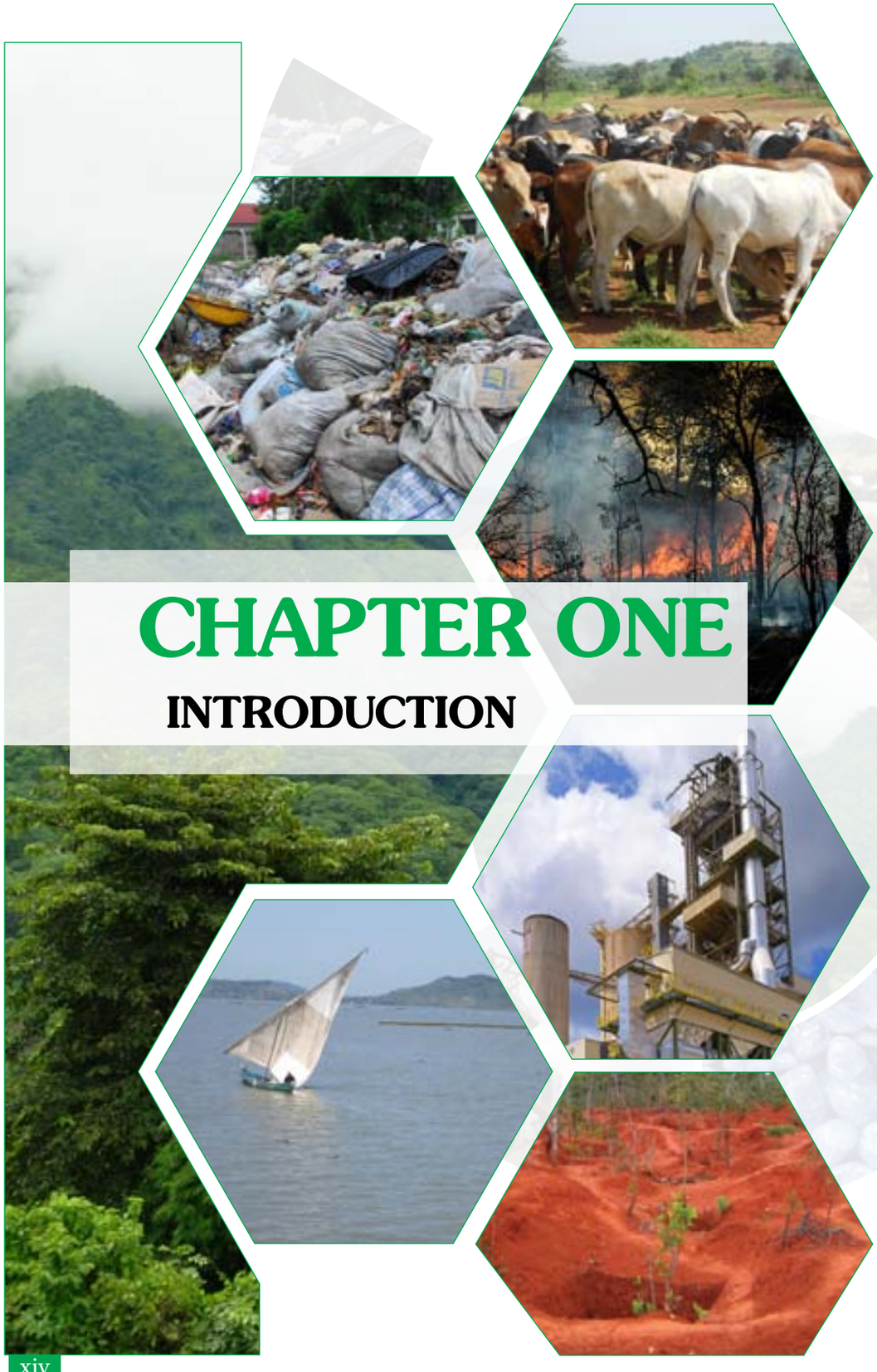
CONTENTS

List of Figures

ACRONYMS AND ABBREVIATIONS

AEWA	-	African-Eurasian Migratory Water birds
CBO	-	Community Based Organization
CBFM	-	Community Based Forest Management
CEMO	-	City Environmental Management Officer
CMS	-	Convention on the Conservation of Migratory Species of Wild Animals
COSTECH	-	Commission for Science and Technology
CPCT	-	Cleaner Production Centre of Tanzania
DoE	-	Division of Environment
EAC	-	East African Community
EAP	-	Environmental Action Plan
EEE	-	Electrical and Electronic Equipment
EIA	-	Environmental Impact Assessment
EMA	-	Environmental Management Act
EPM	-	Environmental Planning and Management
GDP	-	Gross Domestic Product
GMOs	-	Genetically Modified Organisms
ILFEMP	-	Institutional and Legal Framework for Environmental Management Programme
ILO	-	International Labour Organization
JFM	-	Joint Forest Management
LEAP	-	Local Environmental Action Plan
LGA	-	Local Government Authorities
MAFC	-	Ministry of Agriculture, Food Security and Cooperatives
MDGs	-	Millennium Development Goals
MEAs	-	Multilateral Environmental Agreements
MEM	-	Ministry of Energy and Minerals
MEMO	-	Municipal Environmental Management Officer
MoEVT	-	Ministry of Education and Vocational Training
MheshimiwaA	-	Ministry of Home Affairs
MoLHHSD	-	Ministry of Lands, Housing and Human Settlements
Development		
MoHSW	-	Ministry of Health and Social Welfare
MoWs	-	Ministry of Works
MoITM	-	Ministry of Industry, Trade and Marketing
MoLFD	-	Ministry of Livestock and Fisheries Development
MoW	-	Ministry of Water
MKUKUTA	-	Mkakati wa Kukuza Uchumi na Kupunguza Umaskini Tanzania
MoCST	-	Ministry of Communication, Science and Technology
NAP	-	National Action Programme to Combat Desertification
NAPA	-	National Adaptation Programme of Action
NAWAPO	-	National Water Policy
NBSAP	-	National Biodiversity Strategy and Action Plan

NEAP	-	National Environmental Action Plan
NEMC	-	National Environment Management Council
NEP	-	National Environmental Policy
NGO	-	Non Governmental Organization
NLUPC	-	National Land Use Planning Commission
NSGRP	-	National Strategy for Growth and Reduction of Poverty
PFM	-	Participatory Forest Management
PMO-RALG	-	Prime Minister's Office, Regional Administration and Local Government
REME	-	Regional Environment Management Expert
SADC	-	Southern African Development Community
SES	-	Sector Environmental Section
SoE	-	State of the Environment
SUA	-	Sokoine University of Agriculture
TEMO	-	Town Environmental Management Officer
TBS	-	Tanzania Bureau of Standards
TOE	-	Tonnes of Oil Equivalent
UCLAS	-	University College of Lands and Architectural Studies
UDSM	-	University of Dar es Salaam
UNIDO	-	United Nations Industrial Development Organization
UNCCD	-	United Nations Convention to Combat Desertification
UNDP	-	United Nations Development Programme
UNEP	-	United Nations Environment Programme
UWSAs	-	Urban Water Supply and Sewerage Authorities
VPO	-	Vice President's Office
WEEE	-	Waste Electrical and Electronic Equipment



CHAPTER ONE

INTRODUCTION

INTRODUCTION

1.1 Country Profile

The United Republic of Tanzania is located in Eastern Africa between Latitude 10S to 120S and Longitude 300E to 400E. It is constituted by Tanzania Mainland and Zanzibar with a total area of 945,087 km2 of which surface land in Tanzania Mainland is 883,749 km2 and 2,460 km2 in Zanzibar. The country is comprised of 59,050 km2 of inland water bodies. It shares borders with Kenya and Uganda in the North; Rwanda, Burundi and Democratic Republic of Congo in the West; Zambia and Malawi in the South West, Mozambique in the South and Indian Ocean in the East
(Figure 1).

Figure 1: Map of Tanzania showing administrative boundaries

Tanzania is the biggest among the East African countries in terms of land area. It has a spectacular landscape of mainly three physiographic regions namely the Islands and the coastal plains to the east; the inland plateau; and the highlands in the southern and north eastern. Except for the coastal strip and lower parts of the main rivers, the rest of the country lies above 300m altitude. The Great Rift Valley that runs from north east of Africa through central Tanzania is another landmark that adds to the scenic view of the country. About 40% of the total land in Tanzania constitutes protected (or conserved) area where wildlife protected areas (including game controlled reserves) cover about 28%while forest reserves account for about 15%.

Tanzania is mountainous in the northeast, where Mount Kilimanjaro, Africa's highest peak with the altitude of 5895 m, is situated. To the north and west are the Great Lakes namely Lake Victoria (Africa's largest lake) and Lake Tanganyika (Africa's deepest lake, known for its unique species of fish) and Lake Nyasa to the south. Central Tanzania comprises a large plateau, with plains and arable land.

1.2 Climate

Tanzania is characterised by tropical climate with varied temperatures from one place to another depending on the geographical location, relief and altitude. While the average temperature is between 27°C and 29°C in the coastal regions and the off-shore Islands, the Central, Northern and Western parts have average temperatures ranging from 20°C to 30°C and higher between the months of December and March. In the Northeast and Southwest where there are mountainous areas and Makonde Plateau, the temperature occasionally falls below 15°C during the nights in the months of June and July. In some parts of the country (Southern Highlands) temperature can drop as low as 0°C - 6°C. The rest of the country has temperatures rarely falling lower than 20˚C. The hottest period extends between November and February (25˚C - 31˚C) while the coldest period occurs between May and August (15˚C-20˚C).

Rainfall patterns in the Tanzania are subdivided into the following types: tropical on the coast, where it is hot and humid (rainy season March - May): semi-temperate in the mountains with the short rains (Vuli) in November-December and the long rains (Masika) in February – May: and drier (Kiangazi) in the plateau region with considerable seasonal variations in temperature. The mean annual rainfall ranges from 500 mm to 2,500 mm and above. The average duration of the dry season is 5 to 6 months. However, in recent years, the pattern of rainfall has become less predictable.

1.3 Population and Population Dynamics

Based on the 2002 Population and Housing Census, the population of Tanzania in 2010 was estimated at 43,2 million. Tanzania Mainland had an estimated population of 42 million, equivalent to 97.1% of the total population, while Tanzania Zanzibar had an estimated population of 1.3 million, equivalent to 2.9% of the total population. The population distribution showed that 31.8 million people, equivalent to 74% of the total population live in rural areas, while 11.4 people equivalent to 26% live in urban areas. In 2010, the regional population distribution shows that Shinyanga continued to have highest population of 3.8 million equivalent to 9% of the total population, followed by Mwanza 3.6 million (8%) and Dar es Salaam 3.2 (7%). The higher population in Shinyanga was mainly due to high fertility rate of 7.3 children per woman. Lindi region had the lowest population of 923,607 people in Tanzania Mainland caused by emigration to other regions.

1.4 Socio-economic issues

1.4.1 The State of the Economy

Tanzania's economy relies heavily on agriculture, which accounts for 25.3 percent of the GDP but absorbs 74 percent of the labour force. Tourism is growing in importance and ranks as the second highest foreign exchange earner after agriculture. Tanzania has vast amounts of natural resources including forests, wildlife, fisheries and minerals such as gold, diamonds, Tanzanite, coal, iron ore, uranium, nickel, chromium, tin, platinum and variety of Germstones and other minerals. It is the third-largest producer of gold in Africa after South Africa and Ghana. Mineral production has grown significantly in recent years. It represents Tanzania's biggest source of economic growth, provides over 3% of GDP and accounts for half of Tanzania's exports.

Tanzania's real GDP recorded an average growth rate of about 7% over the 2001-2010 period. Growth slowed down in 2009 to 6.0 percent, largely due to global financial crisis. However, it bounced back to 7 percent in 2010.

1.4.2 State of poverty

In spite of Tanzania's GDP growth rate has been impressive in recent years, the incidence of income poverty has not changed significantly. Household Budget Surveys (HBS) of 2000/2001 and 2007 show that 36 percent of Tanzanians were poor in 2000/2001 compared to 34 percent in 2007. Income poverty (basic needs and food poverty) varied across geographical areas with the rural areas being worse off. Rural growth led by growth of the agriculture sector was about 4.5 percent on average. When this growth rate is compared with the national population growth rate of 2.9 percent, the change in rural per capita income becomes small, thus perpetuating poverty in rural areas. Given the large proportion of the poor in the rural areas who are dependent on agriculture as their main source of livelihood, agriculture is central to poverty reduction in general and hunger/food poverty in particular.

1.5 Background and Justification of the National Environmental Action Plan (NEAP)

Development of the National Environmental Action Plans (NEAPs) originated from recommendations of the Earth Summit that took place in Rio de Janeiro, Brazil in 1992. From this Summit, countries were encouraged to prepare their respective National Environmental Action Plans so as to set out priority actions to address environmental challenges. Tanzania prepared its first National Environmental Action Plan in 1994.

The Environmental Management Act No. 20 of 2004 also provides for the preparation of NEAP in the interval of every five years. According to the Act, NEAP is the basis for integrating environmental concerns in formulation and implementation of development plans and programmes. Furthermore, Sector Ministries and Local Government Authorities are obliged to prepare Environmental Action Plans, which are in conformity with the NEAP and basis for environmental mainstreaming at such respective levels.

NEAP is an important tool for addressing environmental challenges at all levels of Government. It involves developing a national vision, assessing environmental issues, setting priorities, identifying the most appropriate strategies for addressing the key problems, and implementing actions so as to achieve environmental sustainability. It also outlines a process for the government to set priority actions to improve environmental conditions.

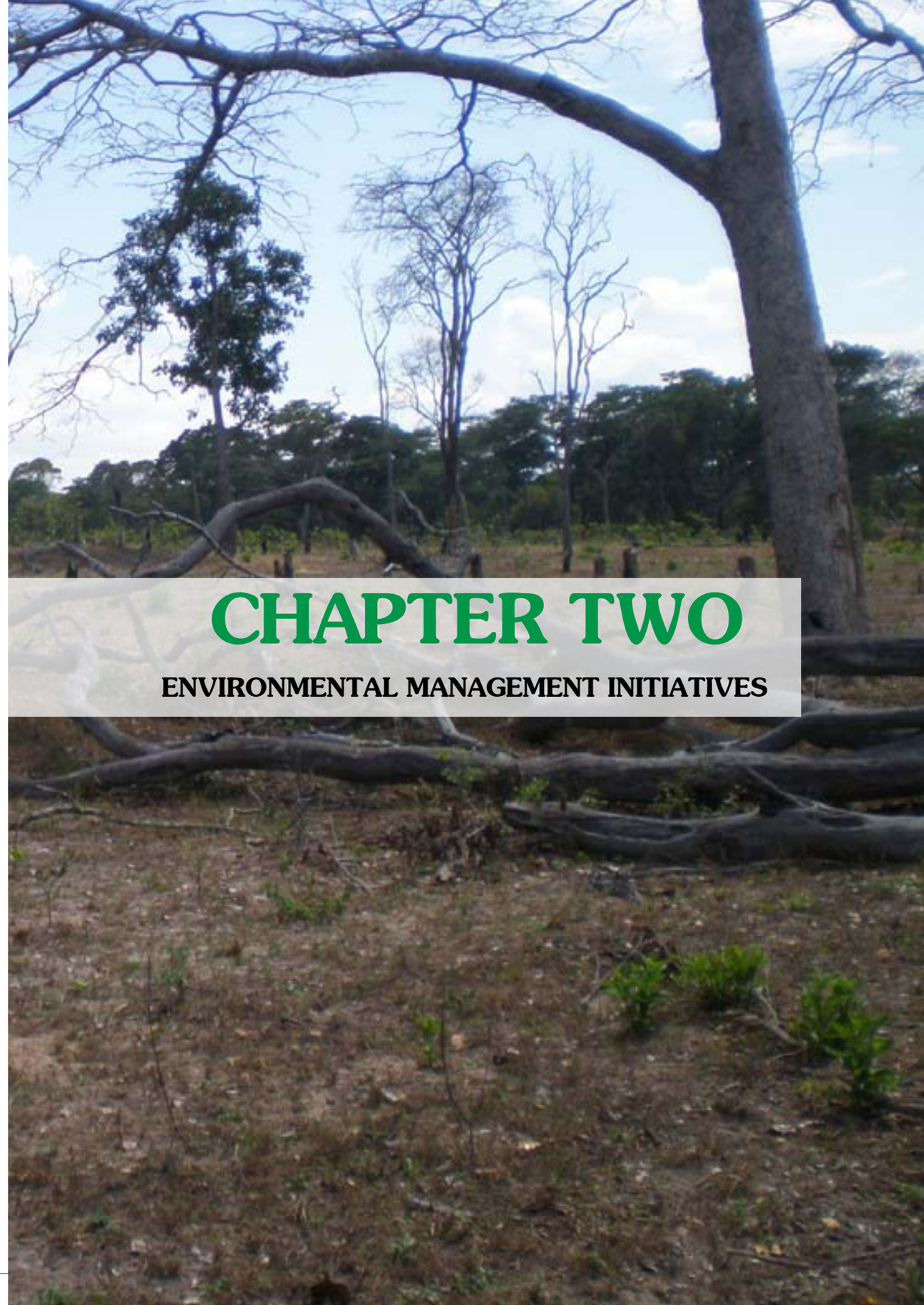
Since the preparation of NEAP in 1994, many environmental challenges have emerged and some old ones intensified. Such challenges include climate change, modern biotechnology, biofuels, mining pollution Invasive Alien Species (IAS) and Electronic waste (E-waste). These challenges have impacts on the ecosystems, quality of life and human health, national economy as well as on the Political and institutional arrangements. Cognisant of the adverse impacts of these challenges to the environment and human health, the Vice President's Office spearheaded the process of revising the NEAP in order to, address these emerging environmental issues.

1.6 Development Process

The preparation of the revised NEAP involved assessment of the implementation of the first NEAP (1994); literature review; consultations with key stakeholders including government ministries, local government authorities, academic and research institutions, Non-governmental organizations (NGOs), and the private sector. The NEAP was finalized by a team of experts coordinated by the Vice President's Office.

1.7 Layout of the NEAP Document

This document is organized in five chapters. Chapter one presents the introduction covering the country profile; background and justification; and development process of the NEAP. Chapter two spells out the environmental management initiatives by outlining relevant policies and legislation; institutional framework; multilateral environmental agreements and regional cooperation; and highlights milestones achieved from NEAP of 1994. The state of environment is presented in Chapter three where it outlines the status of land resources, forests and woodlands, water resources, biodiversity, GMOs, urban environment, energy resources, the atmosphere, environmental disasters, invasive alien species and biofuels. Chapter four presents the implementation plan by providing priority actions for each issue, expected output, timeframe, key players, targets and indicators for tracking progress. Lastly, Chapter five provides details on implementation strategies including stakeholders' engagement, monitoring and evaluation.



CHAPTER TWO

ENVIRONMENTAL MANAGEMENT INITIATIVES

ENVIRONMENTAL MANAGEMENT INITIATIVES

The environmental management in Mainland Tanzania is guided by the National Environmental Policy (1997) and the Environmental Management Act (2004) complemented by sectoral policies and legislation as well as Multilateral Environmental Agreements (MEAs). These policies, legal and institutional frameworks provide for various development opportunities and challenges to the rural and urban local government authorities.

2.1 Policies

i) National Environmental Policy, 1997

The Policy seeks to provide the framework for making fundamental changes of mainstreaming environmental considerations into f decision making in Tanzania. It calls for a coherent policy where priorities can be defined for the promotion of long-term economic growth, creating incentives for sustainable utilisation of natural resources, disincentives for environmental pollution and degradation, and effective management of the overall environment.

ii) Agricultural and Livestock Policy, 1997

The Policy emphasizes that for long term future of the country, the natural resources (land, soil, water and forests) must be managed so that agriculture is sustained. To achieve this, the policy outlines how agriculture policy statements be formulated with respect to environmental management. Some of the agricultural policy statements that have relevance to sustainable development are guided to:

i) Promote intensification and diversification of agriculture production;
ii) Improve crop husbandry through soil erosion control and soil fertility improvement;
iii) Implement measures that will minimize encroachment in public lands including forests, woodlands, wetlands and pasture;
iv) Strengthen agrochemical monitoring and registration;
v) Promote agro-forestry and organic farming;
vi) Encourage control of agricultural run-offs of agrochemicals to minimize pollution of both surface and ground water;
vii) Introduce mechanisms to improve water use efficiency in irrigation including control of water logging and salinization; and
viii) Intensify plant genetic conservation programmes.

iii) Livestock Development Policy, 2006

One of the objectives of the Policy is to promote integrated and sustainable use and management of natural resources related to livestock production

in order to achieve environmental sustainability. To ensure sustainable livestock production, the livestock policy outlines the following policy statements:

i) Strengthen technical support services on environmental issues;
ii) Promote proper land use planning for livestock production; and
iii) Strengthen inter-sectoral coordination on environmental issues.

iv) National Fisheries Sector Policy and Strategy Statement, 1997

The Policy focuses on the promotion of sustainable exploitation, utilization and marketing of fish resources to provide food, income, employment and foreign exchange earnings and effective protection of the aquatic environment to sustain development.

v) National Forest Policy, 1998

The overall goal of the Policy (1998) is to enhance the contribution of the forest sector to the sustainable development of Tanzania and the conservation and management of her natural resources for the benefit of present and future generations. The Policy, among other aspects, recognizes the high value of forests due to the high potential for royalty collection, export and tourism earnings as well as the recycling and sequestering of carbon and conservation of globally important biodiversity. Furthermore, the policy emphasizes on biodiversity conservation; describes the importance of forest ecosystems for maintaining biodiversity and the threats to biodiversity. One of the main objectives envisaged in the policy focuses on ensured ecosystem stability through conservation of forest biodiversity, water catchments, and soil fertility.

vi) Beekeeping Policy, 2008

The objective of the Policy is to improve biodiversity, increase employment, and foreign exchange earnings through sustainable bee products based, industrial development and trade. It also ensures ecosystem stability by practising Integrated Pest Management and carrying out Environmental Impact Assessment (EIA) for investments inside or around bee reserves.

vii) Wildlife Policy, 2007

The Policy focuses on wildlife protection and conservation in order to ensure sustainability of wildlife ecosystems. Some of the objectives of the Policy include establishment of Protected Areas (PA); maintenance and development of a PA network in order to enhance biological diversity; conservation of wildlife and its habitats outside the core areas by establishing Wildlife Management Areas (WMAs); and conservation of wetlands.

viii) National Tourism Policy, 1999

The Policy acknowledges the relationship between the environment and development of sustainable tourism. Thus, it aims to ensure that development of tourism is based on careful assessment of carrying capacities of tourism products and ensure enhancement and improvement of special environment features so that tourism development does not conflict with indigenous forests, beaches, mountains and other important types of vegetation.

ix) National Land Policy, 1995

The Policy aims at developing a coherent and comprehensive framework that defines land tenure and enables proper management and allocation of land in urban and rural areas. Among other things, the Policy advocates the protection of land resources from degradation for sustainable development. The policy addresses several environmental issues such as land use planning which takes into consideration the land capability, ensures proper management of land resources, promotes resource sharing and multiple land use techniques in areas of conflicting land use, and involve community in resource management, land use and conflict resolution.

x) National Population Policy, 2006

The Policy aims at coordinating and influencing other policies, strategies and programmes to ensure sustainable development as well as promoting gender equality and the empowerment of women. The Policy recognizes, among other things, the impact of population growth on natural resources and environment. One of the goals of the Policy is to prepare and implement coordinated urban, rural and regional development plans for rapid development in the country and to reduce the rate of rural-urban migration.

xi) National Human Settlements Development Policy, 2000

The Policy stresses the need to ensure that human settlements are kept clean and pollution effects of solid and liquid wastes do not endanger the health of residents. It also advocates on compliance on environmental quality standards of gaseous emissions from sources such as industries and vehicles.

xii) Sustainable Industrial Development Policy, 1996

The Policy promotes environmentally friendly and ecologically sustainable industrial development. In addition, the Policy targets to institute incentive mechanism on investments that promotes environmental conservation; requires undertaking EIA and appropriate mitigation measures for

all industrial projects; and promotion of application of an integrated preventive environmental strategy to industrial processes, products and services.

xiii) National Water Policy, 2002

The main objective of the Policy is to develop a comprehensive framework for sustainable development and management of water resources. The Policy aims at ensuring that communities are fully involved in the management of water supply schemes. It addresses cross-sectoral interests in water, watershed management and integrated and participatory approaches for water resources planning, development and management. The Policy advocates for undertaking EIA and Environmental Audit (EA) in all water related projects. It also supports the application of the "polluter pays principle" and has a specific objective of having in place a water management system which protects the environment, ecological system and biodiversity.

xiv) National Irrigation Policy, 2010

Some of the objectives of the Policy includes promotion of efficient water use in irrigation systems; and ensure that irrigation development is technically feasible, economically viable, socially desirable and environmentally sustainable. The Policy aims to have irrigation systems which are environmentally sound by ensuring compliance to relevant legislation; protecting and conserving water and land sources; pollution control in irrigated agriculture; and promotion of proper land use practices.

xv) National Health Policy, 2007

The objective of the Policy towards environmental health is to protect community health by enhancing sustainable environmental health. To achieve this objective, some of the policy statements are to:-

i) Ensure that the community adhere to environmental health standards;

ii) Improve waste management systems including disposal of hospital wastes;

iii) Continue to educate health service providers on the importance of environmental health in their working areas;

iv) Review and enact laws and procedures for conservation and protection of the environment; and

v) Continue to involve stakeholders in protecting natural resources.

xvi) National Energy Policy, 2003

The Policy, among others, focuses on utilization of various energy resources in a sustainable and environmentally friendly manner. The Policy recognises that, energy is a prerequisite for the proper function of all sub-sectors of the economy. It is an essential service whose availability, quantity and quality determine the success or failure of development endeavours. The Policy stresses the use of renewable and alternative energy sources such as wind, solar, hydro, Liquefied Petroleum Gas (LPG) and natural gas. The use of alternative energy sources such as biogas and briquettes both for domestic and industrial uses are encouraged to minimize the use of charcoal and firewood to protect massive deforestation.

xvii) Mineral Policy of Tanzania, 2009

One of the objectives of the Policy is to reduce or eliminate adverse environmental effects of mining by promoting health and safety conditions in mining areas and addressing social issues affecting local communities. It requires mining operations to carry out EIA and directs mining companies to set aside funds for environmental rehabilitation and mine closure obligations.

xviii) National Investment Promotion Policy, 1996

The Policy seeks to promote the growth of exports by strategically utilizing the scarce natural, social and capital resources to accomplish it. It also stresses the need for modernization of equipments and technological upgrading so as to enable optimal use of available sources, improved efficiency operation, improvement in the quality of products and co-products.

xix) Education and Training Policy, 2005

One of the aims of the Policy is to promote the acquisition and appropriate use of literary, social, scientific, vocational, technological, professional and other forms of knowledge, skills and understanding for the development and improvement of the condition of man and society. The Policy provides platform for integrating environmental education in educational curricula.

xx) National Transport Policy, 2003

One of the objectives of the Policy is to develop safe, reliable, effective, efficient and fully integrated transport infrastructure. The Policy emphasizes on the need to facilitate sustainable development by ensuring that all aspects of environment protection and management are given sufficient emphasis at the design and development stages of transport infrastructure and when providing service.

xxi) National Research and Development Policy, 2010

The objective of the Policy is to provide guidance in addressing present and future national research challenges for socioeconomic development. Environment is one of the focal areas of the Policy whose objectives are to minimize the effects of research undertaking on the environment; and promoting research that is beneficial to the environment.

xxii) Women and Gender Development Policy, 2000

The Policy aims to facilitate realization of gender equality for purpose of speeding up sustainable development in Tanzania. The Policy emphasizes, among others, mainstreaming of gender issues in environmental protection and conservation.

xxiii) Community Development Policy, 1996

One of the objectives of the Policy is to educate communities on the importance of environmental conservation in pursuing social and economic development. Some of the areas of emphasis of the Policy include health and sanitation in rural and urban areas; water and environmental sanitation; appropriate technology for domestic energy use, in particular improved cook stoves; and improving rural and urban environment through programmes such as planting trees and forests in households, villages and ward.

xxiv) Disaster Management Policy, 1990

One of the objectives of the Policy is to mainstream disaster management issues into development plans and other sectoral policies, plans and strategies and programmes at all levels to enhance mitigation and prevention measures. Specifically, the Policy emphasizes on protecting the environment from disasters through undertaking Environmental Impact Assessment (EIA) after disasters strike and prior to commencement of projects.

xxv) National Information and Communication Technology (ICT) Policy, 2003

The objectives of the Policy are to provide a national framework that will enable ICT contribute towards achieving national development goals; and transform Tanzania into a knowledge-based society through the application of ICT. One of the policy statements is to monitor and respond to environmental disasters and to collect and disseminate information on environmental problems.

xxvi) National Policy on Non-Governmental Organizations (NGOs), 2001

Some of the objectives of the Policy are to facilitate mechanisms for supporting NGOs; and strengthen the relationship between Government

and NGOs. The Policy recognizes the significant role and contribution of NGOs in the society and considers them as important partners in the development process. The Policy supports NGOs in all sectors including environmental management.

xxvii) National Biotechnology Policy, 2010

The Policy promotes development and application of biotechnology to foster socio-economic development. The objective of the Policy is to ensure that the country has the capacity and capability to capture the proven benefits arising from health, agriculture, industry and environmental applications of biotechnology while protecting and sustaining the safety of the community and the environment.

xxviii) Construction Industry Policy, 2003

The objective of the Policy is to develop competitive construction industry with consideration of environmental responsibility in the implementation of construction projects. The aim is to promote the application of sustainable construction practices that are environmentally friendly. This includes application of of technologies, products and practices which are not harmful to the environment, human health and safety; promoting education and training; and undertaking Environmental Impact Assessment (EIA) of projects.

xxix) Tanzania Development Vision, 2025

The Vision has three objectives which are: achieving quality and good life for all; good governance and the rule of law; and building a strong and resilient economy that can effectively withstand global competition. It is envisioned that Tanzania will achieve sustainable semi-industrialized middle market economy by 2025.

2.2 Legislation

i) The Environmental Management Act No. 20 of 2004

The Act provides both a legal and institutional framework for the sustainable management of the environment, prevention and control of pollution, waste management, environmental quality standards, public participation, environmental compliance and enforcement. It also requires the undertaking of Environmental Impact Assessments (EIA) for investment projects. It further recognises the need for research, public participation in environmental decision making, environmental awareness rising, and dissemination of environmental information. The Act gives the Local Government Authorities mandate to ensure environmental compliance in their areas of jurisdiction.

ii) The Wildlife Conservation Act No. 5 of 2009

The Act provides for the conservation of wildlife and ensures protection, management and sustainable utilization of wildlife resources, habitats, ecosystems and the non-living environment supporting such resources, habitats or ecosystems with actual or potential use or value.

iii) The Marine Parks and Reserves Act No. 29 of 1994

The Act aims at protecting, conserving, and restoring the species and genetic diversity of living and non-living marine resources and the ecosystem processes of marine and coastal areas. It provides for management of marine and coastal areas so as to promote sustainability of existing resource use, and the recovery of areas and resources that have been over exploited or otherwise damaged.

iv) The Fisheries Act No. 22 of 2003

The Act regulates fishing activities in both fresh and marine waters. Among others, it emphasises on the conservation of fisheries resources in particular critical habitats or endangered species, and restricts the issuance of fishing licences for fishing in any conserved areas. The Act further requires formation of community management units for the purpose of protecting and conserving fishery resources.

v) The Forest Act No. 7 of 2002

The Act provides for management of forests and requires to carry out EIA of certain development projects. The Act obliges establishment of forest management plan for all types of forest to ensure sustainable management in the long-term. The Act designates Community Forest Reserves, Mangrove Forest Reserves and encourages community-based management.

vi) Grazing-land and Animal Feed Resources Act No. 13 of 2010

The Act provides for the management and control of grazing-lands, animal feed resources and trade as well as provision for other related matters. The Act further gives mandate to the Local Government Authority in relation to soil conservation, prevention of adverse effects to soil and soil erosion in a grazing-land, rehabilitation, protection or improvement of the grazing-land, make by-laws on clearing of land for the purpose of cultivation of crops other than animal feed; use of implements or machinery; introduction or removal of flora or fauna; gathering of natural produce; introduction, grazing, watering or movement of stock and other domestic animals; husbandry practices of grazing-land; and construction of infrastructures.

vii) The Fertilizers Act No. 9 of 2009

The Act provides for regulation of manufacturing, importation, exportation, sale and use of agricultural fertilizers. It requires adherence to environmental legal requirements prior to issuance of permit for importation and exportation of fertilizers. Furthermore, the Act obliges owner, occupier or any person entrusted with the charge of the premises where undesired fertilizers, package or article is found, to cover cost for removal, reshipment or destruction.

viii) The Industrial and Consumer Chemicals (Management and Control) Act No. 3 of 2003

The Act provides for the management and control of the production, import, transport, export, storage, dealing and disposal of industrial and consumer chemicals in the country. The Act provides for the registration, restrictions, prohibition and inspection of chemicals. Furthermore it has provisions for safe handling, chemical wastes, accidents; management of spills and contaminated sites and decommissioning of plants.

ix) The Water Resource Management Act No. 11 of 2009

The Act provides for pollution control and issues discharge permits of effluents to water bodies, including the underground strata. The Act also provides measures for flood mitigation and control for the purpose of preventing or minimising the risk of flooding, flood damage and water pollution by prohibiting the construction on submersible lands of dikes, levees or other structures which will likely hinder the runoff of flood water.

x) The Water Supply and Sanitation Act No. 12 of 2009

The Act aims at ensuring the quality of water by protecting water works and storage facilities against pollution. The Act also provides powers to Local Government Authorities to mobilise community water supply organisations to take over water supply schemes and get technical and financial support. The Act further gives mandate to the Local Government Authorities to make by-laws in relation to water supply and sanitation for the efficient and sustainable provision of these services in their areas of jurisdiction by water authorities or community organisations.

xi) The Tourism Act No. 29 of 2008

The Act provides for institutional framework, administration, regulation, registration and licensing of tourism facilities and activities. It promotes eco-tourism, cultural tourism and other forms of tourism that provides better sectoral linkages create employment and foster sustainable development. Furthermore, the Act requires undertaking EIA prior to implementation of tourism projects/activities.

xii) The Beekeeping Act No. 15 of 2002

The Act provides for conduct of beekeeping, improvement of the products of beekeeping and for the prevention and eradication of diseases and pests amongst bees. It requires undertaking of Environmental Impact Assessments, set out an environmental management plan and integrated pest management for eliminating and minimizing t impacts on the beekeeping environment.

xiii) The Mining Act No 14, 2010

The Act provides for regulation of prospecting for minerals, mining, processing and dealing in minerals. The Act requires all holders of mining licenses to take appropriate measures for the protection of the environment in accordance with the Environmental Management Act including undertaking EIA in mining activities.

xiv) The Land Act No. 4 of 1999

The Act contains provisions of critical environmental importance. One of the important fundamental principles of the Act is to ensure that land is used productively and that any such use complies with the principles of sustainable development. Among others, the Act prohibits any development activities within 60m of the high tide water mark of the shoreline as well as in environmentally sensitive areas such as wetlands and swamps.

xv) The Village Land Act No. 5 of 1999

The Act empowers the Village Government to have legal control on village land and its uses. This also includes prohibiting or minimizing land problems like bush fires as well as land use related conflicts between farmers and livestock keepers/pastoralists.

xvi) The Public Health Act No. 1 of 2009

The Act provides for the promotion, conservation and maintenance of public health with a view of ensuring comprehensive functional and sustainable public health services. The Act also prohibits discharges into a sewer or into drain that may cause malfunctioning of the drainage systems.

xvii) The Occupational Health and Safety Act No. 5 of 2003

The Act deals with the protection of human health from occupational hazards. The Act provides for the protection of persons other than those at work against hazards to health and safety arising out of or in connection with activities of persons at work. The Act further requires companies or institutions to provide safety gears to those working at risk areas.

xviii) The Plant Protection Act No. 13 of 1997

The Act provides for prevention of the introduction and spread of harmful organisms, to ensure sustainable plant and environmental protection, to control the importation and use of plant protection substances, to regulate export and imports of plants and plant products.

xix) The Merchant Shipping Act No. 21 of 2003

The Act, among others, provides for the prevention of marine pollution by oil, hazardous waste, noxious liquid, sewage, toxic waste, garbage and other substances and the protection of the marine environment.

xx) The Rural Energy Act No. 8 of 2005

The Act establishes the Rural Energy Board, Fund and Agency responsible for promotion of improved access to modern energy services in the rural areas. It further prescribes principles of rural energy development including achievement of sustainable development when modern energy services in rural areas are promoted, facilitated and supported.

xxi) The Urban Planning Act No. 8 of 2007

The Act provides for procedures for the preparation, administration and enforcement of land use plans. One of the fundamental principles of land use includes protection of environment of human settlements and of ecosystems from pollution, degradation and destruction in order to attain sustainable development.

xxii) The Road Act No.13 of 2007

The Act, among others, provides for protection of environment. It states that the road authority entrusted with the duties of developing, managing and maintaining public roads under its jurisdiction, shall comply with the prescribed guidelines, regulations relating to environmental protection and waste disposal.

xxiii) The Local Government (Urban Authorities) Act No. 8 of 1982

This Act assigns responsibility to Urban Authorities the administration of taking measures for conservation of natural resources, safeguard and promote public health. Urban authorities are further required to take all necessary, reasonable and practicable measures for maintaining the area of their authority in clean and sanitary condition and for preventing the occurrence of or for remedying or causing to be remedied any nuisance or condition likely to be injurious or dangerous to health.

xxiv) The Local Government (District Authorities) Act No. 7 of 1982.

The Act provides for measures to address some of the environmental concerns, among others, to curb land degradation caused by human activities such as overgrazing, development of human settlements and use of fuel-wood. Furthermore, the District Authorities have the following functions: management of drainage, sewerage works and public water supplies; and prevention of pollution of water in any river, stream, water course, well or other water supply in the area, and for this purpose prohibit, regulate or control the use of such water supply.

2.3 Institutional framework

The Environmental Management Act No. 20 of 2004 sets up the Institutional Framework for environmental management in the country (Figure 1). It confers the task of overall coordination and policy articulation of environmental management in the country and provision of the central support functions to the Ministry Responsible for Environment, which is the Vice President's Office.

The Act establishes the National Environmental Advisory Committee (NEAC) with the role of advising the Minister responsible for environment,. It confers the role of enforcement to the National Environment Management Council (NEMC). The Act directs establishment of Sector Environment Sections with the role of overseeing environmental management to such respective sectors. It also gives power to the Regional Secretariats to designate Regional Environmental Management Expert (REME) charged with responsibility to advice and oversee implementation and enforcement of EMA.

Furthermore, it empowers LGAs (City, Municipal, District, Township) to designate or appoint Environmental Management Officers to oversee implementation of EMA at respective levels. In addition, the Act establishes Environmental Committees at different LGAs levels to advise and oversee the implementation of EMA within their jurisdiction.

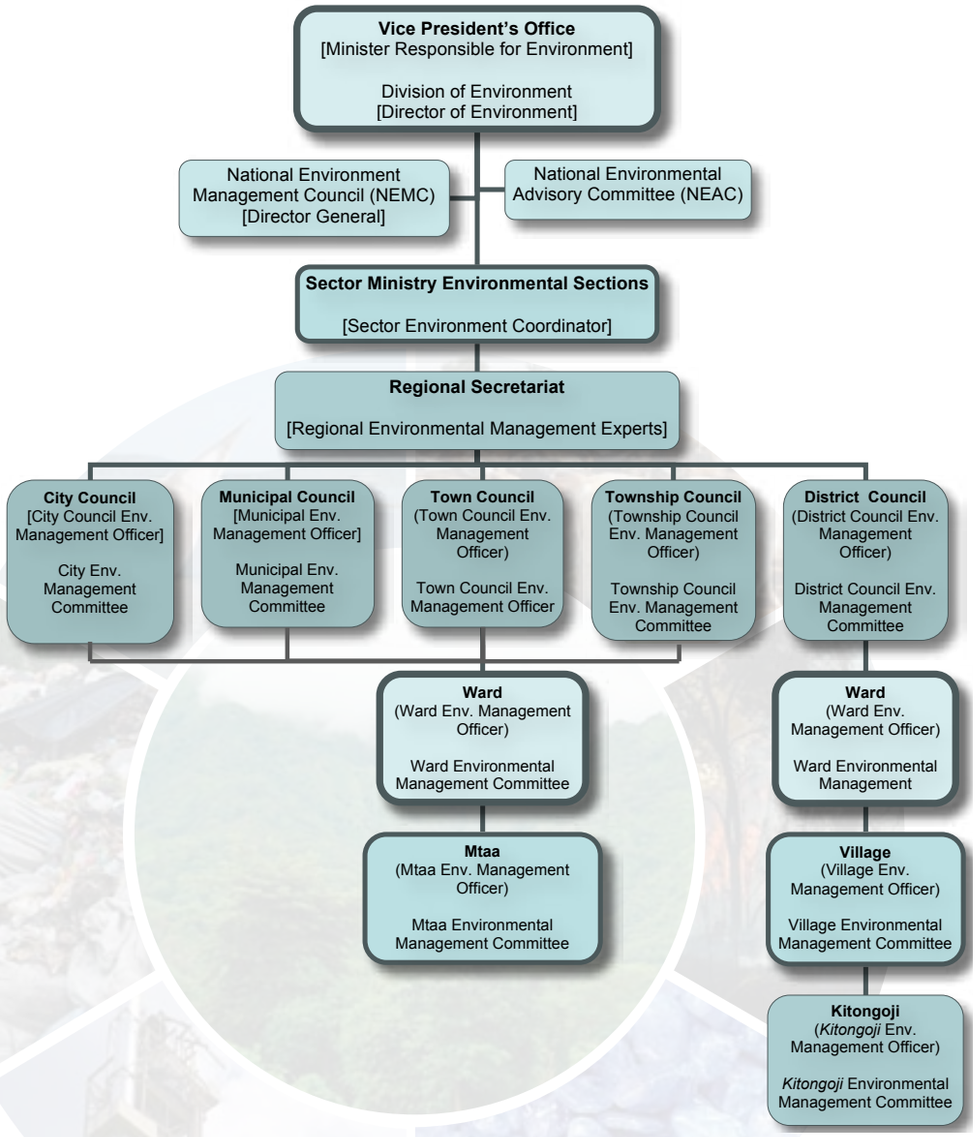


Figure 2: Organisation structure for the implementation of EMA

2.4 Multilateral Environmental Agreements (MEAs) and Regional Cooperation

2.4.1 Multilateral Environmental Agreements

Tanzania has ratified various Multilateral Environmental Agreements (MEAs) in order to join the International community efforts in addressing global environmental issues. The Government has further domesticated most of these Agreements. Multilateral Environmental Agreements to which Tanzania is a Party include:-

Convention/ Treaty	Year of ratification
1.The Convention on Biological Diversity, 1992	1996
2.The United Nations Convention to Combat Desertification,1994	1997
3.The Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal, 1989	1993
4.Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movements of Hazardous Wastes Within Africa,1991	1993
5.The United Nations Framework Convention on Climate Change (UNFCCC), 1992	1996
6.The Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), 1973	1979
7.The Kyoto Protocol to United Nations Framework on Climate Change,1997	2003
8.The Vienna Convention for the Protection of the Ozone Layer,1985	1993
9.The Montreal Protocol on Substances that deplete the Ozone Layer, 1987	1993
10.The SADC Protocol on Wildlife Conservation and Law Enforcement, 1999	2003
11.The World Heritage Convention, 1972	1977
12.The Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora, 1994	1994
13.The Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region,(Nairobi Convention) 1985	1996
14.The Convention on Migratory Species (CMS) (Bonn), 1979	1999
15.The Convention on Wetlands of International Importance (Ramsar Convention), 1971	1999
16.The Agreement on the Conservation of African-Eurasian Migratory Water birds (AEWA), 1999	1999
17.The Convention on sustainable management of Lake Tanganyika, 2003	2004
18.The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade,1998	2002
19.The Stockholm Convention on Persistent Organic Pollutants (POPs), 2001	2004
20.The Cartagena Protocol on Biosafety, 2000	2003
21.African Convention on the Conservation of Nature and Natural Resources, 1968	1974
22.The United Nations Convention on the Law of the Sea, 1958	1985

2.4.2 Regional Cooperation

a) The Southern Africa Development Community (SADC)

Tanzania is a member of Southern Africa Development Community (SADC). The objectives of SADC, are to achieve development and economic growth, alleviate poverty, enhance the standard and quality of life of the people of Southern Africa and support the socially disadvantaged through regional integration; and achieve sustainable utilization of natural resources and effective protection of the environment.

b) The East African Community (EAC)

Tanzania is a member of East African Community (EAC) of 1999., which is the regional intergovernmental organization of Kenya, Uganda, Tanzania, Rwanda and Burundi. The regional co-operation and integration envisaged in the EAC is broad based, covering environment and natural resources management, trade, investments and industrial development, monetary and fiscal affairs, infrastructure and services, human resources, science and technology, agriculture and food security, tourism and wildlife management, and health, social and cultural activities.

c) African Union (AU)

Tanzania is one of the 54 members of the African Union (AU) which was established in July 9, 2002. The AU was formed as a successor to the Organisation of African Unity (OAU). The main objectives of the AU are to: accelerate the political and socio-economic integration of the continent; promote and defend African common positions on issues of interest to the continent and its people; achieve peace and security in Africa; and to promote democratic institutions, good governance and human rights.

d) Indian Ocean Rim-Association for Regional Cooperation (IOR-ARC)

Tanzania is one of the 19 members of the Indian Ocean Rim-Association for Regional Cooperation (IOR-ARC) which was initially known as the Indian Ocean Rim Initiative that was launched in March 1997. The priority areas identified for the IOR-ARC in medium and long-term include protection of environment; poverty alleviation; research and management; energy; information technology; health; agriculture; maritime transport; fisheries; and disaster management.

2.5 Milestones Achieved from NEAP (1994)

The first NEAP was prepared in 1994 with several strategic actions for its implementation. Since then, some of the major milestones achieved to date include: preparation and implementation of the National Environmental Policy (1997), the Environmental Management Act No. 20 of 2004 and other sectoral policies and legislation. These policies and legislation provide basis and guiding framework for environmental management in the country. The institutional framework for effective environmental management has been established to include sector ministries, and Local Government Authorities. In addition, Non-Governmental Organisations (NGOs), Community Based Organisations (CBOs), Private sector and individuals are actively participating in the environmental management initiatives.

Furthermore, numerous national programmes, strategies and plans, have been developed and implemented to address key environmental challenges such as land degradation; water supply; waste management; water catchments conservation; deforestation; loss of biodiversity; coastal and marine environment conservation.

A number of initiatives have been undertaken in addressing land degradation. This includes national tree planting campaign which has increased rate of tree planting due to increased awareness. For instance, a total 629,641,817 trees were planted nationally between 2005/06-2010/11 which is equal to 572,401.7 ha in five years or an average of 114,480.3 ha per year. Between 2006 - 2010, the National Land use Planning Commission (NLUPC) prepared land use plans for 800 villages.

Forest and wildlife conservation has improved and the Government has successfully established 33 Wildlife Management Areas (WMAs). In addition, 2,328 villages, about 22% of all villages in the country are engaged in Participatory Forest Management. Through this, 4,122,500 hectares which is about 12% of all forests in the country have been managed. Furthermore, the Government has established 1,687 “Malihai clubs” in primary and secondary schools to provide opportunities for schools to participate in environmental conservation and awareness creation on the importance of conservation to the community.

Efforts to enable citizens to access clean and safe water have been undertaken by the government and hence increase the number of people with access to clean and safe water. In rural areas proportion of people with access to clean and safe water increased from 6 percent to 57.8 percent in 2011, whereas in urban areas it increased from 25 percent in 1961 to 86 percent during the same period. Furthermore, the construction of dams has increased nearly 20 times more, from dams that could store 255.1 million cubic meters before independence to 5.2 billion cubic meters in 2011.

Achievements have been made in waste management in the country. Some of these achievements include improved collection of solid waste in urban areas from an average of about 5% in 1990's to 50% to date and provision of sewerage systems covering about 10% to 15% of the urban population. In addition more than 69 industries have been involved in cleaner technology assessments and implemented different options contributing to reduction in emissions and waste as well as rational utilization of resources in terms of utilities and raw materials.

Alternative sources of energy have been promoted including solar, wind and natural gas. The estimated current installed Photovoltaic (PV) capacity is about 550 kWp with an annual growth rate of about 20%. Currently, a total of 122 MW are being generated in the country using natural gas from Songosongo and Mnazi Bay, accounting for 45% of total thermal power generation connected to the national electricity grid. More than 25 industries have switched to natural gas instead of fuel oil which has contributed in reducing indirectly the amount of otherwise undesirable gaseous emissions. There are initiatives in Cities to produce electricity from closed dump sites. For example the Mtoni dump site in Dar es Salaam is generating about 2.5 MW of electricity. These initiatives will further reduce greenhouse gas emissions.

Despite of these achievements, effective environment management in the country is still a challenge, due to the fact that many environmental challenges have emerged. For example climate change, modern biotechnology, biofuel, and Invasive Alien Species.

CHAPTER THREE

THE STATE OF THE ENVIRONMENT

THE STATE OF THE ENVIRONMENT

This Chapter highlights on the state of the environment in the context of Land, forests, water, biodiversity, urban environment, energy and atmosphere. Environment and natural resources are increasingly under pressure as a result of unsustainable utilization. This is exacerbated by emerging issues such as Climate Change, Invasive Alien Species, Biofuels and Electronic waste.

3.1 Land Resource

The present land use is categorized into seven major land types, namely, forests, woodland, grassland, cultivated land, open land, bush land and water features. Forests and woodland occupies more than 40 percent of the total land area of the mainland, whereas protected areas occupy nearly 30 percent of the whole area of the country.

Despite the existing policies, strategies and legislation, the land resource is still affected by unsustainable farming and mining, wetlands degradation; overgrazing; tree and bush clearing; and wild fires. The rate of land degradation is also accelerated by some social-economic factors, including insufficient awareness and knowledge on relevant land policies and laws and proper management of land and water resources; inadequate alternative sources for energy and construction materials; insufficient number of Financial Institutions that support farmers in terms of credit to acquire or develop land; insufficient institutions to provide information on land availability for those in need, and guidelines/arrangements on how the landless, especially the youth can acquire land; and rapid population growth. Inadequate land use plans at various administrative levels is among the factors causing not only land and resources degradation but also land conflicts.

3.2 Forests and Woodlands

Tanzania possesses about 35.3 million hectares (ha) of natural forests or 38% of the total land area. Forests and woodlands are the sources for most of the wood and non-wood products. Wood products include timber, poles, firewood and charcoal. Non-wood products include ropes, resins, tie and dye, game meat, fruits, traditional/natural medicines, natural vegetables, palm leaves for making baskets/mats, honey, beeswax and mushrooms. Furthermore, forests and woodlands do provide other goods and services to people such as food, natural herbs for medicine and water. A number of intangible benefits do exist as outcomes of the presence of forests and woodlands. Such benefits include depository of biodiversity; amelioration of climate (microclimate), Carbon sequestration, habitat to wildlife and cultural and religious values. The forest resources are facing a number of environmental challenges including over exploitation; bush fires; and encroachment for various human activities.

3.3 Water Resources

Tanzania has 59,050 km^2 of inland water bodies. It is estimated that 6% of land area is covered by Lake Surface and numerous rivers draining into major water basins. Groundwater plays a major role in meeting the demand of water especially in rural areas. The total renewable water resources are estimated at 89 km^3 /year of which 40 km^3 /year is groundwater resources.

The main environmental challenges confronting the water resources in Tanzania are; sedimentation in reservoirs and waterways; pollution; encroachment of water sources; climate change impacts. Human activities such as unsustainable fishing, agriculture, grazing in catchment's areas and mining have been the major sources of pollution of many water sources especially the dams.

3.4 Biodiversity

Tanzania is one of the twelve mega diversity countries of the world, and the nation's biological diversity has important economic, technological and social implications. It is the fourth country in Africa with the largest number of mammals (at least 310 mammal species) and a number of highest species richness of birds, plants, amphibians and reptiles. The Eastern Arc Mountains is one of the biodiversity hotspot in Tanzania which has significant socio-economic importance.

Threats confronting biodiversity in Tanzania include human encroachment, bush fires, pollution of rivers, lakes, and ocean, over-exploitation; invasive alien species and climate change impacts.

3.5 Genetically Modified Organisms (GMOs)

Modern biotechnology is increasingly gaining popularity as an important tool for technological advancement in medicine, agriculture, environment and industry sectors. Commercial introduction of GMOs in the country is yet to take place apart from few research activities. Tanzania has also been handling shipments of GMOs to neighbouring countries. In view of health, environmental, socio-economic and ethical concerns associated with GMOs, Tanzania has put in place legal and administrative framework to regulate GMOs. Challenges facing the safe use of modern biotechnology in the country include inadequate: public awareness: funding; human and infrastructural capacities.

3.6 Urban Environment

The rapid growth of urban population is a challenge due to the fact that the population growth is not proportion provision of services such as water supply and services, sewerage facilities, water supply services, housing, road infrastructure, e-waste and Municipal waste management facilities. The inadequate services has resulted in emergence and growth of informal settlements occupying about 60% of housing in urban areas. It is estimated that about 70% of the urban population in the country live in unplanned settlements. Such settlements present potential public health risks such as flooding hazards, mainly as a result of poor urban planning.

3.6.1 Electronic Waste (E-waste)

The fast growing use of Information and Communication Technology (ICT) and rapid turn-over in technology is creating a growing e-waste stream in Tanzania. The challenge of e-waste is even of greater concern in the country because of inadequate capacity to handle and recycle the hazardous materials contained in e-waste. This leads to disposal of both e-waste and municipal waste in dumpsites hence polluting the environment and creating health risks to the nearby community and the population at large.

3.6.2 Municipal Waste

Municipal waste consists of waste collected by or on behalf of municipal authorities and disposed of through the waste management system and it includes solid and liquid waste. Increasing urbanization, rising standards of living and rapid development associated with population growth have resulted in increased solid and liquid waste generation mainly by industrial and domestic activities. It is estimated that more than 10,000 tonnes of municipal solid waste is generated per day countrywide. The increase in waste generation is not equivalent to increase in the capacity of the relevant urban authorities to deal with this problem. On average, about 50% of solid wastes generated in urban areas are collected daily and disposal at dumpsites. Some solid wastes are disposed of by burning or burying and others may end up in drains or dumpsites.

The proper management of liquid waste has become one of the most pressing and challenging environmental problems in the country. Sewerage systems cover a very small part of the municipalities and about 10 – 15 % of the urban population have access to the sewerage system. In most municipalities the collected sewerage is treated in waste stabilization ponds before being discharged into the receiving water bodies. However, most of the ponds are not working properly which means that raw sewerage is discharged to the surface and ground water resources. Inadequate coverage of sewerage systems contributes to incidence of water borne diseases in most urban areas.

3.6.3 Traffic congestion

The fast growing development, population density, insufficient public transport system and inadequate road infrastructure in urban areas has caused the existence of high traffic jams. Moreover, traffic congestion has caused air pollution from sulphur dioxide, carbon monoxide, nitrogen oxides and particulate matters as well as noise pollution from imported second hand vehicles with poor fuel efficiency that have a role in affecting human health.

3.6.4 Air and Noise Pollution

The air pollution problem is more acute in urban areas principally due to concentration of socio-economic activities. The major sources of air pollution include transportation, industrial processes, mining, domestic biomass burning, energy production, uncontrolled: waste disposal; chemicals management; agriculture and animal husbandry. In general, the pollutant density level in the air around urban and industrial areas is relatively higher than that found in rural areas. Although little quantitative data exist, the major source of ambient air pollution is from vehicle emissions, the largest emitters being older vehicles and diesel-powered vehicles. In the rural areas the principal sources of air pollution are kerosene and biomass burning which are responsible mainly for indoor pollution.

Studies in Dar es Salaam have established the presence of noise pollution due to industrial activities, social activities (bars, nightclubs and social halls), and small-scale service industries, use of generators in residential areas, motor vehicles, air planes, and construction activities. The noise levels recorded were above 90dBA, the recommended safe limit of occupational noise exposure for 8 hours. With the current economic growth and associated with industrial expansion, noise pollution is anticipated to increase particularly in urban areas.

3.7 Energy Resources

Tanzania is endowed with diverse energy sources including biomass, natural gas, hydropower, coal, geothermal, solar and wind, much of which is untapped. Coal reserves have been estimated at 1.6 billion tonnes of which 304 million tonnes have been confirmed. Natural gas exists in Tanzania with proven reserves of about 32 TCF (Trillion Cubic Feet) from Songo-Songo and Mnazi Bay. The country also has indications of geothermal resources with an estimated potential of about 650 MW.

The total annual energy consumed in Tanzania is estimated at 22 million tonnes of oil. About 92% of this amount is biomass-based and 8% is commercial energy, mainly from electricity and petroleum and natural gas-based fuel. This energy use picture shows the low per capita consumption of commercial energy and high dependence on traditional biomass.

Challenges facing energy sector include climate change, high initial costs of environmentally and socially sound energy technologies; and inadequate human and institutional capacities.

3.8 Climate Change

The impacts of global warming are already evident in almost all sectors of the economy and throughout the country. Impacts are already being experienced almost in each and every sector. Examples are countless and increasing. Severe and recurrent droughts in the past few years triggered devastating power crisis

in recent years. All major dams which are the main source of electrical power in the country surpassed their lowest water level during that period and they were temporarily shut down, resulting in long hours of power black outs. About 80 percent of the glacier on Mount Kilimanjaro has been lost since 1912. It is projected that the entire glacier will be gone by 2025. The intrusion of Sea water into water wells along the coast of Bagamoyo and the submerging of Maziwe Island in Pangani and Fungu la Nyani in Rufiji are both linked to sea level rise impacts.

Climate change has also brought its opportunities, particularly as it relates to increased efficiency and diversification of the sources of energy. New technologies related to renewable energy, better industrial efficiencies, better agricultural processing, better management of the natural resources including the forestry sector have all helped to redefine a better sustainable development path in the name of climate change mitigation.

Several challenges are being experienced including inadequate capacity to fund adaptation and mitigation activities; low public awareness; inadequate institutional and human resources capacities to address climate issue; and inadequate national specific adaptation capacities including nationally research based adaptation technologies.

3.9 Environmental Disasters

Environmental disasters in Tanzania are aggravated by some natural actions such as floods, droughts and human induced disasters for example settlements in hazardous prone areas .

Droughts have a major impact on the environment and the lives of both human and other living organisms. For instance, the drought that occurred in 1993 affected 282,053 people in Arusha, Kilimanjaro, Kagera and Kigoma regions in terms of decline in crop yields and livestock loss. Another acute drought occurred in 1996 in 14 regions where about 3.9 million people were affected. This was followed by a severe drought that occurred in 1999 affecting 17 regions. Another severe drought also occurred between 2009-2010 which killed a total of 316,437 cattle, 236,359 goats and 92,640 sheep in Arusha region.

Floods also contribute significantly to the destruction of the natural resources resulting into socio-economic losses and environmental degradation. For instance the floods that occurred in April, 2011 in Kilombero, Morogoro and December 2011 in Dar es Salaam caused several deaths and considerable property and infrastructure damage. These floods damaged more than 886km of roads and 26 bridges which costed the national 17 billion Tanzanian shillings for repair . TAZAMA oil spill in river Mwega in Kilosa districts that happened accidentally in June 2011 affects the river environment, aquatic biodiversity and community life around the river.

3.10 Invasive Alien Species (IAS)

Invasive Alien Species (IAS) may be defined as species that are non-native to the specific ecosystem, which have been introduced accidentally or intentionally, and whose introduction causes or is likely to cause adverse impacts to socio-economic welfare, environmental wellbeing and human health. IAS are among the key drivers of environmental change causing biodiversity loss in many ecosystems and they are considered very difficult to be eradicated.

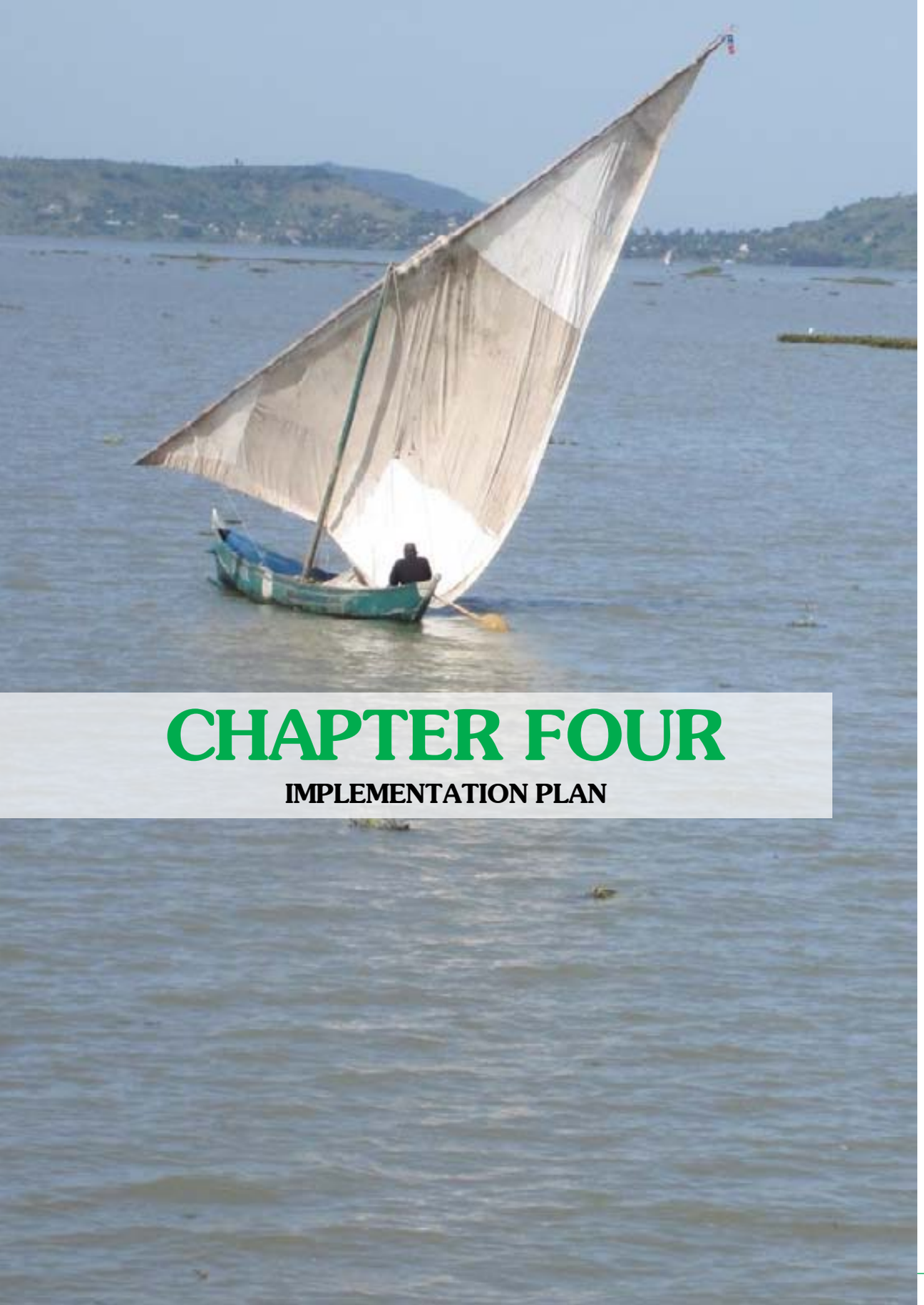
The spread of IAS has been increasing in the country in the last few decades, which causes substantial threat to biodiversity and ecological integrity of native habitats and ecosystems. The rate of introduction and spread of IAS have increased substantially since the 1960s. The key drivers of the spread of IAS are trade and human mobility. Tanzania has 67 reported IAS of different categories including plant pathogens, pests, aquatic and terrestrial weeds, animals and trees. The presence of multiple factors (climate change, disturbances on species interaction and land use changes) influencing the vulnerability and severity of the IAS poses a management challenge. Tanzania has experienced socio-economic and environmental problems associated with IAS.

Efforts to prevent control and counteract some of the devastating IAS in the country such as water hyacinth in Lake Victoria have proven to be costly and difficulty in reversing their impacts. Although challenges associated with IAS have been recognized for several decades, an integrated approach is required to address effectively this problem.

3.11 Biofuels

In Tanzania more than 90% of the energy consumption is mainly from fuel wood and charcoal. The remaining percentage comes from Petroleum and natural gas (8%), electricity (1.2%) and less than 1% comes from other energy sources including coal, solar, biogas and wind.

The use of biofuels in Tanzania is still at an infant stage. There are initiatives to prepare policy and legal framework for sustainable biofuel development while appreciating the challenges, associated risks and trade-off in ensuring sustainable biofuels development. The national vision for the development of biofuel sub-sector is to contribute to the reduction of fossil fuels in transport sector and to stimulate socio-economic development. The expected biofuels feedstock include sugar cane, jatropha, Croton microstaschys, palm oil and sweet sorghum.. The country is being mapped into agro ecological zones for the purpose of identifying suitable areas for biofuel production, at the same time to ensure that programme does not contribute to food scarcity and biodiversity degradation. However, the outcome of the energy sector's work in biofules development will guide on the best biofuel farming approaches..



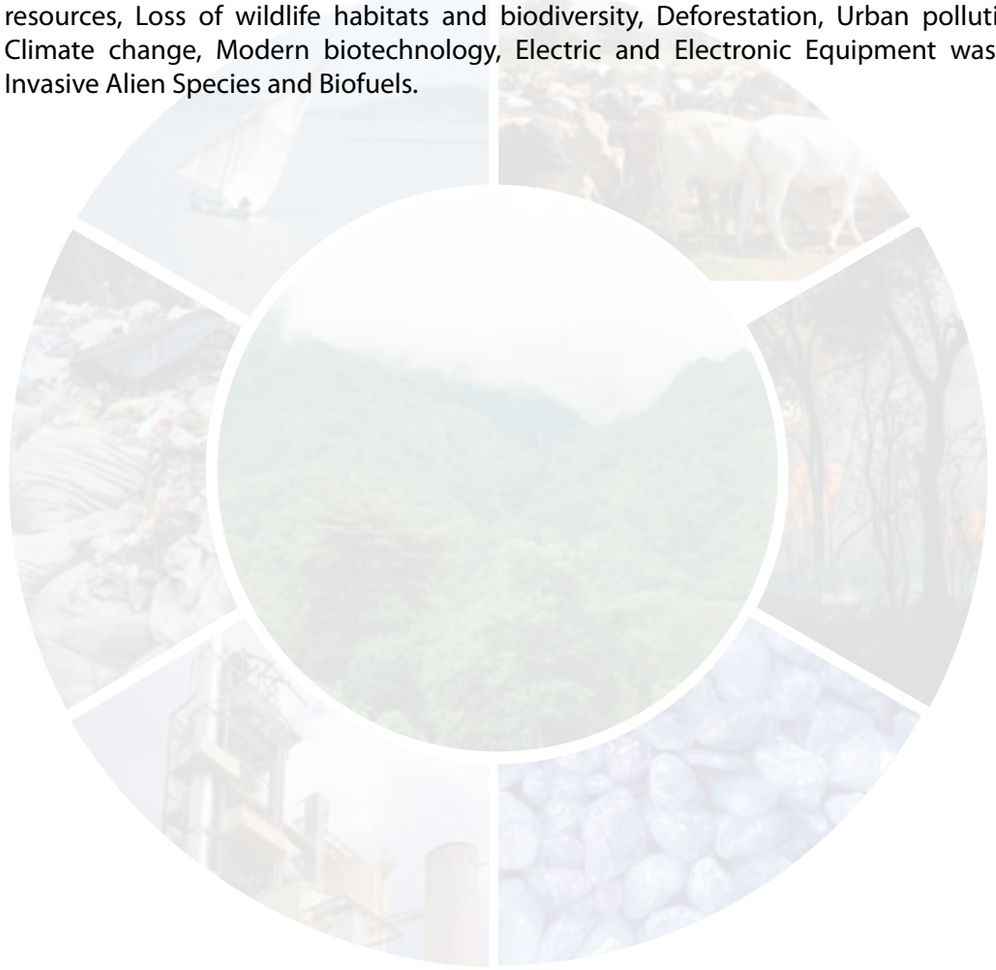
CHAPTER FOUR

IMPLEMENTATION PLAN

IMPLEMENTATION PLAN

This Chapter sets up a plan of action to address environmental challenges/issues by providing priority actions, expected outputs, timeframe, key actors and indicators for tracking progress. The implementation approach takes into account the institutional arrangement as stipulated under EMA, 2004. The time-frame for implementation is categorized as short term (0-2 years), medium term (2-5 years) and long term (5 years and above).

The environmental challenges/issues addressed in this chapter include; Land degradation, Water resources degradation and pollution, Degradation of aquatic resources, Loss of wildlife habitats and biodiversity, Deforestation, Urban pollution, Climate change, Modern biotechnology, Electric and Electronic Equipment wastes, Invasive Alien Species and Biofuels.



Implementation Plan for NEAP

Environmental Challenge/ Issue	Priority Actions	Expected output	Indicator	Time frame	Implementers
1. Land Degradation	1.1 Strengthen enforcement of legislation related to Land use	Land use management improved	Number of land use plans	Medium term	Ministries responsible for Lands, Energy, Agriculture, Livestock, Forestry, Wildlife, Local Government; Environment; and Land use Planning Commission, NGOs and CBOs
	1.2 Carry out "environmental mapping" for identifying highly degraded areas/ fragile.	Environmental maps in place	Number of Environmental maps	Medium term	Ministries responsible for Land, Local Government ;Environment; and Land use Planning Commission, Academic and Research Institutions, NGOs and CBOs
	1.3 Strengthen preventive measures against wild fires	Integrated fire management plans developed and implemented	Incidences of bush fires	Short term	Ministries responsible for Forestry, Agriculture, Livestock, Wildlife and Local Government; and Tanzania Forest Services Agency, Media, NGOs and CBOs
	1.4 Enhance implementation of the National Action Plan to Combat Desertification (NAP)	• National Action Plan on Desertification implemented • Reduced Desertification	Rate of Desertification	Medium term	Ministries responsible for Forestry, Environment, Livestock, Agriculture and Local Government; and NEMC, Tanzania Forest Services Agency, NGOs and CBOs
	1.5 Prepare and implement reclamation plans in highly degraded areas	Reclamation plans in place and implemented	Area of reclaimed land	Long term	Ministries responsible for Forestry, Agriculture, Wildlife, Livestock, Works, Minerals and Local Government; andTanzania Forest Services

Environmental Challenge/ Issue	Priority Actions	Expected output	Indicator	Time frame	Implementers
					Agency, Private sector, NGOs/ CBOs
	1.6 Promote sustainable agricultural practices	Sustainable agricultural practices implemented	Number of best practices	Long term	Ministries responsible for Agriculture, Education, Livestock ;Local Government, NGOs and CBOs
	1.7 Promote use of traditional knowledge in land management	Traditional knowledge promoted and implemented	Number of farmers engaged in the use of traditional knowledge	Long term	Ministries responsible for Agriculture, Livestock ; Local Government; NGOs and CBOs
	1.8 Promote rangeland resources management	Rangeland resources management plans, programmes and Strategies in place	Number of plans, programmes and strategies	Long term	Ministries responsible for Agriculture, Forestry, Livestock Local Government; and NGOs and CBOs
	1.9 Strengthen national research, extension services and farmer organizations in land use and information sharing	• Research capacity improved; • Extension services to farmers strengthened	•Number of research •Ratio of extension staff to farmers	Long term	Ministries responsible for Agriculture, Science and Technology, Livestock Local Government; and Research and Academic Institutions, COSTECH, Media, NGOs and CBOs
	1.10 Strengthen Implementation of the	The Strategy implemented	Rate of degradation of	Long time	Ministry responsible for Environment, Forestry,

Environmental Challenge/ Issue	Priority Actions	Expected output	Indicator	Time frame	Implementers
	Strategy for Urgent Actions on Land Degradation and Water Catchments	effectively	land and water catchments		Agriculture, Livestock and Local Government; and NGOs and CBOs
2. Water Resources Degradation and Pollution	2.1 Strengthen enforcement of legislation related to water resources management and Water Supply and sanitation	Compliance to relevant legislation	• Number of water catchments identified and conserved • Level of compliance	Long term	Ministries responsible for Water, Local Government Environment and NEMC Urban Water Supply and Sewerage Authority; Private sector, NGOs/CBOs
	2.2 Promote local communities participation in the enforcement of water abstraction	Local communities participation in the enforcement of abstraction of water from the authorized agencies	Incidences of unauthorized water abstraction	Long term	Ministries responsible for Water, Local Government Environment; and Private sector; NGOs/CBOs
	2.3 Strengthen implementation of integrated water resources management plans.	Water resources management plans implemented	• Quantity and quality of water • Area of water catchment conserved	Long term	Ministries responsible for Water, Local Government, Environment; and Urban Water Supply and Sanitation Authorities, Water Basin Board, Private sector; NGOs/CBOs
	2.4 Establish / Improve wastewater management systems in urban centres	Wastewater management systems in urban centres established/ improved	• Number of clients connected to the Sewerage systems	Long term	Ministries responsible for Local Government, Water, Health ; Environment; and Urban Water Supply and Sanitation Authorities, Private sector; NGOs/CBOs, Media

Environmental Challenge/ Issue	Priority Actions	Expected output	Indicator	Time frame	Implementers
			• Storm water drainage network • Number of on-site facility		
	2.5 Strengthen integrated solid waste management system	Improved solid waste management	• Amount of solid waste collected and disposed • Amount of solid waste recovery and recycled / re-use	Long term	Ministries responsible for Local Government, Environment; and NEMC, Private sector; Public, NGOs/CBOs
	2.6 Promote wastewater treatment, recycling and reuse	Reduced environmental pollution and water demand	• Pollution level • Amount of water consumed	Long term	Ministries responsible for Water, Local Government Environment; and Urban Water Supply and Sewerage Authority Authorities, Private sector; NGOs/CBOs
3. Degradation of Aquatic Resources	3.1 Strengthen implementation of the Strategies and programmes related to Aquatic resources including the National Strategy for Urgent Action to Conserve Coastal and Marine Environment, Lakes, Rivers and Dams.	The Strategies and programmes implemented	Rate of degradation of aquatic resources	Long term	Ministries Responsible for: Environment, Transport, Lands, Agriculture, Minerals, Forest, Fisheries, Local Government sand Other relevant sectors; NGOs/ CBOs
	3.2 Promote conservation	Utilization of	Area of	Long term	Ministries Responsible for:

Environmental Challenge/ Issue	Priority Actions	Expected output	Indicator	Time frame	Implementers
	and sustainable use of mangroves and coastal forest	mangroves and coastal forests sustained	mangroves and coastal forests sustainably managed		Forest, Fisheries, Environment, Local Government, Lands, Minerals; NEMC, NGOs/CBOs
	3.3 Promote sustainable utilization of aquatic resources.	Aquatic resources utilized sustainably.	Rate of utilization of aquatic resources	Long term	Ministries Responsible for: Fisheries, Forestry, Agriculture, Environment, Local Authorities; and NEMC, NGOs/CBOs
	3.4 Prevent and Control pollution in aquatic systems	Quality of aquatic systems improved	Quality of aquatic systems	Long term	Ministries Responsible for: Water Lands, Agriculture, Environment, Fisheries, Transport, Industries, Local Government, Energy, and NEMC; Private sector and NGOs
	3.5 Strengthen Enforcement of legislation related to investment and utilization of aquatic resources	Compliance to legislation related to investment and utilization of aquatic resources	• Incidences of violation of legislation • Number of investments with environmenta l clearance	Long term	Ministries Responsible for Environment , Fisheries, Local Government, Home Affairs, Defence; and NEMC, BMUs, NGOs, CBOs
	3.6 Promote ecosystem approach in aquatic protected areas	Ecosystem approach in aquatic protected areas adopted and implemented	Number of Protected Areas practicing Ecosystem Approach	Long term	Ministries Responsible for: Fisheries, Forestry, Wildlife, Environment, Local Government, and Marine Parks, NGOS, CBOs

Environmental Challenge/ Issue	Priority Actions	Expected output	Indicator	Time frame	Implementers
	3.7 Promote participatory fishery management and raise awareness on sustainable fisheries	• Increased Participation in fishery management • Awareness raised	• Number of BMUs and CBOs involved • Level of awareness	Long term	Ministries Responsible for Fisheries, Environment, Education, Community Development, Local Government ;and NGOs, CBOs
	3.8 Promote regional cooperation on management of trans-boundary water resources	Regional agreements, plans, programmes, projects in place	Number of agreements, programmes, plans and projects	Long term	Ministries Responsible for: Environment, Foreign Affairs, Water, Local Government and Fisheries
	3.9 Strengthen institutional and human capacity in management of aquatic resources	Institutional and human capacity improved/enhanc ed	Number of facilities and trained personnel	Long term	Ministries Responsible for: Fisheries, Environment, Water, Local Government, Forest; and Academic and Research Institutions; CBOs and NGOs
	3.10 Improve data collection and information management on aquatic resources/ environment	Up-to-date data and information in place	Data and information	Long term	Ministries Responsible for Fisheries, Water, Environment, Planning, Local Government and , Meteorology, NEMC, Academic and Research Institutes
	3.11 Promote research and dissemination of findings on aquatic resources management	Identification of best management practices and priority areas	• Number research reports • Number of best	Long term	Ministries responsible for Fisheries, Water, Science and Technology, Local Government, Environment ,Agriculture, Forestry,

Environmental Challenge/ Issue	Priority Actions	Expected output	Indicator	Time frame	Implementers
			practices and priority areas		Livestock, and Academic and Research Institutions, COSTECH, NEMC, Private sector, NGOs/CBOs
4. Loss of Wildlife Habitats and Biodiversity	4.1 Review and implement the National Biodiversity Strategy and Action Plan	National Biodiversity Strategy and Action Plan reviewed and implemented	• Number of biodiversity	Long term	Ministries responsible for Environment, Wildlife, Lands, Forest, Water, Local Government; and academic and Research Institutions; NGOs/CBOs
	4.2 Strengthen implementation of National Strategy on Wetlands	National Strategy on Wetlands implemented	Rate of wetlands degradation	Long term	Ministries responsible for Environment, Agriculture, Livestock, Forest, Water, Lands, Local Government; and academic and Research Institutions; NGOs/CBOs
	4.3 Re-examine the entire protected area network in Tanzania for long term sustainability	Protected areas network report in place	Number of reports	Medium term	Ministries responsible for Environment, Forest, Water, Lands, Wildlife, Local Government; and academic and Research Institutions; NGOs/CBOs
	4.4 Promote international cooperation to ensure that Tanzania benefits from transfer of its genetic resources	Agreements and protocols in place	Number of benefits from transfer of genetic resources	Long term	Ministries responsible for Environment, Agriculture, Forest, Water, Foreign Affairs, EAC, Wildlife, Lands, Local Government; and academic and Research Institutions; NGOs/CBOs
	4.5 Strengthen Capacity Building and awareness on the management of terrestrial and aquatic ecosystems.	Capacity Building and awareness enhanced	Number of awareness programmes and staff trained	Long term	Ministries responsible for Environment, Forest, Water, Wildlife, Fisheries, Lands, Local Government; and academic and Research Institutions; NGOs/CBOs
	4.6 Implement measures to control deforestation, overgrazing and pollution	Deforestation, overgrazing and pollution controlled	• Rate of deforestation, degradation and pollution • Number of livestock unit s per area	Long term	Ministries responsible for Environment, Livestock, Agriculture, Forest, Water, Wildlife, Lands, Local Government; and academic and Research Institutions; NGOs/CBOs
	4.7 Promote and strengthen Wildlife Management Areas	Programmes on Wildlife Management Area implemented	Number of wildlife management areas	Long term	Ministries responsible for Environment, Forest, Water, Wildlife, Lands, Local Government; and academic and Research Institutions; NGOs/CBOs
	4.8 Promote and Strengthen Regional Cooperation on protection and Conservation of wildlife habitats	Agreements and protocols related to Wildlife in place	Number of Agreements	Long term	Ministries responsible for Wildlife, Environment, Foreign Affairs, EAC, Forestry, Water, Lands, and Local Government.
	4.9 Strengthen implementation of measures to control wildlife poaching and illegal harvesting of forestry products	illegal harvest of Wildlife and forest products controlled	Incidence of illegal taking of wildlife and forest products from protected areas reduced.	Long term	Ministries responsible for Wildlife, Environment, Forestry, Water, Lands, Local Government; and academic and Research Institutions; NGOs/CBOs

Environmental Challenge/ Issue	Priority Actions	Expected output	Indicator	Time frame	Implementers
	4.10 Promote monitoring and conservation of endangered and threatened species	Endangered and threatened species conserved	Number of endangered and threatened species	Long Term	Ministries responsible for Wildlife, Environment, Forestry, Water, Lands, Fisheries, Tourism, Local Government; and Academic and Research Institutions; NEMC, NGOs/CBOs, Media
	4.11 Promote research and dissemination of findings on wildlife and biodiversity	Identification of priority areas and best practiced for conservation	Number of research reports and best practices	Long term	Ministries responsible for Wildlife, Science and Technology, Local Government, Environment , Forestry, Livestock, and Academic and Research Institutions, COSTECH, NEMC, Private sector, NGOs/CBOs
5. Deforestation	5.1 Strengthen enforcement of forest related legislation	• Improved forest patrol and surveillance • Forest legislation compliance	• Number of forests conserved • Level of compliance	Long term	Ministry responsible for Forestry, Wildlife, Local Government and Environment; Private sector, NGOs/CBOs
	5.2 Promote establishment of wood lots	Woodlots established	Area of woodlots	Long term	Ministries responsible for Forest, Local Government: and Private sector, NGOs/CBOs
	5.3 Control and promote sustainable production of charcoal	Charcoal business managed	• Tonnes/ bags of charcoal • Percentage produced from	Long term	Ministries responsible for Forest, Energy, Environment, Local Government, and NEMC, Private sector, NGOs/CBOs, Media

Environmental Challenge/ Issue	Priority Actions	Expected output	Indicator	Time frame	Implementers
			sustainable managed forest/ woodlands.		
	5.4 Strengthen energy conservation programmes	Energy efficiency programmes implemented	Number of energy efficient technologies	Long term	Ministries responsible for Forest, Energy, Local Government; and Private sector, NGOs/CBOs
	5.5 Promote use of alternative energy sources such as solar, natural gas and wind	alternative sources of energy used	Number of alternative sources and users	Long term	Ministries responsible for Forest, Energy, Environment, Local Government: and Private sector, NGOs/CBOs
	5.6 Promote use of Traditional Knowledge that enhance environmental conservation	Traditional knowledge practiced	Number of traditional knowledge practiced	Long term	Ministries responsible for Forest, Energy, Environment, Agriculture, Livestock, Local Government, Community Development, and Private sector, NGOs/CBOs
	5.7 Strengthen tree planting and conservation campaign	Tree planting and conservation campaigns strengthened	Number of trees planted and survived	Long term	Ministries responsible for Forest, Environment, Local Government; and Private sector; NGOs/CBOs
	5.8 Prepare and disseminate awareness programme on sustainable forest management	Awareness programmes prepared and implemented	• Number of programmes on sustainable forest management • Level of awareness	Long term	Ministries responsible for Forest, Environment, Local Government: and Private sector, NGOs/CBOs

Environmental Challenge/ Issue	Priority Actions	Expected output	Indicator	Time frame	Implementers
6. Urban Pollution	6.1 Strengthen enforcement of legislation related to Urban pollution prevention and control	Enforcement of legislation implemented	Level of compliance	Long term	Ministries responsible for Local Government, Environment ,Water, Transport, Industry, NEMC, Private sector, NGOs/CBOs
	6.2 Establishment / strengthen integrated waste management system	Integrated waste management in major cities, municipality and towns established	Area and population serviced	Long term	Ministries responsible for Local Government, Water, Environment; and NEMC, Private sector; NGOs/CBOs
	6.3 Strengthen data-base and reporting system on municipal waste management	Data-base in place	Availability of Up-dated data	Long term	Ministries responsible for Local Government; Environment; and Private sector; NGOs/CBOs
	6.4 Develop and implement National Waste Management Strategy and Action Plan	National Waste Management Strategy and Action Plan in place and implemented	• Amount of waste collected, treated and disposed • Amount of waste recovered/ recycled and re-use	Long term	Ministries responsible for Local Government ;Environment; and Private sector; NGOs/CBOs
	6.5 Promote use of excreta and other organic waste as sources of energy	Excreta and other organic waste used as sources of energy	Number of technologies and users	Long term	Ministries responsible for Energy, Health, Local Government; Industry Environment; and

Environmental Challenge/ Issue	Priority Actions	Expected output	Indicator	Time frame	Implementers
					CAMARTEC; REA; Private sector; NGOs/CBOs
	6.6 Strengthen Implementation of programmes on upgrading of infrastructure for unplanned settlements	Programmes on upgrading of infrastructure for unplanned settlements implemented	Area upgraded	Long term	Ministries responsible for Local Government, Lands, Works, Environment; and Private sector; NGOs/CBOs
7. Climate Change	7.1 Undertake comprehensive vulnerability assessment on climate change impacts	Vulnerability assessment reports in place	Number of Reports	Medium term	Ministries responsible for Environment, Local Government; and Sector Ministries; private sector; NGOs/CBOs
	7.2 Implement the National Climate Change Strategy and Action Plan of 2009	Implementation reports on the strategy and Action Plan including National Action Plans(NAPs) and Nationally Appropriate Mitigation Actions (NAMAs)	Number of reports	Long term	Sector Ministries, Local Government, and private sector; Research and Academic Institutions, NGOs/CBOs
	7.3 Mainstream climate change Adaptation into sectoral Policies, strategies, programmes, plans and budgets	• Climate change adaptation issues mainstrea med	Number of policies, strategies and programmes	Medium term	Sector Ministries, Local Government, and private sector; Research and Academic Institutions, NGOs/CBOs

NATIONAL ENVIRONMENTAL ACTION PLAN (NEAP)

Environmental Challenge/ Issue	Priority Actions	Expected output	Indicator	Time frame	Implementers
		• Mitigation programmes and projects prepared and implemented.			
	7.4 Enhance public awareness and understanding on climate change adaptation and mitigation	Awareness programmes implemented	• Number of awareness programmes • Level of awareness and understanding	Long term	Sector Ministries, Local Government, and private sector; Research and Academic Institutions, NGOs/CBOs
	7.5 Design and implement programmes and projects at LGAs level to address adaptation	Programmes and projects prepared and implemented	Number of programmes and projects	Long term	Sector Ministries, Local Government Authorities, private sector; Research and Academic Institutions, NGOs/CBOs
	7.6 Promote/Strengthen modern and traditional early warning systems	Functional early warning systems in place	• Up to date information • Number of Indigenous knowledge used	Long term	Sector Ministries, Local Government Authorities, private sector; Research and Academic Institutions, NGOs/CBOs
8. Modern biotechnology	8.1 Strengthen enforcement of legislation related to safe use of Modern biotechnology	Compliance to legislation related to safe use of Modern biotechnology	Level of compliance	Long term	Ministries responsible for, Science and Technology, Local Government, Environment ,Agriculture, Forestry, Livestock, and

Environmental Challenge/ Issue	Priority Actions	Expected output	Indicator	Time frame	Implementers
					COSTECH, NEMC, Private sector, NGOs/CBOs, Media
	8.2 Strengthen Capacity of Regulatory Authorities in handling Genetically Modified Organisms (GMOs)	Capacity of Regulatory Authorities Enhanced	• Level of capacity in handling GMOs • Number of GMOs cases dealt with	Long term	Ministries responsible for Environment, Science and Technology, Fisheries, Health, Agriculture, Forestry, Livestock; LGAs, and COSTECH, NEMC, Academic and Research Institutions, NGOs/CBOs,
	8.3 Promote research and Information dissemination on application of Modern biotechnology	Research findings reports	Number of reports	Long term	Ministries responsible for, Science and Technology, Local Government, Environment ,Agriculture, Forestry, Livestock, and COSTECH, NEMC, Private sector, NGOs/CBOs
	8.4 Strengthen public awareness campaigns on safe use of Modern biotechnology	Public awareness campaigns conducted	Number of campaigns and Level of awareness	Long term	Ministries responsible for Environment, Science and Technology, Fisheries, Health, Agriculture, Livestock; Local Government, and Academic and Research Institutions, Media
9. Electrical and Electronic Equipment (EEE) waste	9.1 Strengthen enforcement of legislation related to management of EEE and their waste	Compliance to legislation related to EEE and their waste	Level of compliance	Long term	Ministries responsible for, Industry, Local Government, Environment, TRA, TBS, TCRA, NEMC, Private sector,

Environmental Challenge/ Issue	Priority Actions	Expected output	Indicator	Time frame	Implementers
	9.2 Develop and implement national standards for imported and locally produced EEE	Standards developed and implemented	Number of standards	Short term	Ministries responsible for Industry, Science and Technology, Local Government Environment; and TBS, Private sector; NGOs/CBOs
	9.3 Develop and implement inspection guidelines and procedure for controlling quality of EEE	Guidelines and procedures developed and implemented	Number of guidelines	Short term	Ministries responsible for Industry, Science and Technology Local Government Environment; and TRA, TCRA, TBS, Private sector; NGOs/CBOs
	9.4 Install screening facilities for EEE at entry points	Screening equipment in place	Number of operational screening facilities	Medium term	Ministries responsible for Local Government, Science and Technology; Environment; and Private sector; NGOs/CBOs
	9.5 Develop and implement guidelines for management of EEE waste	Guidelines developed and implemented	Number of guidelines	Short term	Ministries responsible for Industry, Local Government Environment; and Private sector; NGOs/CBOs
	9.6 Conduct inventory and develop database of EEE and their waste	Inventory report and database in place	Up to date database on EEE and their waste	Short term	Ministries responsible for Local Government; Environment, Industry, and Private sector; NGOs/CBOs

Environmental Challenge/ Issue	Priority Actions	Expected output	Indicator	Time frame	Implementers
10. Invasive Alien Species (IAS)	11.1 Review and implement relevant national policies and legislation to address issues of invasive alien species	Relevant national policies and legislation reviewed and implemented	Number of policies and legislation	Long term	Ministries responsible for Environment, Water, Fisheries, Agriculture, Justice, Forestry, Livestock; and Local Government,
	11.2 Strengthen phytosanitary inspection at entry points	Inspections at entry points implemented	Number of entry points conducting inspection	Long term	Ministries responsible for Agriculture, Livestock, Local Government and Environment,
	11.3 Promote application of Integrated Pest Management (IPM) to control IAS	Integrated pest management implemented	Level (number/area) of IAS controlled	Long term	Ministry responsible for Environment, Fisheries, Agriculture, Water, Forestry, Livestock; and Local Government
	11.4 Promote research and disseminate information on IAS	Research findings reports	Number of reports	Long term	Ministries responsible for, Science and Technology, Local Government, Environment ,Agriculture, Fisheries, Forestry, Livestock, and COSTECH, NEMC, Research and Academic institutions, Private sector, NGOs/CBOs
11. Biofuels	11.1 Develop and implement national policy and legislation related to development of biofuels	Relevant national policies and legislation in place and implemented	Number of policies and legislation	Long term	Ministries responsible for Energy, Science and Technology, Local Government, Environment ,Agriculture, Forestry, Livestock, and COSTECH, NEMC, Private sector, NGOs/CBOs

Environmental Challenge/ Issue	Priority Actions	Expected output	Indicator	Time frame	Implementers
	11.2 Promote research and disseminate information on Biofuels development	Report on research findings	Number of reports	Long term	Ministries responsible for, Energy, Science and Technology, Local Government, Environment ,Agriculture, Forestry, Livestock, and COSTECH, NEMC, Private sector, NGOs/CBOs
	11.3 Strengthen public awareness campaigns on biofuels development	Public awareness campaigns conducted	Level of awareness	Long term	Ministries responsible for Energy, Environment, Education, Agriculture, Livestock; Local Government s, and Institutions, Media

CHAPTER FIVE

IMPLEMENTATION STRATEGIES

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5.1 Stakeholder Involvement

Environmental concerns are cross cutting in nature and their impacts are obviously felt at various levels. Integration of environmental plans in development process at all levels is an important tool in ensuring Sustainable Development. Stakeholders involvement in environmental action planning is a legal requirement. Environmental Management Act No. 20 of 2004 provides for environmental planning in the country and obliges each Sector Ministry and Local Government Authorities to develop their Environmental Action Plans based on the NEAP. The existing environmental strategies, programmes and projects set the framework for stakeholders' involvement in environmental protection and management in the country.

The implementation, monitoring and evaluation of NEAP will involve local communities, civil societies, private sector, academic and research institutions, Local Government Authorities, Central Government, and Policy makers. The key stakeholders in the implementation of the NEAP are presented in the Implementation Plan (Chapter 4) and will be under the coordination of the Vice President's Office. Stakeholders are obliged to prepare and submit annual progress report to the Vice President's Office by March of each year.

5.2 Resource Requirements

Effective environmental protection and management through appropriate implementation of the Environmental Action Plans requires a deliberate allocation of both financial and human resources. The benefits from various interventions in integration of environmental concerns depend on planning processes. Therefore, there is a need for prioritization of environmental issues in the budget allocation process.

Potential sources of funding include:

i) National Environmental Trust Fund;
ii) Constituency Development Fund;
iii) Central and Local Government Budgetary allocations;
iv) Global Environment Facility;
v) Bilateral arrangements; and
vi) Support from NGOs; CBOs; FBOs; and
vii) Statutory funds from the implementation of MEAs such as Climate Change EAs
viii) Contributions from private sector and individuals.

In addition there is a need for carrying out a needs assessment to identify resource requirements for effective implementation of the NEAP. This will enable formulation of a mini-strategy for resource mobilization both locally and internationally and devise means to facilitate accessibility of these resources by stakeholders.

6.1 Monitoring and Evaluation

The purpose of monitoring and evaluation of the NEAP is to ensure effective and efficient implementation of various priority actions in addressing environmental challenges. The monitoring and evaluation of the Environmental Action Plan will be carried out using participatory approaches.

Monitoring will be undertaken on continuous basis. Evaluation of the implementation of the NEAP will be done annually and at the end of the duration of the NEAP. Annual evaluations are meant to assess performance and provide opportunity to reflect on the gaps and devise remedial measures. The terminal evaluation will provide inputs in reviewing the NEAP.