



Republic of Kenya



nema
mazingira yetu | juhai wetu | wajibu wetu

UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION

National Action Programme for Combating Desertification in Kenya

2015 - 2025





Republic of Kenya



UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION

National Action Programme for Combating Desertification in Kenya

2015 - 2025



A publication of the
National Environmental Management Authority (NEMA) Kenya
© National Environmental Management Authority, 2015
Published 2015

ISBN:978-9966-1577-3-7

Extract may be published if the source is duly acknowledged

Designed and Printed By:



Paperline Office Supplies Ltd.

Printing, Stationery, Office Equipment Computer Supplies & Promotional Materials
P.O. Box 56418-00200, Nairobi Tel: +254 20 2211 755, 222,828
Mobile: +254 722 857 889 Email: paperline10@gmail.com

TABLE OF CONTENTS

LIST OF FIGURES	V
FOREWORD	VII
PREFACE	VIII
ACKNOWLEDGEMENT	X
ACRONYMS	XIII
PART I: BACKGROUND	1
1.1 INTRODUCTION	1
1.2 REVIEW OF KENYA'S FIRST NAP.....	2
1.3 PROFILE OF KENYA	3
1.3.1 <i>Physiographic</i>	3
1.3.2 <i>Topography</i>	3
1.3.3 <i>Soils</i>	3
1.3.4 <i>Climate</i>	3
1.3.5 <i>SocioEconomic Dimension</i>	7
1.3.6 <i>Environment and Natural Resources</i>	8
1.4 DESERTIFICATION IN KENYA.....	8
1.4.1 <i>Status</i>	8
1.4.2 <i>Drought</i>	12
1.5 COORDINATION COOPERATION AND PARTNERSHIP	13
1.5.1 <i>Economic Activities in the ASALs in Kenya</i>	13
PART 2 SITUATION ANALYSIS	
2.1 OVERVIEW OF NATIONAL EFFORTS TO COMBAT DESERTIFICATION.....	23
2.1.1 <i>Introduction</i>	23
2.2 ADVOCACY, AWARENESS -RAISING AND EDUCATION.....	23
2.2.1 <i>Situation Analysis</i>	23
2.2.2 <i>Key Issues</i>	23
2.3 POLICY FRAMEWORK	24
2.3.1 <i>Introduction</i>	24
2.3.2 <i>Policies</i>	24
2.3.3 <i>Legal instruments</i>	25
2.3.4 <i>Institutional framework</i>	25
2.3.5 <i>Partnerships</i>	26
2.4 SCIENCE, TECHNOLOGY AND KNOWLEDGE.....	27
2.4.1 <i>Situation Analysis</i>	27
2.4.2 <i>Key Issues</i>	28
2.5 CAPACITY BUILDING.....	28
2.5.1 <i>Situation analysis</i>	28
2.5.2 <i>Key Issues</i>	28
2.6 FINANCING AND TECHNOLOGY TRANSFER	29
2.6.1 <i>Situation Analysis</i>	29
2.6.2 <i>Key Issues</i>	29

PART III: THE STRATEGY	30
3.1 INTRODUCTION.....	30
3.2 THE NATIONAL ACTION PROGRAMME	30
3.3 STRATEGIC INTERVENTIONS	32
3.4 MONITORING AND EVALUATION	34
3.4.1 <i>Introduction</i>	34
3.4.2 <i>The strategic Objectives impact indicators</i>	35
3.4.3 <i>Performance Indicators</i>	35
PART IV: IMPLEMENTATION STRATEGY AND COORDINATION ARRANGEMENT	39
4.1 STRATEGIC APPROACH	39
4.2 ROLE OF VARIOUS ACTORS	39
4.3 PARTNERSHIP BUILDING.....	40
ANNEXES.....	51
ANNEX 1: MONITORING AND EVALUATION TASK FORCE AND TERMS OF REFERENCE.....	51
ANNEX 2: CONTRIBUTORS TO THE NAP PROCESS (AT ALL LEVELS).....	54
REFERENCES.....	58
LIST OF FIGURES	
Figure 1: Annual rainfall distribution in Kenya.....	4
Figure 2: Aridity index and climatic zones	5
Figure 3: Ecological Zones of Kenya	9
Figure 4: ASAL Counties of Kenya.....	11
Figure 5: Aloe Vera Farming in Kwale County.....	17
Figure 6: Bee Keeping in Suba Homa-Bay	18
Figure 7: The T21 Sphere and Sectors	21
LIST OF TABLES	
Table 1: Percent of area of various counties classified as ASAL.....	10
Table 2: Drought and extreme rainfall events in different parts of Kenya, 1970 - 2008.....	12
.....	12
Table 3: NAP Implementation Matrix.....	14


FOREWORD

The United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil in 1992, recommended to the UN General Assembly to establish the United Nations Convention to Combat Desertification (UNCCD). The convention calls upon parties to develop and implement National Action Programme (NAP) for the reduction and prevention of Desertification, Land Degradation and Drought (DLDD). Kenya signed and ratified the Convention in 1994 and 1997 respectively. The country developed its first National Action Programme in 2002 which has now been realigned to address decisions of Conference of Parties (COP 8 and COP 9). Among the decisions was to align the National Action Programmes to the UNCCD Ten (10) year Strategy and Framework (2008-2018).

The UNCCD Strategy and framework articulates the mechanisms to facilitate parties' coordination of the implementation of the convention; a minimum set of indicators to assess and monitor DLDD as well as a new system for assessing the performance of the institutions and bodies in the implementation of The Strategy. These efforts to combat DLDD are more realistic and comparable at local, national, sub-regional, regional and global levels. This NAP (2015-2025) has interrogated the Desertification, Land Degradation and Drought problems through situation analysis problem using Strengths, Weaknesses, Opportunities and Threats (SWOT). National Policies blue prints such as Vision 2030 and its prioritized actions; existing Legislations and the Constitution of Kenya 2010 were analyzed to realign the NAP to the UNCCD Strategy and Framework.

The NAP focuses on the areas of Policy and institution framework, advocacy, awareness raising and Education, Capacity building, Science and Technology, financial Mechanism and gender. It has identified key strategic objectives meant to drive the Nation towards achieving a secure environment and sustainable livelihoods for people living in Arid and Semi-arid Areas. It provides a detailed Performance Measurement Framework or a Monitoring and Evaluation framework replete with performance indicators to measure the performance and efficiency of its implementation. It also outlines outcomes, including a measure of whether desertification is increasing or decreasing within the country. Overt Policy interventions and management approaches are needed to prevent and reverse DLDD.

These interventions are to be implemented at local level with the active engagement of stakeholders and local communities. Improved information generation and its accessibility will help create an enabling environment for its implementation. I look forward to all public and private institutions, civil society and the general public to appreciate the need for implementing this plan in order to achieve sustainable development in the country.



Prof. Judi Wakhungu,
Cabinet Secretary, Ministry for Environment & Natural Resources

PREFACE

Arid and Semi-Arid Lands (ASAL) in Kenya cover over 80% of land area with a population of 10 million. The national poverty level is 54% while in the ASAL areas the stands at 80%. Over 50 % of the livestock and 70% of the wildlife is found in the dry lands indicating the importance of the drylands in the national economy. The existing ecological conditions in drylands are harsh and fragile. These conditions are exacerbated by frequent droughts and the influx of people from the high potential areas into the drylands. Overgrazing and subdivision of land into uneconomic land parcel sizes have further worsened their productivity potential. Under these circumstances, drylands are getting more and more vulnerable to desertification.

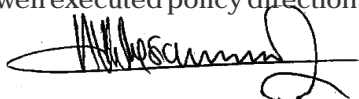
Desertification is a global issue and as a result the world community negotiated the United Nations Convention to Combat Desertification urging all parties to the convention to undertake measures to mitigate the impacts of drought and reduce desertification. The Convention serves as a mechanism for concerted efforts and synergies among world communities to address desertification effectively.

The first NAP was prepared in 2002, and was included in the UNDP/ GOK Country Cooperation Framework under the environment and natural resources programme. It supported local level community initiatives in Turkana, Samburu Marsabit and Garissa districts among other ASAL districts. Many local communities benefited from this support. ASAL programmes have continued to receive financial support from the government as well as from bilateral and multilateral development partners. There are increasing opportunities provided by EMCA 1999 (e.g. NETFUND, RESTORATION FUNDS), Constituency development fund, local Authority transfer Funds, and Community Development Trust fund.

The preparation of the 2nd National Action Programme (NAP), 2015-2025 is an obligation by all Countries signatory to the United Nations Convention “*to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification particularly in Africa*”. This Kenya NAP was prepared in line with the UNCCD 10 year Strategic Plan agreed on during the Conference of Parties and other regional initiatives designed to implement the convection. The preparation was participatory with contributions from lead agencies (Government), civil society, and other stakeholders whose inputs greatly enriched the Plan.

In line with Vision 2030 and the devolved units of governance, the proposed interventions are aimed at reducing poverty, vulnerability, addressing gender concerns for people living in the ASALs areas to ensure a nation living in a clean, secure and sustainable environment. The success of the implementation of NAP lies on the preparation of viable projects within the framework of these NAP priority areas.

We all need to play our part in the conservation of the ASALs to enable these potentially important ecosystems to contribute to sustainable development of this beloved country Kenya. All the institutions, public and private partnerships, civil society and the general public are called upon to appreciate the need for implementing this plan and benefit from a well executed policy direction and strategies therein.



Dr Richard Lesiyampe, CBS

Principal Secretary, State Department of Environment

ACKNOWLEDGEMENT

I would like to recognize and appreciate the efforts of the various partners and contributors in the preparation of National Action Programme. NEMA played a coordinative role in bringing all players together through the National Steering Committee. We are thankful to the institutions, lead agencies and Civil Societies that gave invaluable contributions during working sessions. I would also like to acknowledge support given by the Government of Kenya through the NEMA board of management to facilitate the meetings, workshops and retreats which resulted into the production of the National Action Programme.

I also extend profound appreciation to our development partners especially the United Nations Development Programme (UNDP) and United Nations Environment Programme (UNEP) who have continuously supported the processes pertaining to the domestication of the UNCCD. It is our since hope that these institutions will continue to render the support besides other stakeholders in the implementation of the NAP.

The Department of Planning and Research Coordination formed the secretariat which was instrumental in compiling the information from the various contributors. The staff in this department are therefore, appreciated for their tireless effort in the preparation of this very important document. The head of the department Dr Kennedy Ondimu is hereby specifically acknowledged for guiding this process.

Last but not least, I would like to sincerely thank all persons who in one way or another played a role in the preparation of this NAP. I believe the document will go a long way in addressing Desertification, Land Degradation and Drought challenges faced by the people living in the Arid and Semi-arid Lands (ASALs) of Kenya.



Prof. Geoffrey Wahungu
Director General- NEMA

EXECUTIVE SUMMARY

During the Earth summit in 1992, the United Nations Conference on Environment and Development (UNCED) recommended to the UN General assembly to negotiate for the Convention to Combat Desertification (CCD). Kenya participated fully in the CCD's negotiations that began in early 1993. As part of her commitment to address the problems of desertification under the CCD, the government signed the convention in October 1994 and ratified it in June 1997. The convention calls for the development of national action programmes for reduction and prevention of land degradation. Kenya participated in the first conference of parties (COP) held in ROME in 1997. By the beginning of 1998, over 129 countries had ratified the convention.

The main objective of the UNCCD is *“to combat desertification and mitigate the effects of drought in countries experiencing serious drought and /or desertification particularly in Africa”*. To achieve this objective countries develop their National Action Plans (NAPs). Kenya like other countries that are party to the UNCCD has continued to prepare and implement National Action Programmes (NAPs). A NAP is an action plan supported by international co-operation arrangements and is aimed at reclaiming degraded areas, reducing further degradation, and conserving areas that are not degraded.

It is a coherent framework for activities in the field of conservation and sustainable utilization of biodiversity. It contributes to creating synergies among ongoing activities as well as the efficient use of resources. The utmost importance of long term national commitment to integrated national Land rehabilitation plans and programs and for the indispensable national, regional and International Corporation is recognized. The activities of the NAP are mainstreamed in other National development agendas. Within the framework of NAP several activities have been implemented that are geared towards combating desertification in Kenya.

It is many years since the first Kenya National Action Programme under the UNCCD was adopted and a number of changes have occurred locally and internationally. It is therefore on this basis that this NAP has been aligned to these changes. The main changes include the Kenya Vision 2030, the promulgation of the constitution and at the global scale the introduction and application of the Performance Review and Assessment of Implementation System (PRAIS). The document is divided into four parts.

Part I gives the background of the National Action Programme that includes the history of the action programming, the profile of the country and a brief on desertification situation in Kenya. On the status of desertification in the country, the section indicates that over 80% of the country total land is classified as ASAL and supports 26-30% of the total population, 50% of the livestock, a variety of wildlife that form the basis of tourism in the country. The part also captures information on best practices used in Kenya to address DLDD and livelihoods in ASALs. These are outlined as bee keeping, gum tree farming, moringa tree farming, *Aloe vera* farming and *jatropha* tree farming. Use of technology in forecasting impact of climate change has been actualized through development and application of T21 model system. This was developed through technical and financial support from UNEP to help integrate the analysis of the risks and impacts of climate change across the major sectors of the economy, society and environment.

Part II of the document lists the instruments and institutions that have been involved in the preparation of the NAP (2015-2025). The section covers the main thematic issues as advocacy, education, capacity building, science and technology and financial mechanisms. It narrates the main issues for each thematic issue that need to be addressed.

Part III is the strategy for the implementation of the National Action Programme. It describes the vision, mission, strategic objectives, interventions, and gives the monitoring and evaluation plan. This section also elaborates on the performance indicators and means of verification to be used in monitoring implementation of the NAP.

Part IV elaborates the implementation strategy and coordination/ institutional arrangements. This part brings out the details of approaches for the implementation of the NAP, the various actors and of extreme importance the implementation matrix. The matrix elaborates national strategic objectives, the strategic interventions, the performance indicators, means of verification, the coordinator and other actors and the resources required over the 10 years period of the NAP. The total financial resources estimated for the implementation of the NAP is about *44 Billion Kenya Shillings* over the 10 years period.

ACRONYMS

ASAL	Arid and Semi-Arid Lands
AWF	Africa Wildlife Foundation
CBOS	Community - Based Organizations
CCD	Convention to Combat Desertification
CONS-O	Consolidated Objective
COP	Conference of Parties
DLDD	Desertification Land Degradation and Drought
EIA	Environmental Impact Assessment
EMCA	Environmental Management and Coordination Act
GOK	Government of Kenya
ICIPE	International Centre for Insect Physiology and Ecology
ILRI	International Livestock Research Institute
ITCZ	Inter-Tropical Convergence Zone
IUCN	International Union for Conservation of Nature
M&E	Monitoring and Evaluation
MEAS	Multilateral Environmental Agreements
MOU	Memorandum of Understanding
NAP	National Action Programme
NEMA	National Environment Management Authority
NETFUND	National Environmental Trust Fund
NSC	National Steering Committee
PRAIS	Performance Review and Assessment of Implementation System
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNCHR	United Nations Commission on Human Rights
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
WWF	World Wildlife Foundation

PART I: BACKGROUND

1.1 INTRODUCTION

In 1992, the United Nations Conference on Environment and Development (UNCED) recommended to the UN General Assembly for the negotiation for the United Nations Convention to Combat Desertification (UNCCD) and the effects of drought, particularly in Africa. Negotiations began in early 1993. The Convention was concluded and opened for signing in June 1994 and entered into force on 26th December 1996. The Government of Kenya signed the convention in October 1994 and ratified it in June 1997.

The UNCCD defines desertification as land degradation in arid, semi-arid and dry sub-humid areas (also referred to as dry lands) resulting from various factors, including climatic variations and human activities. At the national level, the UNCCD calls for the implementation of activities aimed at prevention and/or reduction of land degradation, rehabilitation of partly degraded lands and reclamation of degraded lands through National Action Programmes (NAPs) to be developed by all parties. The NAPs were to be based on the objectives of the UNCCD, which was stated as *“to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification particularly in Africa”*.

This was to be achieved through effective action at all levels, supported by international co-operation arrangements, integrated approach which is consistent with Agenda 21, and the principles of sustainable development. The NAP priority goals were aimed at: reclaiming severely degraded areas, rehabilitating partly degraded areas, reducing further degradation of affected areas and conserving areas that are not yet degraded. These goals were aimed to be mainstreamed into the national objectives of sustainable development that focus on: poverty alleviation, enhancement of foods security and environmental conservation.

The specific objectives of NAP include the following:

- a) Develop mechanisms for effective implementation of activities identified under NAP process in a flexible and iterative process.
- b) Mainstream the identified NAP priority areas into major national development initiatives and frameworks.
- c) Facilitate active participation of all stakeholders, particularly the local communities in the NAP process.
- d) Establish a spirit of partnership among cooperating institutions.
- e) Strengthen coordination by putting in place relevant policy, legal and institutional frameworks.
- f) Ensure sufficient and sustainable financial resources and mechanisms.

1.2 KENYA'S FIRST NAP

Kenya's first NAP grouped priority concerns into three broad areas; enabling environment, sectoral, and cross-sectoral programme areas (GOK 2002). In view of the complexity of the factors influencing desertification in Kenya, stakeholders came up with recommendations that the NAP would:

- Need judicious planning and implementation.
- Identify factors causing desertification and implement practical measures to combat it and mitigate effects of drought.
- Use integrated measures encompassing institutional, legal, economic and technical actions.

It is over since the Kenya's first NAP was adopted in 2002 and there have been a number of changes in terms of development of policies and legal instruments geared towards management of ASAL programmes. Implementation strategies have also been instituted at global, regional and national levels. It is on this basis that there is a need to explore and incorporate strategies to implement Kenya's NAP to conform to the requirements as stipulated in the decisions of the Conference of the Parties (COP) of the UNCCD and other regional initiatives designed to implement the convention. This takes into recognition the 10 year strategy of the UNCCD and the Performance Review and Assessment of Implementation System (PRAIS) in the national reporting.

This report therefore presents a review of the main elements of the first NAP to combat desertification that was agreed upon by all the main stakeholders using a bottom-up approach throughout the country between July 1997 and August 1998. This is aimed to conform to the requirements of the COP decisions for the parties to align their NAPs to the strategy and the PRAIS.

1.3 PROFILE OF KENYA

1.3.1 Geographical Location

The Republic of Kenya is situated on the East African coast on the equator. It lies between 1.2667° S and 36.8000° E latitudes and longitudes respectively. It is bordered by Ethiopia and Sudan to the north, the Indian Ocean and Somalia to the east, the United Republic of Tanzania to the south, and Uganda and Lake Victoria to the west. The total area of the country is about 580,370 (km²).

1.3.2 Topography

The altitude varies from sea level to the peak of Mt. Kenya, situated north of the capital Nairobi, which is 5,199 meters (m) above sea level. An inland region of semi-arid, bush-covered plains constitutes most of the country's land area. In the northwest, high-lying scrublands straddle Lake Turkana (Lake Rudolf) and the Kulal Mountains. In the southwest lie the fertile grasslands and forests of the Kenya Highlands, one of the most successful agricultural production regions in Kenya. The Kenya Highlands is bisected by the Great Rift Valley, an irregular depression that cuts through western Kenya from north to south

1.3.3 Soils

The soil types in the country vary from place to place due to topography, the amount of rainfall and the parent material. The soils in western parts of the country are mainly acrisols, cambisols, and their mixtures, highly weathered and leached with accumulations of iron and aluminum oxides. The soils in central Kenya and the highlands are mainly the nitosols and andosols, which are young and of volcanic origin.

The soils in the arid and Semi-Arid Lands (ASAL) include the vertisols, gleysols, and phaeozems and are characterized with pockets of solidity and salinity, low fertility, and vulnerability to erosion. Coastal soils are coarse textured and low in organic matter and the common types are the arenosols, luvisols, and acrisols. Widespread soil salinity, which has adversely influenced irrigation development, is found in isolated pockets around the Lake Baringo basin in the Rift Valley and in the Taveta division in the coastal provinces (FAO, 2007).

1.3.4 Climate

Physiography of an area to a large extent influences rainfall potential and subsequently, water resources. For instance, the topographic heights determine the windward and leeward side with the former having more rainfall. For example, the flanks of the western and eastern sides of the Rift Valley have higher rainfall than the Rift Valley floor. "Relief" rainfall occurs on the windward side of high areas while 'convictional' rainfall is experienced in predominantly flat areas, especially near large water bodies like Lake Victoria. Further, the seasonal northward and southward movement of the Inter-Tropical Convergence Zone (ITCZ) has enormous influence on the climatic condition of the country. ITCZ produces two rainy seasons – March-May (long rains) and October-November (short rains).

The coastal belt is relatively wet with more rainfall in the south. The Nyika plateau is generally arid and semi-arid. The highlands receive moderate to very heavy rainfall. The mean annual rainfall ranges between 250 mm and 500 mm in dry lands. Although the rains are experienced in two distinct seasons, they are erratic in both temporal and spatial terms. The temperatures are relatively high and account for annual potential evaporation, which is often above 5000mm, According to the Intergovernmental Panel on Climate Change Third Assessment Report of 2001; climate will be associated with rise of mean temperatures by the year 2025. The IPCC 3rd report (2007) predict that average surface temperatures will increase by 1.4-5.8^o Celsius over the period 1990-2100 and sea level rise by 0.1-0.9 meters over the same period.

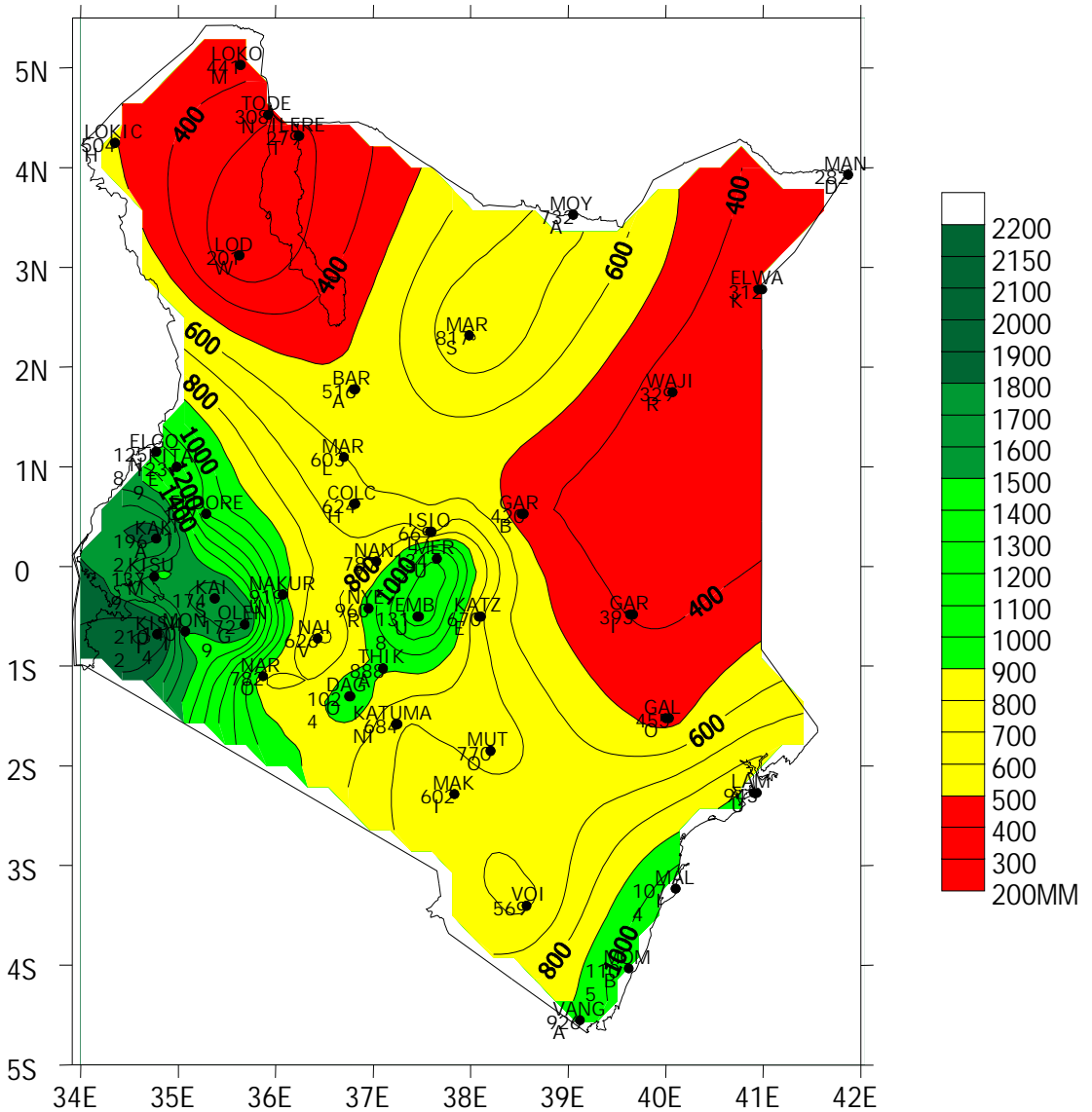


Figure 1: Annual rainfall distribution in Kenya

Source: Third National Report on the Implementation of the United Nations Convention to Combat Desertification (UNCCD), 2004-NEMA

The change is likely to increase the intensity and frequency of drought. It is anticipated that the projected climate change by the year 2025 will exacerbate the losses already experienced due to drought.

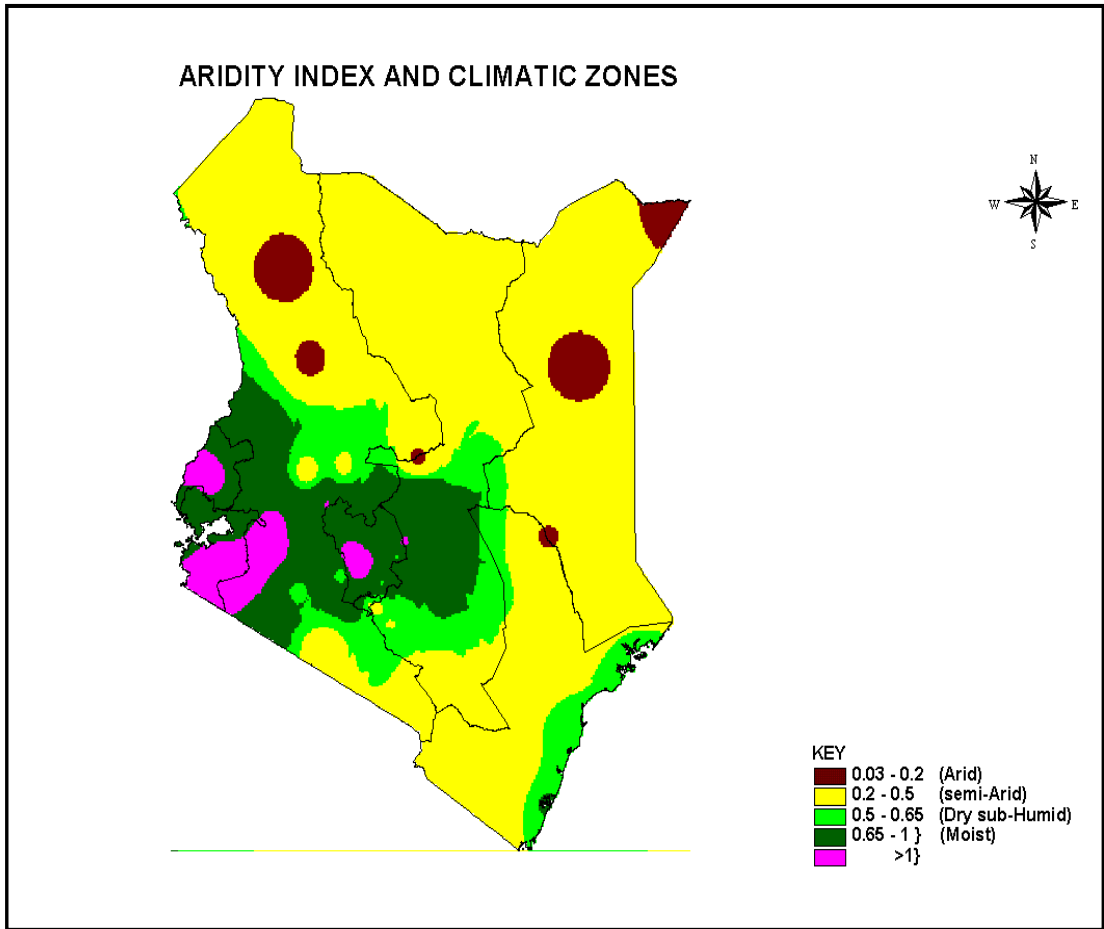


Figure 2: Aridity index and climatic zones

Source: *Third National Report on the Implementation of the United Nations Convention to Combat Desertification (UNCCD), 2004*

From the early 1960s, Kenya has experienced generally increasing temperature trends over vast areas. Over the inland areas, the trends in both minimum (night-time/early morning) and maximum (daytime) temperatures depict a general warming (increasing) trend with time. However, the increase in the minimum temperatures is steeper than in maximum temperatures. The result of the increase in both T_{min} and T_{max} is a reduction (decrease) in the diurnal temperature range.

The rainfall trends are depicted in the time series of the “Long Rains” March- April-May season that contributes a significant amount of rainfall to the annual totals over most parts of the country. However, the changes (reductions) are not very significant. Most of the standard seasons also depict the same type of patterns in the highest daily rainfall values observed. However, there is an indication of relatively more intense rainfall occurring more frequently over the coastal strip and the northern parts of the country in the September-October-November and December-January-February seasons.

Forests serve as the ultimate climate regulators: slowing down the spread of deserts, attracting clouds and promoting rainfall and serving as carbon “sink” for CO₂. Increased climatic hazards like floods and droughts have been seen to lead to higher mortality of plants, due to nutrient leaching and water stress. . There is growing concern on deforestation with experts saying that deforestation in developing countries is exacerbating the effects of climate change. It is estimated that deforestation accounts for approximately 20% of world annual greenhouse gas emissions. Observed and potential climate change impacts on the forestry sector include:-

Climate change will affect the growth, composition and regeneration capacity of forests resulting in reduced biodiversity and capacity to deliver important forest goods and services. This will manifest in desertification, deforestation and forest and land degradation as communities strive to derive their livelihoods on declining forest resources. This has been observed in many places including upper parts of Eastern region (Machakos and Kitui), Coastal region (Taita Taveta) and in general, all ASALs of Kenya.

Existing forested areas have undergone changes in vegetation types and species composition and new assemblages may be established. In addition, more invasive species are projected to occur. This has already been witnessed with *Prosopis juliflora* “mathenge” taking site dominance of important ecosystems in Baringo, Tana River, Garissa and other semi-arid areas of the country. Excessive growth of some tree species has also been observed, e.g. excessive growth of *Acacia reficiens* (acacia) after the 1997 El-Niño in NEP that suppressed the growth of various species that form grasslands for wildlife and livestock. The projected rise in temperatures and long periods of drought will lead to more frequent outbreaks and intense fires.

Forest fires have in the recent past affected Kenya's major forests including Mt. Kenya Forest (KFS). Over the past 20 years, Kenya has been losing more than 5,700 ha of forests per year to forest fires. The economic losses arising from such fires are phenomenal but have yet to be quantified. The rise in temperature is also expected to lead to extended ranges of pests and pathogens. Extreme climatic variations, coupled with improper land use, have resulted into Kenya reporting successive seasons of crop failure, increasing the country's food insecurity and loss of livestock. The 1999/2000 La Nina droughts resulted into 4.7 million Kenyans facing starvation.

1.3.5 Socio-Economic Dimension

Kenya is a developing country whose population is still largely rural with only 35% living in urban areas. According to the 2009 population census report, Kenya's population was estimated to be 38.6 million people, and is projected to reach 60 million by the year 2030. About 70% of Kenya's population live in the 12% of the total land area, which is classified as being of medium to high potential (KBS, 2009). The remaining 30% of the population live in the dry lands. Kenya's pastoralist systems hold a significant amount and variety of the country's human and natural capital, including languages, indigenous languages, cultures and uniquely adapted breeds of animal breeds (GOK 2004). They also contain most of Kenya's national parks and game reserves and so are key contributors to the tourism industry.

Framework for combating desertification in Kenya

ASAL areas cover over 80% of land area with a population of about 10 million. The national poverty level in the country is 54% while in the ASAL areas the poverty levels stands at 84%. Over 50 % of the livestock and 70% of the wildlife is found in the dry lands indicating the importance of the drylands in the national economy.

The government in partnership with other agencies has supported programmes for enhancement of community livelihoods in the dryland of Kenya. For example, in 2002 local communities in Baringo district were supported in rehabilitation of degraded lands. The vegetation that grew after rehabilitation has been used for grazing and browsing of livestock. It has increased livestock production for the community. In the year 2003, Shaffaa community of Langobaya Location, Malindi district were supported with funds to rehabilitate and extend their water supply. This made water available close to the households facilitating women to have more time for other activities to increase family incomes. The water is also used to raise tree seedlings for sale by women groups in the community thereby increasing their incomes and promoting tree planting in the area.

During the same year 2003, Ongata Naando community in Narok district benefited with support to protect their water resources from wildlife destruction. The community agricultural areas under threat of destruction by wildlife will be protected by solar electric fence. The protection of water resources and crops from wildlife destruction would reduce human/wildlife conflict in the area.

The wildlife would also be prevented from killing the community livestock. Women will be supported by provision of seed money to buy young steers to fatten for sale. This will empower women to have resources that they would manage.

In 2009 Nuru Development Group of Kinango district was supported by UNDP and NETFUND to enhance their conservation and livelihoods activities during the commemoration of the World Day to Combat Desertification.

The group constitutes a membership of 400 individuals of 24 groups each with an average of 20 members. The group was also trained on environmental conservation and financial management aspects. Since then, more groups and individuals in the district have started tree nursery business, charcoal burning has reduced in the area. The groups has increased their tree nursery capacity by 16000 seedlings and used the funds donated by NETFUND to re-connect water to the Resource Centre to purchase and install a 10,000litre water tank for roof rain water harvesting and purchase tree nursery equipment.

The types of seedlings raised by the group include: *neem*, *jatropha circus*, *moringa*, *casuarina*, *arborea*, *hymenia verrocusa* (mtandarusi), *afzeliaquinzensis* (mbambakofi) and predominantly *Aloe Vera*. These are suitable for the conservation of drylands. The group produces high value *Aloe Vera* products on their one and a half acre land. The first NAP had been included in the UNDP/ GOK Country Cooperation Framework under the environment and natural resources programme. It supported local level community initiatives in Turkana, Samburu, Marsabit and Garissa districts. Twenty one local communities benefited from this support. These are noble initiatives that need to be replicated in all the ASALs in Kenya to raise community awareness and enhance livelihoods.

1.3.6 Environment and Natural Resources

The natural resources in the ASALs include land, water, forests, wildlife, biodiversity, mineral wetlands, livestock and fisheries. These resources are increasingly under pressure as a result of unsustainable utilization. This has resulted in pollution, soil erosion, resource depletion and extinction of important species of plants and animals. High dependency on agriculture and land scarcity in the high potential areas as per the agro-ecological zones classification has forced people to migrate to the ASALs where they have introduced unsustainable land use practices. Further, commercialization of production systems has also encouraged unsustainable use of land based resources. Implementation of the NAP will address these challenges and increase the productivity of these fragile ecosystems.

1.4 DESERTIFICATION IN KENYA

1.4.1 Status

Desertification is intensifying and spreading in Kenya, threatening millions of inhabitants and severely reducing productivity of the land. The droughts of 1970-to-date have accelerated soil degradation and reduced per-capita food production. According to the United Nations Environment Programme (UNEP), much of the problem is due to a growing imbalance between population, resources, development and environment. 80% of the country is classified as ASALs and varies from county to county.

The eco-climatic zones provide a good indication of the drylands of Kenya (figure 3). ASAL refers to very arid, arid and semi-arid lands, while drylands refer to very arid, arid, semi-arid and dry sub-humid lands. Rapid population growth is exacerbating the existing problems of imbalance between human numbers and available arable land, deforestation, poor land use systems and inappropriate farming methods. All these are among the major problems leading to food crises and desertification in Kenya.

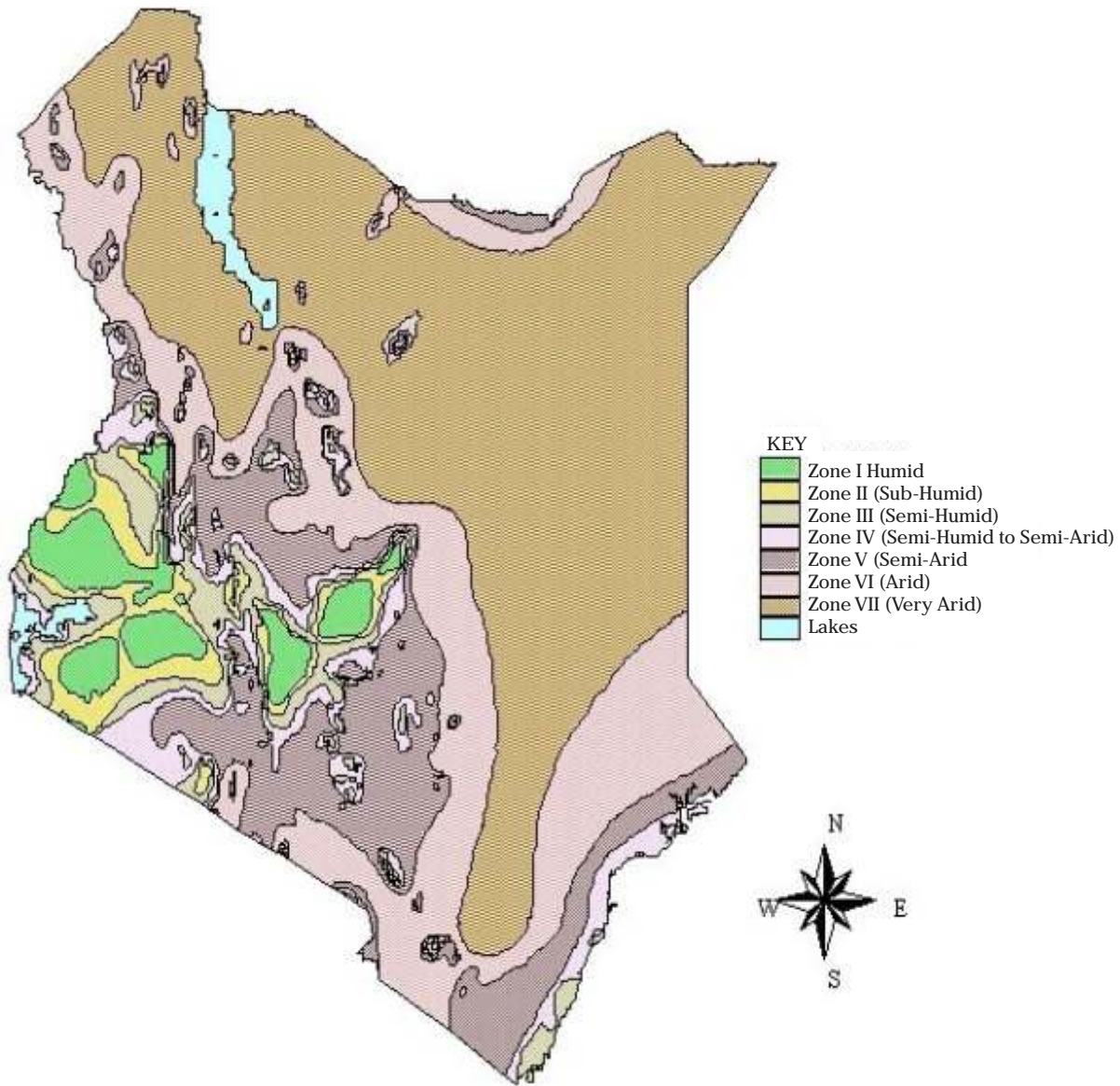


Figure 3: Ecological Zones of Kenya

Sources: USAID, 2004

Table 1: Percent of area of various counties classified as ASAL

Category	Counties	Proportion of ASAL coverage
A. 85 - 100%	Turkana, Marsabit, Isiolo, Wajir, Mandera Garissa, Samburu, Tana River.	62%
B. 30 - 84%	Kitui, Makeni, Taita- Taveta, Kajiado, Machakos, Meru, Tharaka - Nithi, Laikipia, West Pokot, Kwale, Kilifi, Baringo, Lamu, Narok, Elgeyo - Marakwet, Embu	36%
C.10 - 29%	Nyeri, Homa Bay, Kiambu, Migori, Siaya, Nakuru, Kirinyaga	2%

Source: GOK, 2012 (modified)



Figure 4: ASAL Counties of Kenya

Source: KMD report (GOK 2015)

Map by ALRMP

Boundaries do not necessarily imply official endorsement from GoK

1.4.2 Drought

Drought is a natural phenomenon, whose effects are amplified by ineffective social responses leading to serious land degradation and loss of productivity. Impacts of drought on croplands or rangelands which are already subjected to poor cultivation and grazing practices, leaves land bare and vulnerable to wind and water erosion. Erosion strips away the topsoil, destroying the land's fertility and its potential to support human and animal populations.

Table 2: Drought and extreme rainfall events in different parts of Kenya,

Year	Type of disaster	Area of coverage	People affected
2007/2008	Drought	Widespread	9,000,000
2007	Floods	Kuvasali, Kakamega	98
2004/05	Floods	Bundalangi, Nyando	34,000
2003	Floods	Bundalangi	28,000
2002	Land Slides	Meru, Muranga, Nandi	2,000
1999/2000	Drought	Widespread	4.4m
1997/98	ElNiño	Widespread	1.5m
1995/96	Drought	ASAL zone	1.41m
1991/1992	Drought	ASAL Zone	1.5m
1985	Floods	Nando/western	10,000
1983/8	Drought	Widespread	200,000
1982	Floods	Nyando	4,000
1980	Drought	Widespread	40,000
1977	Drought	Widespread	20,000
1975	Drought	Widespread	16,000
1971	Drought	Widespread	150,000

Sources: DMP, 2009; Kenya Meteorological Department (KMD), 2007

Drought affects mostly Eastern, Coast, North Eastern and parts of Rift Valley provinces of Kenya. The specific county include Baringo, Laikipia, Turkana, Samburu, Narok and Kajiado in the Rift Valley, Marsabit and Isiolo in Eastern province, Mandera, Garissa and Wajir in North Eastern and the Tana River, Kilifi, Kwale and Taita-Taveta in Coast region. Most of these counties experience dry weather conditions causing pressure on smallholder agriculture, existing pastures and water resources on which the communities depend for livelihood.

Chronology of droughts and floods

Kenya experiences drought on a cyclic basis. The major ones occur every ten years and the minor ones almost every three to four years. However, in recent years, the frequency of these droughts has increased. The 2009 and 2004 droughts are a replica of the previous cycle of severe droughts that affect the country almost every decade as experienced in 1974, 1984 and 1994. In the past, the country has recorded

deficits of food due to drought resulting from a shortfall in rainfall in 1928, 1933-34, 1937, 1939, 1942-44, 1947, 1951, 1952-55, 1957-58, 1984-85, and 1999-2000.

The 1983-84 drought and the 1999-2000 ones are recorded as the most severe, resulting in loss of human life and livestock, heavy government expenditure to facilitate response and general high economic losses of unprecedented levels (UNDP, WMO, GOK, IGAD, and DMCN, May 2002). After the El Nino induced rains of 1997 and 1998, Kenya experienced prolonged drought in many areas leading to famine and starvation.

1.5 Coordination, Cooperation and Partnership

Initially, ASAL activities were scattered in several departments and ministries, such as Department of Relief and Rehabilitation in the Office of the President, Ministry of Planning and National Development, and Ministry of Agriculture, Livestock Development and Marketing. This scenario has been complicated by inadequate co-ordination of various programmes in the different ministries.

The ASAL development programmes were given heightened priority after the creation of the Ministry of development of Northern Kenya and other Arid Lands. This was followed by the development of a comprehensive policy and an Environmental Action Plan for ASALs in 2008. A number of studies were carried out that led to a Framework for the Management of District Integrated Development Programmes in ASALs.

Over the years, the government has established strong cooperation mechanisms with development partners at multilateral and bilateral levels for development initiatives in drylands. Most development partners-funded projects operate independently. They lack a coordination mechanism. This may lead to conflict of interests and duplication of efforts.

There is therefore an urgent need to establish a coordination mechanism to facilitate development of dry lands information and coordination mechanism which should work hand in hand with existing information networks.

1.5.1 Economic Activities in the ASALs in Kenya

Introduction

For most part of Kenya, rainfall alone is not sufficient to grow crops and due to scanty and erratic rainfall, the major land use in the ASALs is a limited amount of cropping mixed with livestock keeping. Croplands and associated agro-ecosystems cover about 19 percent of Kenya while in the ASALs that are not irrigated, a patchwork of grasses, shrubs and trees dominate the landscape with water availability and soil types determining the exact spatial patterns of plant communities. Livelihood strategies adopted by people in ASAL range from those that predominantly focus on livestock products in rangeland ecosystems to a combination of livestock, food and cash crops in areas with adequate rainfall and suitable soils. The six dominant livelihood classes are as follows:

- Forests combined with fishing
- Pastoral or agro-pastoral
- Marginal mixed farming
- High potential mixed farming
- Cash cropping or irrigated cropping
- Wage labor for urban livelihoods

Pastoral livelihoods dominate the ASALs while cropping combined with pastoral livestock keeping (agro-pastoral) is practised in the margins of areas where rain-fed agriculture is possible. This is also practised in areas around permanent water sources such as on mountainous areas and along river courses in the dry belts of Kenya. Farmers in areas with less fertile soils and erratic rainfall such as along the coast of the Indian Ocean and the shores of Lake Victoria prefer a blend of livestock and food crops. Fishing is sometimes combined with pastoral livestock keeping or food crop cultivation but this is a localized occupation.

Farms are now recognized as a source of 30-50% of Kenya's wood supply, mainly for energy purposes. Agro-forestry is the primary source of fuel wood while private lands (farms or range lands) are the major source of wood for charcoal. Some farmers have established their own woodlots on farms, thereby reducing pressure on forests. Even in places where tree planting efforts are limited by climatic factors, farmers still plant some trees to demarcate boundaries and meet their energy requirements.

This calls for greater allocation of funds for dry land forestry research in order to provide farmers with a wider choice of options for tree growing in the country's dry lands. Charcoal production and firewood collection are important economic activities and contribute significantly to income generation in all areas except the remotest locations or those with very little woody vegetation. Besides improving livelihoods, tree planting in dry lands is an effective way to control desertification.

There are a number of groups contributing to environmental conservation efforts. The majority of them are formed on the basis of a common interest to conserve the fragile ecosystem as well as to improve the livelihoods of the people. They aim to do this by averting desertification through reforestation and establishing new forest lots within the Forest Reserve and also on their lands. The communities living around the Forest Reserve act as watchdogs, by reporting illegal activities within and around such as charcoal burning, poaching and illegal grazing. In addition, they participate in conservation awareness campaigns mainly targeting community members and schools to make them conscious of a range of conservation issues.

Nomadic pastoralism has traditionally been the backbone of the economy in North Eastern region, with herds moving across large expanses of rangeland to access food and water. The area sees frequent droughts usually accompanied by livestock death. Recent droughts and the resulting reduction in herd size have reduced the viability of a purely pastoral livelihood. Some of the other alternate sources of livelihoods for people living in ASALs are outlined below.

Use of gum trees to create Wealth in Drylands

It is reported that gum and resin offer an alternative livelihood for drylands communities in Kenya. The areas producing these products for export are Mandera, Marsabit, Isiolo, Wajir, and Garissa. These products are harvested from drought resistant Commifora and Acacia species like *C holtziana*, *C pseudopaolii*, *A. Senegal* and *A. seyal*. The products are exported to China, Europe, America, Arab countries, Singapore and other Asian countries.

The collection of the resin and gum is labour intensive and about 15,000 people are involved and earn their living from this activity. The collectors have been trained by KEFRI and other NGOs working in the area. Since the people get their livelihood from the trees, they do not cut them down.

The company has moved further to add value to extracted gel for juice and capsules besides soap and lotions among skin care products for local sale. It is believed that in USA and Venezuela and Mexico, *Aloe Vera* has been already commercialized and cultivated for gel as major producers. The trade is worth over 120M US dollars per year. Estimation is that an acre of the plant can fetch a farmer Ksh 960,000 per harvest and there can be three harvests in a year. The challenge of high cost of gel extract and processing equipment is high and this hinders the attainment of the potential benefits from aloe farming in Kenya.



Figure 5: Aloe Vera Farming in Kwale County
(Photo by Francis Inganga)

Bee Keeping in ASALs of Kenya

It is noted that bee keeping in Kenya has been practiced over many years. However only 20% of the country's honey production potential (estimated at 100,000 metric tonnes) has been tapped. Over 80% of Kenya consists of ASALs which have high potential in production of honey and apicultural activity is a major occupation in these areas due to the abundance of bee flora. But non ASALs regions also practice bee keeping with a lot of success. Modern bee keeping in Kenya started towards the end of 1960s and has since become an important enterprise in the livestock sub-sector with 80% of the honey coming from the traditional log hive while a reasonable amount of hive products is obtained from Kenya Top Bar and Langstroth hives (see fig. 6).

Bee farming is a rewarding and enjoyable occupation with many benefits. It has a number of advantages over other farm enterprises. It requires little land (50 colonies require $\frac{1}{4}$ acre) which does not have to be fertile. Honey is a source of non-perishable food. Capital investment is low.

Gum is used as a binder for tablets in the pharmaceutical industry. It is also used in China for the treatment of a number of illnesses including rheumatism. Natural resin comes from plants. Gum tends to be softer and more malleable than resin. Resin is used in the production of varnishes, adhesives and food glazing agents. It is also used as an important source of raw material for organic synthetics and as constituents of incense and perfume.

It is estimated that about 15 Kenyan companies are involved in the export of gum and resins. The challenges in this trade include poor collection practices (although some collectors have been trained), packaging and climatic perturbations. The poor returns in Kenya unlike Sudan, has also been due to rough terrain and poor packaging.

The latter allows dust and other impurities to be embedded in the gum. Overgrazing is another big problem since this endangers natural regeneration of the required bushes and tree species. If these can be addressed, then Kenya could join Sudan, Ethiopia and the Sahelian countries of Chad, Nigeria, Mali and Senegal as a leading exporter of gums and resins in Africa. While Southern Sudan exports about 34,000 tonnes and aims to reach 60,000, Kenya only exports about 150 tonnes annually. Most of the locally consumed gum is imported from Sudan. However, new efforts to exploit the tree that occupies huge chunks of land in part of northern Kenya is gaining momentum. Training of farmers in harvesting and transporting of gum is slowly improving the crop management.

Uses of Moringa Tree

The *moringa oleifera* is usually referred to as the “miracle tree” in Kenya. The use of *Moringa* tree is believed to be a sustainable approach to combating poverty, malnutrition and environmental degradation. The sale of its fruits, leaves and pods for food, cooking oil, cattle feed and bio-fuel fosters economic development and generates income for rural villagers. *Moringa* is known to be rich in vitamins A, C, calcium, iron & potassium, higher in proteins than soybean meal, drought resistant, adds nitrogen to soil, anti-bacterial. It is also used for household water purification; a source of edible oil, bio-fuel & cattle feed. It grows in all dry lands of Kenya but is found mainly at the coastal region.

It is also grown in Nyanza (shores of Lake Victoria) where it was introduced from Uganda first as a medicinal plant and now with all its many products finding market in the area and beyond. It is reported that apart from local consumption the products are being exported to Europe, USA and China for manufacture of cosmetics. The demand for *moringa* seed in Kenya estimated at around 600 tonnes per year, much of which is met by imports, increasing production in the country shows great potential for improving the livelihoods of small scale farmers in the dry lands.

Aloe Vera Farming

Aloe Vera growing is being commercialized in Kenya as demand grows for the plant's extracts which are used in the manufacture of healthcare products. The plant is also being used to fight poverty in ASALs regions with farmers assured of steady income. According to Herbal Gardens Ltd, the commercial arm of the Kenya Aloe Vera Growers Association, the sector is maturing fast with more farmers in Eastern, Central and Rift Valley regions venturing into its production because of high returns.

compared to other farm enterprises. Many products can be obtained which are great sources of income i.e. honey, bee wax, pollen, propolis, bee venom, royal jelly, bee colonies, bee brood, queen bee and package bees. Bee keeping encourages environmental conservation. Bees are good pollinators of plants, trees and crops thus play role in biodiversity and improvement of crop yields. Therapeutic values of most hive products provide remedy for a number of ailments (Apitherapy)



Figure 6: Bee Keeping in Suba-Homabay County

Jatropha Tree farming

Jatropha farming is one of the other activities with high potential for up-lifting livelihoods of communities and conservation of the environment in the ASALs for the production of bio-fuel. Already the plant has been introduced in many areas in the dry lands although research in its viability need to be undertaken. The study should seek to establish the viability of the *Jatropha* crop from its agro- ecological requirements perspective, its impacts on the environment and its potential to reduce poverty, and finally its potential contribution to the nation GDP as envisioned in Vision 2030 (GOK 2007)

Jatropha, a plant originating in Central America that grows wild in many developing countries, including South Africa, India, Thailand, Malaysia, Indonesia, China and the Philippines has suddenly found itself at the centre of a new phase in the world's alternative energy boom. *Jatropha curcas* is a drought-tolerant non-edible shrub. It produces fruits the size of golf balls which contain oil that can be converted into biodiesel, a substitute for fossil fuel. *Jatropha curcas* is a drought-tolerant non-edible shrub.

The Kenyan component of the African Adaptation Programme (AAP) set out to put in place an adaptation framework to provide a practical response strategy to climate variability. Its objective is strengthening Kenya's institutional and systemic capacity and leadership to address climate change risks and opportunities through a national planning approach to adaptation.

To achieve this, a dynamic, quantitative and transparent planning tool called Threshold 21 (T21) model has been developed. This is uniquely customized for the long-term integrated development planning as well as carrying out scenario analyses of adaptation options under uncertainty in Kenya.

The model allows the cost of adaptation to be quantified, which is a pre-requirement for attracting much needed financing for adaptation. The T21-Kenya model is fully integrated in a single framework by the complex interactions between the three spheres of development, namely economy, society and environment. The model also integrates the analysis of the risks and impacts of climate change across the major sectors in the economy, society and environment, in order to inform coherent national development policies that encourage sustainable development, poverty eradication, and increased wellbeing of vulnerable groups, especially women and children, within the context of Vision 2030.

In addition to using the model for providing the socio-economic evidence for Kenya to invest in climate change adaptation, it also serves to translate Vision 2030 including its Medium Term Plans (MTPs) and the National Climate Change Response Strategy (NCCRS) into practical actions (GOK 2010).

The T21-Kenya model is composed of 50 modules, whose internal mechanisms can be understood in isolation from the rest of the model, but is linked to the other modules through feedback loops. These modules are regrouped under 18 sectors (6 social sectors, 6 economic sectors, and 6 environmental sectors) based on their functional scope (see fig. 7). The strength of T21-Kenya is its flexibility to accommodate additional modules or sectors depending on new issues to be analyzed, and also in its structural nature, being able to integrate economic sectors with biophysical variables for the environment and society.

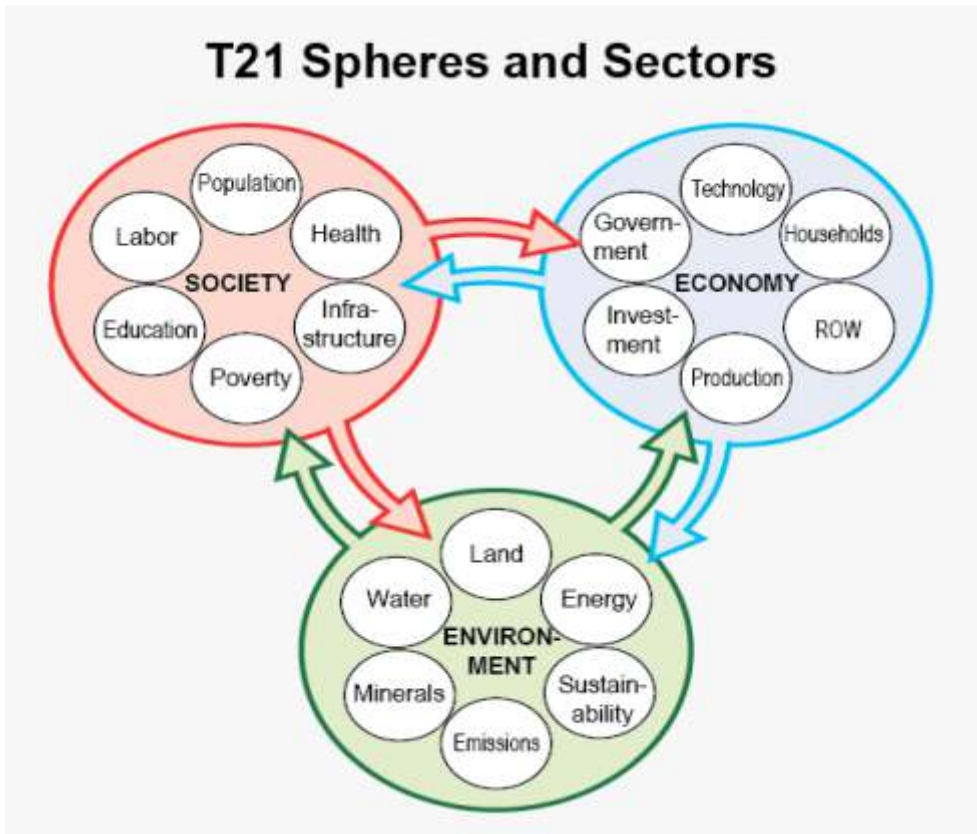


Figure 7: The T21 Sphere and Sectors

Kenya Environment Information Network (KEIN)

KEIN is a project initiated by UNEP in Kenya together with NEMA to bring together Kenyan institutions that generate environmental data. The network will create a framework for cooperation and coordination amongst various stakeholders thus preventing duplication of information. This platform of data and information will assist the country as a source of data for the preparation of the annual state of environment as required under the Environmental Management and Coordination Act of 1999.

Objectives of KEIN

- i) To build capacity for the development and management of core datasets. Support and initiate institutional networking and develop capacities related to the management of data and information at the national, sub-regional and regional levels
- ii) To facilitate open access to environmental data and information. To strengthen capacity at national level for managing and communicating information on environmental assets in such a manner as to provide opportunities for sustainable development
- iii) To generate information products to enhance country negotiation status with respect to assets within the context of Multi-lateral Environmental Conventions

PART II: SITUATION ANALYSIS

2.1 Overview of National Efforts to Combat Desertification

2.1.1 Introduction

The review of past and present efforts to combat desertification highlights the policy and legislative frameworks that have influenced institutional arrangements and structures. In general, institutional arrangements focus on the structures and bodies required to facilitate the implementation of the Convention. This review also addresses programmes, co-operation and financial arrangements that focus on efforts for achieving sustainable development in drylands. It further highlights the constraints that have affected, in one way or another, the efforts. These aspects are emphasized in the UNCCD 10 years strategy.

2.2 Advocacy, Awareness-raising and Education

2.2.1 Situation Analysis

Information on desertification and drought at local level is inadequate. Advocacy, awareness raising and education are key in combating desertification. The main sources of information regarding desertification and drought at local and international level include: United Nations bodies, public institutions, civil society, private sector, government ministries and departments, national research institutes, research and academic institutions. Community based organizations are major stakeholders in assisting local communities to implement the UNCCD through sensitization, organization, mobilization, and project conceptualization, identification, formulation, implementation, and participatory monitoring and evaluation.

They also assist in prioritization of issues, planning, mobilization of local and international resources, training, identification of capacity to implement and indigenous knowledge. The Community based organizations also builds consensus within local communities as well as change people's attitudes so as to diversify the economy of people living in ASALs.

2.2.2 Key Issues

- Inadequate information access and data exchange between different stakeholders in different regions.
- Negative perceptions, attitudes, and behavior due to low literacy levels, cultural biases and taboos of the majority in target groups;
- Failure to integrate indigenous knowledge into planning process
- Insecurity in some ASAL areas
- Increased poverty levels and social economic marginalization.
- Lack of governance frameworks for DLDD at county level
- inadequate communication strategies in respect to DLDD

2.3 Policy Framework

2.3.1 Introduction

The management of Kenya's dry lands has been guided by several cross-sectoral policies, legal and institutional arrangements, most of which came into force long before and after Kenya ratified the UNCCD. In this regard they form a solid foundation and provide opportunities for Kenya to implement UNCCD concerns. The country prepared and adopted the first NAP in 2002.

2.3.2 Policies

The broad-based policy instruments have been supplemented by sectoral instruments, which include the following:

- Sessional Paper No 1 of 1968 on Forest Development
- Sessional Paper No 8 of 2012 on National Policy for the Sustainable Development of Northern Kenya and Other Arid Lands *“Releasing Our Full Potential”*
- National Water Policy 1999
- Draft Forestry Policy 2007
- Population Growth Management Policy (2012)
- National Food and Nutrition policy 2007
- Wildlife Management Policy 2007
- ASAL Policy 2010
- Kenya Vision 2030
- Economic Recovery Strategy(ERS)
- Strategy For Revitalization Of Agriculture (SRA) 2004-2014
- Climate Change Response Strategy (2010)
- Draft Mining policy 2010
- Science Technology And Innovation Policy (2012)
- Agriculture policy session paper 4 of 1981
- Draft National policy for disaster management 2009
- National Environment Action plan 2009-2013
- Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth.
- Development Policy for Arid and Semi-Arid Areas of 1992
- National Environment Research Agenda, 2008
- Wetlands policy

2.3.3 Legal instruments

Kenya has developed a number of legal instruments to address issues of desertification land degradation and drought. Whereas most of these are sectoral in nature, there is an overarching legislation, EMCA-1999.

The sectoral Acts include:

- Environmental Management and Coordination Act (EMCA) No 7, 1999 (Ammended in 2015)
- Water Act-2002;
- National Museums and Heritage Act 2006 (currently under review)
- National Water Conservation and Pipeline Corporation Order 1988 (L.N. 270 of 1988)

- under the State Corporations Act (Cap 446);
- Forests Act 2005
- Wildlife Conservation and Management Act (Cap 376) 2013
- Science and Technology Act 2013
- Land (Group Representative) Act (Cap 287).
- Kenya Agricultural and Livestock Research Act 2013
- Mining Act 2014
- Physical Planning Act 1996
- County Government Act No17 2012

The Environmental Management and Coordination Act No. 8 of 1999 has harmonized the hitherto sectoral laws and addressed the required policy, legal and institutional framework to manage the environment including actions to combat desertification and mitigate the effects of drought (GOK 1999).

2.3.4 Institutional framework

Several bodies, including governmental, inter-governmental, non-governmental and development agencies have been involved in initiatives to combat desertification through improved advocacy, awareness raising, education, research, capacity building and technology transfer.

Some of the institutions include the following:

- Department of Resource Surveys and Remote Sensing (DRSRS),
- Ministry of Environment, Natural Resources and Regional Development Authorities.
- National Drought Management Authority
- State Department of Agriculture
- Public and Private Universities
- Ministry of Water and Irrigation
- State Department of Tourism
- National Environment Management Authority (NEMA)
- Genetic Resources Institute
- National Museums of Kenya
- Kenya Forest Service (KFS)
- Water Resource Management Authority (WRMA)
- Kenya Wildlife Service (KWS)
- Kenya Agricultural Livestock Research Organization (KALRO)
- Kenya Plant Health Inspectorate Services (KEPHIS)
- Kenya Forestry Research Institute (KEFRI)
- County Environment Committees
- National Council for Science and Technology (NACOSTI)
- Ministry of East Africa Affairs, Commerce and Tourism

Local universities, research institutions and line ministries are actively engaged in promotion of research, advocacy, awareness raising and technology transfer in sustainable land and natural resource management. In order to implement EMCA, NEMA has established a mechanism for monitoring status of environment from county to national level. Specific reports are generated for the counties and national levels. These reports include County Environmental Action plans (CEAPs), and National Environmental Actions Plans (NEAPs) and the County State of Environment (SOE) and National SOE reports. The latter are used to actualize implementation of the Action Plans.

2.4 Science, Technology and Knowledge

2.4.1 Situation Analysis

Adverse impacts of desertification and drought are increasing in the drylands of Kenya. The impacts are manifested by frequent crop failure, soil degradation, diminishing water resources, loss of livestock, and heavy dependence on wood for fuel and building and climate change. This happens despite the fact that Kenya has many institutions with scientific and technological potential to solve the problems of desertification. These include research institutes, universities, government ministries and departments and private sector firms. Additionally, research on drylands issues has not been well coordinated and findings arising from these researches are poorly disseminated and recommendations implemented.

2.4.2 Key Issues

- Inadequate policy on application of science and technology that includes combating desertification.
- Desertification issues have not been prioritized in most institutions.
- Low levels of demand-driven research on desertification.
- Inadequate human and institutional capacity for application of modern technologies for assessment, monitoring and mitigation of desertification and land degradation.
- Inadequate involvement of local communities and private sector in matters related to desertification.
- High cost of technology and inadequate technology transfer models.
- Low allocation of funds for science, technology and innovation.
- Low adoption and integration of indigenous knowledge and technologies in programmes and projects for combating desertification.
- Lack of data sharing infrastructure and policy

- Ministry of National Treasury
- Ministry of Devolution and Planning
- National Commission for Science, Technology and Innovation

2.3.5 Partnerships

Partners that have supported policy reforms, advocacy, capacity building, research, technology transfer, infrastructural development and other initiatives for ASALs include:

- Japan International Corporation Agency (JICA),
- United Nations Environment Program (UNEP)
- United Nations Development programme (UNDP)
- European Union (EU)
- Intergovernmental Authority on Drought and Development (IGADD)
- United States Agency for International Development (USAID)
- Swedish International Development Agency (SIDA)
- Canadian International Development Agency (CIDA)
- Danish International Development Agency (DANIDA)
- World Bank (WB)
- Action Aid
- Plan international
- World Vision
- Red Cross
- World Food Programme
- Nature Kenya
- Ford Foundation
- German Development Cooperation (GIZ)
- International Livestock research Institute (ILRI)
- International Centre for Insects Physiology and Ecology (ICIPE)
- African Wildlife Fund (AWF)
- World Wide Fund (WWF)
- International Union for Conservation of Nature (IUCN)
- East Africa Wild life Society
- Other initiatives that have been put in place to assess and monitor ASAL programmes in Kenya include:
 - Arid Land Resources Management Project operating in ASAL areas
 - Turkana Rehabilitations Projects on food security and land degradation
 - Research Programme for Sustainable Use of Dryland Biodiversity (RPSUD)
 - Environmental Education Awareness Initiative
 - Economic Stimulus Programme
 - Green schools programme
 - Biodiversity Transect Africa (BIOTA)

2.5 Capacity building

2.5.1 Situation analysis

The primary objective of capacity building is to enhance the country position to address global environmental issues, in particular land degradation and related climate change issues hence catalyzing implementation, coordination and planning programme or projects and its linkages with wider concerns of environmental management and sustainable development. The purpose of capacity building is to ensure multi-stakeholder participation, consultation and decision making, through appropriate institutional arrangements in respect to country's efforts in meeting global environmental management objectives. This has been achieved through institutions of learning and research, NGOs, CBOs, civil society organizations, public forums, and the media.

2.5.2 Key Issues

- Inadequate capacity to mainstream issues related to desertification, land degradation and drought (DLDD) into general planning and strategy formulation;
- Limited consultations, information exchange and cooperation among all relevant stakeholders including governmental, non-governmental, academic institution and private sectors.
- Low adoption of a long-term approach to capacity building within the context of sustainable development.
- Inadequate knowledge on capacity building needs for projects and programmes.
- Inadequate monitoring, evaluation and reporting mechanisms and methodologies

2.6 Financing and technology transfer

2.6.1 Situation Analysis

Funding efforts towards combating desertification in ASALs requires huge financial resources both from the government and development partners. Contributions by development partners often lack sustainability due to inadequate community consultations and involvement as well as phase out procedures. The UNCCD recognizes the above constraints and advocates for the establishment of the national desertification financial mechanisms that would ensure efficiency and effectiveness in channeling resources to the local level.

2.6.2 Key Issues

- Inadequate financial resources;
- Poor coordination and disbursement of funds towards DLDD initiatives
- Unclear funding mechanisms for NAP activities at the national and county levels
- Lack of sustainability of projects after the exit of the donor funding.
- Inadequate community participation and ownership of the project
- Inadequate implementation structure for technology transfer
- low financial support for training on DLDD issues
- Inadequate capacities for operation and maintenance of technologies
- Inadequate enabling policies and regulatory environment for technology transfer

PART III : THE STRATEGY

3.1 Introduction

The ten year strategic plan and framework to enhance the implementation of the convention (2008-2018) was adopted at COP 8 in Madrid in 2007 provided building blocks for effective implementation of the convention. It articulates the mechanisms to facilitate parties' coordination of the implementation of the convention. Furthermore a minimum set of indicators to assess and monitor DLDD as well as a new system for assessing the performance of the Conventions institutions and bodies in the implementation of The Strategy was adopted at COP 9 in Buenos Aries in 2009. These developments makes efforts to combat DLDD more realistic and comparable at local, national, sub-regional, regional and global levels. Parties' to the convention are required to align their National Action Programme with The Strategy (2008-2018). In response to this requirement, Kenya has aligned its National Action Programme through stakeholder involvement. The NAP is intended to strengthen Kenya's position in the UNCCD Conference of the Parties (COPs) and in fulfilling the obligations of the convention.

Vision

The aim for the future is to forge a global partnership to reverse and prevent desertification /land degradation and to mitigate the effects of drought in affected areas in order to support poverty reduction and environmental sustainability.

Mission

To provide a global framework to support the development and implementation of the national and regional policies, programmes and measures to prevent, control and reverse desertification/land degradation and mitigate the effects of drought through scientific and technological excellence, raising public awareness, standard setting, advocacy and resource mobilization, thereby contributing to poverty reduction.

3.2 The National Action Programme

The National Action Programme is a national framework aimed at mainstreaming Desertification, Land Degradation and Drought (DLDD) activities into related sectoral programmes in Kenya. The National Action Programme has been developed to address issues of desertification, land degradation and drought in Kenya. The scope of the NAP covers the operational objectives and Strategic Objectives of The Strategy (2008-2018), in order to ensure appropriate action at national, sub-regional/regional and global levels. These objectives are as outlined below.

Operational Objectives

- Advocacy, awareness-raising and education
- Policy framework
- Science, technology and knowledge
- Capacity-building
- Financing and technology transfer

National Strategic Objectives

- To improve the living conditions of affected populations
- To improve conditions of affected ecosystems
- To generate global benefits through effective implementation of the convention
- To mobilize resources to support implementation of the Convention through building effective partnerships between national and international actors.

Operational Objective 1: *Advocacy, awareness-raising and education*

National Strategic Objective 1

- I. To enhance advocacy, awareness-raising and education so as to address Desertification, Land Degradation and Drought issues

Operational Objective 2: *Policy framework*

National Strategic Objective 2

- I. To support the creation and/or harmonization of enabling policy, legal and institutional frameworks to combat Desertification, Land Degradation and Drought

Operational Objective 3: *Science, technology and knowledge*

National Strategic Objective 3

- I. To strengthen the application of scientific and technical knowledge in combating Desertification, Land Degradation and Drought

Operational Objective 4: *Capacity building*

National Strategic Objective 4

- I. To identify and support capacity-building needs to prevent and reverse Desertification, Land Degradation and Drought
- II. To establish the gender roles in socio-economic activities in ASALs

Operational Objective 5: *Financing and technology transfer*

National Strategic Objective 5

- I. To mobilize and improve the targeting and coordination of national, bilateral and multilateral financial and technological resource in order to increase their impact and effectiveness

3.3 Strategic Interventions

National Strategic objective 1

To enhance advocacy, awareness-raising and education so as to address Desertification, Land Degradation and Drought issues

Proposed Strategic interventions

- Develop and strengthen environmental information system in relation to DLDD (Collection, documentation, archiving/preservation and dissemination).
- Establish clear mechanisms to facilitate effective involvement of local communities, CSOs, Private and Public sectors and the scientific communities in advocacy, awareness raising and education.
- Improve participation, sensitization and negotiations in relevant thematic areas at local, national, regional and international forums that address DLDD issues.
- Strengthen the use of IKS in advocacy, awareness raising and public environmental education in relation to DLDD issues.

National Strategic objective 2(a)

To support the creation and/or harmonization of enabling policy, legal and institutional frameworks to combat Desertification, Land Degradation and Drought

Proposed strategic intervention

Review, formulate and/or implement a comprehensive relevant policy, legislation and institutional framework on combating desertification, degradation and drought mitigate.

- Establish clear mechanisms to facilitate effective involvement of local communities in policy and decision making processes.
- Use structures under the Environment Management and Coordination Act of 1999 to involve all key stakeholders particularly local communities.
- Harmonize Trans boundary resource use policies among countries
- Strengthen enforcement of policies and regulations to enhance effective and efficient resource management

National Strategic objective 2(b)

To create an enabling investment framework that support financial and technology transfer in combating desertification/land degradation and drought .

Proposed strategic interventions

- Mainstream NAP into major national strategies and programmes;
- Develop a resource mobilization strategy for NAP;
- Prepare a profile of all donor agencies and NGOs working in DLDD
- Develop an integrated investment framework for funds in DLDD initiatives to minimize duplication of efforts and improve on efficiency
- Incorporate sustainability principles in planning and design to avoid abandonment of projects
- invest in technological infrastructural platforms to enhance knowledge dissemination
- enhance institutional framework on technology transfer

National Strategic objective 3

To strengthen the application of scientific and technical knowledge in combating Desertification, Land Degradation and Drought

Proposed Strategic interventions

- Develop appropriate early warning system technologies and integrate IK in environmental monitoring and resource management

The country has established institutions, which have the capacity to monitor processes and dynamics of land degradation using various tools. These institutions include Kenya Meteorological Department (KMD), Department of Resource Surveys and Remote Sensing (DRSRS), Forest Department and several departments in line Ministries of land, agriculture, environment and natural resources, and research institutions.

These institutions have a long history of environmental monitoring and the expertise they have accumulated over the years can be used to monitor, assess and evaluate the impacts of NAPs using benchmarks and indicators as elaborated in different programmes. They can also use the huge data sets under their archives as a baseline for the monitoring process. The tools like Geographic Information Systems, Remote Sensing and photogrammetry may be used to monitor implementation of the NAP in the ASALs of Kenya.

The above activities will call for the establishment of an elaborate Environmental Information System, which will aim at bringing the various information sets collected on the environment at a central point. This will enhance focused coordination of the various stakeholders in the process of data collection, analysis and dissemination as well as minimizing duplication.

The Kenya Environment Information Network (KEIN) may be put to use for information management. Monitoring and evaluation shall incorporate (but not limited to) the use of the new reporting system referred to as Performance Review & Assessment of Implementation System (PRAIS) that uses performance indicators. These indicators are for measuring the progress of the ten year strategy against its 5 operational objectives (Kenya has added a sixth operation objective to cover issues of gender). The first implementation year of the ten year strategy was 2008. The first reporting by Kenya using PRAIS was done in 2010 for the year 2008 and 2009. The second reporting was done in 2014. The Strategy has four strategic objectives with 9 impacts indicators.

3.4.2 The strategic Objectives impact indicators

- Improve living conditions of affected people (3 indicators)
- Improve condition of affected ecosystems (2 indicators)
- Generate global benefits through UNCCD (2 indicators)
- Mobilize resources through partnerships (2 indicators)

3.4.3 Performance Indicators

The strategy has 6 operational objectives with 20 Performance indicators

- Advocacy, awareness raising and educations (3 indicators)
- Policy framework (2 indicators)
- Science, technology and knowledge (4 indicators)
- Capacity building (1 indicator)
- Financing & technology transfer (4 indicators)
- Gender in natural resource conservation (added for Kenya) (6 indicators)

This approach of monitoring and evaluation require specific data, for instance as per the first operational objective; advocacy, awareness raising and education, reporting by is about:

Framework for combating desertification in Kenya

- Initiate appropriate schemes and promote transfer of technologies to enhance food security, improved livelihoods and natural resource management
- Diversify use of energy resources and promote efficient conservation technologies.
- Undertake natural resource valuation and conservation using appropriate technologies
- Promote the rehabilitation and restoration of damaged eco-systems and the recovery of threatened and endangered species.

National Strategic objective 4(a)

To identify and support capacity-building needs to prevent and reverse Desertification, Land Degradation and Drought

Proposed strategic interventions

- Build and strengthen the capacities of the NCB and the UNCCD
- Enhance collaboration and networking among stakeholders, including local communities.
- Build capacity of extension staff and local communities.
- Develop a capacity building programme to strengthen the role of various actors at community level including gender balance.
- Promote integrated management of resources including use of indigenous knowledge and technologies
- Enhance institutional and human capacity in science and technology to address issues of DLDD.
- Enhance national and community participation and ownership of DLDD initiatives to provide sustainability.

National Strategic Objective 4(b)

To establish the gender roles in socio-economic activities in ASALS

Proposed Strategic interventions

- Identify and document gender based indigenous knowledge in the use and exploitation of natural resources
- Promote gender equity in management of natural resources in ASALS
- Promote access to education opportunities at all levels in ASAL areas
- Provide accessible water facilities in ASALS
- Improve infrastructure and services in ASALS (e.g. Health facilities.)

3.4 Monitoring and Evaluation

3.4.1 Introduction

Monitoring and evaluation of the implementation of this plan will be coordinated by NEMA. Reports will be discussed at all stages while quarterly reports will be prepared and reviewed by all stakeholders. Evaluation will be undertaken periodically preferably on bi-annual basis.

- Communication processes
- Engagement mechanisms
- Education initiatives

Communication assessment is by means of consolidated objective one (CONS-O-1) that

Table 3: A set of Performance Indicators to be Reported by Kenya Using PRAIS Outcome Indicator N° Indicator name / description

1.1	CONS-O*-1	Number and size of information events organized on the subject of desertification /land degradation and drought (DLDD) and/or DLDD synergies with climate change and biodiversity, and audience reached by media addressing DLDD and DLDD synergies.
1.3	CONS-O-3	Number of CSOs and science and technology institutions participating in the Convention processes.
	CONS-O-4	Number and type of DLDD-related initiatives of CSOs and science and technology institutions in the field of education
2.1	CONS-O-5	Number of affected country Parties, sub regional and regional entities to have finalized the formulation/revision of NAPs/SRAPs/RAPs aligned to The Strategy, taking into account biophysical and socio-economic information, national planning and policies, and integration into investment frameworks.
2.5	CONS-O-7	Number of initiatives for synergistic planning/programming of the three Rio Conventions or mechanisms for joint implementation, at all level
3.1		
3.2	CONS-O-8	Number of affected country Parties, sub regional and regional entities to have established and supported a national/ sub regional/regional monitoring system for DLDD.
	CONS-O-9	Number of affected country Parties, sub regional and regional entities reporting to the Convention along revised reporting guidelines on the basis of agreed indicators.
3.3		
3.4	CONS-O-10	Number of revised NAPs/SRAPs/RAPs reflecting knowledge of DLDD drivers and their interactions, and of the interaction of DLDD with climate change and biodiversity.

Framework for combating desertification in Kenya

- 3.5 CONS-O-11 Type, number and users of DLDD-relevant knowledge-sharing systems at the global, regional, sub regional and national levels described on the Convention website.
- 4.1 CONS-O-13 Number of countries, sub regional and regional reporting entities engaged in building capacity to combat DLDD on the basis of National Capacity Self-Assessment (NCSA) or other methodologies and instruments.
- 5.1 CONS-O-14 Number of affected country Parties, sub regional and regional entities whose investment frameworks, established within the IFS devised by the GM or within other integrated financing strategies, reflect leveraging national, bilateral and multilateral resources for combating desertification and land degradation.
- 5.2 CONS-O-16 Degree of adequacy, timeliness and predictability of financial resources made available by developed country Parties to combat DLDD.
- 5.3 CONS-O-17 Number of DLDD-related project proposals successfully submitted for financing to international financial institutions, facilities and funds, including the GEF.
- 5.5 CONS-O-18 Amount of financial resources and type of incentives which have enabled access to technology by affected country Parties.

PART IV: IMPLEMENTATION STRATEGY AND COORDINATION ARRANGEMENT

4.1 Strategic approach

Implementation of the NAP will be at four levels: Sub- regional, National, district and community. The Government will link NAP to the Inter-governmental Authority on Development (IGAD), Sub regional Action Programme (SRAP) and the East Africa Community Environment programme in order to address common trans-boundary priority areas.

The national coordinating body (NEMA) will be responsible for coordinating NAP implementation, including, planning, monitoring and evaluation. NEMA will, therefore, require support in terms of finance, human and physical resources. At the county level, the County Environmental Committees (CEC) will be responsible for coordination monitoring and evaluation in collaboration with other stakeholders.

At the community level, communities and CBOs will collaborate with the CECs, NGOs and other stakeholders in identifying Community problems and needs in formulating Community Action Programmes for implementation.

4.2 Role of Various Actors

Actors in implementation of the NAP include:

Governments and their agencies at all levels

- The Government will be responsible for policies to ensure smooth implementation of NAP and proper utilization of the funds.
- The affected people (communities and land users) and CSOs- international and national will also be involved
- Communities have a responsibility in monitoring the implementation of the projects that are identified through a bottom up consultative and participatory process.
- CSOs and other locally based groupings will provide effective channels for knowledge sharing.

Donors

The role of donors in the implementation of the NAP is to extend assistance to the affected and threatened populations. The type of assistance offered maybe financial, technical or material in nature.

Private sector

The NAP will create a platform for involvement of the private sector firms in the implementation process. The NAP offers opportunities for investment in the ASALs and addressing DLDD issues.

4.3 Partnership building

Among the stated means of achieving the objectives of the UNCCD is through effective coordination efforts among and between key stakeholders, in a spirit of partnerships. NAP recognizes the comparative advantage of each partner and institutes a mechanism that ensures coordinated and focused implementation strategies.

Table 4: NAP Implementation Matrix

Strategic Objective	Strategic interventions	Performance indicators	MOV	Actors Coordinator	Others	Time frame																			
						ST	MT	LT	1	2	3	4	5	6	7	8	9	10							
1) To enhance advocacy, awareness-raising and education so as to address DLDD issues	Develop, strengthen, maintain and promote effective utilization of environmental information systems (EIS) in DLDD.	No. of Environmental information system for DLDD developed, strengthened and functional	Reports	MENR	NEMA, NETFUND, NMK, CSO, KMS, KALRO, DRSRS, WRMA, KEFRI, NDMA, KEPHIS, GEF, MoAIF, KMFERI, MoF, MoHEST, NACOSTI, Universities																				
						100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
Enhanced participation and sensitization on relevant thematic areas and increased negotiation skills by stakeholders	No. of DLDD platforms established and operational	No. and category of stakeholders participating in the platforms	Reports	MENR	NEMA, NETFUND, NMK, CSO, KMD, KALRO, DRSRS, WRMA, KEFRI, NDMA, KEPHIS, GEF, MoAIF, KMFERI, MoF, MoHEST, NACOSTI																				
						300	375	405	440	470	485	500	515	540	585										
Enhanced participation and sensitization on relevant thematic areas and increased negotiation skills by stakeholders	No. of DLDD related forums participated in	No. and category of stakeholders participating in the platforms	Reports	MENR	NEMA, DRSRS, NETFUND, NMK, CSO, KMD, KARI, DRSRS, WRMA, KEFRI, NDMA, KEPHIS, GEF, MoA, KMFERI, MoF, MoL, MoHEST, NCST, UN agencies, private sector,																				
						525	575	605	625	655	670	670	685	710	750										

Table 4: NAP Implementation Matrix

Strategic Objective	Strategic interventions	Performance indicators	MOV	Actors	Coordinator	Others	Time frame Budget (10 yrs in Millions Kenya Shillings)													
							ST	MT	LT	1	2	3	4	5	6	7	8	9	10	
Strategic Objective	Showcase and strengthen the use of IKS in advocacy, awareness raising and environmental education in relation to DLDD issues.	Increased integration levels of IKS use in initiatives	No. and type of IK documentation available in centres of excellence / resource centre	Reports	Ministry of Sports, Culture and Heritage	MNH, NMK, NEMA, AG, ME NR, DRSKS, Universities				425	460	475	490	505	530	575	610	640	700	
2) To support the creation and/or harmonization of enabling policy, legal and institutional frameworks to combat DLDD	Align, Review, formulate and implement a comprehensive policy, legislation and institutional framework on combating desertification, degradation and drought mitigation.	No. of policies formulated, aligned/reviewed	No. of legislations formulated, reviewed and implemented	- Policy documents - Acts - Reports	MENR	NEMA, State Law Office, NDMA, KEFRI, KALRO, NGOs, CSOs, County Governments, KWS, KFS				250	500	600	800	800	700	800	600	400	400	400
Strategic Objective	Establish mechanisms to facilitate involvement of stakeholders in policy formulation and implementation on resource management.	No. of gazette notices	No. of stakeholders engaged	-Minutes of meetings -Reports -Gazette notices	MENR	NEMA, AG Office, MoA/E, KEFRI, KALRO, NGOs, CSOs, CBOs, KWS, KFS, CPAs, WRUAs, Community Ranches				100	150	150	200	150	150	150	150	150	100	100
Strategic Objective	Integrate and	No. of treaties,	-Relevant	MENR	Ministry of Foreign Affairs, Ministry of				40	40	20	250	250	200	100	100	50	50		
							815	1150	1245	1740	1605	1680	1425	1260	1290	1250				

Table 4: NAP Implementation Matrix

Strategic Objective	Strategic interventions	Performance indicators	MOV	Actors	Coordinator	Others	Time frame Budget (10 yrs in Millions Kenya Shillings)																
							ST	MT	LT	1	2	3	4	5	6	7	8	9	10				
3) To strengthen the application of scientific and technical knowledge in addressing DLDD	Develop relevant infrastructure to support the application of scientific and technical knowledge in DLDD	-No of web based portals for acquiring and disseminating information on DLDD developed	-Reports,	NACOSTI.		MENR, NEMA, MoE, MoLHUD, NACOSTI, KEFRI, NMK, KWS, KFS, NGOs, MoH, NHQ, Res earch institutions, ICT board																	
	Undertake natural resource valuation in ASALS	No. and types of ecosystems valued	Reports	MENR		MoDP, NT, MoALF, JGAD, NBI, Ministry of Commerce, Tourism and East Africa Region KALRO, NEMA, KFS, KWS, NMK, ICPIE, DRSRS, Regional bodies (ILRI, IUCN), UNEP, Universities																	
	Promote rehabilitation / restoration of degraded eco-systems and	Acreage of degraded eco-systems rehabilitated and number of	-Reports	MENR & County Governments		MoALF, KEFRI, KALRO NEMA, KFS, KWS, NMK, KMFRl, MoLHUD, NDMA, Universities, Research Institutions,																	
							160	180	200	220	240	260	280	300	320	340	--						
							540	600	520	485	620	575	620	670	715	340							

Table 4: NAP Implementation Matrix

Strategic Objective	Strategic interventions	Performance indicators	MOV	Actors		Time frame Budget(10 yrs in Millions Kenya Shillings)															
				Coordinator	Others	ST	MT	LT	1	2	3	4	5	6	7	8	9	10			
	Harmonize Trans-boundary resource use policies and legislation among countries	No. of Sub regional and Regional Action programmes on DIDD	Regulation documents, -Acts, -Workshop proceedings,	East African Affairs, Commerce and Tourism NEMA, AG , IGAD, East African Community, .. MOLHUD, KFS, KWS, MoTI, KMFR, NDMA, OP KEFRI, KALRO .. NGOs, CSOs,	NEMA																
	Strengthen implementation of policies and enforcement of regulations on land use.	-Amount of budgetary provisions -No. of Capacity building and infrastructural development	Reports	AG Office, MENR, OP, The National Treasury, Ministry of East African Affairs, Commerce and Tourism	NEMA																

Table 4: NAP Implementation Matrix

Strategic Objective	Strategic interventions	Performance indicators	MOV	Actors	Others	Time frame Budget (10 yrs in Millions Kenya Shillings)															
						ST	MT	LT	1	2	3	4	5	6	7	8	9	10			
the recovery of threatened and endangered species.	Develop and Promote technologies to enhance food security, improved livelihoods and natural resource management	No. of Food security technologies developed and promoted	-Reports	NACOSTI	Ministry of Devolution and Planning, MoE, MoALF, MENR, KMFRI, KALRO, NEMA, KFS, KEFRI, NIB, TARDA, KVDA, Mol, KWS, NMK, CSOs, ICIPE, NGOs, LBDA, CDA, Institutions of Higher learning, KNIA																
						150	155	160	165	170	175	180	185	190	195						
4) To identify and support capacity-building needs to prevent and reverse Desertification, Land Degradation and Drought	Enhance capacity building, collaboration and networking	No. of persons trained/hired	-Reports	MoEST & Council of Governors	Ministry of Devolution and Planning, NACOSTI, MoALF, MENR, KMFRI, KALRO, NEMA, KFS, KEFRI, NIB, TARDA, KVDA, KWS, NMK, CSOs, ICIPE, NGOs, LBDA, CDA,																
						10	10	10	15	5	5	5	5	5	5	5					
		No. of trainings and workshops				240	255	270	280	295	310	325	340	355	380						
		No. of MoUs signed																			

Table 4: NAP Implementation Matrix

Strategic Objective	Strategic interventions	Performance indicators	MOV	Actors	Others	Time frame Budget (10 yrs in Millions Kenya Shillings)											
						ST	MT	LT	1	2	3	4	5	6	7	8	9
framework that support financial and technology transfer in combating desertification on land degradation and drought effects & mitigation	Develop a resource mobilization strategy for NAP	No. of funded programmes No. of strategies developed	Reports	NETFUNDS	MENR, NEMA, MoF, NMR, CSOs, KMS, KALRO, WRMA, KEFRI, KEPHIS, UNDP, GEF	50	--	--	--	2.6	2.9	3.3	--	--	--	--	--
framework that support financial and technology transfer in combating desertification on land degradation and drought effects & mitigation	Develop a resource mobilization strategy for NAP	No. of investment frameworks developed	Financial reports	MoF	MENR, NEMA, MoF, NMR, CSOs, KMS, KALRO, WRMA, KEFRI, KEPHIS, UNDP, GEF	100	--	--	--	--	--	--	--	--	--	--	--
Develop profile for donor agencies and CSOs working in DDDD	-Number of profiles	-	Reports	NEMA	UN agencies, MENR, NEMA, The National Treasury - County Governments	50	--	1.5	2.0	--	--	--	--	--	--	--	--
Develop an integrated investment framework in DDDD	No. of Integrated investment framework in DDDD	-	Reports	National Treasury and County Governments	UN agencies, MENR, NEMA, NETFUND, NMR, CSO, KALRO, WRMA, KEFRI,,	20	20	20	20	20	20	20	20	20	20	20	20

Table 4: NAP Implementation Matrix

Strategic Objective	Strategic interventions	Performance indicators	MOV	Actors	Others	Time frame Budget (10 yrs in Millions Kenya Shillings)													
						ST	MT	LT	1	2	3	4	5	6	7	8	9	10	
	Promote integrated resources management including use of indigenous knowledge and technologies	No. of management plans generated	Natural resource management plans	MENR	Ministry of Devolution and Planning, MoE, NACOSTI, MoALF, KMFRI, KALRO, NEMA, KFS, KEFRI, NIB, TARDA, KVDA, KWS, NIMK, CSOS, ICIPE, NGOs, LBDA, CDA, NDMA				75	70	70	25	25	25	25	25	25	25	25
	Enhance community participation and ownership of DLDD initiatives	No. of community action plans developed	-Community action plans	MENR	NEMA, NIMK, CSO, KMD, KALRO, DRSRS, WRMA, KEFRI, KWS, UNDP, KFS, NGOs				300	200	250	250	95	85	80	75	35	35	35
	Identify and support capacity building needs for gender sensitive and vulnerable groups to prevent and reverse DLDD	-Percentage of male/female/vulnerable persons involved in DLDD initiatives	-Reports	NEMA	MENR, Ministry of Sports, Culture and Arts, Min of Education, MoDP, County Governments, KFS, KWS,				50	20	20	15	10	5	5	5	5	5	5
5) To create an enabling investment	Mainstream NAP into national development	No. of national programmes (MTP)	Reports	Ministry of Devolution and Planning	NEMA, NETFUND, NIMK, CSO, KMS, KALRO, DRSRS,				50	60	70	80	90	100	120	130	140	140	140
									475	350	410	370	220	435	230	235	205	205	205

Table 4: NAP Implementation Matrix

Strategic Objective	Strategic interventions	Performance indicators	MOV	Actors		Others	Time frame Budget (10 yrs in Millions Kenya Shillings)															
				Coordinator	Others		ST	MT	LT	1	2	3	4	5	6	7	8	9	10			
	DLDD	No of projects funded				KEPHIS,GEEF, MoDP, Private sector, Keninvest																
	No of enhanced financing and investments structures developed																					
	Monitor and evaluate DLDD Projects	-No. of completed and ongoing projects -No. of DLDD projects monitored and evaluated	Reports	MoPD		UN agencies, MENR,NEMA, , NETFUND, NMK, CSO, , KALRO, WRMA, KEFRI, KEPHIS,GEEF, MoDP, Private sector, Keninvest					20	40	60	80	100	120	140	160	180	200		
	Invest in technological infrastructural platforms to enhance knowledge sharing	No. of Technological platforms developed	Reports	ICT board		MoICT,MENR, NEMA, UN agencies, Higher Learning Institutions, Universities, CSO, KMD, KALRO ,GEEF, MoA LF, KMFRI, , MoE, NACOSTI, National Treasury, Private sector					50	50	50	50	50	50	50	50	50	50	50	50
	Enhance institutional framework on technology transfer	No. of Institutional Frameworks enhanced No. of appropriate technologies adopted	Technological reports	NACOSTI		MENR, NEMA, UN agencies, NETFUND NMK, CSO, KMS, KALRO, DRSRs, WRMA, KEFRI, KEPHIS,GEEF, MoA LF, KMFRI					50	100	130	160	190	220	250	280	310	340		
	Functional technological platforms																					

Table 4: NAP Implementation Matrix

Strategic Objective	Strategic interventions	Performance indicators	MOV	Actors	Time frame	Budget (10 yrs in Millions Kenya Shillings)																	
						Coordinator	Others	ST	MT	LT	1	2	3	4	5	6	7	8	9	10			
Promote access to education opportunities at all levels in ASAL areas	Provide accessible water facilities in ASALS	-No. of water infrastructure -No. of Water harvesting technologies adopted	-Reports	WRMA	-County Govts -MENR, -Regional Authorities, WRUAs, Water Boards, NGOs, MoALF, Private sector, MoPPD, NEMA																		
									500	100	90	80	70	60	50	50							
Improved health infrastructure and services in ASALS	Promote access to energy saving technologies	-No of health facilities established -No. of infants and maternal mortality rates	-Health reports	County governments	Min of Health, NGOs, Ministry of Devolution and Planning, UNICEF, Private sector, Churches, Donors																		
									200	200	200	190	180	170	160	150	140						
Promote access to energy saving technologies	-No. of energy saving technologies developed	-No. of energy saving technologies adopted	-Reports	MoEP	Private sector, Research institutions, County Governments, Regional Centre for Energy, Ministry of Devolution and Planning, Development partners, NACOSTI, NGOs, CBOs																		
									50	60	70	80	90	100	110	120	130						
									750	420	430	430	430	430	430	440	270						

Table 4: NAP Implementation Matrix

Strategic Objective	Strategic interventions	Performance indicators	MOV	Actors		Time frame Budget(10 yrs in Millions Kenya Shillings)																
				Coordinator	Others	ST	MT	LT	1	2	3	4	5	6	7	8	9	10				
		energy saving technologies			CECs, MoAIF, Ministry of Industrialization and Enterprise Development																	
TOTAL NAP IMPLEMENTATION BUDGET												3985	3860	4041.5	4552	4810.2	5015.8	4666	646	40	4605	4125
												44301.1 Billions										

ANNEXES

Annex 1: Monitoring and Evaluation Task Force and Terms of Reference (TOR)

Purpose and key objectives of a National M & E Taskforce

The purpose of the M&E is to evaluate the implementation of the NAP in Kenya. The NM&E will aim to meet local and national results by assessing the impact of the plan. The preparation of a NAP in Kenya, whilst adopting a consultative approach, will emphasize national sovereignty with regard to the management of the country's natural resources, and the need for country leadership and responsibility. The NAP, as a framework for planning, will provide strategic orientation for the ASALs and other vulnerable lands in harmony with other sectors of the national economy. As a framework for action and investment, the NAP will also facilitate concerted and coordinated implementation of programmes and activities by all stakeholders based on the ten year strategic plan.

The TOR for National Monitoring and Evaluation Committee

The Term of Reference for the M&E Committee will include the following:

- Promote inter-sectoral planning involving all relevant partners, in order to resolve conflicts and develop effective policies and programmes to address drought and land degradation
- Increase the efficiency and effectiveness of both public and private actions for sustainable natural resources development;
- Report on the implementation of the NAP in the country
- Identify gaps in the implementation of the NAP
- Advise on how to meet the challenges in the implementation of the NAP
- Document on the best practices in management of drought and land degradation

Objective of the assignment

The main objective of the assignment is to assist the National Steering Committee and the National Secretariat for UNCCD convention in reporting periodically to NEMA on the implementation of the NAP.

Activities

- Assist the NSC and the Secretariat in evaluating and monitoring the National Action Plan implementation
- Assist the NSC in elaborating operational half-yearly action plans with agreed milestones to be achieved;
- Assist NSC to maintain effective feedback and coordination with Development Partners and other lead agencies collaborating on the development of the NAP;
- Assist the NSC Task to collect and disseminate information on the status of drought and land degradation in the country
- Assist in creating a NSC 'windows' NAP web site and in maintaining the same

- Coordinate on spatial data capture, storage and use as required by the NSC in management of drought and land degradation
- Participate in, and present progress reports at local, national and regional
- Elaborate technical and financial progress reports on the half-yearly action plans with respect to the fulfillment of the plans, difficulties encountered and milestones achieved
- Liaise with other lead agencies, to share experiences and exchange information and lessons learned in implementation of action plans related to management of drought and land degradation
- Other tasks as specified by the National Steering Committee (NSC) and the Focal Point

The Monitoring and Evaluation Committee

- The M&E Committee will comprise the following institutions:
- National Environment Management Authority
- Kenya Wildlife Services
- National Museums of Kenya
- Kenya Forest Services
- National Drought Management Authority
- Kenya Forestry Research Institute
- Kenya Agricultural and Livestock Research Organisation
- Ministry of Agriculture, Livestock and Fisheries
- Water Resources Management Authority
- Ministry of Environment, Water and Natural Resources
- Ministry of East Africa Affairs, Commerce, and Tourism
- Ministry of Devolution and Planning

Annex 2: Contributors to the NAP Process

No	NAME	INSTITUTION
	National Consultation P	articipants
1.	Prof. Judi Wakhungu	Cabinet Secretary, Ministry for Environment & Natural Resources
2.	Dr Richard Lesiyampe	CBS Principal Secretary, State Department of Environment
3.	Prof. Geoffrey Wahungu	Director General- NEMA
4.	Dr Kennedy I Ondimu	National Environment Management Authority
5.	Silas Jothany Ngeywo	National Environment Management Authority
6.	Dr. Ali Adan Ali	National Museums of Kenya
7.	Issak Elmi	National Environment Management Authority
8.	Dr . Diana Mobagi	National Environment Management Authority
9.	Abigail R. Mutambu	National Environment Management Authority
10.	Julius K. Mwangi	National Commission for Science Technology & Innovation
11.	Donald Mwendwa	Department of Resource Survey and Remote Sensing
12.	Eliud W. K. Ngunga	National Environment Management Authority
13.	Rebecca Nyamache	National Environment Management Authority
14.	Joseph W. Kiema	National Environment Management Authority
15.	Dr. Desterio Nyamango	Kenya Agriculture Research Institute (KARI)
16.	Silas Mulehi	Department of Resource Survey and Remote Sensing
17.	Nyamache Tinga	National Environment Management Authority
18.	Kavaka W. Mukonyi	Kenya Wildlife Services
19.	Maina Mwangi	National Environment Management Authority
20.	Frank Msafiri	CCD - Kenya
21.	Samson Kome	State Dept of water Development
22.	Omeny Peter	Kenya Meteorology Department
23.	Francis Inganga	National Environment Management Authority
24.	Paul Nguru	National Environment Management Authority
25.	Godfrey Mwangi	National Environment Management Authority
26.	Wallace Ngolo	National Environment Management Authority
27.	Harron Wanjohi	National Environment Management Authority
28.	Anthony Waswa	National Environment Management Authority
29.	Felix Mugambi	National Environment Management Authority
30.	Beatrice Ongaki	National Environment Management Authority
31.	Immaculate Simiyu	National Environment Management Authority
32.	Handson Mkanga	National Environment Management Authority
33.	Joshua Otinga	National Environment Management Authority
34.	Maurice Otieno	National Environment Management Authority
35.	Anastacia Maore	National Environment Management Authority
36.	Fredrick Otswongo	Kenya Industry Property Institute
37.	Wilson Mukuna	Centre for Livelihood Opportunities Unlimited
38.	Gituma Kanyiri	National Environment Trust Fund (NETFUND)

National Action Programme 2015 - 2025

73.	Amaslia Nduku	MAELI Kubwa CBO
74.	Dometila Titus	MAELI Kubwa CBO
75.	Richard Lemarkat	Kenya Wildlife Services
76.	Philamon Cebet	Kenya Wildlife Services
77.	Nathan Gatundu	Kenya Wildlife Services
78.	Mwanjuma Kidzuka	Kenya Wildlife Services
79.	Mejumaa Iddi	Ndumbule Women Group
80.	Hamisi Mwaka	Ndumbule Women Group
81.	Mbeyu Charo	Ndumbule Women Group
82.	Mejumaa Kenga	Ndumbule Women Group
83.	Jefwa Charo	Ndumbule Women Group
84.	Vincent Nyamawi	N uru CBO
85.	Chinyavu Sheli	N uru CBO
86.	Henry Mdzomba	N uru CBO
87.	Mrisa Mwakupha	N uru CBO
88.	Jumwa Beja	N uru CBO
89.	Umazi Mrisa	N uru CBO
90.	Mariam Mwatsahu	N uru CBO
91.	Dzije Chimba	N uru CBO
92.	Kaduka Ngao	N uru CBO
93.	Mnyazi Menza	N uru CBO
94.	Patience Mutero	Baha Kwenu CBO
95.	Chidod Mrisa	Baha Kwenu CBO
96.	Mwa ka Makanga	Baha Kwenu CBO
97.	Florance Dzine	Baha Kwenu CBO
98.	Nadzungu Chileta	Baha Kwenu CBO
99.	Mbeyu Mkuba	Baha Kwenu CBO
100.	Mkambe Nyamawi	Baha Kwenu CBO
101.	Magadelena Mangale	Baha Kwenu CBO
102.	Luvuno Mwarua	Baha Kwenu CBO
103.	Wanze Wanbua	Baha Kwenu CBO
104.	Lipa Mulumbo	Lima Self Help Group
105.	Amina Porepore	Lima Self Help Group
106.	Nchalika Juma	Lima Self Help Group
107.	Mwanakombo Kasim	Lima Self Help Group

Framework for combating desertification in Kenya

108.	Halima Omari	Lima Self Help Group
109.	Nkuria Said	Lima Self Help Group
110.	Hamisi Dzila	SHIKOFA CBO
111.	Mwanaisha Kidzuga	SHIKOFA CBO
112.	Said Hamadi	Chitsanze Falls CBO
113.	Shabani Saidi	Chitsanze Falls CBO
114.	Mwanamisi Chaka	Chitsanze Falls CBO
115.	Omar Juma	Chitsanze Falls CBO
116.	Mwanajuma Nassor	Chitsanze Falls CBO
117.	Dama Ngombo	Chitsanze Falls CBO
118.	Brenda Obino	Chitsanze Falls CBO
119.	Omar Mwasabuni	Chitsanze Falls CBO
120.	Muhamed Mwajidani	Chitsanze Falls CBO
121.	Mwanasha Benoa	Chitsanze Falls CBO
122.	Maseleman Chigambo	Chitsanze Falls CBO
123.	Hamisi Salim	Chitsanze Falls CBO
124.	Irene Njago	Kenya Union of the Blind Group
125.	Elizabeth Muthoka	Kenya Union of the Blind Group
126.	Jane Muthoka	Kenya Union of the Blind Group

REFERENCES

- UNHCR Report: 2009: *Environmental Best Practices*, (EIA) Nairobi
- GOK 2002: National Assessment report for the World Summit on Sustainable Development
- GOK 2002: National Action Plan, Ministry of Environment, Natural Resources and Regional Development Authorities 2002, Nairobi
- GOK 1999: Environmental Management and Coordination Act of 1999. Government Printers 1999
- GOK 2004: “*Economic Survey*”; Central Bureau of Statistics, Ministry of Planning and National Development, Nairobi
- GOK 2007a: Kenya Vision 2030, MPND Nairobi Kenya
- 2007b: Medium Term Plan 2008-2012, MPND Nairobi Kenya
- GOK 2007: Polar Meteorology: *Understanding Global Impacts*, report for the World Meteorological Day 2007 Kenya Meteorological Department, Nairobi
- GOK 2012: Draft Sessional Paper No. 8 of 2012 on National Policy for the Sustainable Development of Northern Kenya and Other Arid Lands. “*Releasing Our Full Potential*”
- GOK 2004: Third National Report on the Implementation of the United Nations Convention to Combat Desertification (UNCCD), 2004
- GOK 2010: Analysis of Climate change and Variability risks in the small scale holder sector - Rome 2010
- GOK 2010: National Climate Change Response Strategy, Government of Kenya 2010
- GOK 2005: National policy for the sustainable development of arid and semi arid lands of Kenya.
- GOK 2002: National Action Programme: A Framework for Combating Desertification in Kenya in the Context of the United Nations Convention to Combat Desertification; Government Printers, Nairobi
- GOK 2015: Kenya Meteorological Services Reports of 2015, Nairobi
- NEMA 2010: State of Environment and Outlook 2010: Supporting the delivery of Vision 2030, Progress Press Company Malta 2011
- Prota 2007a: Vegetable oils. Plant Resources of Tropical Africa, Prota Vol. 14
- Prota 2007b: Vegetable oils as feedstock for biodiesel in Africa: Prota Newsletter. No. 6
- UNEP 2009: Kenya Atlas of Our Changing Environment, Nairobi



All correspondence should be addressed to:
Director General
National Environmental Management Authority

P.O. Box 67839 Nairobi 00200
(254-020)-6005522 / 3 / 6 / 7,6008767

Mobile line: 0724 253 398, 07230363 010,
0735 013 046, 0735 010 237

Fax: (254- 20) 6008 997

Hotline: 020-8077233, 020-6006041

Email: dgnema@nema.go.ke

Website: www.nema.go.ke