



**THE UNITED REPUBLIC OF TANZANIA
VICE PRESIDENT'S OFFICE**

NATIONAL ENVIRONMENTAL POLICY, 2021

OCTOBER, 2021

CONTENTS

ABBREVIATIONS AND ACRONYMS	v
GLOSSARY.....	vii
FOREWORD	xiii
CHAPTER ONE : INTRODUCTION.....	1
1.1 Background	1
1.2 Situation Analysis	4
1.2.1 Land Degradation.....	5
1.2.2 Lack of Accessible, Good Quality Water for both Urban and Rural Inhabitants	9
1.2.3 Loss of Wildlife Habitats and Biodiversity	10
1.2.4 Deterioration of Aquatic systems	14
1.2.5 Deforestation.....	16
1.2.6 Environmental Pollution	19
1.2.6.1 Inadequate Municipal Waste Management	19
1.2.6.2 Ineffective management of Electrical and Electronic Equipment Waste (e-waste)	21
1.2.6.3 Inadequate Sound Management of Chemicals.....	23
1.2.6.4 Ineffective Environmental Management of Oil and Gas	24
1.2.7 Climate Change	26
1.2.8 Modern Biotechnology	30
Cross Cutting Issues.....	31
1.2.9 Inadequate environmental Good Governance at all levels	31
1.2.10 Inadequate financial resources for Environmental Management	33

1.2.11 Inadequate Gender consideration in environmental management.....	34
CHAPTER TWO : POLICY JUSTIFICATION, VISION, MISSION AND OBJECTIVES.....	36
2.1 Policy Justification	36
2.2 Vision, Mission and Objectives.....	37
2.2.1 Vision	37
2.2.2 Mission	38
2.2.3 Objectives	38
CHAPTER THREE : POLICY ISSUES, OBJECTIVES AND STATEMENTS.....	40
3.1 Land Degradation.....	40
3.2 Deterioration of Water Sources	41
3.3 Loss of Wildlife Habitats and Biodiversity.....	42
3.4 Deterioration of Aquatic Ecosystems.....	44
3.5 Deforestation	45
3.6 Environmental Pollution.....	47
3.7 Climate Change.....	48
3.8 Safe Use of Modern Biotechnology.....	50
Cross Cutting Issues.....	51
3.9 Good Governance	51
3.10 Resource Mobilization	52
3.11 Gender	53
CHAPTER FOUR : LEGAL FRAMEWORK	55
CHAPTER FIVE : INSTITUTIONAL FRAMEWORK, MONITORING AND EVALUATION.....	56
5.1 Institutional Framework	56

5.2 Roles and Responsibilities of Key Players56
5.3 Monitoring and Evaluation60
5.4 Conclusion.....61

ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
BMUs	Beach Management Units
CBD	Convention on Biological Diversity
CEPA	Communication Education and Public Awareness
CFT	Confined Field Trial
CBF	Community Based Forest
CMS	Conservation of Migratory Species of Wild Animals
CSO	Civil Society Organizations
ESIA	Environmental and Social Impact Assessment
EACOP	East Africa Crude Oil Pipeline
EMA	Environmental Management Act
GHGs	Greenhouse Gases
GMOs	Genetically Modified Organisms
HIV	Human Immunodeficiency Virus
IS	Invasive Species
IPM	Integrated Pest Management
JFM	Joint Forest Management
LGA	Local Government Authorities
MARI	Mikocheni Agricultural Research Institute
MEAs	Multilateral Environmental Agreements
NAWAPO	National Water Policy
NBSAP	National Biodiversity Strategy and Action Plan
NCCMC	National Carbon Monitoring Centre
NEAC	National Environmental Advisory Committee
NEMC	National Environment Management Council
NEP	National Environment Policy

NFP	National Forest Policy
NFGG	National Framework for Good Governance
NEAP	National Environmental Action Plan
NSGRP	National Strategy for Growth and Reduction of Poverty
PFM	Participatory Forest Management
SADC	Southern African Development Community
SEA	Strategic Environmental Assessment
SoER	State of the Environment Report
UNCCD	United Nations Convention to Combat Desertification
WMA	Wildlife Management Area
WRMA	Water Resources Management Act
WSSA	Water Supply and Sanitation Act
WSDP	Water Sector Development Programme
TCF	Tons Cubic Feet
TFS	Tanzania Forest Services Agency
TAZAMA	Tanzania Zambia Mafuta Pipeline
VPO	Vice President's Office

GLOSSARY

Adaptation	Actions aimed at coping with climatic changes that cannot be avoided aimed at reducing their negative effects. It includes prevention, tolerance or sharing of losses, changes in land use or activities, changes of location and restoration.
Biodiversity	Variability among living organisms from all sources including <i>inter alia</i> , terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species (genetic), between species and of ecosystems.
Biofuels	Liquid, solid or gaseous fuels that are predominantly or exclusively produced from biomass.
Beach Management Unit	Beach Management Unit means a group of stakeholders in a fishing community whose main function is management, conservation and protection of fish in their locality in collaboration with the government
Climate Change	Change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods.

Degraded land	The land which, due to natural processes or human activity, is no longer able to properly sustain an economic function and/or its original natural, or near-natural, ecological function.
Disaster	An occurrence or series of occurrences, weather natural or man –made calamity that cause or poses significant disruption or threat to disruption of the functioning of a community cause widespread human, material, economic or environmental loss or impact which exceed the capacity of that community to cope with disaster using its own resources.
Ecosystem	Dynamic complex of plant, animal, micro-organism communities and their non-living environment interacting as functional unit.
Environment	Includes the physical factors of the surroundings of human beings, including air, land, water, climate, sound, light, odor, taste, micro-organism, the biological factors of animals and plants, cultural resources and socioeconomic; factor of aesthetics, including both the natural and built environment and the way they interact.

Environmental audit	Systematic documented periodic and objective evaluation of how well environmental organization, management and equipment perform in conserving or preserving the environment.
Genetically Modified Organisms	Biological entity capable of replication or transfer of genetic information, and includes plants, animals, bacteria and all other kinds of micro-organisms, cell cultures, viruses, plasmids and other kinds of vectors, created and propagated by means of cell or gene technology in which the genetic material has been altered in a way that does not occur naturally.
Greenhouse gas	Gaseous constituents of the atmosphere, both natural or anthropogenic, that absorb and re-emit infrared radiation.
Habitat	Area / environment where an organism or ecological community normally lives or occurs.
Hazardous substance	Chemical, waste, gas, medicine, drug, plant, animal or microorganism which is likely to be injurious to human health, life or the environment.

Hazardous Waste	Any solid, liquid, gaseous or sludge waste which by reason of its chemical reactivity, environmental or human hazardousness, its infectiousness, toxicity, explosiveness and corrosiveness is harmful to human health, life or environment
Invasive Species	Plants, animals, pathogens and other organisms those are non-native to an ecosystem, and which may cause economic or environmental harm or adversely affect human health.
Mitigation	Efforts that seek to prevent or slow down the increase of atmospheric GHG concentrations by limiting current and future emissions and enhancing potential sinks for greenhouse gases.
Natural disaster	Disasters arising from the interaction of natural phenomena without human influence and include such occurrences as earthquakes, floods, drought, fire, or epidemics.
Natural resources	Materials, substances and organisms occurring in nature which can be utilized for socio-economic gain or conservation including light, air, water, plants, animals, soil and minerals.

Pollution	Direct or indirect alteration of the physical, thermal, chemical, biological, or radioactive properties of any part of the environment by discharging, emitting, or depositing of wastes so as to adversely affect any beneficial use, to cause a condition which is hazardous to public health, safety or welfare, or to domestic animals, birds, wildlife, fish or aquatic life, or to plants.
Pollutant	Substance or agent present in the soil, water or air, which due to its properties, amount or concentration causes adverse impacts
Renewable energy	Energy that comes from resources which are naturally replenished on a human time scale such as sunlight, wind, rain, biomass, tides and waves and geothermal.
Strategic Environmental Assessment	a systematic process for evaluating the environmental, including health, consequences of proposed legislation, policy, plan, strategy or programmes initiatives in order to ensure that they are fully included and appropriately addressed at the earliest appropriate stage of decision making.

Wetlands	Areas of marsh, fen, peat land or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salty, including areas of marine water, the depth of which does not exceed six metres.
Water Sources	A river, tributary, estuary, swamp, marsh or other wetland; an aquifer or spring; sea waters and interface between sea water and fresh water; a dam, pond or reservoir.
Climate resilience	is the ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate.

FOREWORD

Tanzania is endowed with abundant, unique and valuable environmental resources which contribute to more than 70% of the national Gross Domestic Product (GDP) and livelihoods of majority of the people. These resources among others include: arable land, forests, marine and freshwater sources, wetlands, wildlife, mountains, natural gas and minerals.

In order to ensure environmental conservation and sustainable use of natural resources, the first National Environmental Policy (1997) was adopted to address the identified environmental challenges and foster sustainable socio-economic development in the country. Since the adoption of the first Policy, the key achievements have been realized including: enactment of the Environmental Management Act of 2004 as a framework environmental law prescribing legal and institutional framework for environmental management; putting in place comprehensive institutional and administrative framework for environmental management at all levels; mainstreaming of environmental issues into national development frameworks, sectoral policies, local government plans. Through implementation of this policy and other relevant sectoral policies, the country has managed to designate about 40% of the total land area as forest and wildlife protected areas.

Despite these notable achievements, there are several policy gaps that necessitated review of the first Policy in order to strengthen environmental management regime in the country. The identified gaps, among others, include inadequate policy guidance in addressing emerging environmental challenges particularly climate change impacts; e-waste management; prevention, control and management of invasive species; environmental pollution from oil and gas operations; sound management of chemicals and application of modern biotechnology. Further, it was noted that there was lack of

policy directives on tapping investment opportunities arising from environmental management that can attract private sector and financial institutions.

Therefore, this Policy serves as a national framework for planning and sustainable management of the environment in a coordinated, holistic and adaptive approach taking into consideration the prevailing and emerging environmental challenges as well as national and international development issues. It is worth noting that, effective implementation of this policy requires mainstreaming of environmental issues at all levels, strengthening institutional governance and public participation in environmental management regime. The long-term vision of this policy is geared towards realization of environmental integrity, assurance of food security, poverty alleviation and increased contribution of the environmental resources to the national economy.

I call upon the commitment and engagement of all stakeholders to join this endeavor with the understanding that environment is a precious asset for present and future generations.

Dr. Selemani S. Jafo (MP)
Minister of State, Vice President's Office – (Union and Environment)

CHAPTER ONE

INTRODUCTION

1.1 Background

Environment and natural resources are valuable national assets that have to be sustainably managed for the present and future generations. They offer a range of benefits and opportunities for local and national levels for socio - economic growth such as improved livelihoods and provision of environmental goods and services. Despite being the foundation on which sustainable development is anchored, the national analysis of the state of the environment identified six (6) environmental challenges that needed urgent actions to address the deterioration of the environment in the country. These challenges are: land degradation; lack of accessible good quality water for rural and urban inhabitants; loss of wildlife habitats and biodiversity; deterioration of aquatic systems; deforestation; and environmental pollution. These challenges not only threatened livelihoods of the people and the national economy, but also state of the environment which is crucial in supporting all forms of life. In addressing these challenges, the Government formulated the first National Environmental Policy (NEP) in 1997.

The overall objective of NEP (1997) was to provide for the implementation of a range of strategic interventions to address the identified priority areas of environmental concerns by involving Government sectors and other stakeholders. This approach was preferred on the understanding that all stakeholders would take priority actions to address the environmental challenges based on the fact that environment

is a cross-cutting issue and as such environmental challenges affect all sectors.

In order to implement the Policy, the Government enacted the Environmental Management Act (2004) to provide for legal and institutional framework for sustainable management of the environment. In addition to this, the Government in collaboration with other stakeholders implemented several strategies, programmes, plans and projects through which the policy objectives were implemented.

On the other hand, for a period of two decades, NEP (1997) has provided policy guidance on various initiatives aimed at addressing the six identified challenges. To a great extent, NEP (1997) implementation has brought positive results in protecting and conserving the environment. These include: implementation of integrated land use planning; identification and conservation of water sources; establishment of Water User Associations; establishment of ecologically protected areas, adoption of cleaner production technologies in manufacturing process; identification mapping, and clean-up of contaminated sites; increased participation of local community and private sector in waste management initiatives; control of hazardous waste and e-waste; increased size of land under protection (marine and terrestrial); increased law compliance by investments, establishment of Beach Management Units (BMUs); designation of wetlands; improved coastal environmental management; increased use of alternative energy sources and energy efficient technologies; and community participation in tree planting and conservation of water sources.

Despite the positive results of implementing the Policy, there are still significant limitations that resulted into ineffective

implementation of the Policy. These concerns include: inadequate coordination among sectors in managing environment; low public awareness and knowledge on environmental management; inadequate land use planning at various administrative levels; inadequate enforcement and compliance of various legislation related to environmental management; inadequate alternative sources of energy and dependence on charcoal and firewood as the main source of energy; increased encroachment of water sources; limited capacity in terms of human, financial, infrastructure, technology, and tools; and inadequate environmental research, data and information on environmental issues.

Furthermore, there are emerging environmental challenges that were not explicitly addressed in the previous Policy. These include: climate change; invasive species; electrical and electronic equipment wastes (e-wastes); Genetically Modified Organisms (GMOs); management of oil and gas; and sound management of chemicals. Some of these issues aggravated further the deteriorating the state of the environment in the country because of inadequate interventions to address these challenges. Under these circumstances, climate change contributed further to land degradation due to frequent and prolonged droughts. Proliferation of Invasive Species also had impacts on accelerated loss of wildlife habitat and biodiversity. Increase in use of electrical and electronic equipment has led to increased accumulation of e-waste with toxic substances further polluting the land and ground water all of which pose challenges to human health and the environment. These emerging environmental challenges require concerted attention that include provision of specific and clear policy guidance to effectively address them.

In light of these challenges, contributed mainly by policy gaps and cognizant of the global and regional developments regarding environmental management, the Government found it prudent to revise NEP (1997) with a view of accommodating new developments and challenges and providing comprehensive policy directives which will address both the prevailing and emerging environmental challenges. In addition, the revised policy takes into account cross cutting issues namely good governance; gender; and resource mobilisation.

1.2 Situation Analysis

Throughout implementation of the NEP (1997), the Government in collaboration with other stakeholders, undertook several initiatives aimed at addressing the six identified environmental challenges enshrined in the Policy. The initiatives undertaken broadly include setting up of the institutional and legal framework, development and implementation of environmental management strategies, plans programmes and projects. Despite these initiatives, the state of the environment in the country is still deteriorating.

The Third State of the Environment Report (2018) shows that the situation of environmental degradation has been exacerbated by other notable challenges that still pose threats to the environment. These include proliferation of Invasive Species; inadequate e-waste management; safe use of modern biotechnology as it relates to GMOs; pollution emanating from oil and gas operations and inadequate management of chemicals. These challenges have caused extra liability in managing the environment as they were not explicitly guided by the NEP (1997).

The following sections therefore, summarize the outcome of

a detailed situation analysis conducted prior to the process of revising the Policy. The review focused on the prevailing state of the environment in the country. Additionally, the detailed analysis informed the initiatives deployed to address the environmental challenges, achievements as well as the challenges encountered during the implementation of the NEP, 1997. The analysis further recommends policy direction to effectively address the environmental challenges.

1.2.1 Land Degradation

Land is one of the most prized natural assets in the country, but it is under increasing pressure resulting to its degradation. The Study on the Status of Environment focusing on Land Degradation, Forest Degradation and Deforestation by the Controller and Auditor General (CAG) in 2018 shows that 54 percent of the Local Government Authorities (LGAs) indicated the level of land degradation was medium. The trend has also shown that the rate of land degradation in the country is ever increasing, a situation which necessitates a paradigm shift in the way and manner in which the land degradation challenge is being addressed.

A substantial part of the country is experiencing different forms of land degradation which include deforestation, loss of vegetation cover, soil erosion, soil pollution and loss of biodiversity. Land degradation is associated mainly with human actions and decisions on natural environment at different levels. These human actions include unsustainable farming practices, overgrazing, deforestation and forest degradation, unsustainable mining activities, rapid increase of population, inadequate land use management, climate change and inherent poverty.

The Land Degradation Neutrality Report of 2018 reveals the

extent and magnitude of land degradation to have increased from 42 percent in 1980 to almost 50 percent in 2012. The problem is more eminent in semi-arid areas where estimations show that 61 percent of land in these areas is likely to be degraded. These areas include some parts of Dodoma, Shinyanga, Manyara, Singida, Simiyu, Geita and Kilimanjaro regions. The extent of land degradation and its respective costs are increasing as evidenced by a study conducted in 2014 which estimated the annual economic value of land lost due to land degradation to be USD 10.2 billion.

Cognizant of the severity of land degradation and its impacts to the environment and socio-economic development, the Government deployed a number of initiatives and interventions aimed at addressing land degradation. These initiatives included setting up policy and legal framework that contribute towards curbing land degradation. In this regard, a number of sectoral policies with bearing on land degradation were formulated. These include the National Agriculture Policy (2013), National Water Policy (2002); National Land Policy (1995), National Livestock Policy (2006) and National Forestry Policy (1998). In order to give these policies legal effect, different pieces of legislation were also enacted which contributed to addressing the challenge of land degradation. These include among others, the Land Use Planning Act No. 6 (2007); Land Act and Village Act (1999); Forest Act (2002) and the Mining Act (2010 as amended 2017). In addition, several strategies, programmes, plans and projects were devised and implemented in order to combat the land degradation challenge.

There have been notable achievements in addressing land degradation as a result of cumulative impacts of several

initiatives and interventions deployed by the Government in collaboration with a wide array of stakeholders. There is more impetus now towards recognition of customary land ownership a move which will enable individuals in rural areas to own land and being issued with Certificates of Customary Right of Occupancy. Since 2001 when the Village Land Act Cap. 114 came into operation, more than 400,000 Certificates of Customary Right of Occupancy have been issued countrywide. This will contribute significantly to the efforts of curbing land degradation as the land with a proper ownership is less likely to be mismanaged compared to a general land. Apart from this, there is an increase in the number of villages surveyed and having land use plans. By 2021, a total of 10,762 out of 12,319 villages were surveyed and issued with Village Land Certificates and a total of 2,454 villages had land use plans. This exercise will contribute towards addressing land degradation where villages will be surveyed and equipped with land use plans.

Despite the efforts by the Government and other partners in addressing land degradation, still the challenge is looming. The rate of land degradation has generally been observed to increase posing a more serious challenge to environment and socio-economic development. This has been partly attributed to existence of policy gaps which contributed to land degradation in the country. Inadequate security in land tenure systems hinders the effectiveness of controlling land degradation. Land tenure system helps owners to establish rights of ownership of land. Ensuring security in land tenure system makes ownership of land more secure and permanent. This is important for the development of land and contributes significantly to efforts geared towards curbing the land degradation challenges.

Further to this there is insufficient or lack of comprehensive approaches aimed at development of alternative sources of energy. Availability, affordability and accessibility of alternative sources of energy is of paramount importance as it has a bearing on abating land degradation. Developing and promoting alternative sources of energy which are easily accessed, readily available and affordable will ensure that a large population use these alternatives especially as cooking energy. This move will reduce heavy dependency on biomass energy for cooking thereby addressing land degradation resulting from rampant tree cutting for firewood and charcoal.

In addition to these, inadequate financial resources to address the challenges of land degradation have hampered enormously measures to effectively combat land degradation. An adequate and predictable financial resource is an important tool that will ensure implementation of measures to address land degradation. Another challenge in the efforts of combating land degradation in the country is the lack of integrated environmental awareness approaches to the public. The environmental awareness is important as it helps the public understand how their decisions and actions affect the environment, builds knowledge and skills necessary to address complex environmental issues, as well as actions to be taken to keep the environment healthy and sustainable. This situation has been further aggravated by inadequate land use plans at various administrative levels; unsustainable farming and mining practices, tree and bush clearing, wildfires, wetland degradation and overgrazing. In addition to these, rapid population growth has further aggravated the severity of land degradation due to the fact that there is more pressure on the use of natural resources to sustain the livelihood of the population.

As the rate of land degradation surpasses efforts instituted to reverse it, more efforts are needed to enhance land management by promoting formulation and implementation of land use plans; strengthening security in land tenure systems, strengthening enforcement and compliance to various pieces of legislation addressing land degradation; strengthening public awareness, participation and education regarding land restoration; and promote economic incentives to encourage investments in restoration of degraded lands.

1.2.2 Lack of Accessible, Good Quality Water for both Urban and Rural Inhabitants

Lack of accessible good quality water for both urban and rural inhabitants identified in the National Environment Policy of 1997 is still prevalent as a challenge to-date. The apparent causes for persistence of this challenge include, but not limited to, continued encroachment to water sources; low awareness and knowledge on existing policies and legislation; inadequate enforcement and compliance of the laws governing the management of water resources; prolonged droughts particularly in semi-arid areas; unsustainable mining, agricultural, and poor livestock management; poor water supply and sanitation infrastructure, inadequate land use planning, and population growth which has increased pressure on the water resources.

In an attempt to address the aforementioned challenges, the Government formulated and implemented several national policies, strategies, laws and regulations, programmes and projects. The implementation of these initiatives has brought some improvements in the management of water resources and improved the quality of and accessibility to water. The Government focused on the conservation of water resources whereby between 2014 and 2021, a total of 1,213 water

sources were identified and conserved, out of which 133 have been demarcated. -Whereas a total of 18 have been gazzeted as protected water sources. By April, 2021, a total of 139 Water User Associations have been established. The establishment of these associations enhanced community participation and commitment in the conservation and management of water resources.

However, in addressing challenge of lack of accessible good quality of water through NEP (1997), it was noted that some of the embedded objectives such as accessibility and institutionalizing appropriate user charges fall within the mandate of the National water policy of 2002.

The policy focused on: promoting land use planning at all levels to ensure proper use of land; promoting public participation in the proper management of water resources; strengthening public awareness and education in the conservation of water sources; strengthening enforcement of water and environment legislation; promoting adaptation measures on climate change impacts; promoting conservation agricultural practices and land use; promoting integrated management of both national and trans-boundary water resources and promoting water harvesting technologies.

1.2.3 Loss of Wildlife Habitats and Biodiversity

Tanzania is one of the mega rich biodiversity hotspots in the world with about 14,000 known important plant and animal species. It is among the top 12 countries with high biodiversity and among 15 countries with the highest number of endemic species. The country hosts 6 out of the 25 globally known biodiversity hotspots located in various terrestrial and marine ecosystems. The importance of these wildlife resources lies in their biological value in terms of value of the species and

habitat found therein, their economic value and the potential to contribute to sustainable development of the country.

However, wildlife habitat and biodiversity have continued to be threatened due to economic and population growth, poverty, global trade in plant and animal species and climate change. Proliferation of Invasive Species of both plant and animal in some parts of the country has also intensified the loss of wildlife habitat and biodiversity. Furthermore, uncontrolled wildfire; overexploitation of economic tree species; infrastructure development, unsustainable agriculture practices and overstocking are largely responsible for the loss of wildlife habitats and biodiversity. For this matter, NEP (1997) identified loss of wildlife habitats and biodiversity as one of the major environmental challenges. To address this challenge, a number of policies, legislations, strategies and plans have been developed, these include: The National Forest Policy (1998); e Wildlife Policy (2007); Land Policy (1995); Agricultural Policy (2013); National Fisheries Policy (2015); National Irrigation Policy, (2010); and Water Policy (2002).

The Environmental Management Act (2004) calls for the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. Further, the Natural Wealth and Resources (Permanent Sovereignty) Act, 2017 provides for conservation and protection of natural resources to ensure that the country and its citizens benefit from such resources. Tanzania has also ratified the Convention on Biological Biodiversity (CBD), its subsequent protocols and other biodiversity – related agreements. These provide opportunities for complementing Government efforts towards conserving wildlife habitats and biological diversity.

Considerable achievements have been made in addressing the loss of wildlife habitats and biodiversity. This is demonstrated by the size of land under protection, which is about 40% of the total land area (6.5% of marine and 33% of terrestrial). In total protected areas cover approximately 28 million ha (58.2%) found in both wildlife protected areas and forest reserves. Forest and wildlife conservation has improved whereby Forest Plantations have increased from 16 to 22, while natural forests have increased from 597 to 802 since 1961 and nature reserved forests increased from 12 to 17.

These Forests have been fully proclaimed as Nature Forest Reserves (NFRs) to conserve wildlife habitats and its biodiversity and include Amani (8,380ha); Uluguru (24,115ha); Kilombero (134,511 ha); Nilo (6,225ha); Rungwe (13,652ha); Magamba (9,283ha); Chome (14,283ha) and Mkingu (23,388ha); Udzungwa Scarp (32,763ha), Rondo Plateau (14,000ha); Minziro (25,000ha) and Mount Hanang (5,871ha). Wet lands forests, which did not exist before 1961 have now increased to 44 while national parks are 22. At present, a network of wildlife Protected Areas (PAs) in Tanzania comprises 22 National Parks, 24 Game Reserves, 27 Game Controlled Areas, 38 Wildlife Management Areas (WMA's) and the Ngorongoro Conservation Area. The importance of these wildlife resources lies in their biological value in terms of value of the species and habitat found therein, their economic value and the potential to contribute to sustainable development of the country.

Other achievements include establishment of the Lake Victoria Environmental Management Programme on control of water Hyacinth in Lake Victoria in 2005. The programme managed to eradicate about 85% of the water Hyacinth

infestation.

Despite the initiatives undertaken over time, the loss of wildlife habitats and biodiversity has continued to be a challenge. This has been attributed to lack of proper policy guidance on comprehensive approaches to address the challenges. Further, inadequate capacity on prevention, control and eradication of Invasive Species has also contributed to persistence of this challenge.

Challenges such as inadequate funding to support Community Based Forestry (CBF) implementation; insufficient knowledge and skills to enable communities to practice sustainable agriculture, fishing, livestock keeping, and protect natural resources against loss of habitats and biodiversity; unsustainable human activities; illegal global trade in plant and animal species and increasing impacts of climate change on plant and wildlife ecosystems have significantly contributed to ever-increasing losses.

To adequately address the challenge of loss of wildlife habitats and biodiversity, there is a need to have specific policy guidance on how to safeguard the loss of wildlife habitats and biodiversity through promotion of land use planning and management. This will ensure effective wildlife habitat and biodiversity conservation. Enhanced collaboration between Government and private sector to ensure sustainable management of wildlife habitats and biodiversity. Furthermore, there is a need to strengthen sustainable regimes for forest resource conservation, utilization and protection. Since awareness raising is a continuous process, awareness programmes on wildlife habitats and biodiversity conservation to communities need to be strengthened.

1.2.4 Deterioration of Aquatic systems

Freshwater, coastal and marine ecosystems and wetlands in the country are faced with numerous environmental challenges including decreased productivity, reduction in aquatic resources and biodiversity as well as water shortages leading to decreased capacity to support human well-being. This situation is caused by unsustainable human activities including deforestation; poor agricultural practices, destructive fishing practices mining of corals for lime production, mangrove cutting, unmanaged tourism, industrial and mining practices which cause water pollution; climate change and expansion of infrastructure development particularly in urban areas and catchment basins.

In response to these problems, sectoral policies and legislation that support management of aquatic habitat have been formulated and implemented. Some of these include National Fisheries Policy (2015), National Agriculture Policy (2013), Fisheries Act. (2003), Marine Parks and Reserves Act (1994) and the Merchant Shipping Act (2003), the Tanzania Extractive Industries (Transparency and Accountability) Act (2015). These tools provide legal and policy guidance on how to effectively manage the aquatic habitat and the associated resources.

Other initiatives include development and implementation of National Strategy for Urgent Actions on Conservation of Coastal, Marine, Lakes, Rivers, and Dams Environment (2008); National Integrated Coastal Environment Management Strategy (2003); Strategy for Urgent Action on Land Degradation and Protection of Water Catchment (2006); and Ratification of several international and regional conventions. The ratified Conventions include United Nation

Convention on the Law of the Sea (UNCLOS) (1985); Amended Nairobi Convention for the Protection, Management and Development of the Western Indian Ocean 2017; RAMSAR Convention on Wetlands (2000) and Convention on Sustainable Management of Lake Tanganyika (2003).

Furthermore, the Government has been implementing programmes which relate to management of aquatic ecosystems that include Tanzania Coastal Management Partnership - TCMP (1997 -2005), Marine and Coastal Environment Management Project - MACEMP (2006 - 2012), and Lake Tanganyika Environment Development Programme - PRODAP (2009 -2013) and South West Indian Ocean Fisheries Governance and Shared Growth Project-SWIOFish 2017 – 2021.

Following the implementation of those measures, 18 Marine Protected Areas (MPAs) have been established which comprise 15 Marine Reserves and 3 Marine Parks. According to Marine Parks and Reserve Unit (MPRU) Strategic Plan 2014-2019, the marine protected area is estimated to be 6.5% of the total area of the territorial water. On the other hand, the Government has adopted a participatory co-management approach to fisheries which fully involves communities and recognizes them as partners in fisheries planning, management, conservation and development. Through this approach, 800 Beach Management Units (BMUs) have been established. The existence of BMUs and MPAs has improved the health of aquatic system hence social-economic well-being of the communities.

Other achievements include designation of 4 wetlands namely Rufiji- Mafia-Kilwa Marine (2004); Malagarasi - Muyowosi (2000); Lake Natron Basin (2001) and Kilombero Valley

Floodplain (2002) as RAMSAR Sites; and increased number of districts implementing integrated coastal Environmental management Action Plans from 3 in 2005 to 16 Districts in 2012. Implementation of these plans has contributed to reduction of coastal environmental degradation, illegal mangrove cutting and improved livelihoods of coastal communities.

Despite notable achievements, deterioration of aquatic system has continued to be a challenge. In order to improve environmental performance of the aquatic habitat and ensure environmental sustainability, it is necessary to provide policy guidance on enhancing cross sectoral coordination efforts at multiple levels and trans-boundary coordination of shared aquatic system. Further to these, promoting sustainable management and utilization of aquatic resources, enhancing collaboration between Government and private sector in the management of aquatic resources, law enforcement and compliance, awareness arising on sustainable use of aquatic resources is highly recommended.

1.2.5 Deforestation

Forests provides not only the wood we use for paper and furniture, but also regulate water cycle, prevent soil erosion, protect watersheds, provide a habitat for wildlife and forest communities, sustain biodiversity, supply food and shelter, provide oxygen and mitigate climate change. Tanzania Mainland has 48.1 million hectares (ha) of forests and woodlands, representing about 55 percent of the total land area.

Different forest ecosystems are found in Tanzania including lowland rainforests in the north-west, lowland dry coastal forests and mangroves on the coast, montane forests

scattered across the higher altitude areas of the country, extensive areas of Miombo woodlands in the south and Acacia savannah woodlands in the north. Forest reserves form part of 33 percent of the country's land which has been designated as protected area. Natural forests cover about 47.4 million ha (98.5%) while plantations cover only 600,000ha (1.5%).

Despite richness of the forest resources, forest ecosystems are facing a huge threat due to deforestation. The rate of deforestation in the country is estimated at 469,420 ha/year. Deforestation is more prominent in unreserved forests than in reserved forests.

To address this challenge, the Government has put in place policies and legislation which provided policy and legal guidance to halt deforestation. These instruments include NEP (1997), National Forest Policy (1998), the Forest Act, 2002 and EMA 2004. In addition, in 2011, the Government established the Tanzania Forest Services (TFS) Agency to efficiently and effectively manage national forest and bee resources in a sustainable manner. The Government also developed and implemented programmes and strategies to sustainably manage forests including: National REDD+ Strategy and its Action Plan (2013), and Participatory Forest Management (PFM) through Community Based Forest Management – (CBFM) and Joint Forest Management – (JFM).

Through implementation of these initiatives, there have been notable achievements whereby, over 200 million trees have been planted every year since 2008 with a survival rate of over 70 percent through national tree planting campaign and other initiatives. Other achievements include: adoption and

recognition of traditional forest management practices across many parts of the country such as Ngitiri (Shinyanga); Alalili (Maasailand) and Milaga (Dodoma); Increase in the use of alternative energy sources and energy efficient technologies (biogas, natural gas, improved charcoal stoves); and increased participation of local communities through PFM, which has managed to secure about 7.7 million ha of forests. Furthermore, community participation in tree planting and conservation of water sources has been enhanced through Presidential Award on environmental management.

Despite these achievements, the drivers of deforestation have continued to threaten the forest ecosystems. Rapid population growth estimated at a rate of 3.1% has continuously exacerbated pressure on forest resources, mainly for energy needs (firewood and charcoal). There are also combined effects resulting from expansion of settlements, need for agricultural land, overgrazing, uncontrolled fires, timber extraction and illegal logging, development of transport infrastructure and industries, expansion of mining activities and pressures exerted by influx of refugees in forests. Furthermore, the global economic growth has resulted into expansion of trade among nations that has led to competing demands for food, feeds, fiber and fuel, and thus intensifying pressure on forest resources.

This situation is attributed to lack of clear policy guidance to address the issues of continued over-dependence on charcoal and firewood as the main sources of energy. Efforts should focus on promotion of affordable, accessible, and reliable alternative energy to charcoal and firewood in order to release pressure on forest and forest products. There is also a need to develop and strengthen measures to mitigate drivers of deforestation. To make communities and individuals

responsible in managing their land resources, there is a need to promote land use planning by defining areas where grazing land can be demarcated and gazzeted. In addition, the land use plan will define areas where agricultural activities can be sustained in order to limit unregulated agriculture and over-consumption of water.

1.2.6 Environmental Pollution

Environmental pollution is a widespread and growing challenge in the country and has significant deleterious effects on the quality of water, air, and land posing threat to environment and human health. Major sources of environmental pollution emanate from a number of points and diffuse sources including: industrial, municipal, mining, agricultural, transport and health activities. Environmental pollution was among the environmental challenges identified to be addressed by NEP (1997). After more than 20 years, this challenge is still observed to increase in most parts of the country.

The situation has been aggravated by inadequate municipal waste management; inadequate capacity to manage electrical and electronic waste (e-waste); improper management of chemicals throughout their life-cycle and inadequate capacity to manage wastes emanating from oil and gas operations. The situation is intensified by lack of appropriate technologies which assist in waste management. These challenges are further elaborated in the following subsections.

1.2.6.1 Inadequate Municipal Waste Management

The Third State of Environment Report of 2019 estimated that more than 10,000 tons of municipal solid waste are generated per day in the country and only 10 percent to 30

percent are collected and disposed to controlled dumpsites, leaving a huge volume of waste unattended. This problem is more pronounced in squatter settlements, where 70 percent to 80 percent of the urban population resides without the necessary infrastructure and social services. Further to this challenge liquid waste also pose threat to environment and human health as most of urban centers in the country lack liquid waste management facilities, whereby, out of 20 major urban water utility authorities, 11 provide some access to sewer connections and wastewater treatment facilities covering about 13% of the urban population. This challenge is exacerbated by the existing poor waste management systems; poor infrastructure and technologies; unsustainable production and consumption patterns; and inadequate institutional capacity for addressing waste management.

A number of initiatives have been taken by the Government to address the challenge of municipal waste including formulation of Public Health Policy (2007) and enactment of the Environmental Management Act (2004); Water Resources Management Act (2009); Water Supply and Sanitation Act (2009); Urban Planning Act (2007); and Public Health Act (2009)

Through implementation of these initiatives, there have been notable achievements in municipal waste management. These include: the adoption of cleaner production technologies and techniques to more than 70 industries, identification and mapping of 325 contaminated sites used to serve as storage of obsolete stocks of pesticides; proper disposal of more than 1,200 metric tons of obsolete pesticides; and increased participation of local community and private sector in waste management initiatives.

Despite the achievements registered, municipal waste management continues to be a challenge. This has been attributed by inadequate: integrated waste management system, participation of private sector in municipal waste management as well as investment in waste management system and enforcement of legislations related to environment pollution control.

To effectively address municipal waste challenge there is a need to: - provide a clear and specific policy guidance in addressing issues related to integrated waste management system, promote investment in appropriate waste management technologies; enhance public awareness on effects of municipal waste and strengthening of institutions in terms of technical, human resource and financial capacities to effectively manage municipal waste and enforce legislation is of paramount importance.

1.2.6.2 Ineffective management of Electrical and Electronic Equipment Waste (e-waste)

E-waste contains toxic and other hazardous substances that pose a threat to the environment and human health. Tanzania is facing a rapid increase in use of electrical and electronic equipments with subsequent accumulation of e-waste generated over time. The increase of e-waste has been contributed by the influx of electrical and electronic equipment such as computers, mobile phones, television sets, data operating products and other electrical and electronic products.

The Third State of Environment Report of 2019 estimate that e-waste generation annually are is in the range of 18,000 to 33,000 tons and this accounts for about 0.5% of the total municipal solid waste generated in the country. The statistics

show that, as of 2021 there were about 53.1 million registered mobile phones and these will end up as e-waste at the end of their life time. Furthermore, counterfeit and used products aggravate the accumulation of e-waste and thus intensify the problem.

Rapid increase of e-waste and its ineffective management have contributed to aggravating environmental pollution. The situation has been attributed by: absence of clear policy guidance on e-waste management; low public awareness on e-waste and its potential risks to the environment and human health; lack of designated facilities for e-waste disposal; and lack of formal and centralized system for sharing e-waste information due to poor data records on e-waste generation.

Some interventions have been undertaken by the Government to address the challenge of Electrical and Electronic Equipment Waste (e-waste) including: preparation and implementation National Information and Communication Technology Policy (2016); enacting and enforcing of Environment Management Act (2004); The Universal Communication Services Access (2006) and the Electronic Transactions (2015). Notable achievements have been realised in the course of implementing of these instruments, including: disposing of about 53 tons of counterfeit electronic and electrical equipment in 2010 and 16 companies have been registered to deal with e-waste management in the country.

Despite the achievements registered, e-waste continues to be a challenge. This has been exacerbated by lack of clear policy guidance on issues related to e-waste management, low participation of private sector in e-waste management, inadequate enforcement of legislations related to e-waste

management and inadequate institutional capacity in terms of technical, human resource and financial to effectively manage e-waste.

This situation calls for: provision of clear and specific policy guidance in addressing e-waste management, promotion of private sector in investing in e-waste management; strengthening institutional capacity in terms of technical, human resource and financial capacities to effectively manage municipal waste and strengthening enforcement pieces of legislation related to e- waste management.

1.2.6.3 Inadequate Sound Management of Chemicals

Tanzania produces certain chemicals for domestic use, however, most of the chemicals used in industries, agriculture, oil and gas exploration, mining, medical field, veterinary and households' purposes are imported. The use of chemicals poses risks to the environment and human health if not managed properly.

Importation of both industrial chemicals and pesticides in the country has been increasing however, sound management of the same throughout their life cycle has not been efficient and hence poses threat to the environment and human health which contributes to the continued challenge of environmental pollution. Some of the environmental concerns associated with chemicals management include: Improper use, handling and disposal of industrial chemicals and pesticides; willingness to shift to environmentally friendly technologies by manufacturers; continued use of obsolete, banned and counterfeit chemicals; existence of chemicals contaminated sites within the country and inadequate access and sharing of information on chemicals at different levels.

Several measures have been undertaken by the Government to ensure safe use and sound management of chemicals including: enactment of Environmental Management Act (2004); Industrial and Consumer Chemicals (Management and Control) Act, (2003) Plant Health Act (2020); Occupational Health and Safety Act (2003); The Tanzania Food, Drugs and Cosmetics Act (2003). In addition, the Government ratified various international conventions and protocols to join global efforts on ensuring sound management of chemicals. These include: Basel Convention on Control of the Transboundary Movements of Hazardous wastes and their disposal (1993); Stockholm Convention on Persistent Organic Pollutants (2004); and Rotterdam Convention on Prior Informed Consent Procedure for certain hazardous chemicals and pesticides in international trade (2004).

Despite these initiatives sound chemical management throughout their lifecycle is still a challenge in the country, posing a threat to the environment and health. To address this challenge, Government in collaboration with stakeholders need to continue to take more efforts particularly strengthening institutional capacity for sound management of chemicals; increasing public awareness on the safe use of chemicals; and strengthening enforcement of legislation related to chemical management.

1.2.6.4 Ineffective Environmental Management of Oil and Gas

Tanzania has been exploring oil and gas for more than half a century. The first natural gas discovery was made on the Songo Songo Island in 1974 followed by another one in the Mnazi Bay in 1982. In 2004 and 2006 commercial production of natural gas on the Songo Songo Island and in the Mnazi Bay commenced, respectively. From 2010, Tanzania has

witnessed further exploration and discoveries of significant quantities of natural gas both on and off-shore. As of 2021, the discoveries of natural gas in the country stand at 57.54 trillion Cubic Feet. The country also hosts oil pipelines connecting to the neighbouring countries namely TAZAMA Pipeline from Dar es Salaam to Ndola, Zambia covering 1,710 km in 1968 and EACOP oil pipeline from Kabale, Uganda to Tanga, Tanzania (1,445 km).

Oil and gas operations may have adverse effects on the environment, health and safety of people if not properly managed. For instance, construction of marine pipeline can negatively impact marine ecology including pollution of fish habitat and pollution of air due to gas flaring in the natural gas processing plants emitting carbon dioxide to the atmosphere.

Effective environmental management in oil and gas sub-sector is facing several challenges including inadequate national capacity on management of pollution emanating from oil and gas operations and inadequate monitoring, compliance, and enforcement.

To ensure effective management of oil and gas sub-sector including environment management. The Government instituted a number of policy and legal instruments including The National Petroleum Policy of Tanzania (2015); Mineral Policy (2009) Tanzania (2015); and National Energy Policy (2015) Environmental Management Act (2004); The Mining Act (2010); The Petroleum Act (2015) and the Natural Wealth and Resource Act (2017).

There have been notable achievements for ensuring oil and gas operations are environmentally sound including issuance

of Environment Impact Assessments (EIA) Certificates to 71 oils and gas exploration projects from 2011 to 2015 and establishment of National Oil Spill Response Centre.

Despite the initiatives taken by the Government, more efforts need be undertaken including continuing to build national capacity to monitor environment pollution emanating from oil and gas operations.

1.2.7 Climate Change

Climate change is one of the challenges to economic growth and poverty eradication in most developing countries. Climate change differs from climate variability which refers to an observed over comparable time periods (UNFCCC 1992). The adverse impacts of climate change such as droughts and floods are already evident in almost all sectors of the economy in the country leading to major economic costs, loss of life, properties and other human capital. For example, since 2011, Dar es Salaam City alone has witnessed recurrent severe floods which lead to loss of life, severe infrastructure destruction and unprecedented economic loss.

Furthermore, floods have been recorded every year, from 2009, 2010, and 2011 and have been associated with negative impacts which include loss of lives and displacement of people e.g, in Dar es Salaam, 42 people lost their lives in 2011 due to floods. Since 2009, the Msimbazi has been experiencing floods. In December, 2009 and January 2010 flooding led to the displacement of a total of 23,980 people in Kilosa, and 19,000 people in Mpwapwa and Kongwa Districts, respectively. The cost of restoring the infrastructure and services ravaged by floods in Kilosa and Mpwapwa amounted to Tshs 329 billion. The April 2011 floods in Kilombero valley (Morogoro Region) demolished 663 houses

in the area. Moreover, extreme rainfall in January, 2008 led to floods displaced hundreds of people and flooded mining pits in Mererani resulting to over 70 deaths.

Moreover, national climate reports show that water wells along the coast have been intruded by sea water due to sea level rise attributed to climate change. Maziwe Island in Pangani and Fungu la Nyani in Rufiji has been submerged due to sea level rise. According to the National Climate Change Strategy 2012, about 80 percent of the glaciers on Mt. Kilimanjaro has melted since the year 1912. The country has also been experiencing severe droughts and floods due to climate change.

Temperature increase will accelerate disappearance of snow and affect other resources. According to the Statement on the Status of Tanzania Climate 2017, the country's average temperature increased by more than 0.9 above long-term average (1981-2010), higher than the global average, and by the year 2050, it is likely to rise by up to 3 degrees centigrade from the 1980 average. Increase in temperature has great implications on agricultural production, especially crop yield, livelihood and national economy since agriculture is the mainstay of the economy.

The Special Report on Global Warming produced by Intergovernmental Panel on Climate Change (IPCC) in 2018 reveals that two third of the coral reefs are likely to disappear by 2030, and all coral reefs will disappear by 2050, if temperature will increase above 1.5°C. Tanzania being a country with significant coral reef resources is not exempted from this threat. Study conducted by the Institute of Marine Sciences of the University of Dar es Salaam Zanzibar indicate that after the 1998 coral bleaching event the live coral cover

at Tutia (Kitutia) and Mange reefs in Mafia Island Marine Park decreased from 80 percent in 1991 to 15.1 percent in 1999.

Furthermore, a study by DfID and GoT in 2011 on Economics of Climate Change, project that future climate change could be much worse, leading to significant economic costs to the country. A study revealed that: Current climate change variability already costs Tanzania around 1 percent of GDP annually and it could go up to 2 percent of GDP by 2030; an additional 0.3 million to 1.6 million people will become vulnerable to sea level rising by 2030; About USD 500 million is required annually to reduce current vulnerability to climate change, and a further USD 100 to 150 million per year will be required to build capacity and enhance climate resilience to address future climate change adverse impacts.

Since 1997, the Government has taken and implemented a number of initiatives in an effort to address challenges of climate change. These initiatives include: National Agriculture Policy (2013); National Energy Policy (2015); The National Petroleum Policy of Tanzania (2015); The Natural Gas Policy (2013); National Water Policy (2002); Petroleum Act (2015); Natural Gas Act 2009; National Climate Change Strategy (2012); National Adaptation Programme of Action (NAPA) for Climate Change (2007) and National REDD+ Strategy and Action Plan (2013).

The Government has also developed and implemented a number of programmes and projects aimed at addressing climate change.

Moreover, the Government has ratified climate change related multilateral agreements to join global efforts in addressing climate change and also benefit from the

opportunities of these agreements in addressing climate change challenges at the national level. These agreements are: The United Nations Framework Convention on Climate Change (UNFCCC) in 1996, Kyoto Protocol (2002), and Paris Agreement on Climate Change (2018).

Implementation of these initiatives has enabled the country to build resilience in various areas of the country to climate change impacts including: construction of 950m and 500m sea walls along Barack Obama Road and at Mwalimu Nyerere Memorial College in Dar es Salaam respectively; construction of sea wall 860m and 50m at Pangani and Kisiwa Panza in Pemba respectively; restoration of 792 ha degraded mangrove areas in Rufiji and 200ha in Kisiwa Panza, and restoration of 3,000m² of coral reef at Sinda and Makatube reefs in, Kigamboni. Implementation of the initiatives has also enabled building resilience of the communities to adverse impacts of climate change through improved accessibility of water for domestic and livestock use in Mbinga, Igunga, Misenyi, Bagamoyo, and Zanzibar.

Despite all these initiatives in addressing the challenges of climate change, adverse impacts of climate change are still felt in the country due to: absence of comprehensive policy guidance to address climate change in the National Environment Policy (1997), low national adaptive capacity to the impacts of climate change; inadequate funding; low public awareness on the climate change impacts; inadequate institutional coordination in addressing impacts of climate change; inadequate capacities to explore opportunities resulting from climate change and low involvement of private sector in investing in adaptations interventions.

In order to address the challenges, there is need to: provide

a specific policy guidance to address climate change; enhance national climate change resilience; promote public awareness on climate change adaptation and mitigation; promote collaboration between Government and private sector on climate change interventions and promote regional and international cooperation on addressing climate change.

1.2.8 Modern Biotechnology

Modern biotechnology is one of the important tools for development of various sectors such as; agriculture, industry, medicine industry, and environment. Application of such technologies if not well guided, may pose adverse effects to the environment, human health and biological diversity. Such effects include increased weediness, invasiveness and herbicide tolerance in plants; massive mortality of non-target species; increased antibiotic resistance among disease causing pathogens; development of pesticide resistance among pests; emergence of secondary pests; and contamination of landraces and valuable local germplasm.

In order to ensure safe transfer, handling and use of genetically modified organisms resulting from modern biotechnology, the Government is implementing policy instruments such as: Agriculture Policy (2013); National Biotechnology Policy (2010); Environment Management Act (2004), National Livestock Policy 2006, Bio-safety Regulations (2009), National Biosafety Framework (2007), National Biosafety Guidelines (2007), Biosafety Manuals (2010) and the ratification of Cartagena Protocol on Biosafety (2003).

Through implementation of the biosafety policy instruments, key achievements registered include: establishment of institutional framework on biosafety issues; strengthening national capacity on scientific research and development

through upgrading of several Genetic Engineering (GE) laboratories Research Institutions; the on-going laboratory research of cassava genetic transformation for the longevity of cassava virus resistance at Mikocheni Agricultural Research Institute; research to test transgenic water efficient maize in Confined Field Trial; and a Confined Field Trial (CFT) research to test transgenic maize with stacked events MON 87460 and MON 810 reduction of yield loss under limited water conditions and resistance of stem borer pests at Makutupora Agricultural Research Institute.

Despite the achievements, the safe use of modern biotechnology is still a challenge due to lack of specific policy guidance in handling and safe use of modern biotechnology; inadequate National capacity in undertaking scientific research and development; and low public awareness on the general issues pertaining to safe use of modern biotechnology. To effectively address this challenge there is need to: provide specific policy guidance in handling and safe use of modern biotechnology; involve private sector and development partners; enhance public awareness; and strengthen national capacity in handling and safe use of modern biotechnology.

Cross Cutting Issues

1.2.9 Inadequate environmental Good Governance at all levels

Good governance is one of the central components in environmental management in the country and it has been mainstreamed in various plans and programmes. Good governance in Tanzania is enshrined in the National Framework for Good Governance (NFGG) formulated in

1999 which envisaged a broad-based national partnership for development of good governance that included central and local governments, the private sector, faith-based and civil society organisations. Other initiatives include putting in place number of instruments such as: The Mining Act (2017); The Regional Administration Act, (1997); The Environment Management Act, (2004) and The Wildlife Management Areas Regulations (2012).

There have been notable achievements including: improved transparency and participation of local communities in environment planning and management; designation of Environmental Management Officers at Sector Ministries, Regional and Districts levels in the country; improved participation of local communities in the conservation of coastal resources through various approaches such as establishment of Beach Management Units (BMUs); Wildlife Management Areas (WMAs); Participatory Forest Management (PFM); Water Users Associations(WUAs); Village Environmental Committees; and enhance involvement of the public in EIA and SEA process.

Despite these achievements, absence of clear policy guidance on how good governance can be mainstreamed in environmental management hampers effective good governance practices in environmental management. In this regard, there is a need to integrate good governance aspects in environmental initiatives by adhering to transparency, accountability; and public participation.

1.2.10 Inadequate financial resources for Environmental Management

The rapid escalating and sustained complexity of the challenges facing environmental management have generated an increased level of demand for the technical expertise and coordination provided by Ministry responsible for Environment. Resources demand to cater for the coordination role as well as resource requirements for planned activities are of crucial importance to effectively respond to environmental challenges in Tanzania. Since the commencement of the Policy implementation in 1997, the ministry responsible for environment has performed fairly well in terms of fulfilling its mandates despite the fact that the financial resources were inadequate. This has been possible due to close collaboration with diversity of stakeholders. A situational analysis, staff and stakeholders experience informed the review process.

While the Ministry responsible for environment has huge comparative advantage due to its unique coordination role and mandate, it has to overcome a number of challenges to effectively improve its resources. These include: ineffective structure and coordination mechanism; capacity to articulate and effectively carryout resource mobilization strategies and targets; non-existence of comprehensive resource mobilization initiative; and predictability of funding. Mobilizing resources requires in most cases a robust Resource Mobilization Strategy (RMS). In addition, government need to engage private sector to finance and invest in environmental protection and conservation. Furthermore, civil society organizations and development partners such as multilateral or bilateral funding are of paramount importance in supporting efforts towards environmental management.

Attention has also to be given in improving the existing systems on implementation, delivery, monitoring and evaluation of programmes in order to attract more financing.

1.2.11 Inadequate Gender consideration in environmental management

Gender is an important aspect in environmental management. Different social groups (men, women, children and people with disabilities) play an important role in environmental management issues. However, these groups are impacted differently by environmental challenges due to different roles and responsibilities that connect them intimately to available natural resources.

Women and other vulnerable groups are more likely to suffer first from the adverse effects of environmental pollution, degradation of natural resources and climate change. Nonetheless, there are challenges regarding gender equality in both access to and control over natural resources, access to decision-making, representation in environmental and natural resources management and policy-making processes. This has led to vulnerability of these groups over environmental degradation.

Existing gender inequalities undermine the success of national and global environmental conservation strategies and programmes as well as the achievement of the national and global policies to eradicate poverty.

Recognizing the importance of gender equality as a vital component in environmental management and sustainable development, the Government has put in place policies and legislation, strategies and guideline that support gender and natural resources management. These include: NEP (1997)

and National Women and Gender Development Policy (2000). These policy instruments aimed at ensuring gender perspective are mainstreamed into all policies, programmes and strategies.

Implementation of those initiatives resulted in some achievements such as mainstreaming gender issues in environmental and natural resources management and improved women and youth participation and leadership in environment and natural resource management.

Despite the observed achievements in integrating gender issues in environment and natural resources management, gender inequality in both access to and control over natural resources; access to decision making and representation for environmental and natural resources management process still exist. Existing gender inequalities undermine the success of national conservation strategies as well as the achievement of the sustainable development. Furthermore, NEP (1997) confined itself only on the role of women in environment related activities and leaving aside other social groups (men, elderly, children and people with disabilities) that constitute gender in its holistically.

In order to strengthen gender mainstreaming efforts in environment and natural resources management there is need to integrate gender aspects in environmental management by considering all social groups and raising awareness on the roles of gender in environmental management.

CHAPTER TWO

POLICY JUSTIFICATION, VISION, MISSION AND OBJECTIVES

2.1 Policy Justification

Management of environment and its natural resources in the way that enhance the potential for growth and opportunity for sustainable development is of paramount importance.

National Environment Policy (NEP) 1997 served considerably well in providing an enabling framework for environment management in the country. The Policy focused on addressing six major problems that needed urgent attention namely: land degradation; lack of accessible, good quality water for both urban and rural inhabitants; environmental pollutions; loss of wildlife habitats and biodiversity; deterioration of aquatic systems and deforestation.

Despite the efforts undertaken and recognized achievements in implementing the Policy, concerted efforts are still needed to enhance environmental sustainability. During the implementation of NEP 1997 more challenges and opportunities emerged demanding for a review of the Policy. These challenges include:

- i) Inadequate guidance on how climate change can be addressed at national, region and local levels.;
- ii) Inadequate policy guidance on addressing environmental pollution arising from e-waste, oil and gas operations as well as sound management

of chemicals throughout their life cycle;

- iii) Lack of comprehensive policy guidance to address safe transfer, handling and use of modern biotechnology as well as management of proliferation of IS;
- iv) Inclusion of issues which fall outside the mandate of environment sector such as access to water and instituting appropriate user charges that reflect the full value of water resources which are issues to be addressed under the water policy;
- v) Lack of policy guidance and emphasis on tapping various investment opportunities arising from environmental management that can attract private sector and financial institutions; and
- vi) Emerging of new National, Regional and International policy developments that have relevance to environment which need to be harmonized with national environment policy. These initiatives include: Tanzania Development Vision 2025; African Union Agenda 2063 on the Africa we Want; the Long-Term Perspective Plan 2015/16 to 2025/26; Treaty for the Establishment of East African Community in 1999 and Agenda 2030 on Sustainable Development Goals.

2.2 Vision, Mission and Objectives

2.2.1 Vision

Tanzania with a sustainable, safe, clean and healthy environment.

2.2.2 Mission

To provide policy guidance and oversight on environmental management for sustainable socio-economic development in Tanzania.

2.2.3 Objectives

a) Overall Objective

To provide a national framework for guiding harmonized and coordinated environmental management for the improvement of the welfare of present and future generations.

b) Specific Objectives

The specific objectives are:

- i) To strengthen coordination of environmental management in sectors at all levels;
- ii) To enhance environmentally sound management of land resource for socio-economic development;
- iii) To promote environmental management of water sources;
- iv) To strengthen conservation of wildlife habitats and biodiversity;
- v) To enhance conservation of forest ecosystems for sustainable provision of environmental goods and services;
- vi) To manage pollution for safe and healthy environment;
- vii) To strengthen the national capacity for addressing climate change impacts;
- viii) To enhance conservation of aquatic ecosystem for sustained ecological services and socio-economic wellbeing;
- ix) To ensure safety at all levels of application of

- modern biotechnology;
- x) To promote gender consideration in environmental management;
 - xi) To promote good governance in environmental management at all levels; and
 - xii) To ensure predictable, accessible, adequate and sustainable financial resources for environmental management.

CHAPTER THREE

POLICY ISSUES, OBJECTIVES AND STATEMENTS

This Policy is an overarching national framework for environmental management in the country. It recognizes the role of sectoral policies in pursuit of effective environmental conservation and sustainable socio-economic development. In view of that, the envisioned achievements of this Policy depend on mainstreaming and implementation of relevant environmental measures in the respective sectoral policies. In this regard, this chapter highlights the policy issues, objectives and statements thereof in respect of the identified environmental challenges.

3.1 Land Degradation

Land is one of the most prized natural assets in the country supporting livelihoods of millions of Tanzanians. The importance of land in the development is underlined by the fact that most of the population derives their livelihoods and incomes from land resources. This prized resource is under increasing pressure resulting in different forms land degradation in many parts of the country which include loss of vegetation cover, loss of biodiversity, soil erosion, soil pollution and deforestation.

This situation necessitates deployment of more rigorous interventions that will effectively combat the rate of land degradation in the country. These include strengthening security in land tenure systems to make the ownership of land more secure and permanent; promoting comprehensive approaches aimed at development and promotion of

alternative sources of energy which are readily accessible and affordable; institute measures to ensure adequate funding for tackling land degradation; promoting integrated environmental awareness approaches on land degradation; enhancing land management by promoting integration of environmental issues in land use plans; strengthening enforcement and compliance to various pieces of legislation addressing land degradation; strengthening public awareness, participation and education regarding land restoration; and promoting economic incentives to encourage investments in restoration of degraded lands.

Objective

To enhance environmentally sound management of land resource for socio-economic development.

Policy Statements

The Government shall:

- i) Promote integration of environmental issues in the land use planning and management across sectors;*
- ii) Promote security in land tenure systems;*
- iii) Enhance involvement and empowerment of communities and other stakeholders in land utilization and management; and*
- iv) Promote restoration of degraded lands.*

3.2 Deterioration of Water Sources

Water sources are fundamental for sustaining human life, animals and the environment. As such, sustainable management of water sources is of paramount importance in order to guarantee its services and existence of the

ecosystem. Despite its importance, the trends show that deterioration of the water sources in the country is on the increase.

Measures to be taken towards enhancing sustainable management of water sources. include: strengthening cross sectoral coordination regarding the management of water sources; strengthening enforcement to ensure compliance with relevant legislation; promoting public participation and awareness and enhance collaboration in the management of trans-boundary water sources.

Objective

To promote environmental management of water sources.

Policy Statements

The Government shall:

- i) Promote conservation of water sources;*
- ii) Strengthen cross sectoral coordination in the sustainable management of water sources;*
- iii) Promote public participation and awareness in the management of water sources; and*
- iv) Enhance collaboration in the management of trans-boundary water sources.*

3.3 Loss of Wildlife Habitats and Biodiversity

Tanzania is one of the mega rich biodiversity hotspots in the world with about 14,000 known important plant and animal species. It is among the top 12 countries with high biodiversity and among 15 countries with the highest number of endemic species. The country hosts 6 out of the 25 globally known

biodiversity hotspots located in various terrestrial and marine ecosystems. The importance of these wildlife resources lies in their biological value in terms of value of the species and habitat found therein, their economic value and the potential to contribute to sustainable development of the country.

Wildlife habitats and biodiversity in Tanzania have continuously been threatened by unsustainable human activities, poverty, population growth, ineffective land planning, proliferation of Invasive Species (IS), illegal global trade in plant and animal species, poaching of wildlife, overexploitation of flora and fauna resources and impacts of climate change.

The Government shall institute robust measures that will strengthen sustainable regimes for biodiversity protection, conservation and utilization; enhance regional and international cooperation in building capacity to address IS; and enhance the PPP arrangements in order to ensure sustainable management of wildlife habitats and biodiversity.

Objective

To strengthen conservation of wildlife habitats and biodiversity.

Policy Statements

The Government shall:

- i) Promote ecosystem-based approaches to conservation of wildlife habitats and biological diversity;*
- ii) Enhance capacity building for management of wildlife habitats and biodiversity;*
- iii) Enhance regional and international cooperation in addressing loss of wildlife habitats and biodiversity;*

- iv) Promote sustainable access and equitable benefit sharing of genetic resources;*
- v) Promote engagement of private sector in conservation of wildlife habitat and biological diversity;*
- vi) Promote trans-boundary ecosystems conservation initiatives; and*
- vii) Promote preventive and management measures against Invasive Species.*

3.4 Deterioration of Aquatic Ecosystems

Aquatic ecosystems consist of two main types of ecosystems namely, marine ecosystems and freshwater ecosystems. Marine ecosystem exists in waters that have a high salt content including marine ecological areas such as coral reefs and mangrove ecosystems. Freshwater aquatic ecosystems include lakes, rivers and wetlands and are characterized by a lower salt content than that which occurs in marine ecosystems.

Marine ecosystems experience unprecedented impacts due to destructive fishing practices, mining of live and dead corals, unsustainable mangrove cutting and pollution. In addition reduced inflows, decreased flow and changes in seasonal flow regimes threatens the freshwater ecosystems including the survival of major lakes, rivers and wetland. The situation is aggravated by upstream water abstraction and encroachment in water catchments.

This calls for strengthening cross sectoral coordination and collaboration in the management of aquatic system and trans-boundary coordination in the management of shared aquatic system. Additionally, sustainable management, utilization of aquatic resources and collaboration between

Government and private sector need to be enhanced to ensure ownership, commitment and responsibility of various actors in the conservation of aquatic systems.

Policy Objective

To enhance conservation of aquatic ecosystem for sustained ecological services and socio-economic wellbeing.

Policy Statements

The Government shall:

- i) Strengthen cross sectoral coordination and collaboration in the management of marine, freshwater bodies and wetlands;*
- ii) Collaborate with private sector in the management of aquatic resources; and*
- iii) Strengthen trans-boundary coordination in the management of shared aquatic ecosystems.*

3.5 Deforestation

Forest provides not only the wood we use for paper and furniture, but also regulate water cycle, prevent soil erosion, protect watersheds, provide a habitat for wildlife and forest communities, sustain biodiversity, supply food and shelter, provide oxygen and mitigate climate change. Tanzania Mainland has 48.1 million hectares (ha) of forests and woodlands, representing about 55 percent of the total land area.

Different forest ecosystems are found in Tanzania including lowland rainforests in the north-west, lowland dry coastal forests and mangroves on the coast, montane forests scattered across the higher altitude areas of the country,

extensive areas of Miombo woodlands in the south and Acacia savannah woodlands in the north. Forest reserves form part of 33 percent of the country's land which has been designated as protected area. Natural forests cover about 47.4 million ha (98.5%) while plantations cover only 600,000ha (1.5%). Richness of the forest resources, forest ecosystems are facing a huge threat due to deforestation.

The Government shall promote affordable, accessible and reliable alternative energy to charcoal and firewood so as to reduce wood-biomass energy dependency; to enhance integrated approaches in addressing drivers of deforestation and promote collaboration between Government and private sector in forest management.

Objective

To enhance conservation of forest ecosystems for sustainable provision of environmental goods and services.

Policy Statements

The Government shall:

- i) Promote development of alternative sources of energy which are readily accessible and affordable to public;*
- ii) Promote integrated practices in addressing deforestation;*
- iii) Encourage private sector to invest in forest management; and*
- iv) Enhance collaboration with Private Sector in forest management.*

3.6 Environmental Pollution

Environmental pollution is a widespread and growing challenge in the country and has significant deleterious effects on the quality of water, air, and land posing threat to environment and human health. In addition, noise is another rampant environmental challenge in the country. Major sources of environmental pollution emanate from a number of points and diffuse sources including: industrial, municipal, mining, agricultural, transport, recreational and health sector.

The situation has been aggravated by inadequate municipal waste management; inadequate capacity to enforce legislation related to control of noise pollution; inadequate capacity to manage electric and electronic waste (e-waste); improper management of chemicals throughout their life-cycle; inadequate capacity to manage wastes emanating from oil and gas operations and low public awareness and participation in pollution control.

To effectively address environmental pollution challenge, there is a need to: promote integrated waste management system including e-waste management, sound management of chemicals throughout their lifecycle; strengthen capacity to enforce legislation related to control of noise pollution; enhance capacity in management of waste originated from oil and gas operations and enhancing public awareness and participation in pollution control. Further to these, emphasis will be on enhancing collaboration between Government and private sector in investment in waste management; enhancing public awareness and participation in pollution management; promoting cleaner production technologies in social and productive sectors; strengthening of institutions in terms of technical, human resource and financial capacities

to effectively manage municipal waste including e- waste and chemical waste;enhancing regional and international cooperation on pollution control and enforcement of related legislations.

Objective

To manage pollution for safe and a healthy environment.

Policy Statements

The Government shall:

- i) Promote green technologies and integrated management of municipal waste, chemicals waste; e-waste and waste emanated from oil and gas operations;*
- ii) Strengthen national capacity in waste management, urban planning and control of noise pollution;*
- iii) Enhance collaboration with Private Sector to address environmental pollution;*
- iv) Enhance public awareness and participation in pollution control; and*
- v) Enhance regional and international cooperation on pollution control.*

3.7 Climate Change

The impacts of climate change are evident in almost all sectors in Tanzania. Extreme climate and weather driven events such as droughts, strong winds, prolonged dry periods, erratic rainfall, changed rainfall seasons, flooding and duration has accelerated water scarcity, food insecurity, desertification and ecosystem shifts in almost all regions of the country. Sea level rise due to climate change has resulted

in submergence of some Islands and intrusion of sea water into fresh water wells along the Coast. Climate change impacts have enormous costs both socially and economically and if not addressed may undermine the country's target of transiting to middle income country by 2025.

Despite Government initiatives to address climate change and the progress made, adverse impacts of climate change are still felt in the country due to: absence of comprehensive policy guidance to address climate change, low national adaptive capacity to the impacts of climate change; lack of national climate change financing mechanism; low public awareness on the climate change impacts; inadequate institution coordination in management of climate change, inadequate capacities to explore opportunities resulting from climate change and low involvement of private sector in investing in adaptations interventions.

In order to address the challenges, there is need to: provide a specific policy guidance to address climate change; enhance national climate change resilience; promote public awareness on climate change adaptation and mitigation; encourage development and transfer of appropriate and affordable technologies; promote collaboration between Government and Private sector on climate change interventions and promote regional and international cooperation on addressing climate change.

Objective

To strengthen the national capacity for addressing climate change impacts.

Policy Statements

The Government shall:

- i) Strengthen institutional and human resources capacity on Climate Change Issues;*
- ii) Promote public awareness on Climate Change impacts;*
- iii) Promote collaboration with Private Sector on Climate Change initiatives; and*
- iv) Promote regional and international cooperation to address Climate Change.*
- v) Promote development and transfer of green affordable technologies*

3.8 Safe Use of Modern Biotechnology

Modern biotechnology is one of the important tools for development of various sectors such as; agriculture, industrial, medicine and environment protection. Application of such technology may pose adverse effects on biodiversity therein ecosystem services and human health if not properly managed. Such effects include increased weediness, invasiveness and herbicide tolerance in plants; massive mortality of non-target species and development of pesticide resistance among pests.

The Policy shall focus on providing guidance on: strengthening national capacity in handling and safe use of modern biotechnology and associated products; creating a framework for involving Development Partners in the management of modern biotechnology; fostering regional and international cooperation, and enhancing public awareness.

Objective

To ensure safety at all levels of application of modern

biotechnology.

Policy Statement

The Government shall:

- i) Strengthen national capacity in handling and safe use of modern biotechnology and product thereof;*
- ii) Enhance public awareness on handling and safe use of modern biotechnology and product thereof; and*
- iii) Enhance regional and international cooperation on bio-safety issues.*

Cross Cutting Issues

3.9 Good Governance

Good governance is one of the central components in environmental management in the country and it has been mainstreamed in various policies, strategies, plans and programmes.

The Government and stakeholders have important roles to play in order to ensure good governance aspects are integrated in environmental conservations initiatives. In addition, effective enforcement of environmental legislations is essential for transparency and accountability in the environmental management and increasing participation of local communities will provide incentives for these communities to fully engagement in environmental conservation.

Objective

To promote good governance in environmental

management at all levels.

Policy Statements:

The Government shall:

- i) Strengthen accountability, transparency, participation and rule of law in environmental management; and*
- ii) Promote awareness on good governance in environmental management.*

3.10 Resource Mobilization

The implementation of the National Environment Policy requires adequate **financial** resources. While government budget is the main source of funding for protection and conservation of the environment in the country, the current allocation is inadequate.

In order to effectively intensify resource mobilization efforts, the government shall strengthen its planning, budgeting and financial management systems so as to optimally utilize the resources for environmental management. In addition, the efforts will include creating a clear mechanism to attract private sector and other actors to invest and support environmental conservation and protection; leveraging and harnessing additional resources from development partners such as multilateral and bilateral.

Objective

To enhance predictable, accessible, adequate and sustainable financial resources for environmental management.

Policy Statement

The Government shall:

- i) In collaboration with stakeholders facilitate availability of adequate resources for environment protection and management; and*
- ii) Create an enabling environment that attracts Private Sector to finance and invest in environmental management interventions.*

3.11 Gender

Gender is an important aspect in environmental management. Different social groups (men, women, children and people with disabilities) play an important role in environmental management issues. However, these groups are impacted differently by environmental challenges due to different roles and responsibilities that connect them intimately to available natural resources.

In order to strengthen gender mainstreaming efforts in environment and natural resources management, there is need to integrate gender aspects in environmental management by considering all social groups and raising awareness on the roles of gender in environmental management.

Objective

To promote gender consideration in environmental management.

Policy Statements

The Government shall:

- i) Strengthen gender mainstreaming in environmental management; and*
- ii) Promote public awareness on the role of gender in environmental conservation.*

CHAPTER FOUR

LEGAL FRAMEWORK

The implementation of this Policy will be effected by the existing legal and institutional framework on environmental management and conservation in the country. As it was with NEP (1997) the principal legislation for implementing this Policy shall continue to be the Environment Management Act No.4 of 2004 (EMA as amended). The Act is a framework law that is supported by sector legislation and implemented by subsidiary legislations.

The main goal of EMA is to provide guidance for effective and sustainable management of the environment by providing guiding principles for environment management. The Act facilitates a mechanism for coordination of environmental functions across sector ministries by mandating them to undertake specific environmental functions. The EMA takes precedence over other sector laws on matters of environment management where inconsistency arises. The EMA, its regulations and respective sectoral legislation will be reviewed so that where necessary, be amended, or where appropriate, new legislation will be enacted to put in place a comprehensive legal framework that is aligned with this Policy. An effective legal framework is necessary to support the management of the environment for sustainable-development.

CHAPTER FIVE

INSTITUTIONAL FRAMEWORK, MONITORING AND EVALUATION

5.1 Institutional Framework

A wide spectrum of actors shall be responsible for implementation of the NEP 2020. Being cross cutting in nature, the Policy will be implemented through sectoral Ministries, by mainstreaming policy statements and subsequent strategies in their respective sectoral policies and strategies. In addition, where appropriate Legislation, Regulations and Guidelines will be reviewed and developed for effective implementation of NEP 2020. Furthermore, cooperation among stakeholders at national, regional as well as international levels will be of paramount importance. The key players include the Ministry responsible for environment, Sector Ministries, Regional Secretariats, Local Government Authorities, National Environment Management Council (NEMC) Environmental Appeals Tribunal and the National Environmental Advisory Committee (NEAC). Other players include Development Partners, Academic and Research Institutions, Private Sector, Civil Society Organizations, Media, Local Communities and the Public at large.

5.2 Roles and Responsibilities of Key Players

i) Ministry Responsible for Environment

The Ministry responsible for Environment shall exercise overall coordination and oversight mandate on policy planning, implementation, monitoring and evaluation and of environmental matters. It shall provide overall policy guidance

and advice on the development of strategic environmental vision including formulation, analysis and appraisal of broad environmental policy, as well as formulation and review of broad environmental goals. The Ministry shall regularly prepare and publish state of the environment reports and National environmental action plans.

ii) Sector Ministries

Sector Ministries shall be responsible for ensuring compliance of their policies in conformity with the requirements of this policy by incorporating environmental management issues in the respective sector policies, strategies, plans, programmes and projects.

iii) Ministry Responsible for Finance

The Ministry Responsible for Finance in collaboration with stakeholders shall facilitate availability of financial resources to ensure adequate funding for environmental management.

iv) Government Department and Agencies

Government department and Agencies shall be responsible in implementing NEP 2020 in their area of jurisdiction by mainstreaming environmental issues in their development strategies, programmes and plans.

v) Regional Secretariats

Regional Secretariats shall be responsible for coordination of all matters related to environmental management in their respective regions. The Ministry Responsible for Local Government and Regional Secretariat shall provide a link on environmental matter between Regional Secretariat and the

Ministry Responsible for Environment.

vi) Local Government Authorities

The Local Government Authorities shall be responsible for implementing all environmental issues in their respective areas of jurisdiction; mainstreaming environmental issues in their development strategies, plans, programmes and projects; promoting protection and conservation of the environment; and raising awareness of environmental management issues in their geographical jurisdiction.

vii) The National Environment Management Council (NEMC)

NEMC shall be responsible for enforcement and ensuring compliance with the environmental management legislations, review and monitoring of Environmental and Social Impact Assessment (EIAS) enhance environmental communication, education, public awareness and research on sound environmental management.

viii) The National Environmental Advisory Committee (NEAC)

NEAC shall be responsible for advising the Minister and sector ministries on any matter relating to the protection and management of the environment.

ix) Environmental Appeals Tribunal

The Tribunal shall be responsible for resolving environmental related disputes in upholding environmental justice. The tribunal is an appellate authority in respect of decisions of the minister on matter stipulated in environmental management

Act.

x) Private Sector

Private sector will participate in supporting environmental management initiatives; promoting and investing in environmentally sound technologies.

xi) Civil Society Organizations

Civil Society Organizations have ability to mobilize communities and resources which are vital in supplementing government initiatives in conservation and management of the environment. Their roles will include promotion of environmental communication, education and public awareness, participation and empowerment; environmental information sharing and networking; advocacy for environmental management; and develop and support alternative livelihood activities aiming at conserving the environment.

xii) Academic and Research Institutions

Academic and research institutions will be responsible for undertaking research on issues related to environment, dissemination of research findings and developing human capital.

xiii) Local Communities

Local communities will participate in environmental conservation and management in their respective geographical areas; this will ensure their broad commitment in environmental initiatives.

xiv) Media

The role of the media will be to provide balanced, timely and accurate environmental information to the public. The Ministry Responsible for Environment in collaboration with other actors shall be responsible in preparation of public awareness programmes on environment conservations and management.

xv) Development Partners

The role of Development Partners in the course of implementing this policy will be to complement government initiatives with regard to environmental management through provision of technical and financial support.

xvi) Regional and International Bodies

The role of regional and international bodies is to complement the Government efforts through provision of technical and technological assistance, finance and sharing of information regarding environmental management.

5.3 Monitoring and Evaluation

Monitoring and Evaluation (M&E) will be done at all levels through different approaches outlining milestones and key performance indicators under each Policy objective. The implementation of this policy and its achievement will be monitored and evaluated throughout the implementation period of the policy. The overall responsibility of monitoring and evaluation is vested to the ministry responsible for Environment. The Ministry will play key role in coordination, implementation, monitoring and evaluation of this policy.

A monitoring and evaluation system will be developed as part of Policy Implementation Strategy. This will involve collection, compilation, synthesis, analysis and evaluation of information related to the implementation of the Policy. The information will be processed so as to compare the various baselines with actual implementation and findings will be disseminated to stakeholders. The effective monitoring will need a coordinated effort and close cooperation from all key players.

5.4 Conclusion

The overall objective of NEP, (1997) was to provide for the implementation of a range of strategic interventions to address the identified priority areas of environmental concern by involving Government sectors and other stakeholders. The NEP 1997 aimed at addressing six (6) main environmental challenges namely: land degradation; lack of accessible good quality water for both rural and urban inhabitants; loss of Wildlife Habitats and Biodiversity; deterioration of aquatic systems; deforestation and environmental pollution.

In the course of implementing the Policy, the Government realized some notable achievements with regard to the status of environment in the country. This has been possible through implementation of diverse interventions by the Government and other stakeholders. Despite these achievements, the state of the environment has generally not improved much to the desired goal. This has been due to a combination of factors including: lack of clear policy guidance on: how climate change can be addressed at national, region and local levels; proliferation of Invasive Species (IS) and ensuring handling and safe use of modern biotechnology; and inadequate policy guidance for addressing environmental pollution arising from e-waste, oil and gas operations as well as sound

management of chemicals throughout their life cycle.

Furthermore, the NEP 1997 provided guidance on issues which falls outside mandate of environment sector such as access to water and instituting appropriate user charges that reflect the full value of water resources which needed to be addressed under the Water Policy. The NEP (1997) did not adequately provide guidance on tapping various opportunities arising from investing in environmental management that can attract private sector and other financial institutions. In addition, the Policy did not provide clear guidance on issues related to resource mobilization and financing leading to shortfalls in its implementation.

National, regional and international developments initiatives after the adoption of NEP (1997) including Tanzania Development Vision 2025; Long Term Perspective Plan 2011/12 to 2025/26; Agenda 2030 on Sustainable Development Goals; and Multilateral Environmental Agreements (MEAs) have not been incorporated into the policy and therefore leading to policy gap, which results into ineffective framework and strategy to address environmental challenges in the country.

It is against this backdrop, and cognizant of the policy gaps in the implementation of NEP 1997, the Government realized the need for reviewing the Policy. The National Environment Policy 2021 provides a broad range of measures and actions responding to key environmental issues and challenges. It provides the framework for an integrated approach to planning and sustainable management of environment in the country. It also recommends strong institutional and governance measures to support the achievement of the desired objectives and goals.