ALIGNMENT OF NAP TO THE UNCCD 10-YEAR STRATEGIC OBJECTIVES

(2008-2018)

Agricultural Extension Department
Ministry of Agriculture

Asmara, Eritrea
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List of Acronyms and Abbreviations

AED:	Agricultural Extension Department
CBO:	Community Based Organization
CHZ:	Central Highland Zone
CITES:	Convention on International Trade in Endangered Species of wild Fauna and Flora
CLMP:	Catchments and Landscape Management Project
COMSAT:	College of Marine Sciences and Technology
COP:	Conference of Parties
CPZ:	Coastal Plains Zone
CST:	Committee for Science and Technology
CSO:	Civil Society Organizations
DFSC:	Danish Forest Seed Centre
DLDD:	Desertification, Land Degradation and Drought
DPMP:	Drought Preparedness and Mitigation Plan
ECDF:	Eritrean Community Development Fund
EGB:	Eritrean Grain Board
EIA:	Environmental Impact Assessment
EIT:	Eritrean Institute of Technology
ERREC:	Eritrean Relief and Refugee Commission
E U:	The European Union
FAO:	Food and Agriculture Organisation
FWA:	Forestry and Wildlife Authority
GDP:	Gross Domestic Product
GEF:	Global Environmental Facility
GHGs:	Greenhouses Gases
GM:	Global Mechanism of the UNCCD
GoSE:	Government of the State of Eritrea
Ha:	Hectare
HAC:	Hamelmalo Agricultural College
IBA:	Important Bird Areas
ICRAF:	International Centre for Research in Agro forestry

ICT:	Information and Communication Technology
IFAD:	International Fund for Agricultural Development
IFS:	Integrated Financing Strategy
IGAD:	Inter-governmental Authority on Development
IIF:	Integrated Investment Framework
IUCN:	International Union for Conservation of Nature
IWRM:	Integrated Water Resources Management
LADA:	Land Assessment in Dry Land
MDGs:	Millennium Development Goals
MoA:	Ministry of Agriculture
MoE:	Ministry of Education
MoEM:	Ministry of Energy and Mines
MoF:	Ministry of Finance
MoZA:	Ministry of Zonal Administration/Local Government
MoMR:	Ministry of Marine Resources
MoND:	Ministry of National Development
MoLWE:	Ministry of Land Water and Environment
MSY:	Maximum Sustainable Yield
NAP:	National Action Program
NAPA:	National Adaptation Programme of Action
NBSAP:	National Biodiversity Strategy and Action Plan
NCB:	National Coordination Body
NCEW:	National Confederation of Eritrean Workers
NCSA:	National Capacity Self Assessment
NDF:	National Desertification Fund
NEMP-E:	National Environmental Management Plan - Eritrea
NFP:	National Focal Point
NGO:	Non-Governmental Organization
NUEYS:	National Union of Eritrean Youth and Students
NUEW:	National Union of Eritrean Women
NWLZ:	North-western Lowlands Zone

PA:	Protected Area
PPAs:	Proposed Protected Areas
PCRRDP:	Post – Crisis Rural Recovery and Development Programme
PERA:	Proclamation for the establishment of Regional Administration
PHS:	Population and Health Survey
PPS:	Proposed Project Profiles
PRS:	Poverty Reduction Strategy
RAP:	Regional Action Programme
RAPSA:	Rapid Agricultural Production Situation Assessment
RMRS:	Regional Office for Mapping and Remote Sensing
SDP:	Strategic Development Plan
SLM:	Sustainable Land Management
SRAP:	Sub Regional Action Plan
STI:	Sciences and Technology Institutions
SWC:	Soil and Water Conservation
SWLZ:	South-western Lowlands Zone
UNCBD:	United Nations Convention on Biodiversity
UNCCD:	United Nations Convention to Combat Desertification
UNDP:	United Nations Development Program
UNEP:	United Nations Environmental Program
UNESCO:	United Nations Education, Science and Cultural Organizations
UNFCCC:	United Nations Framework Convention on Climate Change
USD:	US Dollar
WLZ:	Western lowland Zone
WOCAT:	World Overview of Conservation Technology
WRD:	Water Resources Department
WSSD:	World Summit on Sustainable Development

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FOREWORD

Land degradation is inarguably the most critical environmental challenge facing Eritrea. This is more important in areas where agricultural outputs are vital. To mitigate this challenge, Eritrea has signed the UNCCD in 1994 and ratified it in 1996 and holds the objectives of Agenda 21 of the UN. In recognizing the significant role of having a National Action Programme (NAP) to combat desertification and to mitigate the effects of drought, as required also by the UNCCD country Parties, Eritrea prepared and adopted its first NAP in January 2002, with the view of coordinating mechanism in arresting land degradation, desertification and drought.

The health and productive potential of the land are central to improve agricultural production and its contribution to food security. As responsible institution, the Ministry of Agriculture is deeply aware of these pressing issues to lead the national efforts to reversing land degradation and its productive potentials. An effective action can only be undertaken through a joint and integrated effort of the Government and the people. A key goal for NAP is thus to create synergies with other strategic planning processes and mainstreaming NAP into the National and Sector Development Plans.

From a global perspective, the UNCCD entered its second decade in 2007 and the Parties to the Convention unanimously adopted the 10-Year strategic plan and framework (The Strategy) to enhance the implementation of the Convention for 2008-2018. By the same decision, the COP recognized the need for Parties to realign their NAPs with the Strategy.

The NAP has been implemented to the extent possible in the past two decades. However the country still faces major land degradation challenges and emerging issues that require an adoption of new NAP version as a strategic framework for intervention. The Ministry of Agriculture (MoA) five-Year (20014-2018) Strategic Plan and other previous plans have been prepared taking into consideration the UNCCD Ten-Year Strategic plan where SLM activities are incorporated. It is within this context that the Government of Eritrea revised and aligned its NAP with the UNCCD 10-Year Strategy (2008-2018). This ensures the Government's commitments and compliance with the UNCCD's decision (3/COP.8 of 2007) that states affected country parties "to align their action programmes and other relevant implementation activities relating to the Convention with The Strategy by, inter alia, addressing the outcomes under the five operational objectives.

The Government of the State of Eritrea (GoSE) reaffirms NAP as a working document for the coming five years to meet the national and international UNCCD obligations in implementing the provision of the Convention. The new NAP is aligned with the 10-Year Strategic Plan. Therefore, the MoA will be in the forefront of making sure that the aligned NAP (2014-2018) becomes a framework for arresting land degradation and controlling desertification and mitigate the effects of drought.

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EXECUTIVE SUMMARY

After a decade of NAP adoption, it is recognized that limiting factors have prevented to effective implementation of the Convention. Insufficient financing compared to the other two Rio Conventions (UNCBD and UNFCCC), a weak scientific basis, insufficient advocacy and awareness, institutional weaknesses and difficulties in reaching consensus among Parties are still among the major factors hindering the smooth implementation of the United Nations Convention to Combat Desertification (UNCCD, 2007).

Consequently, the policy environment has changed considerably since Rio Summit (1992) with the adoption of the Millennium Development Goals (MDGs), the outcomes of the World Summit on Sustainable Development (WSSD, 2002), increased support, stronger commitment for land degradation, climate change mitigation and adaptation, prospects of global agricultural trade liberalization and growing numbers of affected population forced new initiatives on the impacts of environmental degradation and drought.

The UNCCD 10-Year Strategic Plan (2008-2018) provides the starting point for the preparation of this aligned NAP along with an assessment of the successes and limiting factors of the Convention as it enters its second decade. This Strategic Plan provides a unique opportunity to address some of the Convention's key challenges to capitalize on its strengths, to seize opportunities provided by the new policy and financing environment and to create a new revitalized common ground for all UNCCD stakeholders.

The country faces a number of Sustainable Land Management (SLM) challenges including vulnerability to land degradation and desertification. The latter poses one of the most compelling developmental challenges to Eritrea. Food insecurity is seen as a structural problem and the increasing intensity of drought and erratic rainfall are phenomenal.

Factors contributing to land degradation include population pressures, urbanization, climatic conditions, deforestation, over-grazing, improper systems of cultivation, improper irrigation systems, and soil erosion. To address these, Eritrea has signed and ratified a number of Multilateral Environmental Agreements (MEAs) such as UNFCCC, UNCBD and UNCCD. The latter provides a framework for promoting SLM, and a global partnership to address desertification. In addition, the country has prepared a National Action Programme (NAP, 2002) that has identified factors and remedies to land degradation/desertification. Furthermore, the country launched an Integrated Financial Strategy (IFS, 2013) with the overall objective to guide resources mobilization for the implementation of the NAP and the UNCCD 10-Year Strategic Framework (2008-2018) in Eritrea.

Major efforts being undertaken by the GoSE to arrest and control Desertification, Land Degradation and effects of Drought (DLDD) include: Afforestation of highly degraded catchments, village woodlot, farm-forestry, and community forestry development, encouraging fuel-wood conservation and wood production, expanding enclosures for natural regeneration, soil and water conservation, conservation agriculture, promotion of renewable energy and energy-saving technologies, protection of biological diversity, promotion of climate change adaptation and mitigation, agro-forestry and community based land use planning promoting the wise-use of

non-wood forest products, implementing a management plan for riverine woodlands, and enhancing international and regional co-operation on forest conservation and development.

To this effect, the GoSE in collaboration with development partners and key stakeholders accomplished the following major achievements to arresting land degradation and control of desertification:

- The MoA has prepared a Strategic Development Plan (2014-2018);
- Around 94 dams with a capacity of 103,621,122 m^3 and 305 pounds with a capacity of 3,335,000 m^3 were constructed during 2004-2013;
- Since 1991, about 98 million seedlings have been planted to rehabilitate around 40,000 ha of degraded lands. Around 21 million were planted through Summer Students Campaign and about 250,000 ha of land has been enclosed in order to regenerate natural vegetation;
- To promote the energy saving, more than 130,000 efficient cooking stoves have been installed and are currently in use;
- Eritrean National and Regional SLM Platform established and operational;
- To alleviate environmental degradation while improving livelihoods of the farming communities, piloting of SLM practices is being carried out in 28 villages of Zoba Maekel;
- To ensure sustainable water resources development and use, the Government enacted Water Proclamation in 2010 and as well developed the IWRM action plan (2009-2016);
- The GoSE proclaimed the Forestry and Wildlife Conservation and Development, Proclamation No. 155/2006, for the conservation and development of forests and wildlife resources of the country;
- To conserve and develop the forestry and wildlife resources of the country, GoSE has developed a five years (2012 – 2016) Strategic Plan;
- To improve and strengthen the forest and wildlife conservation and management, the Government has established a stand-alone institution "the Forestry and Wildlife Authority" in 2012;
- To enhance the biodiversity conservation and sustainable use, the Government in collaboration with GEF has initiated and is operationalizing a Protected Areas system in Semienawi and Debubawi Bahri (SDB); Hawakil Islands (BIHI), and the Bara'soli bay (since 2013). The area covers approximately 10% of territorial area of the country;
- The MoI is also regularly disseminating DLDD related information to the public through the available media outlets focused to rehabilitation of degraded lands; and
- All stakeholders and partners including CBOs, CSOs and other key partners are actively participating in DLDD interventions.

The production of this aligned NAP (2014-2018) is the result of GoSE's support to tackle DLDD. This new NAP version expresses the government's commitment to the UNCCD, particularly directed towards meeting the national and international strategies to combat DLDD.

The strategic objectives set by NAP are focused to mitigate the existing land degradation status and its adverse effects with consideration to the outlined basic five pillars and twelve major contributing factors affecting desertification and land degradation. These factors need to be considered in sectors' planning and budgeting and integrate them with the existing national development plans and strategies. Hence, this NAP contains five operational objectives, 20

outcomes and 31actions systematically aligned and derived from the 10-Year Strategic Plan of the UNCCD and the Five Years MoA Strategic Plan (2014-2018) that should be met by 2018.

The aligned NAP consists of six major chapters as highlighted below:

Chapter 1: Introduction*:* contains an overview of desertification and land degradation in Eritrea and international concerns to combat desertification and land degradation. It also presents the guiding principles of this NAP alignment processes.

Chapter 2: Country Profile: describes the general geographic and socio-economic context of Eritrea within which any combating desertification strategy should be designed. This section provides information on the geography, the main socio-economic system and key drivers of land degradation and desertification.

Chapter 3: The National Strategies and Action Programme/NAP: this part documents the five pillars of the NAP and a comprehensive list of factors/issues contributing to drought, desertification and land degradation. The issues include both physical and socio-economic factors related to DLDD and SLM so as to consider adequate attention to the underlying socio-economic reasons for land degradation, desertification and drought.

***Chapter 4: The National Action Programme (NAP) Alignment Process*:** this section presents the rationale and objectives of the NAP alignment process including the vision and mission of DLDD. It also highlights on the steps followed to develop the NAP Alignment process.

Chapter 5: Alignment of the NAP to the UNCCD 10-Year and Five years MoA Strategic Development plans: this section is the main part of the aligned NAP that describes the required proposed aligned action programmes and NAP implementation plan that addresses DLDD issues within the stipulated timeframe (2014-2018).

***Chapter 6: Implementation Arrangement*:** This final section describes the institutional mechanism for the coordination and implementation of the aligned NAP and the need for monitoring and evaluation of the NAP at regular basis. It also provides information on the sequence envisaged for implementing the NAP.

The document also contains annexes, i.e. Annex 1 shows the ToR, Annex 2 listed the Bankable Project Proposals to be undertaken within the framework of NAP, Annex 3 shows list of contributors to the NAP Alignment process while Annex 4 illustrates the semi-structured questionnaires developed to conduct interviews with key informants.

The aligned NAP document has been developed with full participation of stakeholders including ministries, regional administration, academia, professionals, civil societies and national consultants. The process had strong commitment and thorough consultative process. The NAP is believed to open a new direction to a successful implementation of The Strategy following the proper approach to arrest drought, land-degradation and control desertification. It is assumed that all stakeholders and partners would play their respective roles and responsibilities and make necessary inputs towards the effective and efficient implementation of the NAP.

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1. INTRODUCTION

1.1 Background and context

Eritrea has signed the United Nation Convention to Combat Desertification (UNCCD) in 1994 and ratified it in 1996. The Convention recognizes land degradation as a function of poverty, food insecurity, unemployment and unsustainable development. Thus it requires promoting models of rural development that clearly have ownership at national and household levels. The UNCCD also promotes the need for close consultation with civil societies and community based organizations.

Land degradation is the most critical environmental challenge facing Eritrea. It is due to fact that a National Action Program (NAP) to combat desertification and mitigate the effects of drought has been prepared and adopted in January 2002 to address this challenge. A new institutional set-up has been proposed in the NAP document, which clearly shows the role and responsibilities of all stakeholders including the local communities in implementing the Convention.

The National Environmental Management Plan for Eritrea (NEMP-E, 1995) has identified soil erosion as the most worrisome environmental issue facing Eritrea. The impact of soil erosion on agricultural production is one aspect of immediate concern. The soil loss in the highlands of Eritrea is high. The Afdeyu data on five test plots, soil loss was found to range from 13.5 - 22 ton/ha/year for the years 1986-2007 (Tesfay *et. al,* 2009). The test plots are with different slope ranging from 2 to 65% and different cover (grass, annual crop or rock outcrop).

Several measures have been taken to implement the UNCCD by the government, non-governmental organizations and community based organizations. Apart from their active participation and involvement in the preparation of the NAP document as members of the Technical Committee, they have done tremendous amount of work to combat desertification in various fields. The Ministry of Agriculture, as the National Focal Point for UNCCD, is engaged in implementing programs to reduce the impacts of DLDD through afforestation, soil and water conservation measures and improve control over water in rain fed areas and various land improvement programmes.

The Government of the State of Eritrea has made great efforts in the preparation of policy, legal, institutional and strategic plans related to the aligned NAP. There are several major development interventions that provide appropriate entry points for the NAP mainstreaming into the national development process. These initiatives are significant, as to determine the substance of the national development agenda. These initiatives together assist in the formation of the development framework for the next five to ten years. Some of the main instruments prepared by the government include: National Environmental Management Plan (NEMP-E) for Eritrea (DoE, 1995), Land Proclamation No.58/1994, Poverty Reduction Strategy Paper (PRSP 2004), The Forestry and Wildlife Conservation and Development Proclamation No 155/2006, National Adaptation Program of Action (NAPA/2007), National Capacity Needs Self Assessment (NCSA, 2007), Eritrean Water Law, Proclamation, No. 162/2010, Eritrea's Five Year Action Plan For The Great Green Wall Initiative (2011-2015), Forestry and Wildlife Strategy Plan (2012-2016) and Eritrean Environmental Law (Draft Proclamation 2012).

The NAP 2002 places significant emphasis on project proposals that were prepared and supposed to be implemented by relevant sectors and key partners. It was believed that the project proposals represent affirmation of the will to act. Accordingly 23 project profiles, which was subsequently developed into 20 bankable projects with a total cost of about 40 million USD which were not fully implemented as scheduled due to financial constraints and lack of consultation forum. However some of these projects were implemented through own resources and mainstreaming with sector plans. The project proposals are essential and valid that needs great attention.

One of the primary goals of the MoA is to develop the sector's institutional and human capacity. Over the plan period, integrated efforts are assumed to carry out comprehensive Human Resources Development to MoA's staff and communities at all levels so as to efficiently and effectively play their envisaged roles. In the past ten years (2004-2013) more than 28,000 farmers have been trained in the area of DLDD, out of which around 50% were women. Over the coming five years the MoA intends to upgrade the skills of selected staff and employ 3,685 professionals with varying levels of qualifications both at national and Zoba levels. Moreover, it intends to upgrade skill and knowledge on soil and water conservation, animal health and production, horticultural crops production etc. to 2,500 farmers/contact farmers.

The NAP aligned the national strategies, programmes and action plans with the UNCCD 10-Year Strategy (2008-2018) and the MoA five years Strategic Plan (2014-2018), to what might pragmatically be achieved over the next five years with respect to combating desertification, land degradation and mitigate the effects of drought (DLDD) in Eritrea.

1.2 International concern and plan to combat DLDD

It has to be noted that fertile areas provide food and renewable resources to a growing population. Soil fertility, the very basis of food supply, is in danger of being declined. A quarter of the earth's land area has been degraded over the last 25 years; 24 billion tones of soil are lost through erosion each year (BMZ, 2013). These contribute substantially to the gas emissions from land-use change and thus to climate change. The consequences of climate change, in turn, which include high temperatures, altered patterns of precipitation and more frequent extreme events (such as heat waves, drought and flooding) lead to additional pressure on human societies, natural ecosystems and soils, and thus cause further land degradation. Sustainable land management is therefore not only a key element of efforts to combat land degradation, but also of climate change adaptation and mitigation.

DLDD have affected the world for centuries, and it is reported to be increasing in many parts of the world, with negative consequences on the productivity of the land and its ability to provide ecosystem services. However, greater attention has turned to these challenges only over the past two to three decades. The establishment of UNCCD in 1994 showed that these problems presently receive worldwide recognition although it was initiated in Stockholm in 1987. It also became obvious that further studies to assess DLDD are necessary in order to understand their causes, scale, and diverse effects.

Land degradation is increasing in severity and extent in many parts of the world, with more than 20% of all cultivated areas, 30% of forests and 10% of grasslands undergoing degradation (Bai et al., 2008). Millions of hectares of land per year are being degraded in all climatic regions. It is estimated that 2.6 billion people are affected by land degradation and desertification in more than hundred countries, influencing over 33% of the earth´s land surface (Adams and Eswaran, 2000). This is a global development and environmental issue highlighted at the United Nations Convention to Combat Desertification, the Convention on Biodiversity, and the Kyoto Protocol on global climate change and the Millennium Development Goals (UNEP, 2008).

In Africa, land degradation and desertification processes result from both human activities and climatic variability. An estimated 65% of Africa's agricultural land is degraded due to erosion and/or chemical and physical damage. Thirty-one percent of the continent's pasture lands and 19% of its forests and woodlands also are classified as degraded (FAO, 2005). Overgrazing has long been considered the primary cause of degradation in Africa but it is now thought that rainfall variability and long-term drought are more important determinants. Land degradation is especially widespread in Sub-Saharan Africa, affecting 20-50% of the land and some 200 million people (Snel and Bot, 2003).

According to UNCCD, the consequences of land degradation include undermining of food production, famines, increased social costs, biodiversity loss, decline in the quantity and quality of fresh water supplies and public health services, increased poverty and political instability, reduction in land's resilience to natural climate variability and decreased soil productivity.

Developed as a result of the Rio Summit in 1992, the UNCCD is a unique instrument that has brought attention to land degradation in the dry lands exist some of the most vulnerable ecosystems and people in the world. It is also the only legally binding international Convention addressing the desertification issue. Ten years after its coming into force the UNCCD benefits from universal membership (currently about 196 countries) and is increasingly recognized as an instrument which can make a lasting contribution to the achievement of sustainable development and poverty reduction globally.

After a decade of implementation, it is recognized that limiting factors have prevented optimal deployment of the Convention. Chief among these factors are insufficient financing compared to its two Rio Conventions (UNCBD and UNFCCC), a weak scientific basis, insufficient advocacy and awareness among various constituencies, institutional weaknesses and difficulties in reaching consensus among Parties (UNCCD, 2007).

The policy environment has changed considerably since Rio with the adoption of the Millennium Development Goals (MDGs), the outcomes of the World Summit on Sustainable Development (WSSD, 2002), increased support to Africa and the Least-Developed Countries, stronger commitment for climate change mitigation and adaptation, prospects of global agricultural trade liberalization, and growing numbers of environmental refugees and migrants shedding new light on the impacts of poverty and environmental degradation (UNCCD, 2007).

This new environment (i.e. The UNCCD 10-Year Strategy) provides the starting point for this strategic plan along with an assessment of the successes and limiting factors of the Convention

as it enters its second decade. This strategic plan provides a unique opportunity to address some of the Convention's key challenges, to capitalize on its strengths, to seize opportunities provided by the new policy and financing environment, and to create a new, revitalized common ground for all UNCCD stakeholders.

1.3 Guiding principle of the NAP Alignment

The Convention identifies the following major principles and guidelines for the Country Parties to achieve the objectives:

- The Parties should ensure that decisions on the design and implementation of programmes to combat desertification and/or mitigate the effects of drought are taken with the involvement and participation of the population and local communities, and that an enabling environment is created at higher levels to facilitate action at national and local levels;
- The Parties should, in a spirit of international solidarity and partnership, improve cooperation and coordination at sub regional, regional and international levels, and better focus financial, human, organizational and technical resources where they are needed;
- The Parties should develop, in a spirit of partnership, cooperation among all levels of government, communities, nongovernmental organizations and landholders to establish a better understanding of the nature and value of land and scarce water resources in affected areas and to work towards their sustainable use; and
- The Parties should take into full consideration the special needs and circumstances of affected developing country Parties, particularly the least developed among them.

The following guiding principles are seen as fundamental to the success of the NAP alignment in Eritrea. These guidelines form the basis for more specific action proposed in chapter 5 of this document.

- Recognize that the real aim of arresting land degradation and controlling desertification is to improve the quality of human life in a sustainable manner and to enable human beings to realize their potential and lead lives of fulfillment on land.
- The country’s natural resources, particularly the arable lands are basic resources of livelihood that need to sustainably be conserved and utilized.
- Develop integrated management strategies that allow for multiple uses of resources, in which complementary plan of actions are integrated and conflicting activities are segregated.
- All stakeholders have the responsibility in arresting land degradation issues through sustainable land management (SLM) and integrated approaches. Integration and mainstreaming of land degradation and/or SLM issues required with all concerned stakeholders at all levels.
- Political commitment is always in place at all phases of programmes and projects.
- Awareness raising and capacity building programmes are basic elements of areas of intervention in tackling land degradation and/or desertification issues.

- According to the existing state of land degradation, an integrated watershed management approach is to be considered towards the achievement of natural resources restorations and sustainable use.
- Mainstreaming land degradation and/or SLM into national and sector planning processes is vital to ensure sustainability and follow economic, social and environmental impacts.
- Traditional knowledge and sustainable use practices are respected norms.
- International cooperation (technical and financial), is enhanced to tackle the causes of land degradation and achieve the intended UNCCD strategic objectives.

Based on the above mentioned principles the following general measures are proposed to attain the overall and immediate objectives with conscious consideration of vision/mission statements:

- Decision makers are aware of land degradation and desertification issues and make inputs towards minimizing the pressure on land.
- Integration among key stakeholders is improved through active participation at all levels particularly in realizing natural resources protection and use to allow environmental sustainability.
- Land degradation and SLM is mainstreamed at key institutions and partners so that policies, strategies, programs and plans are well coordinated and integrated.
- Land uses are effectively planned, degraded land reclaimed and natural resources sustainably utilized.
- Make maximum effort in the promotion of renewable alternative energy sources to reduce biodiversity losses and ensure sustainable livelihood.
- A continuous awareness programmes related to land degradation and desertification should be realized and supported by technical and financial resources with respected international and local knowledge.
- Develop a planning and management process that is sensitive to the issue of vulnerable groups (women and pastoralists).
- A well harmonized natural resources access and protection is in place through proper implementation of the existing and future legal and institutional frameworks.
- Land degradation and desertification is treated according to international and available applied information and environmental sustainability.
- Capacity building both institutional and human resources development

2. COUNTRY PROFILE

2.1 Location

Eritrea is located in the Sudano-Sahelian Zone of the Horn of Africa, lies north of the equator between latitudes 12^0 22′ and 18^0 02′ North and the longitudes 36^0 26′ and 43^0 13′ East. It is situated along the western side of the Red Sea connecting the Mediterranean Sea with the Indian Ocean and covers approximately an area of 124,320 sq km. Eritrea shares boundaries with the Sudan in the west, Ethiopia in the south, Djibouti in the southeast and with the Red Sea in the east. There are around 350 offshore islands, the prominent being the Dahlak Archipelago.

Figure 1: Map of Eritrea

2.2 Population

The population of Eritrea is about 3.5 million of which 70-80% live in the rural areas and derive their livelihood from agriculture activities both crop and livestock production (PHS, 2010). The annual population growth rate is estimated at between 2.7 and 3% and consists of 9 ethnic groups: Tigrigna (50.4%), Tigre (31%), Saho (5%), Afar (5%), Hidareb (2.5%), Bilen (2.1%), Kunama (2%), Nara (1.5%), and Rashaida (0.5%). The population is approximately 50% Christians and 50% Muslims. Ethnic, religious and gender parity is a strong element of national government policy.

2.3 Agro-ecological Zone

Eritrea is divided into six agro-ecological zones (Figure 2): (i) the Moist Highlands, (ii) Arid Highlands, (iii) Sub-Humid Highlands, (iv) Moist Lowlands, (v) Arid Lowlands and (vi) the Semi-Desert. Elevation ranges from 100 m (semi-desert) to 3018 m (Moist Highlands). Annual precipitation varies from less than 200 mm in the semi-desert to 1100 mm in the Sub-Humid Zone. Over half of the total land area (DoE, 1997) is unsuitable for agriculture due to steep topography or lack of reliable rainfall. Generally, rainfall is erratic with uneven distribution.

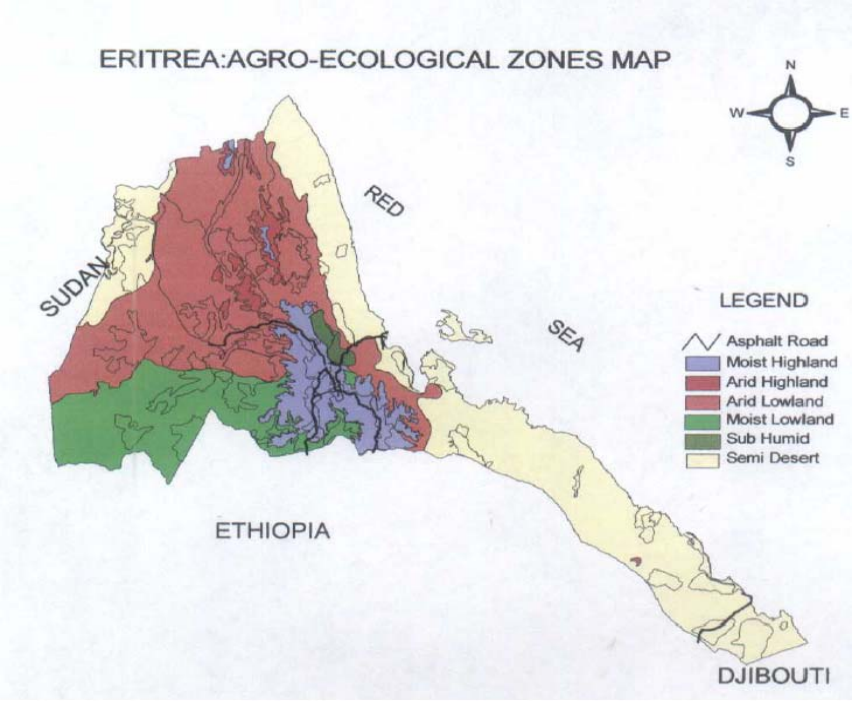


Figure 2: Agro-ecological zone of Eritrea (Source: DoL, 1997)

The country has a complex series of landscape and climatic features characterized by vertical zonation which goes from semi-desert to high-mountain environments, and with a wide range of land uses. Altitude ranges from 120 meters below sea level in parts of the eastern lowlands to over 3,000 meters on the Central Plateau. The coastal plains zone, adjacent to the Red Sea shoreline extends to about 1,200 km from the southern tip to the north. The most serious climatic condition of the coastal zone is the shortage of rainfall, either for agricultural, domestic or industrial use.

Temperature varies with altitude. The mean annual temperature ranges from 16°-18°C in the highlands to 28°C in the Lowlands to more than 30°C in the Coastal Plains (MoLWE, 1997). Most of the Western Lowlands and Coastal Plains are associated with hot and dry climatic conditions, while the Highlands are relatively cool. The presence of flat land, relatively fertile soil, and a milder climate makes the Central Highlands a center of rain-fed agricultural activity. Several of the major urban centers of Eritrea, including the capital city, Asmara, are located in the Central Highlands zone. In times of good rains, the Western Lowlands have potential for cultivation and agro-pastoralism. The Coastal Plains are the location of the two major port towns

of Eritrea, Massawa, and Assab. In general, the Central Highlands are the most densely populated part of the country, while the Lowlands are sparsely populated.

2.4 Land degradation

Land is the most precious and the most pervasive natural resource Eritrea has. The country is arid and semi-arid and majority of the populations derive their livelihood from the land. The cultivated cropland or arable portion is the landmass approximately 23% and it is the key resource, which needs to be protected from desertification or land degradation. Nevertheless, the National Environmental Management Plan for Eritrea (NEMP-E, 1995) has identified land degradation as the most worrisome environmental issue facing Eritrea. It is inarguably the most in serious and widespread environmental challenge facing Eritrea. World Bank (1994) on the other hand indicates that, "in terms of the impact of income, productivity and human welfare, land degradation and the associated challenges of deforestation are the two areas of greatest concern in Eritrea.

Due to topographic nature, deforestation, overgrazing, over-cultivation, soil erosion, urbanization and improper management practices of the natural resources have resulted in serious land degradation. Over-grazing is a common phenomenon all over Eritrea, with resulting soil degradation. Land degradation, in combination with the lack of production-enhancing inputs and inappropriate livestock management practices results in low productivity. This is a fundamental challenge in countries like Eritrea, where livelihoods depend largely on subsistence agriculture. According to a report by the MoA in Afdeyu Research Sub-Station, the soil loss in the highlands of Eritrea is high. The Afdeyu data on five test plots, soil loss was found to range from 13.5- 22 ton/ha/year for the years 1986-2007 (Tesfay et. al, 2009). The test plots are with different slope ranging from 2 to 65% and different cover (grass, annual crop or rock outcrop).

Plate 1: Gully erosion, Berik, Zoba Maekel, 2007

Plate 2: Cutting trees for fuel-wood, Hagaz, Zoba Anseba, 2007

Even though, there is no specific document or information on coastal erosion, in relation to sediment transported by rivers, one can expect some coastal adjustment in relation with oceanographic conditions (tides, waves, currents, storms) and the selection of sites for human developments, infrastructures and activities has to be carefully processed in order to avoid

medium or long term problems, such as sea intrusion during exceptional storms or sea level rise. Some areas have already been identified as more sensitive to coastal erosion and sea intrusion such as the area of Gurgussum and the lowland of Massawa used for salt extraction. A study of the whole coast will be necessary before planning any major developments.

No single practice is likely to solve land degradation challenges. A conjunction of improvements is needed in the agricultural system, taking account of the temporal and spatial changes between seasons and from year to year, as well as the complex interactions between species and within the ecosystem, and the farm families' situation. The principal focus must be on the farmers rather than on the land alone, as they are the ones who make the ultimate decisions on land use and management. Furthermore, controls of land degradation must involve all stakeholder groups in a society and solutions must thus be based not only on technical but should take account of socio-economic, cultural and political dimension.

Another environmental challenge is climate change. The key climatic hazards identified by the National Adaptation Programme of Action (NAPA, 2007) for Eritrea are increased climatic variability; recurring drought; flash flooding; and sea level rise. In addition, long-term changes in climate will have serious adverse impacts on agriculture, water resources, forestry, coastal environment and human health. There are strong synergies between land degradation and climate change. An increase in extreme weather events resulting from global warming, such as drought and heavy rains, leads to land degradation. On the other hand, land degradation, particularly from unsustainable agriculture and improper land management practices and deforestation are major contributors such as to increased emission of Green House Gases (GHGs). Therefore, attempts to address the land degradation challenges must draw on the synergies between the global environmental Conventions such as the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention on Biological Diversity (UNCBD) in order to achieve maximum impact in the fight against DLDD.

2.5 Deforestation

The cutting down of trees for firewood, urbanization, construction and land clearing for cultivation etc. without replacement led to soil erosion and latter to land degradation and drought. In Eritrea, forest resources and vegetation covers are under serious threat. As a result forest cover and forest quality are declining.

Eritrea’s forest cover was 30% of its total land mass about a century ago. In 1952, it decreased to 11% and was estimated to be only 5% in the year 1960. At present forestland represents less than 1% of the total area (NEMP-E, 1995, MoA, 1994 and Bein *et al*. 1996). According to FAO’s Africover (FAO/TCP project 2001) the land cover classification of Eritrea is presented in Table 1 below. The original standing wood-biomasses of the highlands has thus virtually been destroyed by centuries of permanent occupation of the land for cultivation and livestock grazing together with growing demands of wood for poles and fuel as a source of domestic energy (NEMP-E, 1995). Another survey conducted in 1998 by the Department of Energy showed that a share of biomass, oil products and electricity were 65.8%, 33.1% and 2.1% respectively. In rural areas, up to 97% of the household energy consumption is derived from biomass (NAP, 2002).

Table 1: Land Cover Classification of Eritrea

Land Cover Name	Ha
Artificial Water bodies	739.94
Bare rocks and river banks	799,199.59
Bare soil	784,279.45
Closed Herbacous Vegetation (Seasonally Flooded)	23,141.25
Closed Mangrove (Trees or Shrubs)	13,556.79
Closed Shrubs	41,615.44
Closed to Open Herbaceous Vegetation	58,266.85
Closed Trees (Broadleaved Evergreen)	73,163.76
Closed Woody Vegetation Thickets	101,859.76
Irrigated Herbaceous Fields	52,720.86
Irrigated Herbaceous Fields (mixed unit with natural vegetation or other)	8,084.24
Irrigated Shrub Crop - Banana	5,040.70
Irrigated Tree Crop - Citrus	4,558.65
Isolated (in natural vegetation or other) Rainfed Small Herbaceous Fields	584,766.50
Open Shrubs	2,349,270.28
Open Trees	109,188.90
Rainfed Large to Medium Herbaceous Fields	105,772.05
Rainfed Small Herbaceous Fields	527,162.49
Sand	400,291.98
Savannah (Shrub or Tree and Shrub)	1,542,020.95
Scattered (in natural vegetation or other) Irrigated Herbaceous Fields	390,335.21
Sparse Herbaceous Vegetation	811,364.95
Sparse Shrubs and sparse trees	3,550,097.51
Tidal area	12,246.64
Tree and Shrub Savannah (Seasonally Flooded)	4,804.93
Tree Plantation - Eucalyptus	10,858.58
Urban and Associated Areas	13,453.66
Water bodies and lake shoreline	3,793.87
Total	**12,381,655.76**

Source: FAO Africover (FAO/TCP): Eastern African Project (2000)

2.6 Government

Administratively, the country is divided into six zobas (administrative regions) namely Maekel, Debub, Anseba, Gash-Barka, Semienawi Keih Bahri and Debubawi Keih Bahri. Within the six zobas there are around 55 sub-zobas, and 652 administrative village areas called Kebabis responsible to implement all economic and social issues along with the governmental policies, strategies, programmes and all the required interventions. The country has a decentralized form of governance and administration which entrusted the responsibility for rural development on the regions called Zobas. The mandate and responsibilities of the various levels of administration are set-out in Proclamation for the Establishment of Regional Administration (PERA) No. 86/1996.

2.7 Economy

Sedentary, Agro-pastoralism, agriculture and pastoralism are the main sources of livelihood for about 80 percent of Eritrea's population. The agricultural sector, including livestock and fisheries, accounts for only one-fifth of the Eritrea's gross domestic product (GDP). Agriculture accounts for only 11.6% of the GDP (World Bank, 2012) as compared to 30.6% for industry, and 57.8% for services. However, the agricultural sector has been weakened by three decades of war, drought and soil erosion and productivity is low. As a result, the demand for arable land and land for grazing, forestry, wildlife, tourism and urban development are increasing. Another consequence is that, food insecurity is seen as a structural challenge and the dilemma is best illustrated by the recurrent drought and desertification. Taking into consideration these facts and the importance of agricultural sector to the majority of Eritreans, combating DLDD through SLM activities is of critical importance to the national development processes. SLM contributes in an overarching manner to the improvement of livelihoods, poverty reduction and the achievement of the Millennium Development Goals (MDGs).

Eritrea has abundant natural resources including arable land (26 percent of the total area) of which only about four percent is under cultivation (World Food Programme, 2002). Although surface water is inadequate, there are adequate supplies of ground water, particularly in the Western Lowlands and in some parts of the Coastal Plains that can be used for household (livestock and crop) and industrial purposes. Eritrea also has varied and extensive mineral resources including copper, gold, iron, nickel, silica, sulphur, and potash (MoLWE, 1997 as cited in PHS, 2010). Good quality marble and granite also exist in large quantities. The Red Sea offers opportunities for the fishing industry, for expanding the salt extraction industry, tourism, and possibly extraction of oil and gas.

Forestry and fishing currently account for less than 5% of GDP; artisanal fishing also makes a large contribution to the subsistence sector of the coastal economy. Historically, the fishing sector peaked in the 1950s at a catch of 25,000 tones when there were around 20,000 fisher-folk. Currently, the artisanal sector lands around 700 tons per annum; the commercial sector increased to 3,773 tons in 1995, but crashed to just 38 tons in 1997. The total maximum sustainable yield (MSY) from the Eritrean Red Sea continental shelf area of 52,000 km^2 is estimated at around 65,000 tons per year (5^{th} CBD National Report, 2014).

Agriculture and pastoralism are the main sources of livelihood for about 80 percent of Eritrea's population. The agricultural sector depends mainly on rain, with less than 10 percent of the arable land currently irrigated. Consequently, productivity is low. The agricultural sector, including livestock and fisheries, accounts for only one-fifth of the gross domestic product (PHS, 2010).

It is worth mentioning that, involvements of private sector investment in the country are still limited. However, in the longer term, Eritrea's mining sector is expected to stimulate more significant growth as the prospects are encouraging with the incoming various mining companies such as Bisha, Zara, South Boulders, Sunridge, Ketina and others. This could potentially benefit SLM through, for example, social corporate responsibility schemes.

3. THE NATIONAL STRATEGIES AND ACTION PROGRAMME (NAP)

3.1 The five pillars of the NAP

The National Action Programme to Combat Desertification and Mitigate the Effects of Drought (NAP, 2002) for Eritrea recognized five important steps or priority actions. These are: (a) the improvement of the knowledge base on land degradation; (b) empowering people to take action, initially coping with drought and desertification and eventually in taking measures to arrest land degradation; (c) take concerted action to address the concerns of vulnerable groups affected by land degradation, particularly female headed households, pastoralists and small-scale farmers; (d) the reduction of poverty through income generating activities; and (e) activities related to arresting land degradation particularly degradation of productive agricultural land. These steps should be taken sequentially, although in some cases two or more steps could be taken simultaneously:

3.1.1 Improving knowledge:

Actions aimed at improving knowledge include:

- Better data collection and analysis through the establishment of monitoring, evaluation and assessment networks on DLDD;
- Improved understanding of the carrying capacity of land;
- Improved measures and indicators of DLDD, particularly a better understanding of the nature and scope of loss of productivity in farmland and grazing land; and
- Improved understanding of drought and its impact on desertification and land degradation.

3.1.2 Empowering people and institutions:

Actions aimed at empowering people and institutions include:

- Establishment of preventive and as well as an effective emergency-response mechanism to mitigate the effects of drought;
- Establishment of effective action groups at all levels including community-based organizations to address land-degradation issues, as envisaged in PERA (No. 86/1996);
- Accelerating implementation of the Land Proclamation (No. 58/1994);
- Providing an opportunity for the affected population to periodically assess its progress (or lack thereof) in arresting land degradation and in reducing poverty. This is to be carried out through the periodic assemblies of the NAP/SLM National Forum on Land Degradation;
- Involvement and participation by youth/students and women;
- Development of a community tool box;
- Networking through the use of mass media (radio, television, newspaper, rochures, etc.);
- Advertising; and fund-raising.

3.1.3 Addressing the concerns of vulnerable groups:

Actions aimed at addressing the concerns of vulnerable groups (women and pastoralists) include:

- Establishment of special programmes for female-headed farming households; and
- Establishment of special programmes for pastoralists, agro-pastoralists, small-scale sedentary farmers…etc.

3.1.4 Reducing poverty through income-generating schemes:

Actions aimed at reducing poverty through income-generation include:

- Developing marketing strategies and establishing effective marketing mechanisms for the products of people in the arid and semi-arid areas of Eritrea.

3.1.5 Arresting land degradation and controlling desertification/drought:

Actions aimed at arresting DLDD, particularly of productive agricultural lands, include:

- Controlling and, where possible, completely eliminating, excessive nutrient losses from productive agricultural lands;
- Expanding enclosure systems;
- Expanding systems for the protection of productive land from erosion;
- Expanding systems for the retention of soil moisture; and
- Protecting and expanding ground cover by planting multi-purpose tree species.

3.2 Land degradation issues and status in Eritrea

The NAP 2002 has considered twelve major issues to address in national and sectoral development plans as key contributing factors of DLDD in Eritrea. The identified issues are: land, agriculture, water, energy, biodiversity, forestry, livestock, and rangeland, human-settlement drought-preparedness, awareness, education and training, socio-economic, and public-participation and involvement as described below:

3.2.1 Land issues:

Though no reliable current land-use data exist, grazing land and barren land (dominant land use in Eritrea) together add up to 82% of the total surface area. Browsing and grazing land add up to about 5.9 million ha and barren land estimated to be 4 million ha. Land currently under cultivation (rain-fed and irrigated) constitutes about 5.1% *i.e.* rain-fed about 0.5 million ha and irrigated 0.1 million ha (MoA, 2012).

To satisfy the demand of the growing population for agricultural land, additional agricultural land is needed each year. This results in expansion of fragile or otherwise unsuitable areas. In other words, extensive agriculture is predominantly practiced that require policy orientation. On the other hand, the landscape of Eritrea is mainly mountainous, characterized by steep slopes.

This, together with the torrential nature of the rain and paucity of vegetation cover accelerates the washing away of tons of soil.

In addition, the traditional Eritrean land-holding system contributed to the deteriorating state of the land of Eritrea. The Government of the State of Eritrea (GoSE) has therefore given priority to land issues and has promulgated the Land Proclamation (No. 58/1994). This Proclamation is aimed at reforming the system of land tenure; determining land use, the manner of expropriating land utilised for development and national reconstruction; and determining the power and responsibility of institutions which will implement the Proclamation. Implementation of the Proclamation should be a core issue in the fight to combat desertification.

Promulgation of the Land Proclamation is one step forward in the fight against DLDD and towards the introduction of wise land husbandry in Eritrea. This Proclamation changed existing tenure systems and introduced a new and uniform system throughout the country.

The Land Proclamation guarantees all Eritreans above 18 years of age the right to land based on the usufruct principle. The Government owns all land and allocates land fairly and equitably without discrimination on the basis of race, religion, or gender. The new system of land allocation and tenure is expected to confirm and reinforce the security of tenure and thus improve the incentives for better husbandry of land resources.

Land-use Planning:

The Land Proclamation (No. 58/1994) has established the basis for a new and systematic way of planning. A land-use planning unit under the MoLWE Department of Land is currently focused on urban and peri-urban areas owing to the high demand for land for urban expansion and the need to protect agricultural land loss. So far, land use types classification has been accomplished for zoba Maekel, Debub and Semienawi Keih Bahri.

However, land-use planning is also needed in rural areas that require urgent wise use of the scarce land resources, especially in the Central Highlands Zones. Land-use planning will help to control land degradation. Since land-use planning considers ecosystem and proper utilization, it would help communities in achieving the sustainable use of their resources. It will also assist in identifying and delineating the conservation and sustainable utilization of natural resources.

Programme of action:

The following actions are recommended on land issues vis-à-vis desertification:

- An integrated implementation of a national land-use policy is required based upon the principles of efficiency, equity, and environmental sustainability.
- A systematic and user-oriented assessment of the land resources should be a priority.
- A practical guidelines, directives, and standards for implementing the new land-tenure system and the introduction of land-use planning are required.
- Strengthening the institutional and professional capacities of land use is needed.
- Land-use planning should precede every development activity on land

Sustainable Land Management (SLM) is of critical importance to national development processes in Eritrea due to its overarching contribution to improved livelihoods, poverty reduction and the achievement of the MDGs. In this respect, SLM pilot project is being implemented in Zoba Maekel since 2009. The main objective of the SLM Project is to create an enabling environment (policy, capacity, knowledge, alternatives) necessary for adoption of SLM practices and alleviate environmental degradation while improving livelihoods of the farming communities of the project area.

The project is implementing in 28 pilot villages covering about 240,000 ha in the Sub-zoba Serejeka, Zoba Maekel and will be up-scaled from its lessons. More than 30,000 farmers will benefit directly from the intervention with a total budget of USD 4,070,000. The Project interventions are: (a) SLM model developed and applied to reduce land degradation, (b) Knowledge management systems forms bedrock of SLM, and (c) Capacities for replicating and adapting SLM models developed and applied to halt land degradation. Land will be distributed in five villages for life time use to encourage long time investment on land and hopefully will be applied in year 2015. This piloting will be tested in farm land and other land use types that are expected to be eventually implemented with participatory land classification and land use planning development.

A Catchments and Landscape Management Project (CLMP) has also been implemented in Zoba Debub and Zoba Gash Barka with USD 10.7 million GEF fund since 2009. The main objectives of the CLMP is to address the interlinked challenges of poverty, food insecurity, land degradation, and biodiversity loss, through the development and promotion of innovative sustainable land management technologies and land use planning approaches with the aim of restoring, sustaining and enhancing the productive and protective functions of Eritrea's ecosystem resource.

The CLMP performed the following programme of activities since 2009:

*Establishment and Operation of the Eritrean National SLM Platform***:** The main objectives of the Platform are to raise the awareness of the public in general and the farming communities in particular on the need for and importance of sustainable land management and to oversee, supervise and monitor its planned activities. Under the umbrella of the Eritrean National SLM Platform, the National and regional SLM Steering and Technical Committees were established and are functioning. The platform creates conducive environment for meetings to facilitate sharing of information sharing on SLM interventions, alignment of future SLM projects and programs and as well as execute shared responsibilities. It also encourages periodic assemblies of the NAP National Forum on Land Degradation and the effective stakeholder involvement participation and strengthen DLDD partnerships at all levels.

The SLM Platform members include Ministry of Agriculture (MoA), Ministry of Land, Water and Environment (MoLWE), Ministry of Zonal Administration (MoZA), Ministry of Information (MoI), Ministry of Health (MoH), Ministry of National Development (MoND), Ministry of Tourism (MoT), Ministry of Marine Resources (MoMR), Ministry of Energy and Mines (MoEM), Ministry of Trade and Industry (MoTI), Ministry of Justice (MoJ), and Ministry of

Finance (MoF). Agricultural Extension Department of the MoA and Department of Environment of the MoLWE as chair and secretary respectively are responsible for execution of the planned activities.

*Formulation of an Eritrean SLM Investment Framework (ESIF)***:** The process of formulating the ESIF started in 2011, and the ESIF task force participated in the RAPSA organized by MoA, which is expected to serve as a prerequisite for preparation of the ESIF. This framework is believed to support future technical, financial and institutional SLM practices. If functional, the ESIF will strengthen the functioning of the DLDD investment programmes and its sustainable development. It assists the implementation of a resource mobilization strategy and plan to increase DLDD funding through the development of specific programs targeted at governmental, non-governmental and increased private sector involvements. The ESIF will also guide the prioritization, planning, and implementation of SLM projects by the public and private sectors targeted at addressing the interrelated problems of land degradation, food security and rural poverty.

*Development of an Eritrean SLM Knowledge Base and Information System (ESIS)***:** The ESIS aims formation of various target groups and establishment of information system on natural resources and promotion of advocacy and advertisements with the use of local media is considered as major task. Other tasks of ESIS include production and dissemination of basic DLDD materials, establishment of forest resources information system, sustainable utilization of forest resources, Development of a Communication and Public Awareness strategy, promote effective stakeholder participation, Integrate programmes of various DLDD actions, and enhance accessible database and information on DLDD to facilitate more informed decision-making. The ESIS is working to develop SLM information system and gathering of situational analysis on DLDD

Community-Based Natural Resource Assessment and Land use: Land degradation baseline assessments in 24 newly selected kebabis was carried out to assess conditions of soil, vegetation, water, wildlife, grazing lands, crops and livestock, which is vital for the preparation of land use plan. Some of the major community involvement and participation in SLM related activities include: Protection and restoration of communal rangelands (through temporary closure and natural regeneration), nursery development for tree seedling production, SWC activities (erosion control and rain water harvesting structures), afforestation programmes, Installation of energy saving stoves for vulnerable groups and awareness raising programmes.

Other activities accomplished by CLMP include: Addressing community-based investment in SLM, participatory impact monitoring and evaluation, institutional capacity building for community based land use planning, testing and demonstrating alternative renewable energy system, and adaptive farmer centered participatory SLM related research.

The CLMP awards and encourages communities for their best practices and contributions made to conserve and rehabilitation of village catchments. For example, Community Based-Dry land Champions are selected from all over regions through committees so that experiences are gathered annually for knowledge sharing. In addition, ‘Land for life award’ is also selected for enclosure development through evaluations by committees and relevant experts to award best

communities. The best experiences are gathered and shared with concerned institutions including to UNCCD Secretariat. The following case studies illustrate one of the best examples of enclosure development in Zoba Debub, which has been nationally awarded and scored 2nd globally (source: www.unccd.int). Many good examples on natural resources management practices were shared with international organizations such as UNCCD. These include Adi Shum Habti and Sebo (Debub), Fowlina, and Debre-Doran (Gash-Barka). Green clubs of Tessnei School and many other individual performances. As exemplary achievements in watershed treatment endeavours in Zoba Debub, the village Adi-shum Habti has been awarded Nakfa 150,000.00 (One Hundred Fifty Thousand) by CLMP, Ministry of Agriculture in year 2012. It deserved for its excellent accomplishment and the salient features of its activities that was shared with UNCCD in year 2014.

Case study: Adi-Shum Habti Watershed Treatment Activity Summary

Location	ADI SHUM HABTI, Zoba Debub, Sub zoba Dubarwa
Problems inducing the intervention	Soil erosion and high deforestation rate in non-farm land.
Land rehabilitation techniques applied	Vegetative and Structural hillside terracing check dams, afforestation and area closure establishment.
Management applied	Sustainable planted forest management integrated with soil conservation measures at non-farm land
Land use type	Afforested land
Degradation addressed	Pedestal erosion, Surface and gully erosion, decline of vegetation cover, loss of bio-diversity,
Current situation of the area	Fully recovered, signs of land degradation significantly reduced. Planted trees survived, natural regeneration of indigenous trees became significant
Benefits attained	Previously degraded land now rehabilitated, both planted and naturally growing trees show good survival, good grass covered observed, erosion and silt load into a lower catchment dam significantly reduced, a suitable habitat for wildlife created

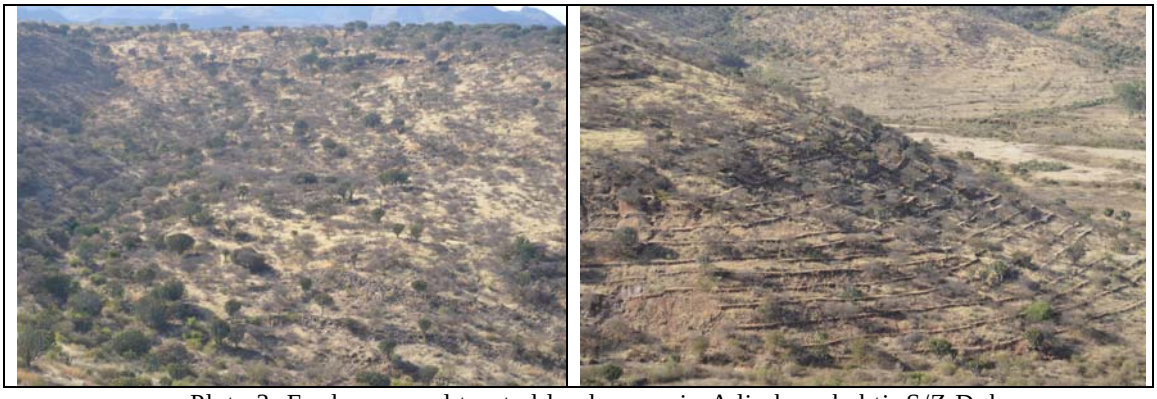


Plate 3: Enclosure and treated landscapes in Adi-shum habti, S/Z Dubarwa

The IFAD funded **National Agriculture Project (NAP**), prepared in 2012 is undertaking its activities in 34 specific sites within the country focusing to contribute to rural household and

national food security and poverty alleviation with the objective to raise smallholder agricultural production and productivity. In relation to DLDD the project contains the following area of intervention:

- Watershed Characterization include: (i) define the agricultural resource base by watershed; (ii) prioritize watersheds by their agricultural potentials; and (iii) set-out guidelines for agricultural development aiming at optimizing production and productivity while conserving the environment;
- Agricultural Infrastructure Development – This includes: (i) improving soil and water conservation technologies in rain fed areas; and (ii) expanding pressurized and spate irrigation areas and improving existing systems with improved designs. In order to protect irrigation infrastructure and reduce soil erosion, catchment protection through afforestation, and soil and water conservation measures will be undertaken.
- Project support services that strengthen relevant national and zoba institutions. Capacity building will include a programme of training for staff involved in project related activities.
- Provision of agricultural inputs such as farm tools, vegetable and crop seed, sprayers, pesticides, veterinary drugs, medicines, vaccines etc to boost production.

Since the establishment of its NAP the GoSE has been making required interventions on DLDD and SLM issues around technical, financial and management aspects. Some of the main interventions being made include catchment and landscape management, capacity building, marine and coastline protection, biodiversity management, climate change adaptation, infrastructure development, forestry and wildlife development and management, integrated watershed management rangeland management, promotion of energy saving sources etc. The GoSE allocates billions of Nakfa per year in monetary and direct labour for the promotion of DLDD and SLM issues.

3.2.2 Agricultural issues:

Eritrea possesses land potential and cultivable area of about 12.2 million ha (existing cropland plus land now covered by woody vegetation. Around 2.1 million are suitable for agriculture (up to 1.5 million ha for rain-fed and the remaining 0.6 million ha for irrigation). The area cultivated per year averages about 520,000 ha and only 103,900 ha are currently irrigated, leaving considerable potential for expansion (MoA, 2013). For overall agricultural status refer Table 2.

Table 2: Information on Eritrean Agricultural status

1.	**Country's land potential for agriculture**	**Area (Ha)**
	Total potential for agriculture	2,100,000
	• Rain-fed	1,500,000
	• Irrigation	600,000
	Browsing and grazing	5,979,000
	Barren land	4,047,000
	Forest cover	63,000
	Total	**12,189,000**
2.	**Actual cultivated area under irrigation**	

	Spate irrigation	63,000
	Dams	8,600
	Pressurized irrigation	5,400
	Well irrigation (open channel)	26,900
	Total	**103,900**

Source: MoA, 2013

Agriculture is based on traditional systems with over 80% of production from rain-fed farming. The rain fed crop/livestock production system entails extensive land use and is the main source of staple crops (cereal and pulses) and vegetables that contribute to relatively high value food supplies of plant and animal origin.

The number and distribution of livestock has considerable impact on terrestrial biodiversity, through grazing pressure on vegetation and also by competition with other wild herbivores. In many places the soils are severely degraded and have lost much of their fertility and water-holding capacity.

Plate 4: Over-grazing, Sub-Zoba Serejeka, 2009

Plate 5: Embankment works for water-holding capacity, Sheib, 2009

Generally, crop yields are very low, and the crop season is short, covering 2-3 months. The returns on these activities are low and often inadequate to cover household subsistence needs. Hence, the current food-security situation, though improving, is still of major concern. Farming households face food insecurity as evidenced by per capita food production well below current requirements. The main reasons for low production are recurrent droughts, severe land degradation, low soil fertility, improper farming systems, insect pests and diseases, and low agricultural inputs (fertilizers, pesticides, etc.).

Intensive farming with limited soil enrichment measures, especially in the Central Highlands Zone, decreases the productive capacity of the soil. As a consequence the decrease in soil fertility that leads to low production. Furthermore, soil erosion is one of the most serious environmental challenges in the Central Highlands Zone, which is subjected to continuous erosion because of the rugged nature of its landscape. Owing to these and other related factors, the soils are vulnerable to erosion. They have lost their fertility and they are very shallow, with limited water- and nutrient-retention capacities.

MoA is implementing programs to reduce soil degradation and improve control over water in rain fed areas through the Integrated Watershed Development Program and soil and water conservation activities on the major catchments throughout the country. Soil and water conservation practices have been carried out on a large scale both on farm and off farmlands, together with afforestation programmes on hillsides and enclosures.

Spate irrigation: in the lowlands of Eritrea spate irrigation is a common practice to promote the expansion of smallholder production through raised efficiency of water control which involves construction of embankments, gabions and gully treatment techniques. Some practical examples of spate irrigation that impacted communities' livelihood include Sheib-Labka, Shebah–Demas, Gahro, Duluk, Asheda, Berhatera, Guchi, Hashenkit, Engulit and Dressa.

The key objective this practice is to manage the available surface water that floods from the highlands efficiently for irrigation use. This practice also supplements water requirements of various crops to irrigate low-lying lands where rainfall is insufficient for crop cultivation so that land area and productivity is improved. The intervention strengthen the capacity of controlling the spate water and reducing floods to a manageable scale in order to direct the flow efficiently without causing any damage. The approach followed is by constructing spate irrigation structures to water/irrigate available arable land. Heavy machinery and oxen power are utilized to construct embankments.

*Conservation Agriculture***:** is based on the three principles of minimum soil disturbance, surface crop residue retention and crop rotations (FAO, 2002). The goal of conservation agriculture is to maintain and improve crop yields and resilience against drought and other hazards, while at the same time protecting and stimulating the biological functioning of the soil. In an attempt to promote Conservation Agriculture, a pilot initiative was introduced in Eritrea through an FAO project in 2003 in Adi-Lego, Hazemo and Goluj. The results of demonstration were highly appreciated by the farmers due to the high yields obtained. For example, sorghum yield increased upto 100% in dry season while 30-40% in wet season. The increament is mainly due to the application of cover crops that helped the improvement of soil structure and soil moisture retention including land levelling. Wheat yield in Adi-Logo demonstration site, had also reached 14.56 quintals/ha, which is 4.65 quintals more than the normal farmers' practice. In general terms, the cover crops had advantages in retaining soil moisture and as well improved soil structure and nutrients.

As continuation of the above efforts, NARI submitted a proposal to the EU in 2010 with a total cost of Euro 620,000 aiming to increase food security and sustainable development through Conservation Agriculture in Eritrea's cereal based cropping system. The proposal seeks to re-engage Eritrea in promoting CA practices. This is particularly relevant to cereal growing areas in Eritrea given that Conventional tillage practices are unsustainable in terms of production and resource conservation. The target areas for this proposal are Tselema for wheat production, and Goluj and Hazemo for sorghum production. These target areas have been selected due to their potential for increased cereal production. In the long term, the project aims to establish CA practices – zero tillage, direct planting, crop rotation, cover crops and residue in those areas of the country that have potential for increased cereals for food crop production.

The duration of the project was 36 months (2011-2013) extended with one additional year as an extension. The project areas (Sub-zoba Mendefera, sub zoba Lalay Gash and Halhale) have benefited with the experiences of conservation agriculture 450 farmers directly and 2500 farmers indirectly. So far eight villages with about 34 hectares were considered and experienced as pilots for conservation agriculture. Various farmers' days have been organized for experience and lessons sharing. In the long term the project is expected to achieve the following results: a) improved food security amongst vulnerable populations; b) increased number of farmers adopting conservation agriculture practices (at least 4500 farmers and a sizeable number of contact farmers would have been reached by the end of the project); c) increased incomes through increased yields; d) improved resilience to climate risks and adaptation to climate change; and e) labour saving.

The project is expected to promote the synergistic implementation of Rio conventions (i.e. climate change, desertification and biodiversity), accumulate soil and biomass that could potentially aid mitigation, and enhance the achievement of the Millennium Development Goals (MDG) especially MDGs 1 and 7.

The main impacts of the above intervention were to improve the livelihood of communities through sustained land management and increased production and thus reduced food insecurity and higher farm incomes. It has been observed that the yield obtained in crop fields with terracing is higher compared to fields with no terracing. In order to enhance farmers' capacity in agricultural practices various training programmes have been provided in soil and water conservation. Farmers are using the knowledge gained in constructing or building terraces with stones. Farmers are aware and convinced on the use of soil and water conservation activity and farmers are capable to construct terraces in the crop fields on their own.

Programme of action:

The land of Eritrea is characterized by diversity in agro-ecological conditions which permit the production of a large variety of crops and livestock adapted to different climatic conditions. Eritrea also has potentially exploitable surface-water resources for agriculture production.

These potential areas are still not harvested and exploited the rich, fertile and ability to produce surplus grain, fruits vegetables, livestock products and by products for domestic and export purposes. Therefore, the productivity of these resources could be raised significantly under the following proper technologies and management practices:

- Institutional and human resources development and capacity building
- Intensive mechanized farming;
- Enlightened soil, crop and livestock management;
- Tree planting/afforestation.
- Sustainable natural resources management such as enclosure and integrated watershed management, agro-forestry and conservation agriculture.
- Soil and water conservation practices; and
- Supplementary irrigation activities.

The Ministry of Agriculture has prepared a National Agricultural Development Strategy and Policy document (2006). This policy provides strategic and policy issues on how to develop and manage agriculture without adversely impacting the environment; Recommends expansion of forest enclosures and provide villages forest tenure rights; Undertake programs to educate farmers on the benefits of better forest management; Establish corridors for livestock grazing and access for water in land concession agreements; Allocate land on the basis of productivity equivalences. For villages with small endowments of land it would be important to assist them to undertake activities that are not land-intensive; Establish clear cut, permanent tenure rights of forest land, for villages to create incentive to manage it sustainably revise existing guidelines for land clearing to include adoption of windbreak technologies, riverine and drainage pathway protection and contour structures to slow down surface water flows.

3.2.3 Water issues:

Eritrea, being located in the arid and semi-arid region of Africa, is not endowed with surplus water resources. The rainfall is very low in amount (mean annual rainfall in the highlands is in the range of 400-500 mm and in the arid lowlands below 300mm) and erratic in nature which, damages the crops and results in poor harvest. The country is prone to climate changes. It experiences periodic cyclical droughts, which bring devastation to the means of livelihood of the majority of the population that live on a subsistence agriculture. The country has no large perennial rivers and the flow of all the seasonal rivers in the country amounts to approximately 15,000 million cubic meters per year. The country has been divided into five river basin systems namely: the Setit, Mereb-Gash, Barka-Anseba, Red Sea and Danakil Basin. The groundwater plays a pivotal role particularly in rural water supplies of the country.

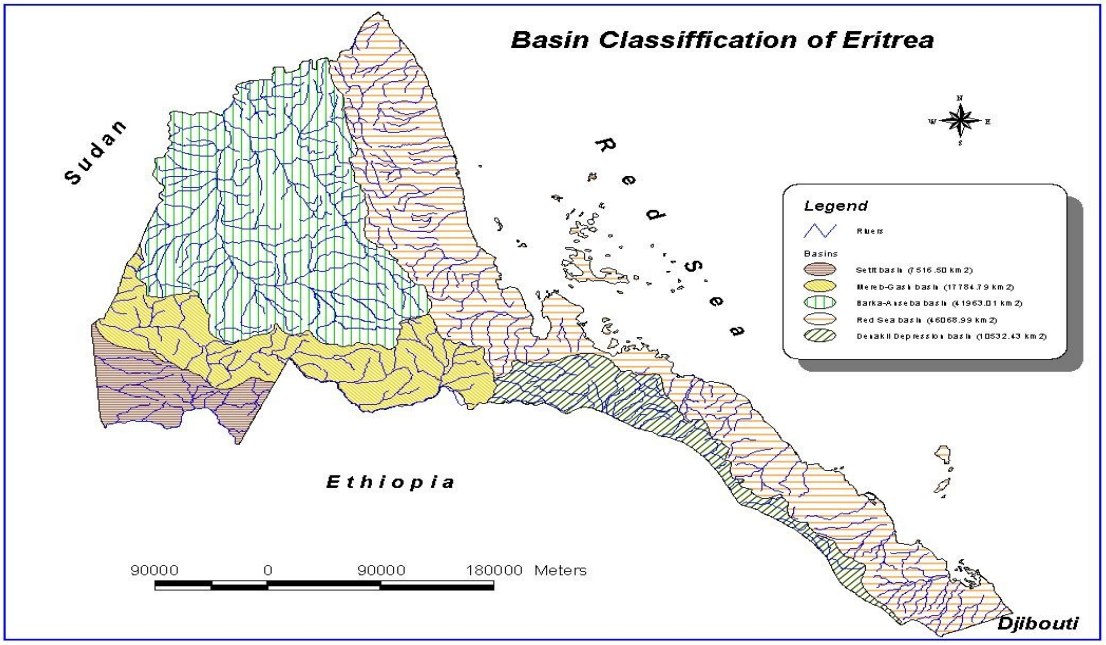


Figure 3: Basin Classification of Eritrea (Source: IWRM/WRD, 2007)

Regarding the development and management of water resources, the government has prepared an Action Plan for Integrated Water Resources Management (IWRM) in Eritrea (2009-2016). The document covers a range of management actions that are important to establish knowledge on effective control of the country's water resources management and development. The plan contains seven thematic areas namely water resources assessment, development and protection; Water resources allocation and water use; Disaster management; Enabling environment; Implementation and financing mechanism; Research and information exchange; and Basin Management Plan to be implemented in years 2009-2016. The Eritrean Water Law, Proclamation (No. 162/2010) addresses the rational management and use of the water resources; the provision of clean, safe and sufficient supply of water; and development of water resources without harming the environment. Due to the efforts made by the GoSE, currently the access to safe water reached to about 78% i.e. urban 90% and rural 70% (NBSAP, 2014).

Water Resources and Desertification:

An increase in temperature results in an increase in evapo-transpiration, leading in turn to increased aridity. In arid and semi-arid regions, this leads to increases in desertification and decreases in woody-vegetation cover. Dust storms from wind erosion of bare soils enhance warming and hence lead to additional moisture losses. There are indications that the regional climate is warming, so that drought conditions are worsening in the Sahara and Sahel regions. The number of days of rainfall has decreased during the rainy seasons, and the rainy seasons themselves have become shorter. These changes in rainfall pattern and increased periods of drought are expected to have negative effect on the water resources of Eritrea. These reductions of moisture have a direct impact on soil degradation and pastoral production. The rich biodiversity of Eritrea is also under threat.

The GoSE has given high importance and priority to dam, pond construction for water conservation in order to increase agricultural production per unit volume of water and per unit area of cropped land. Some of the big dams constructed with the efforts of the government include Gerset, Kerkebet, Fanco Tsumue/Rawi, Bademit, Aligeder, Elabered and Miselam. Their capacity is estimated at around 300 million m^3 with a potential irrigable area of more than 30,000 ha. It is therefore expected that these dams will contribute to the social and economic development of the country. Furthermore, micro dams, ponds and wells have been developed around vulnerable communities to solve human and livestock water requirements. The following (Tables 3 and 4) show micro dams, ponds and wells constructed in the past 10 years to alleviate water and food security programmes for communities of Eritrea.

Table 3: Micro dams construction (2004-2013)

Year	No. of dams constructed	Capacity (M^3)	Irrigable land (ha)
2004	8	2,000,000	200
2005	5	67,180,000	13,120
2006	11	5,381,000	525
2007	17	6,206.000	505
2008	12	5,334,912	478
2009	10	2,737,000	274
2010	9	6,734,300	803

2011	15	5,487,770	640
2012	3	1,504,000	150
2013	4	1,056,000	106
Total	**94**	**103,621,122**	**16,801**

Source: MoA, 2014

Table 4: Ponds and wells construction (2004-2013)

Year	**Pond Const**	**Capacity (M^3)**	**Well Dug (No.)**
2004	88	880,000	180
2005	58	580,000	343
2006	49	490,000	38
2007	9	90,000	12
2008	15	150,000	6
2009	24	240,000	4
2010	18	180,000	3
2011	16	160,000	28
2013	23	230,000	21
2013	5	335,000	-
Total	**305**	**3,335,000**	**635**

Source: MoA, 2014

The livelihood of farmers communities around the constructed water infrastructure have benefited positively and are producing vegetables and fruits and are better than the sale of their products. As a result the communities have obtained high income per year as they are producing two times per year. The command areas are also producing forage crops aimed to boosting meat and dairy products. In line to this intervention training in horticulture has helped local communities to acquire knowledge of cultivating or producing horticultural crops. They are using the knowledge gained in improving the production of vegetable crops. At present, beneficiaries are feeding families from their vegetable farms and their daily diet consumption is improved in term of balanced diet, which have direct impact on the health status of the adjacent community and other family members.

The shortage of water for livestock begins at the end of the rainy period and is worse during the dry season. Livestock herders use bucket to pull water up from deep river side wells and shallow river bed wells. The constructed reservoirs have helped a lot especially at times when there is water shortage for human and livestock watering. Furthermore, the constructed reservoirs help to improve underground water potential and believed to restore the ecological balance, while contributing to food security and employment, which is in line with UNCCD Strategies.

Roof water harvesting: rainwater harvesting from roofs is a popular method to secure water supplies for domestic use. Tiled roofs or roofs covered with corrugated iron sheets are preferable, since they are the easiest to use and provide the cleanest water. Water is collected and stored in plastic, metal or cement tanks. Roof catchments provide water at home, are affordable, easy to

practice, can be shared by several houses or used on public infrastructure. In Eritrea, introduction of roof catchment rainwater harvest to where applicable is becoming an obligation particularly in new housing developments areas, where by an agreement is entered between house builders or others during authentication of their building design.

Fog harvesting: in Eritrea, the eastern escarpment is well bestowed with high-altitude dense fog, which is formed during the uphill movement of adiabatically cooled humid air masses from the Red Sea. Fog is a potential water resource for afforestation programmes besides being used for domestic water supply. Naturally, in the eastern escarpment the evergreen thick forest, which is referred locally as the "Green belt", is being supported both from rainfall (June to September) and intercepted fog-water (November to March). Thus, it is recommended to preserve the existing forest and reforest the bare catchments with trees that have natural advantage for growth in these fog-prone areas. Already, a pilot project was implemented in 2007 in the villages of Arborobue (7.6 L day^{-1} m^{-2}) and Nefasit (3.3 L day^{-1} m^{-2}) where the high fog-water yields were measured during the fog-period (November to March), corresponding to the dry season and promising results were obtained (AEAS, 2012).

Programme of action:

Taking into consideration the hydrological, geographic, and economic characteristics of the country, the following programme of actions are recommended by the Water Resources Department (WRD) in its strategy (2007):

a). Water Resource Assessment
- Strengthen national physical water resources assessment
- Create strong database and information system
- Establish efficient management mechanism

b). Catchments Protection
- Develop Catchment master plan
- Develop and introduce appropriate incentive and regulatory mechanisms
- introduce appropriate technology /Assessment and management
- Build up capacity building and awareness raising program /Social change inst/

c). Water quality and pollution Control
- Formulate improved water and wastewater quality regulations
- Build up capacity building and awareness raising programs
- Introduce regulatory and economic instruments

d). Water and environment
- Restoration of degraded strategic environments
- Create awareness raising program
- Establish proper regulatory and economic instruments

e). Disaster Management (Floods and Droughts)
- Improve watershed management programs

- Create awareness to prevent, mitigate and prepare for drought and flood disasters
- Develop and implement capacity building programs
- Establish well organized national information and data base system
- Establish legal and institutional framework - Early warning systems

f). Communication and information system
- Create appropriate legal and institutional framework
- Develop and organize data base system and information exchange networking
- Develop and implement awareness raising campaigns and capacity building programs

g). Transboundary Water Issues
- Create an organized responsible body for transboundary water issues
- Develop and implement capacity building programs
- Strengthen active involvement in transboundary water issues

h). Domestic water supply, Sanitation and Hygiene
- Strengthen water supply system, sanitation and hygiene facilities and practices (IWRM plan, Economic instruments)
- Build up regulatory mechanism (law, regulations and directives
- Set up affordable, acceptable and administrative feasible pricing
- Develop and implement capacity building and awareness programs Develop and implement capacity building and awareness programs
- Develop and implement capacity building and awareness programs
- Creating integration and coordination mechanisms among stakeholder

i). Water for Agriculture Use
- Create an in-depth knowledge of agricultural water need
- Set up appropriate rules, regulations and enforcement mechanism
- build up appropriate agricultural technology and irrigation practices
- Strengthen human and financial resources capacity at all level

j). Water for Industry
- Create an in-depth knowledge of industrial water need
- Set up appropriate rules, regulations and enforcement mechanism.
- Build up appropriate industrial technologies that can promote efficient water use and also water reuse and recycling technologies
- Strengthen human and financial resources capacity at all level

k). Water for Other Uses
- create an in-depth knowledge of mining, tourism and fishery sub sector water needs
- Set up appropriate rules, regulations and enforcement mechanism
- build up appropriate technologies that can promote efficient water use, water reuse and recycling technologies
- Strengthen human and financial resources capacity at all level

l). Legal and Institutional Framework

- Execute the water policy, water law and other legal framework
- build up integration and coordination forum
- Build up awareness raising and human resource capacity
- Execute institutional framework as per the proposal

m). Financial Mechanism

- Create fund raising mechanism
- Enhance the tariff and revenue mobilization system
- Enhance or/and establish coordination forum
- Create attraction for private sector

n). Capacity Building and Implementation Mechanism

- Develop and implement human capacity building programs that are demand driven and gender mainstreamed
- Build up appropriate legal framework, directives and guidelines

o). Implementation Mechanism

- Establishing frameworks for broad stakeholder participation and networking
- Promote integrated water resource management
- Build up appropriate directives and guidelines
- Piloting IWRM at grassroots level

Plate 6: SWC activities on farm land, Shieb, 2007

Plate 7: Diversion for spate-farming, Sheib, 2007

As stated above the MoLWE has developed in 2009 an Action Plan for Integrated Water Resources Management (IWRM) in Eritrea (2009-2016). The document covers a range of management actions that are important to establish knowledge on effective control of the country's water resources management and development. About 95 IWRM barrier removal action/project portfolios focused on enabling environment, institutional framework and management instruments have been developed and categorized into a short term, medium term and a longer term planning horizon (2009-2016). The action plan was approved by the MoLWE,

published and broadly disseminated to pertinent stakeholders. The action plan elaborate the approaches and set out specific objectives, strategies, actions and activities that would be taken to support IWRM for the sustainable economic development of Eritrea. The development and implementation of these actions portfolios complement the government's present actions and policies, strategies and action plans to reduce poverty, food security and sustainable economic development. The action plans proposed focused on seven thematic areas. The thematic areas are: water resources assessment, development and protection; water resources allocation and water use; disaster management; enabling environment; implementation and financing mechanism; research and information exchange; and basin Management Plan.

The Water Resources Department also issued the Eritrean Water Law (Proclamation, No. 162/2010) and subsequent directives. This proclamation addresses the rational management and use of the water resources; the provision of clean, safe and sufficient supply of water; and development of water resources without harming the environment.

The contents of the proclamation include conservation and protection from pollution and related risk factors of the country's water resources; systemization of studies and documentation of data on water resources; Promotion of integrated water resources management and development as well as judicious prioritization of allocation and use of the same; establishment of pertinent legal framework and institutions with clear mandate in consonance with the principles of integrated water resources management; Promotion of public awareness and participation in water conservation, protection and management and proper utilization; and ensuring equity in the use, management and development of the resources.

3.2.4 Energy issues:

Provision of adequate, clean and efficient energy supply have been one of the priorities of the GoSE , which is in line with the UN Convention to Combat Desertification that states the 'development and efficient use of various energy sources' should be a priority field for national action programmes in those countries experiencing serious drought and/or desertification (*Article 10.4*).

In its energy development strategy, the Ministry of Energy and Mines planned "to reduce by half, between 2005 and 2015, the proportion of urban, semi-urban and rural household without access to adequate clean and efficient energy services to all educational, health and clean water supplies. So far, considerable efforts have been made to extend the national grid to rural electrification; promote renewable energy supplies to health, educational, water supply and other public services; and expand locally invented improved stoves.

Since independence, the electricity generation capacity of the country increased from 30 MW to over 130 MW; increasing the transmission line from 150 km to 400 km; and increasing the distribution lines from 800km to 1300 km in 2002. Moreover, several initiatives were taken to introduce renewable energy services to supply energy for public-service-providing institutions. Solar Photovoltaic systems having over 2.5 MW aggregate capacities were installed across the country powering health centres, schools, water supply schemes and other public services in the rural area. In addition, the use of renewable energy sources to support agricultural production

and productivity as well as stimulation of rural development has the added advantage of global and local environmental benefits. It is planned that a total of 1,000 ha will be fully equipped with drip irrigation system for an estimated 5 MW solar PV capacity in order to support agricultural programme (MoA/SAS/FS Project, 2013). When fully installed and made operational the aggregate solar PV system will have generated 12,300 MWh of solar energy per annum as per the PVGIS software and this clean energy will help reduce 15,770 tons of CO_2 per annum considering the existing energetic mix of the country base on diesel generators.

The Ministry of Mines and Energy has also identified the wind-rich regions in the country and as a pilot project installed a small wind farms in Assab and other areas of the Southern Red Sea region to supplement the grid and promote irrigated agriculture in the region. There is a plan to replicate these wind energy applications in other wind-rich regions of the country to supplement the grid based energy supply. However, some rural areas of the country still have limited access to modern energy services. A traditional stove known as Mogogo was re-designed by the MoEM so that to reduce the wood consumption and reduced smoke emission. This improved stove has gained national and international reputation and the Ministry with other stakeholders has been working to expand it in rural households. Thus the country can benefit from CDM by developing such energy efficiency innovations. Generally, the government have made a considerable progress in implementing its energy development strategy. However, providing an adequate, clean and efficient energy supply for the prevailing emerging economy requires huge financial, technical and human resources. Clean Development Mechanism projects that improve the existing energy supply systems and expand new energy supply systems, such as renewable energy in the rural areas, would supplement the government's energy development strategy.

Another link between energy and desertification is through climate change. Since climate change is an important factor in desertification, activities that mitigate climate change will also help to combat desertification. Efficient utilization of indigenous energy resources, promotion of renewable energy technologies, and measures of energy conservation in all consumption sectors are ideal methods for mitigating the effects of climate change and thus in combating desertification as well.

Renewable Energy Development Strategies:

Eritrea's high dependence on imported oil can be reduced by increasing the use of renewable energy resources. The Ministry of Energy and Mines has been working to assess and develop these resources. Biomass is the most used renewable energy resource in Eritrea. Wind, solar and geothermal resources have been found to be abundant and are expected to be the energy source of the future. The rest types of renewable energy resources, like hydro and tidal, do not look to have great potential in Eritrea.

Biomass Energy:

Biomass sources of energy include fuel wood, charcoal, animal dung; agro-residue and biodegradable municipal wastes. In the energy balance of 2009, biomass based energy accounted for more than 69% of the total primary energy supply. A total of 1,200.9 thousand Tons of fuel wood was consumed by both household and commercial sectors in 2009. Moreover, there was

185,001 tons of fuel wood input for charcoal production. The total kiln production of charcoal at 30% estimated kiln efficiency was 30,833.4 tons; in addition to these there was 97.62 thousand Tons of recycled charcoal consumption in both sectors (MoEM, 2009).

Currently, forest replenishment is far exceeded by forest off-take, which is estimated at 2.4%-2.8% of the stock, whereas the sustainable threshold is 1.25%. This suggests that the use of biomass fuel is unsustainable even at the current off-take rate. With diminishing of firewood resources and lack of economic capability, rural households naturally will tend to shift to more frequent use of animal waste and agricultural residue to meet their energy requirement. This in turn will result in the deprivation of soil of a potential source of organic nutrients resulting in decline of crop yield and impoverishment of the rural farming communities.

Biogas:

Biogas is gas that is naturally produced during the decomposition of organic waste. The technology involved is quite simple, and the facilities may be built with materials that are easily available at local level, although almost daily attention is required to maintain the process, and thus it demands wide participation on the part of the consumers. The technology offers two major advantages: On-site and low-cost energy production based on internal inputs and reduced usage of fuel wood which translates into less cutting down of trees leading to reduced deforestation and land degradation. The system could serve to meet a considerable part of the energy requirements of households and dairy farms throughout the year. The technology has the added benefit of producing as a by-product a soil additive that can increase agricultural productivity. Furthermore, the system has the potential of being combined with a generator system that produces electricity and motive power, and of being powered with a flexible set of agricultural and livestock wastes and domestic waste.

Eritrea counts with abundant livestock manure that could be used to produce biogas in volumes required for domestic and community needs of low-income rural dwellers. Some biogas units are in operation in the country with pioneering work in Zoba Maekel. Hamelmalo and Hagaz Agricultural Colleges have also one unit each. Further biogas facilities should be established in different parts of the Country.

There are a number of indications that there is already good potential for modern biomass energy usage in certain locations in Eritrea (MoA, 2006):

- The *Alighider* Farm Estate has the potential to supply raw materials (cotton and sorghum stalks, elephant grass, banana leaves etc.) for briquette production for at least 15 plants each of capacity 4000 tons per year. Briquettes, comprising chopped and compressed agricultural waste, are excellent replacements for fuel wood and charcoal. Alternatively, the agricultural waste could be used to generate electricity thermally.
- Biogas plants could be installed in agro-industrial establishments and other smaller dairy farms.
- Biogas could be generated from cactus trees where abundant.
- Energy recovery is possible from municipal solid and liquid wastes.
- Energy crops for the production of modern bio fuels could be considered where feasible.

- Biogas generation or co-generation of process heat and power is possible on sugar plantations.

Solar Energy:

The potential for the development of solar energy is great; but the application of solar energy technology has been very limited. The application of these facilities includes lighting of households, rural health centers and refrigeration of medicaments, powering of schools and remote offices, pumping of potable water in rural communities and powering telecom systems. Solar water heaters are also used in urban residential houses. With possible technological breakthrough that will result in lowering costs and widening application in the near future, Eritrea could benefit from this inexhaustible natural source of energy.

Wind Energy:

The available meteorological stations have enabled Eritrea to identify its wind resource potential. Prior to installing large-scale wind farms aimed at exploiting the wind resource potential in the wind-rich sites, therefore, a pilot wind energy project has been implemented by the Ministry of Energy and Mines in partnership with Global Environment Facility (GEF) and United Nations Development Program (UNDP). This barrier removal pilot project has been able to realize the following three objectives:

(a) A small wind farm (3 x 200 kW) of 600 kW has been constructed. Since its commissioning in end of November 2007, the Assab Wind Farm has been performing successfully as expected.

(b) Seven different wind-diesel hybrid and wind standalone small turbines with capacities from 3-30 kW have recently been installed mainly in the Southern Red Sea region.

(c) From the successful performance of these wind energy facilities, especially the Assab Wind Farm, the Ministry of Energy and Mines has come to a conclusion that the potential of wind power in the country is so enormous and thus can play a great role in energy security of the country, in significantly displacing the amount of imported fossil fuel and lube oil as well as in saving the related foreign currency expenditure.

Geothermal Energy:

The possibility of the economic exploitation of the geothermal heat for power generation occurs in the rift area, associated with volcanic activity. Alid (which is located in the Danakil Depression part of Eritrea), Nebro, and Dubbi are the main target locations where geothermal activity is known to be intensive. Lower temperature activity also occurs at Mai-Wuui, 30 Kms west of Massawa.

Geothermal activities, evidenced by fumaroles and hot springs with extensive alteration of the ground, are abundant in the Alid geothermal field. Studies carried out so far in this area indicate the presence of a possible sub-surface high temperature reservoir. The geothermal manifestations

at Nebro and Dubbi are also promising, but further study will be required to estimate the reservoir temperature.

The Government of Eritrea intends to develop the geothermal power through the installation of a pilot geothermal power plant at Alid and the identification of new prospects for additional geothermal plants in the future.

The energy policy must incorporate the management of energy production, distribution, and utilization as well as promotional and regulatory activities for energy-conservation measures. The implementation of the policy must be mindful of the desire to halt, and in some cases reverse, the recent trend in environmental degradation, and of the need to make the most effective use of limited resources, particularly in the initial stages of development.

To achieve the above-mentioned objectives, the Ministry of Energy and Mines (MoEM) is entrusted with the task of designing and refining policies, strategies, and regulatory issues in the energy sector, approving the corresponding plans and programmes formulated in the sector, and supervising their implementation.

Energy efficient cooking stoves (Adhanet Mogogo): Eritrea's Energy policy aims to promote optimum supply and utilization of energy, especially indigenous energy resources, conservation of both traditional and non-traditional sources and transition from traditional energy sources to modern and clean energy to facilitate socio economic development of the country.

Through research and development efforts by the Ministry of Energy and Mining and other key partners such as the Ministry of Agriculture, an improved version of the Adhanet mogogo has been developed. This new model combines the advantages of the traditional mogogo design with advanced technology that has improved the energy efficiency of the mogogo to over 50%. Between 2004 and 2013 about 102,000 improved stoves has been distributed to communities. Accordingly each beneficiary woman had been trained by the MoA on the installation, usage and maintenance of improved stoves through development agents and community based organizations. So far more than 130,000 efficient stoves are currently in use. The government is intending to provide additional improved stoves throughout the country in the near future.

The benefits of the improved *Adhanet mogogo* include:

- Enhanced energy efficiency that reduces deforestation, greenhouse gas (GHG) emissions, agricultural residues and dung burning. Promoting the fuel efficient "Moggogo" will conserve almost 50% of tree devastations.
- Improved economic and environmental benefits by saving the time and effort in wood collection, reducing expenditure on firewood, and creating employment in villages where the *mogogo* is manufactured and installed; More time devoted by women to alternative livelihood activities and by children to learning and extra-curricula activities; its contribution in availing extra time for other choruses or a dearly needed rest time for the mother cannot be underestimated. Although in many cases the women have stopped going to the forest for collecting firewood, the opportunity cost analysis is based on households who used to buy firewood for their domestic needs.

- Improved health of women and children due to a clean, smoke free cooking area. The improved sanitation of the new kitchen (households are using it as a dining room or as an extra bedroom for their children).

3.2.5 Biodiversity issues:

The biodiversity resources of Eritrea is not yet comprehensively studied and documented. Species-level diversity has been reviewed for a number of major taxa. In all cases, the long time gap between information collected prior to 1960 and that collected since 1991 has created a major problem of distinguishing between what had been recorded as historically present and what may actually be present today. To contribute to the minimizing of this problem, the MoLWE Department of Environment recently conducted a Biophysical Assessment Study in 2013 with the Global Environmental Facility (GEF) fund to operationalize the Proposed Protected Areas (PPAs) of Semienawi and Debubawi Bahri (SDB); Hawakil Islands (BIHI), and as well as the Bara‟soli bay has shown an important indication on the status of the terrestrial and marine habitats in those areas.

The project goal is to ensure the integrity of Eritrea's diverse ecosystems in order to secure the viability of the nation's globally significant biodiversity; and its specific objective is to create policy and institutional conditions to operationalizing the national protected area system, which is in line with Operational objective 3 (Science, technology and knowledge) of the 10 Year Strategy.

The objective of the assessments will be achieved through three outcomes: establishment of necessary protected area policy and institutional frameworks; emplacement of required protected area management capacity and experience; and, emplacement of SLM/SFM capacity required to restore/maintain ecosystem services and support achievement of conservation objectives. The strategy will include providing strategic guidance for the identification of necessary staff, skills gaps analysis, and a training program to address identified gaps. The total resources required for the project is US$ 16,328,000 (of which GEF allocated US$ 5,878,000 and UNDP US$ 3,000,000), and the remaining will be mobilized from Government fund, and will support the establishment and initial equipping of a protected areas administration office to be implemented during project years 3 – 7.

The project will contribute to the mitigation of climate change, e.g., conservation of forests, grasslands, and mangroves and result in the conservation of major land and seascapes representing each of these highland, lowland, and marine ecosystems. The project will also set in place mechanisms for additional habitat to be included in an ever expanding and strengthened system of protected areas.

Within and/or proximate to the proposed project areas around 35,000 people live, which can potentially be affected by its establishment. These local residents will gain the immediate benefits of improved conservation of the natural resources upon which their existence depends. This will include efforts at each site to empower rural communities to alleviate threats identified during the project design phase. This includes mitigating the negative impacts of over-harvest, grazing and cultivation, forest loss, infrastructure development, and climate change. As

documented during the PAs assessment in 2013, most of these persons are very poor. Their daily lives and livelihoods are tied directly to the land and sea.

Conservation of the varied and unique ecosystems and of the diverse flora and fauna presents a challenge to the people of Eritrea. Efforts to promote conservation must take into account the need for complete protection for certain species and habitats and hence, for the formation of a system of protected areas. At the same time, it must be recognized the vast majority of Eritrea's biological resources and biological diversity will have to continue to exist outside those protected areas. Therefore, protection of these resources cannot stop with the establishment of conservation areas. Effective land-use planning is recommended as necessary across the entire country not only to conserve biological diversity, but also to promote the sustainable use of the resources.

Key Concerns and Threats to Flora and Fauna:

As noted above, Eritrea was once host to a wide variety of flora and fauna species. However, after decades of war, drought, and neglect, populations of many species have decreased dramatically, and in some areas have even disappeared. The loss of biodiversity, along with climate change and desertification, were identified as the greatest challenges to sustainable development in Eritrea (NEMP-E, 1995; NAP, 2002; GEF Country Portfolio Evaluation, 2014). The cutting down of trees for firewood, cultivation, urbanization, construction…etc are a significant concern because of increased human encroachment upon forest areas, increased resource extraction and further threats to biodiversity. In Eritrea forest resources and vegetation covers are under serious threat i.e. the forest cover and forest quality are declining including riverine and mangrove ecosystems.

Habitat transformations, particularly from conversion to agriculture due to anthropogenic pressures are direct drivers of biodiversity decline in Eritrea. Cultivated systems (areas where at least 80% of the landscape is in croplands, shifting cultivation, or livestock production), and covers three quarter of Eritrean‟s terrestrial surface. While the expansion of agriculture and its increased productivity is seen as success story of enhanced production and food security of one key ecosystem service, this success has come at high and growing costs in terms of trade-offs with other ecosystem services, both through the direct impact of land cover change and as a result of release of nutrients into rivers and water withdrawals for irrigation and other services. Habitat loss also occurs in coastal and marine systems, though these transformations are relatively minimal and less documented (5^{th} CBD National Report, 2014).

The rapid expansion of alien species can also have devastating effects on indigenous plant species and ecosystems. The fragile and degraded ecology of much of the landscape provides great opportunity for alien invasive plant species such as *Prosopis juliflora* to establish and spread. To date, little action has been taken to study or control the spread of alien plant species. Although, especially prickly-pear cactus (*Opuntia ficus-indica*) and mesquite (*Prosopis chilensis* and *Prosopis juliflora*) have economic importance to local communities (as sources of food, fodder and fuel wood), they are a potential threat to Eritrea's native biodiversity. Hence, further survey of the distribution and rate of spread of all major alien invasive species, as well as of their

negative impacts and sustainable use should be carried out. It is believed that the alien species are economically important, if wisely utilized.

In order to improve and strengthen the forest and wildlife conservation and management, the Government has established a stand-alone authority, the Forestry and Wildlife Authority (FWA). Established in 2012, the FWA is technically mandated to conserve, develop and sustainable utilization of forestry and wildlife resources of the country. The new institutional arrangement enables more effective enforcement of policy and legislation on forest and wildlife conservation and management.

In line to the above, interventions, to ensure the biodiversity conservation and sustainable use , the Government of Eritrea proclaimed, the Forestry and Wildlife Conservation and Development Proclamation No 155/2006 in association with the regulations for the issuance forestry permits (Legal Notice 111/2006) and regulations for the issuance of wildlife permits (Legal Notice 112/2006) provides the framework for the conservation and development of forests and wildlife resources of the country. The proclamation also aims at forestry and wildlife protection and conservation to ensure sustainability of forestry and wildlife habitats, establishment and maintenance of Protected Areas (PA) and development of a PA network in order to enhance biological diversity of the country.

Mining and its impacts: Eritrea possesses a geological stetting that is favourable for both precious metals and base metal mineralization, as well as for industrial minerals. To capture these huge potential economic resources, more than a dozen of mine exploration companies are operating in the country. In the near future the country is expected to experience a large mining boom. Mining and mineral processing in Eritrea have the potential to be important sources of income and driving forces behind broader sustainable economic development through generating income, employment and foreign exchange, and stimulating national, regional and local economies.

Nonetheless, poorly regulated mining operations have the potential to adversely impact ecosystems and natural resources and reduce their ability to provide goods and services necessary for human and environmental well-being. In other words, if the many environmental problems inherent to mining are not rigorously regulated the outcome for the environment and local communities would be adverse.

The Eritrean government requires that all mining companies comply with the legal and regulatory requirements of Eritrea, and international guidelines and standards. Mining companies are expected to implement leading industry practice and business-based health, safety, environment, and community management systems in all areas of their operation. The objective is to ensure that proper environmental and social protection measures are implemented so that interests of the local people are accounted for and that any adverse effects on ecosystem are controlled or mitigated. Moreover, as Eritrea is signatory to a number of international agreements and treaties related to environmental agreements such as UNCCD, UNFCCC, UNCBD and convention on Ozone Layer, the government also requires that mines be developed and operate in compliance with these conventions. In line with the aforementioned national legal requirements and international guidelines and conventions, all mining projects are required to

conduct comprehensive social and environmental baseline assessment and subsequently Social and Environmental Impact Assessment (SEIA) and Social and Environmental Management Plan (SEMP).

The SEMP sets forth the framework for implementing the Project-specific actions that are necessary to comply with Eritrean regulatory requirements and international guidelines and standards. It describes the mitigation and control, actions and monitoring measures proposed in relation to the key socio-economic and environmental issues associated with the proposed Projects. If mining regulations are fully and meticulously enforced and followed up, beneficial benefits of mining can be enhanced and potential environmental and social harm can significantly be reduced to an acceptable level.

In order to ensure that mines in the country are fully complying with the legal requirements in terms of implementing adequate control and mitigation measures against potential environmental and social impacts, the regulatory bodies in the country should enforce stringent monitoring and reporting systems. All key stakeholders including project-impacted communities need to be part of the process. Without such critical and practical measures, the inherent problems of mining that potentially adversely affect environment and society cannot be adequately controlled or mitigated.

3.2.6 Forestry issues:

The natural forest cover of Eritrea has been classified into six major vegetation types (NAP, 2002) as listed below:

i. Highland forest (Afromountane wood land ecosystem) composed of a mixture of coniferous species (Juniper) and broad-leafed species (*Olea africana* and associated species);
ii. Mixed woodlands of Acacia and associated species, occurring mainly in the south western lowlands, but also in restricted areas elsewhere in the country;
iii. Bush or shrub vegetation, which is the dominant cover in Eritrea;
iv. Grasslands to wooded grasslands, which occur in many parts of the country;
v. Riverine forest, composed essentially of Doum palm, which is common in the western lowlands and is frequent in the eastern lowlands; and
vi. Mangrove occurring in many spots along the coast and concentrated mainly around Assab and between Tio and Massawa.

The country's natural vegetation constitutes 0.8% highland forest. Forest and woodlands, including riverine forest and mangroves cover 13.7% of the total area. The category "bush" is the dominant vegetation in Eritrea covering at 63.8% of the total area. The riverine forests and mangroves play important ecological and economic roles for rural communities, and occupy 1.5% and less than 0.1% respectively.

Major causes of deforestation:

Major causes of deforestation includes: (a) conversion of forest/wood land to agriculture (b) over grazing and browsing, lopping and pollarding (c) fuel wood use (d) construction purposes, and (e) forest fire.

Fuel wood consumption is one of the seriously detrimental demands and causes negative impacts on the ecology of Eritrea. The rural communities, most urban households, and some commercial enterprises depend on biomass fuel for energy, but the available supply has dwindled sharply.

Fuel wood is one of the most important forest products in Eritrea. According to the Department of Energy report a total of 1,200,900 tonnes of fuel wood was consumed by both household and commercial sectors in 2009. Moreover, there was 185,001 tons of fuel wood input for charcoal production. The total kiln production of charcoal at 30% estimated kiln efficiency was 30,833.4 tons; in addition to these there was 97,620 tons of recycled charcoal consumption in both sectors. The report also showed that shortage of fuel wood has pushed many households into using animal dung and agri-residues.

It is very evident that many more trees will have to be cut down on a continuing basis from the limited remaining natural resources in order to meet the relentless demand of fuel wood by the population. A Government directive banning the cutting of live trees has been in effect since 1994, but the compelling demand for this energy source makes it hard to hold people to this, because they would be left with virtually no energy alternative at hand – many are now simply forced to continue cutting. The largest present share of highland-forest destruction lies with tree cutting for fuel wood, followed by timber cutting for construction poles.

Eritrea is working to slow deforestation and enhance water and soil conservation. On-going efforts include the introduction drought resistant tree species, catchment management and water harvesting practices, and construction of small dams for irrigation as livestock watering points. This work focuses upon measures designed to enhance adaption to pending climate change. Forest/wooded land enclosure management system has been developed to enhance natural regeneration and accordingly provide benefits to local communities living adjacent to the enclosures such as collection of grass through cut and carry system, collection of dried wood for fuel, erecting bee hives for honey production. Exemplary achievements are documented on afromontane wood land of Eritrea such as Rara-hababb and Karneshim area which can be shared to other similar localities. Survey has been conducted in Debre-Hel (S/Zoba Elabered) and Adi-Abraham (S/Zoba Adi-quala) to investigate and identify their existence and recommended the promotion of Bamboo (*Bambusea*) species.

The Forestry and Wildlife Conservation and Development Proclamation (No. 155/2006) contain particular relevance to conservation and sustainable use of biological diversity resources. Some of the main particulars include:

- Mandates the MoA to properly implement the Proclamation (Article-4) and to establish and manage protected areas for the conservation of biodiversity, sites of special scientific

interest or preservation of landscapes (Article-16 -17), currently the FWA has taken the mandates and responsibilities of the forestry and wildlife conservation and development;

- Secures tree tenure to a person who plants trees on any land which that person has a legal right to use (Article-23);

- Provide legal rights to individuals or communities to use a specified land area, for the creation or management of woodlots' (Article 24);

- Prohibits unauthorized exploitation, transporting and processing of wood and none wood forest products for commercial purposes, cutting live trees for domestic use and clearing land for agriculture and other purposes (Article-21); and

- Prohibits the importation of exotic trees and wildlife and their products without getting permits. It requires verifying that the exotic species is not invasive and does not affect the conservation and sustainable management of the indigenous species and ecosystem.

However, this proclamation still needs to implement in all forestry and wildlife conservation and development projects such as afforestation and forest-conservation activities.

Enclosure establishment: The word enclosure or sometimes area closure is used for areas, usually steep slopes, put under full or partial protection by restricting human activities and livestock grazing for a number of years until re-growth of natural vegetation is secured. There are two categories of enclosures that are promoted in Eritrea: (1). Permanent enclosures: An area is set aside, in which no livestock grazing farming, settlements or tree cutting is allowed for an unlimited period of time; (2). Temporary enclosures: An area is closed for a limited period of time i.e. from few month to few years. Enclosures for rehabilitation of degraded landscapes are now widely implemented throughout the country. Accordingly about 250,000 ha of land has been enclosed country wide since independence in order to regenerate natural vegetation (FWA, 2014). Grazing animals are amongst the main causes of deforestation. The only sure measure to guarantee a sustained regeneration process of shrubs and tree species is to designate potential areas closed, either temporarily or permanently.

Some useful roles of enclosures are to create good conditions for vegetation recovery through natural regeneration; produce pastoral reserves for livestock and woody bio-mass for the local people; protect the endangered flora and fauna from extinction and thus restore biological diversity; help to control run-off and to prevent loss of arable land downstream by erosion and flooding; and increase infiltration rate retains moisture and accordingly improve ground water recharge. In this context the role of the MoA is to assist communities to decide and implement enclosure areas within the framework of national and customary laws and policies; promote the idea that each village to establish and manage at least one enclosure and works in raising awareness and interest for enclosures for grazing and rehabilitation purposes.

Enhancing afforestation and soil and water conservation: Since 1991 more than 98 million seedlings have been planted to rehabilitate about 40,000 ha of degraded lands. According MoA report (2014), about 36 million seedlings covered an area of 14,726 ha have been planted in the

last 10 years as summarized in Table 5. All these activities are carried out with communities' participation. Tree planting through popular participation has to be encouraged at homesteads, roadsides, school compounds, sacred places, scenic sites, waterways, etc.

Plate 8: Enclosure for natural regeneration, Demsebai, S/Berik, Maekel, 2007

Plate 9: Afforestation to restore degraded catchment, Tokor, S/Serejekak, Maekel, 2009

Table 5: Seedling Production, planted and area covered

Year	Seedling raised ('000)	Seedling Planted ('000)	Area coverage (ha)
2004	4,000	3,750	1,500
2005	600	586	234
2006	2,177	1,746	698
2007	4,100	3,680	1,472
2008	7,813	5,000	2,000
2009	5,434	4,080	1,632
2010	5,229	4,300	2,112
2011	7,736	5,150	2,068
2012	6,234	4,110	1,650
2013	5,195	3,407	1,360
Total	**48,518**	**35,809**	**14,726**

Source: MoA, 2014

Given the magnitude of the problems associated with forest and soil conservation, it is recognized that the only way to tackle the problems of land degradation and the fuel wood and construction-wood crisis at acceptable cost is to work through a catchment approach and initiate community-based tree-planting programmes. The major practices under a catchment approach would be:

- Construction of hillside terraces and micro-basins on uncultivable lands, planted with perennial plants (trees and shrubs) for purposes of soil conservation, fuel wood and construction-wood production, dam-site protection from siltation, etc.;

- Construction of check dams along waterways, planted with grasses and shrubs, in order to slow down runoff water and reduce soil loss;

- Construction of on-farm bunds, such as stone bunds or soil bunds, planted with leguminous trees and shrubs as well as with grasses;

- Establishment of tree nurseries and grass-multiplication centers. Seedlings could be located all over the catchments to stabilize the structures; and

- Construction of diversion structures, using gabions, concrete, etc.

Efforts to address land degradation and mitigate the effects of drought have been implemented for decades. Activities such as terraces (on and off-farms) and check-dams are common practices. Some of the major SWC achievements accomplished in the last 10 years are summarized in Table 6 below:

Table 6: Soil and water conservation activities (2004-2013)

Year	Hillside Terracing (Ha)	Check Dam Construction (M^3)	Stone Bund Terrace (km)	Soil Bund Terrace (km)
2004	1,013	725,000	1,804	3,560
2005	8,478	246,000	1,428	1,287
2006	3,997	923,000	355	2,588
2007	1,901	409,493	176	2,560
2008	1,227	304,500	14	59
2009	1,797	386,599	1,370	6,444
2010	1,978	437,862	467	2,200
2011	3,193	121,736	575	432
2012	3,554	203,681	-	-
2013	1,709	377,276	142.5	17.5
Total	**28,847**	**4,135,147**	**6,332**	**19,148**

Source: MoA, 2014

The Government is pushing to moving a step further by allocating Government lands with trees already established on them to individual families for them to look after and become the ultimate owners of, with the right to cut and sell mature trees. Another successful application of social forestry involves the participation and planting in home compounds, roadsides, and institutions such as churches, mosques, schools, and hospitals.

The Ministry of agriculture in collaboration with concerned governmental and non-governmental organizations and with the participation of local communities' is undertaking an accelerated and sustainable afforestation and soil and water conservation programmes. One element of the

program is to encourage individuals and communities to establish woodlots on individual and community lands. Residents actively participate in designing and managing the individual and community woodlots, and the Ministry of Agriculture provides seedlings and overall guidance.

Student Summer Campaign: Since 1994, Eritrean students throughout the country have been participating in afforestation and soil-conservation campaigns during their school vacations, during Kremti (June-September), organized by the Ministry of Education (MoE) with the Ministry of Agriculture. About 384 thousand students participate for 30-45 days every year since 1994 for which the government has allocated Nakfa 192,437,145.29 and labour value for campaign is estimated Nakfa 200,272,688.00 (MoE, 2014). Hence, other additional sources of funds would be required and integrated to foster the implementation of the program more effectively and sustainably. The major achievements accomplished in the last 17 rounds of the student summer campaign are summarized in Table 7.

Table 7: Summary of major achievement of the summer student campaign (1994-2013)

S.N	Activities	Units	Total achievements
1.	Pitting for seedlings	No	16,486,290
2.	Planting seedlings	No	21,399,192
3.	Hillside terrace construction	Meter	11,047,583
4.	Hillside terrace maintenance	Meter	6,359,654
5.	Check-dam construction	M^3	706,701
6.	Check -dam maintenance	M^3	95,883
7.	Micro basin construction	No	723,596
8.	Micro basin maintenance	No	90,485
9.	Diversion canals construction	Meter	10,894
10.	Weeding and cultivations of seedlings	No	4,195,437

Source: Ministry of Education, Students Summer Work Office

The Ministry of Education through its programme of Students Summer Work is undertaking an accelerated and sustainable afforestation program. One element of the program is to encourage students to establish forest sites within their school compounds and assist farmers in planting trees on community lands. A second element is to involve young people who are part of the Summer Youth Program in building terraces, planting trees and undertaking other soil and water conservation activities in catchment areas. Most of the work of the 'Students Summer Campaign' focuses on combating desertification through participation in environmental conservation and development activities.

The MoE is also working hard to incorporate environmental education in school curriculum parallel to the existing environmental awareness-raising programmes and activities in the schools and through adult radio programs on environmental conservations. Efforts are being promoted to introduce environmental clubs and school afforestation programmes into schools to engage students in extra-curricular activities.

Plate 10: Students participation in tree planting, Limat School, Asmara, 2007

Plate 11: Popular community participation stone bund construction, Lowland of Eritrea, 2006

Developing Agro-forestry: Agro-forestry offers a practical way to apply specialized knowledge and a variety of skills to the development of a sustainable system of rural production. This is especially important in difficult environments, such as in the Central Highlands Zone, where people must manage steep slopes, dry conditions, and fragile lands in order to survive and earn their livelihood. Agro-forestry is a system frequently invoked as part of the solution to problems of land and water degradation as well as an answer to:

- Shortages of fuel wood plus charcoal wood (which together are the source of circa 55% of the total energy requirements of the population);
- Shortages of food, cash income, animal fodder, and building materials; and
- Soil- and water-conservation challenges.

The challenge is to see whether the existing local practices, now under threat, can fully address the production and conservation problems that the Central Highlands Zone faces. In fact, the challenge cannot be met without adapting to the changing conditions. But building improved agro-forestry practices based on traditional practices augmented by boundary planting, tree planting on soil-conservation structures, and establishment of live fences will suffice. These adaptations can produce food, wood, and fodder and thus be in line with environmental conservation that needs governmental support.

Promotion of Non-Wood Forest Products (NWFP): NWFP include all biological material that can be extracted from natural ecosystems and managed plantations. It can be utilized within the household, be marketed, or have social, cultural or religious significance (Chamberlain, Bush and Hammett, 1998). This includes roots, leaves, fruits, bark and resins.

The production and consumption of wood products, non-wood forest products and forest service's meet food, energy, shelter and health needs, as well as generating income. Collection of edible non-wood forest products also supports food security and provides essential nutrients for many people (FAO, 2014).

Eritrea owns inherited traditional management system of preserving forests including NWFP. There exist village by-laws regulating forest management and NWFP use. In order to minimize or even reverse the effects of desertification resulting from destruction of forest resources through unwise utilization of non-wood forest products, the following actions are called for:

- Developing improved technologies for the extraction of non-wood forest products;
- Promoting joint forest-management practices;
- Encourage reforestation and agro-forestry;
- Assessing the potential pros and cons of prickly-pear cactus (Opuntia ficus-indica); and
- Promoting research, especially on the propagation such as *Boswellia papyrifera*.

Implementing a Management Plan for Riverine Woodlands: The Assessment and Management of the Riverine Woodland Project (AMRF, 1999) has come up with a management plan for the riverine woodlands of the Western Lowlands Zone. This plan has considered a proper balance among technical, economic, social, and environmental considerations in order to achieve the rational and sustainable utilization of the natural resources of the riverine woodlands. It is a comprehensive plan that takes into account all the natural resources present in the riverine woodlands, and the processes via which the community can obtain access to them. Therefore, the management plan needs to be updated and implemented as possibly sooner so that the natural resources and traditional land uses can co-exist harmoniously.

Riverine forests have dwindled rapidly during the last century, as the land was cleared for agricultural expansion, horticulture, wood production and widely neglected during decades of war and reoccurring drought cycles. The forests, which are said to have covered vast areas alongside the river streams, but also on higher elevations along hillside valleys within the western escarpment zone a century ago, have been reduced to patches during the 20th century. Riverine habitat along Gash and Barka Rivers constitute 195,024 ha.

In order to protected and restore the riverine vegetation, the government has introduced a regulation stating that any agricultural activities along river sides should be placed at least 700 meter apart from river banks.

Forestry and Wildlife Inspectors: As continuation of the efforts in conservation and development of forestry and wildlife resources of the country, forestry and wildlife inspectors have been trained and deployed since 2008. Forestry and wildlife inspection is organized under FWA to widely protect and conserve the natural resources particularly the forestry and wildlife resources. There are currently 155 forest and wildlife inspectors mobilized and assigned throughout the country. These Inspectors control the illegal activities such as poaching, charcoal production and fuel wood trade.

Forestry benefits: In general terms, investments and interventions in forestry resulted multi-dimensional benefits to the society and the environment at large which need further in-depth investigation and assessment. Some of the outstanding benefits gained are listed below:

Environmental benefits:

- Protection of soil erosion and its hazards.

- Improved underground water potential.
- Protect siltation and improve water holding capacity of dams.
- Improved soil fertility.
- Rehabilitation of degraded catchment areas due to tree planting and SWC structures.
- Contribution to the overall effects of global warming (carbon sequestration).
- Restore the ecological balance and biodiversity.
- Created forest areas used by community for fuel wood, construction, forage, industrial uses and other recreational purposes.
- Improve micro-climate and human health status;

Economic benefits:

- Provided long-term cumulative value.
- Generated incomes to local communities through direct employment and multiplier effects.
- Income generation activities like collection and selling of woods, harvesting of fodder from forest and opportunity for non-timber forest product.

Programme of action:

To conserve and develop the forestry and wildlife resources of the country GoSE has developed a five years (2012 – 2016) strategic plan as stated below:

- Increase planted forest 2,000 hectares annually through afforestation
- Increase vegetation cover by 10,000 hectares annually through the establishment of enclosures
- Establish forest and wildlife resources information system for sustainable utilization of forest and wildlife resources
- Establishment and management of wildlife protected areas
- Reduce illegal cutting of trees, and killing of wildlife
- Increase number of forest and wildlife guards and inspectors and logistical support
- Develop and disseminate 8 adaptable tree species and provenance
- Evaluate and adopt appropriate agro-forestry technologies
- Evaluate and adopt conservation & management techniques for threatened indigenous tree species and establish conservation stands.
- Review and update forestry and wildlife proclamation No. 155/2006 and regulations No. 111 and 112/2006 and ensure their implementation
- Establish and strengthen national, regional and international Linkages on forestry and wildlife resources
- Finalize draft national CITES (Convention on the International Trade of Endangered Species of wild flora and fauna) legislation
- Promotion of capacity building programmes
- Improve organizational efficiency and performance

3.2.7 Livestock and Rangeland issues:

Livestock are an important part of the Eritrean agricultural sector, through their contribution to basic dietary requirements and income through livestock and their products including the contribution to crop production as draught animals (e.g. oxen and camels). The number and distribution of livestock has considerable impact on land, through grazing pressure on vegetation and also by competition with other wild herbivores. The total population of livestock of the country is estimated at 10.6 million of which cattle constitute 2.2 million (Table 8).

Table 8: Estimated livestock population, nationwide

Livestock type	**Livestock Population (**millions)
Cattle extensive –Traditional	2.24
Cattle intensive -Pure and cross breeds	0.02
Cattle Intensive – Local	0.01
Subtotal cattle	**2.27**
Goat	5.46
Sheep	2.49
Camel	0.37
Total	**10.6**

Source: MoA, 2013

Rangeland in Eritrea is estimated at 6 million hectares or 49% of the total land mass of the country and approximately 75% of the total population depends on livestock and livestock production. About 5% of the total population is pastoralist, with another 25% classified as practicing agro-pastoralism. Almost all farming households own some livestock and many upland farmers move livestock to the lowlands in combined herds for grazing (MoA, 2013).

Cereal straw is an important component of animal feed that supplements grazing. There is shortage of arable as well as grazing land. In the highlands there are special communal grazing areas with seasonal closure called *Hizaati* around the villages.

The pastures in the highlands are infertile and steep, hence fragile under continuous uncontrolled grazing regimes. The grazing area has been shrinking over the years because of over-grazing, extensive cultivation, improper utilization of water resources and deforestation. The removal of forest cover and constant grazing has depleted the resources of the browse layer. The pastures have no opportunity to recover because hungry animals are continuously searching for any edible plant that sprouts. Attempts to allow regeneration by closing land to grazing have shown promising results and are becoming models for recovery. However, generally because of the above mentioned reasons the most palatable species of herbage and browse are decreasing in quantity and leaving space for less palatable species. If the present trend of deterioration persists for much longer, it may not only destroy the palatable species completely but it could also change the land to bare soil and initiate the process of desertification. Major challenges associated with livestock and rangelands include:

- Destruction of the vegetation cover due to high human and livestock population;

- Lack of comprehensive land use planning and land classification; resulting in the loss of topsoil and soil fertility;
- Insufficient studies to determine livestock carrying capacity;
- Inadequate taxonomic knowledge of the native grasses, legumes, and forbs;
- Insufficient livestock watering points and feeding area
- Expansion of crop lands at the expenses of rangeland and forest areas.
- Traditional livestock-production systems;
- Weak livestock extension services;
- Lack of awareness to conserve and enclose grassland areas for use during dry season and;
- Expansion of settlements and of commercial farms into the traditional rangelands

Efforts are undertaken to increase the productivity of herds by enhancing rangeland and water resources management, promoting superior animal breeding systems, improving animal health and nutrition by expanding vaccination and other veterinary services, and developing a peri-urban dairy industry,

The livestock and rangeland development is designed to promote sustainable livestock and agricultural development. Most of the activities undertaken are to assist livestock community in alleviating poverty and improve food security by promoting the conservation and sustainable use of livestock and rangeland resources and minimizing the adverse impacts of loss or deterioration of rangelands and livestock resources.

Programme of action:

To resolve and/or mitigate the above mentioned challenges the following programme of actions are recommended:

- Gradual improvement from traditional to modern system;
- Promote Zero grazing and enclosures for cut-and-carry methods;
- Establishment of pilot rangeland development projects which could help in the development and improvement of rangeland productivity;
- Assessment of the trends in rangeland conditions, aimed at improving vegetation coverage, plant quality, and species composition;
- Establishment of watering points at reasonable distances from each other;
- Strengthen extension service to change attitudes of pastoralists;
- Identification and development of deteriorated rangelands, through inventory and the introduction of highly productive grass and legume seeds;
- Application of appropriate soil- and water-conservation measures; and
- Application of a proper land-use system, with full participation of livestock communities.

3.2.8 Human-Settlement issues:

Eritrea is predominantly a rural society and only about 20 - 30% of the population lives in urban areas (PHS Eritrea 2010). In Eritreans there is a tradition of establishing settlements away from agricultural or marginal lands. However, in recent times settlements are encroaching on rich

agricultural lands. Two factors account for this recent development: First, population growth in small towns has been dramatic and intense. The pace at which it is taking place does not always permit other alternatives for the needed urban expansion; and second, nearly all villages and small towns are located in the vicinity of agricultural land, even when the village boundary is confined to barren land. As the village or small town grows, it begins to encroach on arable land. In the past, villagers were extremely careful to consider land capability when deciding where and how villages were to grow. The local knowledge and the good practices it fostered seem to have disappeared. However, for ease of provision of social services, the GoSE is pushing scattered vulnerable families to gather voluntarily and assist them through the construction of various social infrastructures such as schools, health centers, health stations, water demands (water supplies, dams, ponds, wells) markets and other basic necessities to the livelihood. In deed this would require better planning in terms of socio-economic and environmental transformation.

Associated to the settlement issues the introduction of urban and peri-urban agricultural becomes vital as urban or peri-urban agriculture is the practice of cultivating, processing, and distributing food in or around a village, town, or city. Urban or peri-urban agriculture can also involve animal husbandry, aquaculture, agro-forestry, urban beekeeping, and horticulture. In previous times not much consideration has been given to the issue of urban agriculture. Indeed, there may be a bias against it, as occasionally municipal officials express reservations about farming and livestock-keeping within city limits. Urban and/or peri-urban agricultural have significant contribution to food security in terms of crop and livestock production in which the government is working and needs greater attention. Access to nutritious food, both economically and geographically, is another perspective in the effort to secure crop and livestock production in cities. With the tremendous changes in settlements and population growth the demand for food is increased which requires safe urban agriculture in which the government needs to take strategic actions.

The benefits that urban and/or peri-urban agriculture brings along to cities that implement this practice are numerous. The transformation of cities from only consumers of food to generators of agricultural products contributes to sustainability, improved health, and poverty alleviation.

3.2.9 Drought-Preparedness issues:

The Government of Eritrea has considered the development of a reliable and accurate food and/or drought information system as one of its vital instrument for effective preparedness and planning. Various coping mechanisms are set through the formation of national and local committees' establishments, formation of public organizations, food reserves and other emergency activities. For this purpose, the National Food Information System (NFIS) was established in 1993. The NFIS was composed of seven institutions with the following responsibilities.

Ministry of Agriculture: i) Monitor the availability of agricultural inputs, incidence of locusts, pests and plant diseases, ii) Collect data for monitoring the effects of weather conditions, rainfall, hailstorms, floods, etc. on crop and livestock, iii) Estimate area and yield of crops, and iv) Forecast crop production.

Eritrean Grain Board : i) Collect market prices, ii) Develop a statistical data collection system of grain movement in the Country, iii) Estimate total stock levels, iv) Estimate the grain consumption and foresees the requirements of the population, and iv) Co-operate with the Ministry of Agriculture to prepare a Food Balance Sheet.

Eritrean Relief and Refugee Commission: i) Monitor local migration of population and coping strategies, including vulnerability assessments, ii) Estimate population food requirement, and iii) Co-operate with the Ministry of Agriculture to prepare a Food balance Sheet.

Civil Aviation Department: i) Monitor and forecast weather on a regular basis, ii) Disseminate weather information jointly with Ministry of Agriculture, iii) Monitor weather, vegetation and other environmental information from satellite images, and iv) Co-operate with the Ministry of Agriculture to prepare Water Crop Satisfaction Indexes.

Ministry of Health: i) Monitor nutritional status of the population and identify at-risk population groups, ii) Identify indicators and classify vulnerable groups, and iii) Follow-up the nutritional and sanitation programmes.

Custom Office: i) Provide physical quantities of grains and livestock crossing the borders, ii) Estimate and keep statistical data of the variety of industrially produced imported and exported food items, and iii) Co-operate with the Ministry of Agriculture to prepare a Food Balance Sheet.

Water Department: i) Investigate and monitor the water resources of the country, ii) Plan their optimal utilisation for agriculture, and iii) Provide hydro and meteo data.

The system was relatively advanced. The institutional settings were good. A technical committee representing all the seven institutions were meeting regularly every month. However, at the moment NFIS is not functioning as required due to financial constraints.

Traditional Coping Mechanisms:

Almost all farming households own some livestock and many upland farmers move livestock to the lowlands in combined herds for grazing during the months of December to February, where the highland areas becomes dry. December to February forms the main wet season of the Eastern lowland area of the country. Livestock start to move back in March – April when the short rains occur in the highland area. Hence, drought preparedness and coping mechanism for livestock among others should include: develop of indigenous drought-resistant fodder, conserve fodder as a reserve for drought period, introduction of drought-resistant breeds, development of multi-purpose fodder production and utilisation of industrial by-products for feed.

Eritrea's coping mechanism against insect infestation including army worms and desert locusts, needs further efforts and mechanisms. The MoA is alert in surveillance and carry out various measures including training for extension staff and local communities such crop production and protection in order to prevent crop-failure resulting from desert locusts or army worms.

Programme of action:

In the preparation and mitigation of drought effects the MoA with collaboration of its partners need to strengthen the following issues:

- Promoting and strengthening an integrated drought management mechanisms
- Develop drought-resistant crop varieties;
- Introduce early-maturing crops;
- Develop indigenous drought-resistant fodder;
- Establish enclosures and grow fodder;
- Introduce drought-resistant multi-purpose trees and shrubs;
- Introduce improved water-harvesting techniques; and
- Develop people's awareness of the proper utilization of water resources.

3.2.10 Awareness, Education, and Training issues:

As a primary objective to arresting DLDD issues, a comprehensive programme in environmental awareness is necessary in order to attain productive results and sustainable management and use of resources. This requires an immediate and priority action in the national action program. In this respect participation of all stakeholders and communities at all levels in an effort to control desertification is absolutely essential. In its efforts the MoA in collaboration with respective partners provide various training programmes in the fields of soil and water conservation, crop production and protection, livestock production, horticulture.etc. For instance, the MoA has provided DLDD related training programmes for more than 28,000 farmers' households (out of which 14,760 are women) in the past ten years (Table 9).

Table 9: Training provided to farmers (2004 – 2013).

Year	SWC	Crop	Horticulture	Livestock	Home-economics	Total
2004	108	65	99	204	221	697
2005	24	502	NA	1,556	2,135	4,217
2006	NA	325	NA	1,478	871	2,674
2007	110	465	NA	2,495	160	3,230
2008	55	737	206	777	1,263	3,038
2009	358	570	97	2,742	1,602	5,369
2010	350	921	102	1,241	459	3,073
2011	461	258	152	713	395	1,979
2012	461	258	152	713	395	1,979
2013	461	258	152	713	395	1,979
Total	**2,388**	**4,359**	**960**	**12,632**	**7,896**	**28,235**

Source: MoA, 2014

National Greening Day: In recognition of the efforts of the Eritrean people in afforestation, the Government has declared 15 May to be marked as National Greening Campaign Day. Technical committees at all levels have been established for monitoring and evaluation. Members of the committees are from line Ministries, Zonal administrations, professional, CBO and CSOs and individuals including religious leaders to encourage the need of tree planting and environment

conservation. Various awareness raising activities and performance evaluation of different afforestation and SWC programs is conducted. Communities, Individuals, School, religious institutions and Government and non-government institutions are evaluated and best performers are awarded (*Dima*) and other material and cash incentives annually for activities of their excellence. Dima is the highest award with the emblematic indigenous tree of 'Baobab (*Adansonia digitata*).

In addition, on 20th of June the country remembers its Martyr's Day with various programs in such a way that communities' and individuals plant trees and involve in the construction of soil and water conservation structures that had been practiced and becomes a tradition since 1991.

Similarly, in June 17, Eritrea as country Party to the Convention celebrates the World Day of Desertification. In this day, in connection with the event, DLDD messages are published in local newspapers and distributed to the public. This day is marked to show the dedication of the political will and public's commitment towards combating desertification and hunger. In this day activities such as seminars, preparation of articles which highlight the theme of the year are prepared and broad-casted to the public via local mass-medias. The events are also reported to UNCCD Secretariat.

Green clubs are established at every school where students plant multipurpose tree species on their school compounds and their homesteads. Each student is responsible to plant a tree and manage and protect so as to enable the planted tree for proper use. Currently there are around 106 school green clubs established and is believed that in the coming few years all schools will have established green clubs.

The Ministry of Education (MoE), as a key institution is playing a critical role in combating desertification through the following areas of intervention:

- Curriculum development;
- Adult educational programmes; and
- Student secondary-school vacation work programmes.

The Ministry of Information (MoI) has also an important role in disseminating DLDD related information to the public through the available media outlets such as radio, TV and news letters. The major programmes (90%) are focused to rehabilitation of degraded lands through afforestation, soil and water conservation and other physical structures. The MoI broadcasts at least twice a week on DLDDs related issues through its channels particularly radio programmes. The estimated number of persons reached by media products is indicated in Table 10:

Table 10: Estimated number of persons reached by media products

Paper media products	Radio and TV	Other ICT
700,000	2.2 million	300,000

Source: Ministry of Information (2014)

Due to the wide coverage in disseminating information, the media impacts on public awareness raised in the field of forestry, soil and water conservation and farmers start to share their experience in a public gathering such famers days, national greening day and Martyr's day.

For sharing of DLDD experiences, Eritrea organizes and presents its own pictorial and documentary films in international and regional forums. Side events and exhibitions also organized and conducted in UNCCD COPs such as Nairobi, Madrid, Buenos-Aires, and Windhoek. This need to be continued for experience sharing and lessons learned that could be useful to Eritrea's Experience to combat land degradation and desertification as a strategy to achieve food security.

3.2.11 Socio-economic issues:

Deterioration of the forest resources and vegetation cover result in significant decline in supply of fuel wood, timber and construction material which in turn have a direct impact in the national and household economy. Similarly, unsustainable agricultural practices result both biophysical and socio-economic impacts. Loss in most fertile part of the top soils decline in soil fertility and decrease in crop yields, reduction in water and nutrient retention capacity of soils and encroachment onto increasingly marginal land are impacts of land degradation and desertification. Reduction in crop yields from impact of unsustainable agriculture and overall deterioration of the land significantly affect levels of farm income as the farms are mostly very small and fragmented to support subsistent livelihood. These in turn results serious socio economic problems like, impoverishment, food insecurity, negative impact on education, health and on women and marginalized groups, migration and breakdown of social structures.

NAP recognizes that women and pastoralists are two important groups that are particularly vulnerable to the effects of land degradation and desertification. Women perform most of Eritrea's subsistence farming; and their workload grows as men leave rural areas to find paid employment elsewhere. A new direct focus on women in agriculture in order to improve nutrition and resource conservation is essential. Pastoralists are also another group significantly affected by land degradation and desertification.

3.2.12 Community Participation and involvement issues:

The MoZA, as a decentralized administrative system, oversees and implements the activities of all line ministries. MoZA is the highest institution at local levels to follow the implementation of all the planned activities including the mobilization of natural and human resources to combating desertification at all zonal levels through active involvement and participation of local communities. In collaboration with line ministries the MoZA is responsible for the management and use of natural resources and rehabilitation of degraded areas.

The Eritrean villages and communities consist of village development committees (VDC) whose members are democratically elected from within the villagers. The VDC has sub committees among which Natural Resources Management (NRM) is one. For instance, the NRM sub-committee function is to mobilize farmers to carry out physical SWC structures, tree planting, and awareness raising programmes on DLDD/SLM related and other conservation agriculture

issues. The MoA development agents have close contacts with the sub-committees. In addition to their input on building blocks to extension the NRM committees encourage communities to participate in DLDD related issues.

All stakeholders and partners including governmental institutions, civil society groups and community based organizations need more to actively participate in all land degradation and desertification control endeavours. The NUEW in collaboration with the department of Energy and through its branch offices in zobas and sub-zobas play very important role in the distribution and use of energy saving stoves to rural communities'. The NUEW has several ongoing projects aimed at improving women's socio-economic situation in order for them to participate in various income generating activities and employment creation skills. Similarly, the NUEYS is making tremendous efforts in mobilizing the female and male youth to participate in DLDD activities at all levels.

The National Union of Eritrean Youth and Students (NUEYS) is one of the biggest national NGOs in Eritrea. With its power and vast members the NUEYS can offer labour on a voluntary basis related to DLDD with the wider network it contains all over Eritrea. NUEYS has rich experience in implementing projects related to the protection and well-being of the environment. Every year, NUEYS organizes national campaigns and mass activities such as planting seedlings, digging wells, terracing hillsides, and cleaning up surroundings. In addition, under the guidance of the MoA, it organizes campaigns to increase awareness on land degradation and assist in the wider dissemination of information necessary to the success to implementing NAP.

The National Union of Eritrean Women (NUEW) understands that desertification is a problem that affects the entire population in general and women in particular. Women as the prime victim, especially in the rural areas, have to play a significant role in environmental issues. Hence the aligned NAP recommends the following interventions related to women:

- Active community participation in general and vulnerable groups in particular at all economic and social aspects through public campaigns in an effort to reverse the degraded land.
- Empowering women in all processes and ensuring income generating activities i.e. include women's' development in a short-term and long term strategy and operational outline throughout Eritrea to implement its desertification plan of action;
- Ensure that women become part in the NAP planning, implementation, and evaluation process;

Strengthening community participation remains one of the principal strategies to address DLDD through participatory planning and management. To ensure wider participation, institutional and human capacity needs to be promoted considering its significance in scale and replicability. This process involves the active participation of all stakeholders at all levels within the system. This creates responsible working atmosphere into the system invariably among the implementing partners and users. However M&E system is deemed necessary in DLDD implementation for effective results and sustainability. A well-designed participatory M&E system should represent one of the DLDD benefits.

Participation involves not only giving people opportunities to become involved with planning and M&E, but it also means empowering people to influence the final outcomes or decisions based on the information generated for sustained benefits.

Enhancing International and Regional Co-operation on Forest Conservation and Development: Eritrea in collaboration with regional and international organizations is working hard to tackle the problems of soil degradation, fuel wood and construction-wood crisis, and protecting the natural resources. Some of the international and regional organizations that are actively participating in Eritrea's afforestation and soil-conservation efforts include: FAO, EU, UNDP, UNEP, ICRAF, AfDB and GEF.

GEF to supporting implementation of the UNCCD: GEF's mandate to invest in global environmental benefits from production landscapes relates directly to its role as a financial mechanism of the UNCCD. The Land Degradation Focal Area provides the framework for eligible countries to utilize GEF resources for implementing the Convention and its 10-year (2008-2018) strategy which aims "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." Approval of the focal area by the GEF Assembly (October 2002) and its operationalization by the GEF Council (May 2003) was in line with acceptance by the Conference of Parties (COP) of GEF as a financial mechanism of the Convention. A Memorandum of Understanding between the UNCCD COP and the GEF Council (decision 6/COP.7) has since paved the way for direct support to those affected countries eligible for GEF financing through enabling activities. The amendment of the GEF instrument in 2010 has formally designated the GEF as a financial mechanism of the UNCCD.

The GEF-6 focal area strategy will support affected country Parties in achieving objectives of the 10-year Strategy, which "will involve long-term integrated strategies that focus simultaneously in affected areas, on improved productivity of land and on the rehabilitation, conservation, and sustainable management of land and water resources, leading to improved living conditions, in particular at the community level." The GEF-6 strategy will directly support three of the four UNCCD strategic objectives on achieving long-term benefits for affected populations (SO 1), affected areas (SO 2), and for the global environment (SO 3). Consistent with priorities of the Convention and the GEF Policy on Gender Mainstreaming, the GEF-6 strategy takes into account the need to address impacts of land degradation on the poor and women. Specifically, the strategy will support actions and innovations that generate human livelihood and global environmental benefits. Because the GEF-6 replenishment phase (2014 – 2018) coincides with the final four years of the UNCCD 10-year strategy, the alignment will ensure that countries appropriately channel Land Degradation Focal Area investments to deliver targeted outcomes and catalyze support for combating land degradation that needs greater attention.

On the other side, the Global Environment Facility/Small Grants Program (GEF/SGP) has implemented through the United Nations Programme (UNDP) on behalf of the GEF partnership and in cooperation with of all governmental institutions. GEF/SGP is rooted in the belief that with small amounts of funding, members of local communities can undertake activities that will make a significant difference in their lives and the environment, with global benefits, in contrast to top-down, expert-reliant development interventions. GEF/SGP grant is channelled directly to

grass root communities through CBOs and NGOs. The grant amount per project ranges between USD 50,000 - USD 150,000 which is disbursed in three/four instalments against financial and narrative reports.

Eritrea became eligible for Small Grants Programme in 2006 and it practically joined the programme in April 5, 2009. GEF/SGP covers only incremental costs and the baseline costs are covered by grantees themselves. Communities are also asked to contribute in cash or in-kind to enhance the sense project ownership. To secure co-financing at project level, the office and members of the national steering committee reached out administrative regions and the beneficiary communities in a bid to aware them of the financing approach. In addition to the beneficiary communities contribution (kind and labour) the ministries provide technical backstopping. MoA is an active member of the Steering Committee and support communities through their involvements in the preparation and implementation of projects.

In this respect GEF/SGP assisted DLDD related projects (implemented and ongoing) are listed below (Tables 11 and 12).

Table 11: GEF-SGP/Eritrea completed Projects (2009 – 2011)

S.N	Project title	Thematic area	Project cost USD
1	Rehabilitation of Hirgigo Mangrove Forests and Improving Communities' Livelihood	Biodiversity Conservation	52,759.00
2	Improved Traditional Stove in three villages of Adi-tekelezan sub-region	Climate change mitigation	123,160.00
3	Promotion of Community Based Afforestation and Soil and Water Conservation at Sub Zoba Adi-Tekelezan	Prevention of land degradation	75,275.00
4	Community Based turtle conservation at Dissei Island	Biodiversity Conservation	70,700.62
5	Promotion of community afforestation and land reclamation in Sub- region Adi-tekelezan	Prevention of land degradation	51,137.19
6	Bio-Gas as alternative source of energy for Environmental protection and improving livelihood at household level	Climate change mitigation	77,227.70
7	Improvement of livelihood in rural community through provision of solar lanterns and environmental rehabilitation	Climate change mitigation	81,208.00
8	Solar powered IT system for the schools of Adi-beza and Adi-gulti in Sub- region Areza.	Multi-focal	93,744.00
9	ToT to communities on forest management, making of improved traditional stoves, nutrition, and awareness raising	Capacity building	27,729.75
	Total budget		**652,941.26**

Source: UNDP, GEF-SGP/Eritrea (2014)

Table 12: GEF-SGP/Eritrea ongoing Projects

S. N	Project Title	Beneficiary village/s	Grantee Name	Grant Cost USD
1	Rehabilitation of Degraded Catchments in Elabered Sub region	Debresina, Shib seleba and Era Tahtay	NUEW Anseba	750,000
2	Rehabilitation of Degraded Sub catchments in Galanefhi Sub region	Embeyto, Addihawsha and Lamza	NUEW Maekel	750,000

3	Community Based Watershed Management	Adebzage and Mereb, Debarwa Sub region	NUEW Debub	750,000
4.	Rehabilitation of Land Degradation through Afforestation and Composting	28 villages in Sub region Serejeka	Serejeka Devt Committee	750,000
5	Community based Soil and Water Conservation practices	Embatkala and Ghindae	NUEW , NRS	675,000
6	Demonstration of low carbon solar home systems and afforestation	Qnafna, Adi Samray and Andaba Shgundi	Qnafna Devt Committee	2,250,000
7	Community Based Watershed Management in Laelaygash Sub region	Shelalo and Maykokah	NUEW Gash Barka	750,000
8	Community Based Gullie micro watershed Management	Gullie, Galanefhi Sub region	Galanefhi Devt Committee	750,000
9	Optimizing tillage and rain water conservation	Hamelmalo farmer community	HAC	600,000
10	Gerger Integrated Watershed management in Geleb Sub region	Gerger	Geleb Devt Committee	750,000
11	Azien - Quazien Community Based Afforestation Programme	Azien, Adengoda and Quazien	Azien Quazien Community Devt	750,000
12	Weki-Zagir Community Based Afforestation Programme	Weki, Defere and Zagir	Weki Zagir Community Devt	750,000
13	Community Based Rehablitation of Degraded land through fruit trees	Adesfeda, Lamza, Tselot, Embaderho & Himbrti	Temperate Fruits Community Devt	750,000
14	Kelhamet Community Based Catchment treatment	Kelhamet	Kelhamet Community Devt	742,950
15	Tokonda'e Community Based Watershed Management	Tokonda'e, Mnah, Meshal, and Adi-Uren	Tokonda'e Devt Committee	750,000
16	Tala Community Based Catchment Rehabilitation	Tala village	Tala Community Development	750,000
17	Keih-Kor community based sustainable land management	Metsalu-Keih-Kor	Keih-Kor Devt Committee	750,000
18	Quhayto Community Based Land Rehabilitation	Garbana, Demihina and Karibosa	Quhayto Devt Committee	750,000
19	Rehabilitation of Degraded Catchments in Durko Adminstrative Kebabi	Durko, Emnihaili, Adi Hatsero, Adekearba, Mariam-medhanit, Adi Agua and Adishimaoele	Emnihaili Community Development	750,000
20	Rehabilitation of Land Degradation through afforestation and composting	21villages in Sub region Berik	Berik Devt Committee	750,000
21	Enhancing Water Security and Sustainable Land Management in Mayhabar	Mayhabar	Mayhabar Community Devt	750,000
	Total costs			**17,017,950**

Source: UNDP, GEF-SGP/Eritrea (2014)

Some of the key results gained from GEF/SGP programme include training of trainers for women in improved stove construction, installation and maintenance and sustained; planting tree seedlings including backyard gardening; enclosure developed, land treatment practices in SWC community based activities. Consequently, as an impact, cutting of wood for fire reduced (estimated by around 40-50% efficiency). Due to provision of improved stoves, reduction in

smoke related diseases of the respiratory organs, eye irritation and backaches, cooking time and labour reduced and school enrolment for girls increased, household expenditure on firewood reduced, enabling environment for further agricultural and income generating activities created, degraded lands rehabilitated/reclaimed, agricultural production improved as a consequence of slowing down the run-off, job creating activities for women headed households created, awareness of communities on environmental protection and livelihood development raised, environmental quality improved and top soil conserved through reforestation measures. Further impact assessment is required regarding DLDD interventions and their impacts and as well as future cooperation programmes with international and regional organizations for an effective and sustained DLDD management.

4. THE NATIONAL ACTION PLAN (NAP) ALIGNMENT PROCESS

4.1 Rational and objectives of NAP Alignment

UNCCD's decision, 3/COP.8 of 2007 states that affected country parties are urged "to align their national action programmes and other relevant implementation activities relating to the Convention with UNCCD 10-Year Strategic Objectives" by, *inter alia*, addressing the outcomes under the five operational objectives as indicated in paragraph 5."

By the same decision (paragraph 45), the COP recognized the need for Parties to realign their national action programmes (NAPs) with The Strategy, and invited Parties, with the assistance of the Global Mechanism (GM) to mobilize international and national resources, both technical and financial, to assist countries with this realignment. Furthermore, at the seventh session of the Committee for the Review of the Implementation of the Convention (CRIC 7), Parties recommended that the alignment of the implementation of Action Programmes be enhanced, and requested joint financial and technical support for this from the GM and the secretariat, depending on their respective mandates, in undertaking the activities which would be necessary.

In addition, outcome 2.2 of The Strategy requests affected country parties to revise their NAPs into strategic documents supported by biophysical and socio-economic baseline information, and to include them in integrated investment frameworks; outcome 2.3 requests affected country Parties to include their NAPs and sustainable land management (SLM) and land degradation issues in development planning and relevant sectoral and investment plans and policies.

The above COP provisions were complemented by specific recommendations from CRIC 7 by which: (i) the need to integrate NAPs, sub regional action programmes (SRAPs) and regional action programmes (RAPS) into overarching development plans such as Poverty Reduction Strategy Papers was emphasized (paragraph 21), (ii) the application and monitoring of the new and standardized reporting guidelines was addressed (paragraph 86), (iii) it was recommended that a process be established through which the Parties of a sub region or region could harmonize available information at the national level in order to prepare SRAPs and RAPs as appropriate, in the context of the forthcoming regional mechanisms (paragraph 102), and (iv) the need to develop an indicator system that should go hand in hand with the alignment of APs was also stressed (paragraph 109). The first special session of the Committee on Science and Technology (CST) further recommended that improved economic and biophysical baselines be used, as well as lessons drawn from similar alignment experiences.

Based on the above requirements and COP decisions, this alignment process is made in line with the context of 10-Year strategic plan of UNCCD taking into consideration that Integrated Financial System (IFS) is a facilitative important tool which leads to Integrated Investment Framework (IIF) for SLM that aim at leveraging national, bilateral and multilateral resources for effective implementation of the NAP.

4.2 The Vision and Mission Statements of the NAP

The vision:

By 2040 desertification/land degradation is significantly reduced, and mitigate the effect of drought through active participation of all stakeholders' while ensuring consistency with poverty reduction and environmental sustainability.

The mission:

Taking into consideration to the current situations and trends of land degradation issues in Eritrea, the NAP mission has been stated as follows:

"undertake effective actions designed to support the development and implementation of national policies, programmes and measures to prevent, control and reverse desertification/land degradation and mitigate the effects of drought through integrated approaches whileensuring people's well-being".

4.3 NAP Alignment process

In developing the NAP Alignment processes, the MoA Five-Year (2014-2018) Strategic Development Plan was critically considered and integrated with the UNCCD 10-Year Strategy. The MoA Strategic Development Plan envisages the following vision, mission and objectives:

Vision: "Modern, efficient, competitive and sustainable agriculture sector to promote high value products through irrigation development".

Mission: "Creation of technologically advanced agriculture sector to contribute to food security, economic growth and improvement of the livelihood of Eritrean society".

Objectives: Achievement of food-security is the prime objective of the Government of the State of Eritrea (GoSE). Strategically aim to the promotion and development of the agricultural programs and support services, i.e. research and extension in livestock production, field and horticultural crops, soil and water conservation, water harvesting and irrigation development, forestry and wildlife conservation and agro-infrastructure development services, the concomitant promotion and development of the human resources and regulatory aspects of these services are determining factors for the success of the agricultural sector. Hence, the MoA is conducting strenuous efforts to translate this into reality and so far tremendous achievements have been registered in this regard.

The above stated MoA objectives are within the spirit and principles of the UNCCD 10-Year Strategy and Operational Objectives. In fact the country is implementing programmes and projects which had been properly addressed in the NAP.

This aligned NAP was developed as the result and full support of the Ministry of Agriculture and the Department of Extension in particular and participation and consultations of all concerned

stakeholders (key line ministries, key political bodies, senior government officials, women association, youth representatives, community representatives and academia) in general. The process was participatory, consultative with consensus building and based on the understanding of the key land degradation and SLM issues having impact on sustainable natural and environmental development and management. This would ultimately address land degradation and control desertification and achieve sustainable land management.

Using the approach stated above the key steps in the practical organisation of the NAP alignment process was applied to develop the aligned NAP document.

At its initial stage an overall plan was drawn to capture the NAP alignment process. A National Coordination Body/team consisting of the UNCCD National Focal Point, Ministry of Agriculture, Lead consult, Asghedom Tewolde (Consulting in Economic Development, Project Studies and Analysis), and representatives of NAP technical committees was formed to assure smooth completion of the NAP, provide technical support and follow work progress. The team met frequently being attended by the UNCCD National Focal Point. Results and outcomes of the meetings were being informed as per the guidance of UNCCD National Focal Point.

Following the award of the contract and negotiation, the consulting firm, in cooperation with UNCCD National Focal Point and other key partners' further developed the scope of work and methodology to undertake the successful accomplishment of the NAP alignment process and services to be delivered as described in the TOR. At this stage, initial strategic plan and timetable of activities have been designed. Further discussions were also carried out on the progress of reporting. In addition, all necessary literatures and secondary data sources (such as country NAPs, strategic plans, UNCCD documents, guidelines, reports etc) have been reviewed and were used to derive relevant data. Discussions and consultations with relevant and representative stakeholders at all levels were conducted to examine wider views.

Regarding public opinion, consultations with key stakeholders' were carried out particularly with government ministries, experts and decision makers. Interviews with key informants and focus group discussions were also made to ensure wider participation as per the developed questionnaires. Work progresses have been informed to UNCCD Focal Point to create awareness and government owned plan.

The consulting firm in collaboration with the UNCCD focal point and the established partners (multidisciplinary team members) reviewed important documents including the Eritrean National Action Programme (NAP, 2002) to Combat Desertification and the effect of Drought; the UNCCD-10 Year (2008-2018) Strategic Objectives; MoA five years (2014-2018) Strategic plan, Eritrean NAP Mainstreaming (2005) document, Eritrean NAP 20 Bankable project documents; Annual plans and reports, Guidelines for NAP alignments; Ten Steps in the practical organisation of the NAP alignment Process (UNCCD); and other relevant UNCCD COP decision related to the 10-Year Strategy and technical documents in support of the NAP alignment process prepared by the UNCCD Secretariat. All SLM projects with a view of their alignment were reviewed. The collected documents assisted in compiling the available data and reports to frame the structure of the NAP alignment report. The actual alignment has been developed in a

way that will allow and focus efforts towards DLDD that will lead the support and contribution to poverty reduction and environmental sustainability.

Using the NAP (2002) document as a basic start on one hand and the UNCCD 10-Year (2008-2018) and MoA five years (2014-2018) Strategic objectives on the other helped in identifying the gaps of the overall action programmes. In addition, all relevant information collected (primary and secondary data) from the successive consultative meetings, workshops and discussions with key stakeholders assisted in developing the initial UNCCD/NAP aligned document. Furthermore, key national and development policies have been collected so as to systematically address land degradation and desertification. This integrated aligned NAP document focused on those twelve key land degradation issues identified in the Eritrean NAP 2002 whereby agreed to be reconsidered and aligned with the UNCCD and MoA strategic plans. These issues are well known by the working groups as well by stakeholders. Hence, it is believed that the identified areas will bring the required changes in the improvement of the DLDD/SLM and natural resources management. The Draft Aligned NAP document/report was produced and submitted to the UNCCD/NAP National Focal Point and the Scientific and Technical Correspondent, Ministry of Agriculture Eritrea for further comments.

After the review, compilation and consolidation of the coordination group's report the Consulting firm assisted by the UNCCD National Focal Point facilitated a step forward workshop in order to have a common understanding of the NAP Alignments with key partners create ownership and contribution into the NAP Alignment process. Participants of the workshop contributed their own inputs on the draft report. Hence, the final draft was prepared incorporating all necessary inputs forwarded by all stakeholders. The draft NAP had been widely disseminated to all regional administrations and UNCCD stakeholders for their knowledge and possible inputs. Following the stages of this development, a national consolidation workshop was organized to acquire wider participation, ownership and implementation.

In order to contain a basic required standard, the aligned NAP considered issues, as per the guidelines, such as NAP mainstreaming with developmental policies and programmes, synergizing to betterment of cooperation and institutionalizing, M&E, and impacts.

The final step was mainly performed through the assistance of consultant and professionals who acquired technical and practical experience. It has been agreed that the final aligned NAP is feasible and is in line with the contents, structure and nature of government plans and in accordance with the UNCCD 10-Year Strategy. To secure government and people's ownership, a one day validation workshop was held on 11 February 2015 comprising of UNCCD Focal Point, representatives of line ministries, and CBOs to overlook the final version list of participants is provided in annex 3. Reliable inputs and comments were again incorporated for the production of the final version.

As per the agreement entered, the Final Aligned NAP document was produced and submitted to the UNCCD/NAP National Focal Point and the Scientific and Technical Correspondent, Ministry of Agriculture. As had been proved from previous experience, there is no doubt that this aligned NAP shall be adopted to guarantee political will, legislative backing and administrative support and guidance and consequently smoother implementation. The aligned NAP was unanimously adopted in the validation workshop.

4.4 Linkages between NAP and the Strategy

To meet commitments with global conventions, the scope of the NAP has been designed to ensure synergy with the Rio Conventions, particularly with UNCCD. For an effective implementation of the NAP, it has been designed also to be in synergy with relevant national plans, laws and programmes and strategies such as the MoA 10-Years Strategic Development Plan that directly or indirectly have influence on natural resources conservation and sustainable use. Currently, there exist strong cooperation among UNCCD, UNCBD and UNFCCC. Respecting the principles and mandates of Rio Conventions each focal institution is supporting the other in terms of knowledge sharing, integration and reporting. Hence, the synergy among other conventions and in particular to the UNCCD is somehow being implemented. The following Box is prepared to highlight the linkages between the NAP and the UNCCD Operational Objectives.

Box 1. Linkage between the NAP and the UNCCD Operational Objectives

The five pillars of the NAP	Proposed actions	UNCCD Outcomes	UNCCD Operational objectives
Improving Knowledge	Improve knowledge and awareness	DLDD synergies with Rio Convention communicated	**Advocacy, awareness raising and education**
	Develop communication, & education strategy	DLDD addressed in relevant forums	
	Joint communication strategies on SLM	CSOs & scientific community engagement	
	Drought Preparedness and Mitigation Plan		
Empowering People and Institutional	Share experiences	Barriers to SLM assessed	**Policy framework formulations**
	Community awareness	Revised and updated NAP	
	Establish local Land Degradation Committees	NAP and SLM mainstreamed	
	Establish DLDD communication platforms	Cooperation programs on DLDD/SLM developed	
	Effective stakeholder participation	Mutually reinforced measures among DLDD, UNFCCC &UNCBD	
	Integrate NAP and SLM		
Addressing Vulnerability	Mainstream the concern of Vulnerable group	National monitoring and vulnerability assessment	**Science, technology and knowledge**
Reducing Poverty through income-generation	Conserve indigenous crops & landraces	A national baseline on DLDD established	
	Promotion of renewable energy technologies	Knowledge on DLDD and their interactions improved.	
	Livestock marketing	Improved knowledge between CC & degraded land	
		Knowledge-sharing systems supported by policymakers	
		Science and technology networks relevant to DLDD	
		Develop the necessary capacity at different levels to tackle DLDD	**Addressing capacity-building**
Arresting land degradation & controlling desertification	Introduction of Community Land use planning	IIF/IFS developed & operationalized.	**Addressing financing and technology transfer**
	Restoration of degraded ecosystems	Mobilize financial resources to support domestic initiative	
	Measures to remove DLDD and SLM barriers	Promote efforts to mobilize financial resources including the GEF.	
	Establishment of PAs	Innovative financing mechanisms identified including private sector	
	Capacity building and technology transfer	create the enabling environment for access to technology	
	Natural forest conservation & Mgt		
	Conservation and sustainable use of NRs		

5. ALIGNMENT OF NAP TO THE UNCCD 10-YEAR AND MOA STRATEGY PLAN:

5.1. Introduction

In 2007, as the UNCCD Convention entered its second decade, the Parties to the Convention unanimously adopted the 10-Year strategic plan and framework to enhance the implementation of the Convention for 2008-2018 (The Strategy). The aim of the Strategy was to seize a unique opportunity to address some of the Convention's key challenges, to capitalize on its strengths, to grab opportunities provided by the new policy and financing environment, and to create a new, revitalized common ground for all UNCCD stakeholders. The Strategy formulated a new approach to implementing the UNCCD, with more focus on: performance based management; mainstreaming sustainable land management into the development process; and, securing the financial resources to implement actions. The Strategy recognized that, in many cases, achieving sustainable land management or correcting unsustainable land use practices requires broad-based reforms and policy changes that reach beyond the scope of traditional environmental policy-making. Hence, the Strategy requires a mainstreaming of SLM at the national level. Overall the Strategy is very much about moving from analysis and planning to action and results.

To this effect the MoA has prepared a Five-Year (2014-2018) Strategic Development Plan which is related with UNCCD's Strategy document. The achievements discussed in chapter three illustrate Eritrean commitment to implement the Convention under various sectoral programmes and projects. Importantly, the MoA strategy as briefly presented under 5.3.2 indicate the common strategic plans and required alignments to the UNCCD Operational Objectives. The objectives and contents of the MoA Five Year Strategy are thus concluded clearly aligned with the UNCCD strategy.

The UNCCD Strategy contains four "strategic objectives", to be achieved over the 10 years, and five "operational objectives" that guide the actions of short and medium-term effects. The strategic objectives are:

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

The operational objectives are:

- Advocacy, awareness raising and education - To actively influence relevant international, national and local processes and actors in adequately addressing desertification/land degradation and drought-related issues;

- Policy framework - To support the creation of enabling environments for promoting solutions to combat desertification/land degradation and mitigate the effects of drought;

- Science, technology and knowledge - To become a global authority on scientific and technical knowledge pertaining to desertification/land degradation and mitigation of the effects of drought;

- Capacity-building - To identify and address capacity-building needs to prevent and reverse desertification/land degradation and mitigate the effects of drought; and,

- Financing and technology transfer - To mobilize and improve the targeting and coordination of national, bilateral and multilateral financial and technological resources in order to increase their impact and effectiveness.

5.2. Proposed Aligned Action Programmes

UNCCD 2007 Conference of the Parties urged that affected country parties to align their national action programmes (NAP) with The Strategy. The strategic plan provides a unique opportunity to address some of the Convention's key challenges, to capitalize on its strengths, to seize opportunities provided by the new policy and financing environment, and to create a new, revitalized common ground for all UNCCD stakeholders. The aim being to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in order to support poverty reduction and environmental sustainability The UNCCD "strategic objectives" guide the actions of this aligned NAP. .

Eritrea has now aligned its NAP to the UNCCD 10-Year Strategy and MoA 5-Years Strategic Plan. The alignment took several forms: general alignment to the approach, strategy and principals; consistency with and contribution to the strategic and operational objectives, their expected impacts and; alignment to The Strategy's indicators.

The following strategic objectives as stipulated in the Strategy are the guidance of all UNCCD stakeholders and partners in the period 2008–2018. Meeting these objectives will contribute to achieving the vision statement. The "expected impacts" are the long-term effects intended by the strategic objectives.

Box 2: The UNCCD Strategic objectives and expected impacts

Strategic objectives 1: To improve the living conditions of affected populations

Expected impact 1.1. People living in areas affected by desertification/land degradation and drought to have an improved and more diversified livelihood base and to benefit from income generated from sustainable land management.

Expected impact 1.2. Affected populations' socio-economic and environmental vulnerability to climate change, climate variability and drought is reduced.

Indicator S-1: Decrease in numbers of people negatively impacted by the processes of desertification/land degradation and drought.

Indicator S-2: Increase in the proportion of households living above the poverty line in affected areas.

Indicator S-3: Reduction in the proportion of the population below the minimum level of dietary energy consumption in affected areas.

Strategic objectives 2: To improve the condition of affected ecosystems

Expected impact 2.1. Land productivity and other ecosystem goods and services in affected areas are enhanced in a sustainable manner contributing to improved livelihoods.

Expected impact 2.2. The vulnerability of affected ecosystems to climate change, climate variability and drought is reduced.

Indicator S-4: Reduction in the total area affected by desertification/land degradation and drought.

Indicator S-5: Increase in net primary productivity in affected areas

Strategic objectives 3: To generate global benefits through effective implementation of the UNCCD

Expected impact 3.1. Sustainable land management and combating desertification/land degradation contribute to the conservation and sustainable use of biodiversity and the mitigation of climate change.

Indicator S-6: Increase in carbon stocks (soil and plant biomass) in affected areas.

Indicator S-7: Areas of forest, agricultural and aquaculture ecosystems under sustainable management.

Strategic objectives 4: To mobilize resources to support implementation of the Convention through building effective partnerships between national and international actors

Expected impact 4.1. Increased financial, technical and technological resources are made available to affected developing country Parties, and where appropriate Central and Eastern European countries, to implement the Convention.

Expected impact 4.2. Enabling policy environments are improved for UNCCD implementation at all levels.

Indicator S-8: Increase in the level and diversity of available funding for combating desertification/ land degradation and mitigating the effects of drought.

Indicator S-9: Development policies and measures address desertification/land degradation and mitigation of the effects of drought.

The following "operational objectives" guide the actions of all UNCCD stakeholders and partners in the short and medium term with a view to supporting the attainment of the vision and strategic objectives. The "outcomes" are the short and medium-term effects intended by the operational objectives.

Box 3: The UNCCD Strategy Operational Objectives and expected outcomes

Operational objective 1: Advocacy, awareness raising and education

To actively influence relevant international, national and local processes and actors in adequately addressing desertification/land degradation and drought-related issues.

Outcome 1.1: Desertification/land degradation and drought issues and the synergies with climate change adaptation/mitigation and biodiversity conservation are effectively communicated among key constituencies at the international, national and local levels.

Outcome 1.2: Desertification/land degradation and drought issues are addressed in relevant international forums, including those pertaining to agricultural trade, climate change adaptation, biodiversity conservation and sustainable use, rural development, sustainable development and poverty reduction.

Outcome 1.3: Civil society organizations (CSOs) and the scientific community in the North and the South are increasingly engaged as stakeholders in the Convention processes and desertification/land degradation and drought are addressed in their advocacy, awareness-raising and education initiatives.

Operational objective 2: Policy framework

To support the creation of enabling environments for promoting solutions to combat desertification/land degradation and mitigate the effects of drought.

Outcome 2.1: Policy, institutional, financial and socio-economic drivers of desertification/land degradation and barriers to sustainable land management are assessed, and appropriate measures to remove these barriers are recommended.

Outcome 2.2: Affected country Parties revise their national action programmes (NAPs) into strategic documents supported by biophysical and socio-economic baseline information and include them in integrated investment frameworks.

Outcome 2.3: Affected country Parties integrate their NAPs and sustainable land management and land degradation issues into development planning and relevant sectoral and investment plans and policies.

Outcome 2.4: Developed country Parties mainstream UNCCD objectives and sustainable land management interventions into their development cooperation programmes/projects in line with their support to national sectoral and investment plans.

Outcome 2.5: Mutually reinforcing measures among desertification/land degradation action programmes and biodiversity and climate change mitigation and adaptation are introduced or strengthened so as to enhance the impact of interventions.

Operational objective 3: Science, technology and knowledge

To become a global authority on scientific and technical knowledge pertaining to desertification/land degradation and mitigation of the effects of drought.

Outcome 3.1: National monitoring and vulnerability assessment on biophysical and socio-economic trends in affected countries are supported.

Outcome 3.2: A baseline based on the most robust data available on biophysical and socio-economic trends is

developed and relevant scientific approaches are gradually harmonized.

Outcome 3.3: Knowledge on biophysical and socio-economic factors and on their interactions in affected areas is improved to enable better decision-making.

Outcome 3.4: Knowledge of the interactions between climate change adaptation, drought mitigation and restoration of degraded land in affected areas is improved to develop tools to assist decision-making.

Outcome 3.5: Effective knowledge-sharing systems, including traditional knowledge, are in place at the global, regional, sub regional and national levels to support policymakers and end users, including through the identification and sharing of best practices and success stories.

Outcome 3.6: Science and technology networks and institutions relevant to desertification/land degradation and drought are engaged to support UNCCD implementation.

Operational objective 4: Capacity-building

To identify and address capacity-building needs to prevent and reverse desertification/land degradation and mitigate the effects of drought.

Outcome 4.1: Countries which have carried out the national capacity self assessment (NCSA) implement the resulting action plans to develop the necessary capacity at the individual, institutional and systemic levels to tackle desertification/land degradation and drought issues at the national and local levels.

Outcome 4.2: Those countries which have not previously undertaken capacity needs assessments engage in relevant assessments processes to identify capacity needs for tackling desertification/land degradation and drought at the national and local levels

Operational objective 5: Financing and technology transfer

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

Outcome 5.1: Affected country Parties develop integrated investment frameworks for leveraging national, bilateral and multilateral resources with a view to increasing the effectiveness and impact of interventions.

Outcome 5.2: Developed country Parties provide substantial, adequate, timely and predictable financial resources to support domestic initiatives to reverse and prevent desertification/land degradation and mitigate the effects of drought.

Outcome 5.3: Parties increase their efforts to mobilize financial resources from international financial institutions, facilities and funds, including the GEF, by promoting the UNCCD/Sustainable land management (SLM) agenda within the governing bodies of these institutions.

Outcome 5.4: Innovative sources of finance and financing mechanisms are identified to combat desertification/land degradation and mitigate the effects of drought, including from the private sector, market-based mechanisms, trade, foundations and CSOs, and other financing mechanisms for climate change adaptation and mitigation, biodiversity conservation and sustainable use and for hunger and poverty reduction.

Outcome 5.5: Access to technology by affected country Parties is facilitated through adequate financing, effective economic and policy incentives and technical support, notably within the framework of South-South and North-South cooperation.

5.3 Aligned NAP to the UNCCD Strategy

It has to be realized that the GoSE has made huge efforts to mobilise financial resources through the preparation of fundable project proposals, government own funds and community mobilizations for NAP implementation. Some of these projects have been implemented while some submitted to organizations for funding. The preparation process of the Eritrean NAP envisaged SLM activities from the onset focusing on development of feasible NAP that would be practical and beneficial to all concerned stakeholders. Eritrea also had prepared an Integrated Financing Strategy (IFS) in 2013 to improve the sustainable land management in Eritrea in collaboration with line ministries, UN agencies, EU and Civil Societies. The IFS for Eritrea is aimed at promoting secure and sustainable financing for combating desertification and promoting SLM and contribute to improved food security and livelihoods. The contents of the IFS include investment priorities for SLM, IFS action plan and integrated investment framework and actions.

It has been stated that the interventions made in addressing DLDD by the GoSE during the past two decades had positive impacts on environmental restoration and sustainable livelihoods developments. Considering the achievements so far and the outlined outcomes of the aligned NAP strategies reveal that the NAP is properly aligned to the satisfaction of the UNCCD operational objectives.

This section provides 20 outcomes and 31 actions and corresponding indicators that measure NAP implementation process or its impact. Each indicator is designed to be easily measurable, quantifiable, and understood by policy-makers and concerned stakeholders. The outcomes and/or targets are linked and aligned with their corresponding indicators. By measuring and reporting progress on these indicators, the performance of the NAP, and of the stakeholders to implement the NAP, will be finally monitored. This ensures the performance oriented nature of the Eritrean NAP, where the SLM activities are incorporated as stipulated including the Ministry of Agriculture's Five-Year (2014-2018) strategic plan. At the end of the programme, the aligned NAP among others is expected to contribute to the following impacts.

- DLDD related knowledge improved and best practices widely shared at all levels.
- Livelihood of vulnerable communities in affected DLDD areas improved and income generated activities expanded through the interventions of sustainable land management.
- Reduced socio-economic and environmental vulnerability to climate change, climate variability and drought
- Agricultural productivity enhanced and livelihoods of affected people improved.
- Effective institutional and legal frameworks established to mitigate the challenges of DLDD
- Sustainable DLDD management to contribute to the conservation and sustainable use of natural resources.
- Increased resources mobilization through strong partnerships to implement the Convention.
- Enabling policy environments are improved for UNCCD implementation at all levels.

Likewise, in order to increase the chances of success, the aligned NAP adopts a strong participatory and mainstreaming approach. This is to be achieved through both technical and institutional aspects. In the technical context, most activities are meant to support impact in socio-economic and environmental and land degradation issues. In many cases, the NAP supports the modification or amendment of already planned project activities. Hence, the aligned NAP activities fall immediately into the work plan of existing sectors and stakeholders such as MoA, FWA, MoLWE, MoMR, MoZA, and CBOs. This approach aims to optimize the chances that the aligned NAP activities will actually take place, that stakeholders will take on the responsibility. In institutional context, the aligned NAP is mainstreamed within the national and sectoral development plans to ensure that it is firmly integrated into sector and governmental processes.

Lessons learnt and similar country experiences show strongly that financing is a key challenging factor towards implementing NAPs. Although most of Eritrea's NAP activities are integrated within the national and sectoral development plans such the MoA five years Strategic Plan and national government's operational budget, still challenges continue in the mechanism to mobilizing financial resources pertaining to the NAP programmes and projects. This is exacerbated by the fact that Eritrea benefits small from global developmental funding.

5.3.1 Aligned NAP to the UNCCD Operational Objectives:

This section analyzes and shows how and where the activities of NAP Eritrea are aligned with The Strategy and contribute to the Strategy's Operational Objectives.

In meeting the identified five operational objectives, 20 outcomes and 31 actions are addressed that should be met by 2018. Outcomes are set and listed so as to meet the intended operational objectives in which all are aligned to possibly achieve to the contribution of the Strategic Objectives so as to tackling DLDD and SLM through actions and activities proposed in the NAP document. All listed outcomes are only to be met in close collaboration of all partners in a fully participatory approach. This aligned NAP that consider the MoA Five-Year (2014-2018) Strategic Development Plan and maintained the identified 12 major land degradation issues assured the conformity of the UNCCD required outcomes.

Priority actions and activities have been selected and prioritized (refer Matrix of Actions) for all outcomes. In due course actions can be added or subtracted as necessary due to the fact that the current situation may not be exhaustive. The actions are distributed and prioritized according to the predetermined outcomes with a range of 1-5 years (2014-2018). The time frame had been determined to comply with the national obligations and the UNCCD 10 Year Strategy. The NAP Implementation Plan (Matrix of Actions) is independently prepared to show the outcome, proposed actions/activities, timeframe, performance indicators, responsible institutions and possible financial sources.

The UNCCD focal institution is regularly monitoring its planned activities and accordingly reporting the achievements made to the Secretariat. The follow-up and reports of DLDD activities and achievements include information events, involvement and participation in the Convention, DLDD related initiatives, strategy alignment, capacity building, IFS development

and others. However, effective monitoring and evaluation system need to be established to determine the extent of progress in the implementation of this plan whereby the identified indicators for each action/activity to determine progress in performance towards the realization of each outcome and the operational objective that need to be simultaneously recorded and take corrective measures.

Implementing or responsible institutions are identified (MoA, MoLWE, FWA, MoND, MoMR, MoF, MoE, MoZA, MoJ, MoI, MoEM, MoPW, MoTI, UNCCD, GM, NUEYS, NCEW, CSO,, CBOs ,Academia and Communities) to take care of the aligned NAP actions for an effective implementation to combating DLDD as stipulated in COP 9, which was adopted in Decision 13/COP.9 containing the Consolidated Indicator for Operational Objectives, and which also sets out a global target that 80% of all action programmes of affected country Parties should be formulated, and/or revised, finalized and aligned to The Strategy. Although, Eritrea prepared this aligned NAP six years after the adoption of the UNCCD 10-Year Strategy mainly due financial constraints, it should be also noted that the majority of the past and the ongoing agricultural and natural resources conservation and management interventions are directly linked with the UNCCD Strategic Objectives. This aligned NAP will also reinforce the existing and future DLDD intervention.

In line with The UNCCD strategy (2008-2018) and the National Action Programme (NAP) to combat desertification, land degradation and mitigate the effects of drought, Eritrea had also prioritized and aligned the fundamental principles and operational objectives. In this case the aligned NAP, based on UNCCD 4 strategic objectives, contained and addressed 5 operational objectives, 20 outcomes and 31 actions (areas of intervention) to tackle the effects of DLDD and eventually meet strategic objectives and expected impacts by 2018 (for details refer Table 14, Matrix of Actions).

Operational objective 1: *Address the issue of advocacy, awareness raising and education*

Three (03) outcomes have been identified to actively influence relevant international, national and local processes and actors in adequately addressing desertification, land degradation and drought (DLDD) related issues in the country. So far the national population informed about DLDD and/or synergies with climate change and biodiversity has reached 40% through its national communication strategy and involvement of its key stakeholders including CBOs. There exist around 15 CSOs that took initiatives on DLDD related activities. These strategies will continue to sensitise the public through upgrading the existing communication strategy and as well by implying broader participation at all levels.

Outcome 1.1: Desertification/land degradation and drought issues and the synergies with climate change adaptation/mitigation and biodiversity conservation are effectively communicated among key constituencies at the national and local levels.

Effective communication and synergies, sensitization and public awareness are paramount important to improve knowledge and awareness on the issues of the DLDD and the synergies with climate change adaptation/mitigation and biodiversity conservation. Recognizing the current efforts being made by the GoSE to promote awareness on DLDD further campaigns and events would be organized and conducted to a wide range of actors such as in Sciences and

Technology Institutions (STI), educational curriculums, media, arts, literature, national and sector level decision makers, civil societies and local communities.

Common communications strategies and work programmes across different ministries need to be developed for the three Rio Conventions, accompanied with specific messages on how to integrate SLM into development frameworks and sectroal plans.

In this context strategy for Communication, Education and Public Awareness will be developed regarding DLDD including the production and dissemination of basic DLDD materials. , Awareness on DLDD and biodiversity synergising with climate changes adaptation and mitigation, implementation of best SLM practices, awareness on sustainable forest and rangeland management and use will be conducted for key stakeholders and farmers.

Outcome 1.2: Desertification/land degradation and drought issues are addressed in relevant national international forums, including those pertaining to conservation agriculture, climate change adaptation, biodiversity conservation and sustainable use, rural development, sustainable development and poverty reduction.

Responding to the identified outcome, Eritrea was participating and shared experiences and presented issues in national and international forums related to conservation agriculture, climate change adaptation, biodiversity conservation and sustainable use, rural development, sustainable development and poverty reduction. These initiatives will be strengthened and up-scaled.

In addition national DLDD communication platforms and strategies should be strengthened. Eritrea shall present and share experiences related to DLDD/SLM, conservation agriculture, local technologies, climate change adaptation, and alternative energy sources biodiversity conservation and sustainable use, promote and encourage the effective stakeholder participation.

Outcome 1.3: Civil society organizations (CSOs) and the scientific community in the country are increasingly engaged as stakeholders in the Convention processes and desertification/land degradation and drought are addressed in their advocacy, awareness-raising and education initiatives.

Eritrea shall encourage and mainstream civil society organizations (CSOs) and the scientific community increasingly engaged as stakeholders in the Convention processes and address DLDD issues in their advocacy, awareness-raising and educational initiatives. Activities such as youth and women involvement, development of a community tool box, mobilization of wider target groups, engagement of community based organizations, CSOs, research and academic institutions and the media will be fully involved.

Operational objective 2: *Policy framework formulations*

Five (05) outcomes have been identified to support the creation of enabling environment for promoting solutions to combat desertification/land degradation and mitigate the effects of drought (DLDD) related issues in the country. The NAP has been implemented since its establishment. This aligned NAP is expected to contribute to the UNCCD strategy to create

conducive environment with coherent plans and global benefits. Cooperation among the three Rio Convention focal institutions in terms of knowledge sharing, networking and capacity building is growing. Currently, evaluation of national plans, identification of national policies, reviews, capacity building, and regular meetings are common phenomenon. In deed further strong actions are also acquired for an efficient and effective policy framework.

Outcome 2.1: Policy, institutional, financial and socio-economic drivers of desertification/land degradation and barriers to sustainable land management are assessed, and appropriate measures to remove these barriers are recommended.

As the continuation of the attempts to addressing the identified challenge, policy, institutional, financial and socio-economic drivers of DLDD and barriers to SLM are to be assessed. Appropriate measures to remove these barriers are recommended in the aligned NAP document. Given its adverse impacts in NAP implementation, policy orientation, institutional, financial and socio-economic drivers of the DLDD and barriers to SLM will be analyzed, prioritized and properly addressed. Activities in this outcome include the engagement of key government ministries to address DLDD and SLM issues, and assessment of degradation barriers, revision of sectoral policy and laws, while ensuring coherency with DLDD objectives and enforcement of Land Proclamation (No. 58/1994) in pilot areas.

Outcome 2.2: Revised and updated NAP into strategic documents supported by biophysical and socio-economic baseline information and included in integrated investment frameworks.

Eritrea has prepared the Integrated Financial Strategy to improve SLM and within the context of UNCCD in 2013. Hence, the aligned NAP will be supported by biophysical and socio-economic baseline information including an integrated investment framework. This is to be implemented and monitored for the purposes of sustainable development, use, national and global benefits. An interim report shall be produced in 2016. The integrated investment frameworks will be implemented and evaluated cost-effectively in collaboration with various sectors and stakeholders. Interventions in this outcome include the preparation, approval, and promotion of the updated NAP with the inclusion of stakeholders at all levels as well as its effective implementation. Hence, identification of key partners and development of IIF programs are key concerns.

Outcome 2.3: The NAP and sustainable land management shall be fully integrated into national development frameworks and relevant sectoral and investment plans and policies.

Eritrea mainstreamed its NAP into the national development framework and sector plans since 2005. Entry points for mainstreaming have been identified. As a priority response to the current unsustainable investment in land degradation issues, NAP, SLM, and land degradation issues including MoA's and FWA Strategic Plans shall be further integrated into development planning and relevant sectoral and investment plans and policies, with particular attention to innovative sources of financing such as climate change mechanism and other tools that ensure coherence with the objectives of the 10-Year Strategy. To ensure integration, gradual enforcement of SLM

legal and institutional instruments is required. Harmonization and coordination of NAP/SLM activities/projects into development and sectoral plans is paramount.

Outcome 2.4: A financial analysis of investments and ODA development cooperation programmes developed and operationalized with the aim of promoting sustainable land management and improving of affected populations' livelihood.

Responding to the identified outcome, mainstreaming the UNCCD objectives and SLM interventions into the national cooperation programmes/projects in line with the investment and sector development plans is required. The existing NAP mainstreaming document has to be updated and enforced. Such an analysis should start with the identification of the "SLM component", in each relevant programme of the national and sectors strategic Development plans. Financial resources need to be mobilized in order to update, enforce and monitor the updated NAP mainstreamed document.

Outcome 2.5: Mutually reinforced measures among desertification/land degradation action programmes and biodiversity and climate change mitigation and adaptation are introduced or strengthened to enhance the impact of interventions.

Since 2003, the MoA in close collaboration with the MoLWE is working to promote synergies for the implementation of the three Rio environmental conventions (UNCCD, UNFCCC and UNCBD in Eritrea and strengthened common programme and project planning and implementation. However, in boosting integrated interventions and synergies among the Rio Conventions (UNCCD, UNCBD and UNFCCC), joint programmes of intervention and a common resource mobilization strategy between the three Rio Conventions' and objectives need to be elaborated, since these 3 Conventions are targeting the same populations and the same lands, all with the same aim of promoting sustainable land management and improving of affected populations livelihood and environmental health. Great importance needs to be assigned to capacity enhancement initiatives at sub regional, national and local levels to integrate the SLM dimension, particularly within the framework of the decentralization policies of the country. Therefore, an effective and coordinated Rio Conventions platform need to be established through joint implementation plans and regular monitoring so as achieve integrated actions.

Operational objective 3: *Science, technology and knowledge*

Six (06) outcomes have been identified to become a global authority on scientific and technical knowledge pertaining to desertification/land degradation and mitigation of the effects of drought. In meeting this objective the government had been monitoring its DLDD activities through its formal establishments and other academic and civil society organizations. It is also implementing to upgrade its functionality supported by various capacity building programmes and knowledge sharing. The aligned NAP also focuses to the establishment of stronger data base and monitoring mechanisms.

Outcome 3.1: National monitoring and vulnerability assessment on biophysical and socio-economic trends are supported.

In addressing the national monitoring and vulnerability assessment on biophysical and socio-economic trends, Eritrea has to enhance a national monitoring system for DLDD. These would be addressed through the establishment of a comprehensive biophysical and socio-economic baselines and indicators with effective and integrated implementation of the National Action Programmes (NAP) to combat desertification and mitigate the effects of drought, National Biodiversity Strategy and Action Plan (NBSAP) and National Adaptation Program of Action (NAPA). Eritrea will support and contribute in the establishment of sub regional/regional monitoring system for DLDD. Hence DLDD biophysical and socio economic baseline monitoring system and emergency-response mechanism including monitoring systems will be assessed and promoted. Due consideration would be undertaken to integrate implementation of the NAP, NBSAP and NAPA.

Outcome 3.2: A national baseline on biophysical and socio-economic trends of DLDD is established and relevant scientific approaches are gradually harmonized, accessed and disseminated.

The existing baseline data on biophysical and socio-economic trends are weak and fragmented. Responding to the identified gaps, a national baseline database on biophysical and socio-economic trends of DLDD is established and relevant scientific approaches are gradually harmonized, accessed and disseminated. Some of the main activities in this outcome include the preparation of reliable national biophysical and socio-economic baseline, training in relevant database management and documentation of best SLM practices.

Outcome 3.3: Knowledge on biophysical and socio-economic factors of DLDD and their interactions is improved to enable better decision-making.

Realizing the existing inadequate level of information and knowledge on biophysical and socio-economic factors of DLDD and their interactions in the country, systematic data collection and sensitization shall be conducted and disseminated to key stakeholders to enable better decision-making. Lobbying and sensitization programmes to promote better decision-making would be targeted to a wider range of decision makers. Establishment and studies on thematic areas of DLDD biophysical such as land and soil classification map, socio economic factors and interactions (knowledge transfer) are key concerns of this outcome.

Outcome 3.4: Knowledge of the interactions between climate change adaptation, drought mitigation and restoration of degraded land throughout the country is improved to develop tools to assist decision-making.

The GoSE in collaboration with development partners is implementing projects related to SLM, climate change adaptation and mitigation restoration of degraded land through afforestation and enclosure development and sustainable use and capacity building. However it requires stronger interaction among multilateral conventions.

In addressing the limited knowledge of the interaction between climate change adaptation, drought mitigation and restoration of degraded land, ecosystem and/or watershed based assessment studies have to be enhanced and tools to assist decision-making should be developed.

These could be addressed through practical conservation and restoration of degraded catchments with effective implementation of soil and water conservation activities and afforestation, thereby contributing knowledge to climate change mitigation and adaptation and to combating desertification. The recommended activities of this outcome is to strengthen the collection and assessment of the existing climate change adaptation and mitigation and restoration of degraded land through integrated watershed treatments, implementing best SLM practices, afforestation, enclosures development and sustainable use and capacity building.

Outcome 3.5: Effective knowledge-sharing systems, including traditional knowledge, are in place to support policymakers and end users, including through the identification and sharing of best practices and success stories.

Considering the knowledge sharing as one of the means to arresting DLDD issues, the government is conducting awareness and capacity building programmes al all levels including campaigns. National Greening Day, Environmental day, Desertification day, Water day, Martyr's day, Biodiversity day and other similar events that significantly influence policy makers and users.

To this effect, knowledge-sharing systems, including traditional knowledge related to DLDD are in place at national levels to support policymakers and end users, including through the identification and sharing of best practices and success stories. Eritrea is considering the traditional knowledge and best practices as critical and one of the best approaches in conservation and sustainable use of natural resources. To improve the knowledge-sharing systems to support policymakers and end users, identification and sharing of best practices, development of appropriate knowledge and technologies, documentation of traditional/ customary laws and coping mechanisms are some of the recommended activities.

Outcome 3.6: Science and technology networks and institutions relevant to desertification/land degradation and drought are engaged to support UNCCD implementation.

In meeting this challenge, the science based knowledge and technologies and institutions related to DLDD are functioning and engaged to support UNCCD implementation. The science based knowledge and technologies are widely utilised, applied and transferred to the public through the science and technology networks and institutions available in the country.

To strengthen the existing scientific networking, collection, access and dissemination of DLDD scientific information, a proper communication mechanism is fundamental. This will be achieved through formation of various target groups and establishment of information system on natural resources. Furthermore, promotion of advocacy and advertisements with the use of local Medias is considered as major task.

Operational objective 4: *Addressing capacity-building*

Two (02) outcomes have been identified to address capacity-building needs to prevent and reverse desertification/land degradation and mitigate the effects of drought.

The country prepared its NCSA document in 2007 and had been applied on DLDD specific training programmes on the basis of the NCSA plan. In this respect the Human Resources Development Unit of the MoA had been established to assess the capacity needs in close collaboration with the MoE and higher institutions. Other achievements in these endeavours include the establishment and expansion of higher institutes, vocational training centers, development of partnerships and networking. The aligned NAP has considered these developments and highlighted further consideration to upgrade human and institutional capacity development at all levels and as well to deliver global environmental outcomes.

Outcome 4.1: Develop the necessary capacity at different levels (individual, institutional and system) to tackle desertification/land degradation and drought issues

This target is aimed at addressing the national capacity self assessment (NCSA, 2007) implement the resulting action plans to develop the necessary capacity at the individual, institutional and systemic levels to tackle desertification/land degradation and drought issues. As a priority, capacity building programmes for relevant professionals and local communities need be conducted in three focus areas: land degradation/rehabilitation, biodiversity conservation and climate change mitigations and adaptations.

In addressing this challenge, the project profiles for synergistic implementation of the national capacity needs self-assessment (NCSA, 2007) action plan for Eritrea would be revised and updated in line with The Strategy. Basic capacity building programmes for tackling desertification/land degradation and drought at the national and local levels have to be carried out through the revision of NCSA, training of prioritized stakeholders. Hence an establishment of funding mechanism for capacity building is essential.

Operational objective 5: *Addressing financing and technology transfer*

Five (05) outcomes have been identified to mobilize and improve the targeting and coordination of national, bilateral and multilateral financial and technological resources in order to increase their impact and effectiveness.

Eritrea has developed and validated its IFS in 2013 which is based on the NAP with the support of the GM/UNCCD. There are 20 promising bankable project proposals ready for funding. The government also allocated some amount while others have been submitted to bilateral and multilateral organizations for possible funding. In reaching the operational objective, an IIF development, efforts in mobilizing finances, innovative sources and the promotion of institutional, legal and human capacities are some of the envisaged proposed outcomes of the aligned NAP.

Outcome 5.1: An integrated investment framework developed for leveraging national, bilateral and multilateral resources with a view to improve mobilization, efficiency and effectiveness of financial and technical resources available to combat desertification, land degradation and drought.

A strong national partnership with development partners and other stakeholders is central for the implementation of identified priority programs and projects. An integrated investment

framework identified to mobilize and improve the targeting and coordination of national, bilateral and multilateral financial and technological resources will constitute a critical part of the priority interventions. In collaboration with national, bilateral and multilateral institutions an IIF would be developed for the establishment of a national integrated Financial System (IFS) and deployment of technical expertise in order to meet the required resources mobilizing.

Outcome 5.2: Mobilize substantial, adequate, timely and predictable financial resources from development partners to support domestic initiatives to reverse and prevent desertification/land degradation and mitigate the effects of drought.

In securing adequate and predictable financial resources to support domestic initiatives to reverse and prevent desertification/land degradation and mitigate the effects of drought, establishment of an integrated investment framework and enhancement of partnership is critical. A strong national linkages with development partners and other stakeholders will assist the implementation of priority programs and projects identified. In this regard, establishment of an effective and efficient country partnership is one of the recommended means to ensure proper planning and implementation.

Outcome 5.3: Promote efforts to mobilize financial resources from international financial institutions, facilities and funds, including the GEF, through mechanism of UNCCD/Sustainable land management (SLM) agenda within the governing bodies of these institutions.

The country's UNCCD organizational platform and linkages with development partners and international financial institutions is an important entry point for the implementation of prioritized programs and projects.Increasing efforts to mobilize financial resources, facilities and funds, including the GEF, by promoting the UNCCD/Sustainable land management (SLM) agenda will constitute a critical part of the priority interventions. Activities required for this outcome, among others, are the preparation and implementation fundable proposals on DLDD, and SLM related interventions in line with the existing national and sector development plans.

Outcome 5.4: Innovative sources of finance and financing mechanisms are identified to combat desertification/land degradation and mitigate the effects of drought, including from the private sector, market-based mechanisms, trade, foundations and CSOs, and other financing mechanisms for climate change adaptation and mitigation, biodiversity conservation and sustainable use and for hunger and poverty reduction.

The Government of Eritrea with the assistance of development partners such as GM/UNCCD has prepared its integrated financing strategy (IFS) with the objective of boosting ongoing cooperation in mobilizing resources for sustainable land management (SLM). The main thrust of this process is to explore innovative approaches and financing mechanisms for SLM and improve food security to vulnerable food insecure households and communities. Hence, innovative approaches concerning DLDD and SLM shall be explored. This can be met through development of innovative strategies and strengthening of an enabling environment and creation of incentive and disincentive mechanisms for Rio interventions,

Outcome 5.5: Promote institutional, legal and human capacities frameworks to create the enabling environment for access to technology through adequate financing, effective economic and policy incentives and technical support.

Promoting the existing institutional, legal and human capacities would ultimately improve the enabling environment. Access to technology will be facilitated through adequate financing, effective economic and policy incentives and technical support, and utilization. This needs to be disseminated frequently to the public through mass-media and environmental related days or gathering. In achieving this outcome, assessment and improvement of institutional, legal and human capacities for appropriate technology transfer and promotion of sustainable financial mobilization are required.

5.3.2 Aligned NAP to the MoA Strategy Plan:

The Ministry of Agriculture (MoA) five-year (2014-2018) Strategic Development Plan (SDP) contain the following activity plans related to Sustainable Land Management:

- Natural resources (such as soil, forestry and wildlife) are conserved and sustainably managed and contributing to economic development of the country;
- Agricultural land is conserved and sustainably managed and contributing to economic development and food security in Eritrea; and
- National Agricultural Research Programmes are supportive to sustainable land management.

The first two strategic plans are related directly to the sustainable land management namely farm and non-farm lands to optimize the economic value of natural resources and agricultural land, whilst ensuring that the ecological integrity of the land is fully maintained for future generations. The third strategic plan relates to achieving agricultural research programmes that support sustainable land management in agricultural sector.

Natural Resources Management:

The MoA strategic plan states that concerted endeavours will be conducted to enhance sustainable management of soil, forestry and wildlife. The targeted objectives are:

- Increase vegetation cover by 4,000 hectares annually
- Increase wildlife population, diversity and improve wildlife status
- Increase farm land soil fertility to the standard level by constructing different types of soil and water conservation structures
- Increase area of reclaimed land at a rate of 7,500 hectares/year by constructing different types of soil and water conservation structures and enforcing enclosures.
- Provision of short, medium and long term training to 150 staff and 5000 farmers annually

The total estimated costs required for implementing the Soil, Forestry and Wildlife Conservation and Development part of the Natural Resources Management Program under the Five-Year SDP both in local and foreign currencies are Nakfa 10,957,500 and USD 2,450,000.

The goal under this theme is to ensure conservation and sustainable utilization of forest and wildlife resources and the targeted objectives are:

- Review forestry and wildlife proclamation No. 155/2006 and regulations No. 111 and 112/2006 and ensure their implementation;
- Finalize draft national CITES (Convention on the International Trade of Endangered Species of wild flora and fauna) legislation and implement it;
- Establish forest resources information system for sustainable utilization of forest resources; and
- Establish information system for conservation and sustainable utilization of wildlife resources.

Agricultural land development:

In the next five years, the aim is to secure sustainable agricultural development in general and crop production and productivity in particular. In addition to the crop rotation system the cultivation of crops will be supported by the following main concomitant activities:

- Irrigation, soil and water conservation;
- Proper cultural practices;
- Introduction and application of agricultural technologies; and
- Provision of short, medium and long term training to 200 extension officers and 500 farmers annually.

Along with the above activities focus will be made on the delivery and provision of the following modern agricultural inputs including proper mitigation measures:

- Improved seeds;
- Chemical fertilizers; and
- Pesticides and herbicides

To realize the above stated strategic approaches and ensure qualitative and quantitative growth in yield concerted efforts will be conducted under the application of the following interventions:

- Full Fledged Irrigation;
- Supplementary Irrigation;
- Spate Irrigation; and
- Soil and Water Conservation on Farm Lands

Hence, in the up-coming five years a total of 134,550 ha will be cultivated under different forms of interventions shown on Table 13 below.

Table 13: Planned irrigation interventions (2014-2018)

S.N	Forms of intervention	Area (ha)
1.	Full fledged irrigation	12,550
2.	Supplementary irrigation	4,000
3.	Spate irrigation	28,000
4.	Soil and water conservation on farm lands	90,000
	Total	**134,550**

Source: MoA Strategic Plan (2014-2018)

To support the irrigation development, the following major activities will be carried out in the plan period.

- 5 big size dams (1/year), 15 medium and small size dams (3/year), and 57 ponds (8, 10, 12, 13, 11/year) will be constructed;
- 10 medium/ small size dams and 24 ponds will be maintained;
- 60 check dams/year and a total of 300 check-dams will be constructed;
- Construct spate irrigation structures to irrigate 15,000 hectares;
- Expansion of irrigation on 40,000 ha, and
- Provision of short, medium and long term training to 100 staff and 1000 farmers annually.

Expected Impacts:

The construction of the above mentioned micro and macro dams, ponds and check dams will have the following impact:

- Alleviate drinking water needs of livestock and rural and urban communities;
- Enrich underground water which in turn recharge downstream water sources;
- Supplement soil moisture enabled increased agricultural intensification, enhanced production and productivity; and increased economic return (financial benefit) both to the government and farmers;
- New uncultivated (barren/marginal) lands are put to use (extensification) and simultaneous increase of agricultural productivity per unit area of a given land (intensification) and value of land is increased;
- Increased yields of strategic crops namely Oil crops (sesame, rape seed, ground nut, cotton, sunflower); Pulses (lentil, faba bean and chick pea), Field crops (bread and pasta wheat, malt barley, maize); fruit crops (banana, orange, apple, peach, lemon), Vegetable crops (potato, tomato and others) and improved varieties of forage (animal feed);
- Reduced cost of production through the application of economies of scale (which is significant for large-scale irrigation);
- Increased employment opportunities especially for women; hence increased income and improved livelihoods;
- Opportunities for optimal allocation and utilization of resources created; and production of industrial inputs and increased industrialization;

- Irrigation facilitates/eases alternative cropping pattern decision or shift between cash and food items by creating larger room for flexibility; and increased food variety and availability because irrigation facilitates product diversification;
- Shift to the production of high value crops for domestic and export market, i.e., it becomes possible to grow cash crops, which give good returns to the cultivators than the ordinary crops they might have grown in the absence of irrigation;
- Increased farmers/investors interest and confidence because irrigation water provides the best insurance against weather–induced fluctuations; and total food production gets stabilized;
- Development of irrigation will pave the way and induce other infrastructure development in other petty and big manufacturing/processing/commerce and associated service rendering sectors (processing, packaging/casing, transport, etc.); and stimulates the development of commercial mentality of irrigators and new agribusiness community will be created through the various waves of interactions in the market; and
- Finally, the axiomatic statement which goes saying "Irrigation development is one of the main means for fulfilling specific objectives of achievement of food security and poverty reduction strategy" will be realized.

The total estimated costs required for implementing the Irrigation Development part of the Natural Resources Management Program under the Five-Year SDP both in local and foreign currencies are Nakfa 8,067,082,500 and USD 273,700,000.

National Agricultural Research Programmes:

Over the strategic plan period activities to be carried out under the National Agricultural Research Programs will concentrate on area specific, commodity based research approach with due consideration to production system approach on major and minor commodities of crop and livestock as well as natural resources on the research stations at Halhale, Goluj, Shambuko, Sheeb and Afhimbol and their respective satellite stations. On-farm trials and production system improvement activities will be carried out that focus on farmer participation and information exchange to adjust research plans and activities. The summary is presented below.

- Management of Natural Resources: Development of appropriate knowledge and technologies for sustainable and integrated management of natural resources;
- Genetic Resources Development: Ensuring efficient and sustainable conservation and utilization of genetic resources;
- Crop Production and Pest Management: Improvement of staple and horticultural crop productivity and quality, Generation and release of improved Agricultural pest management technologies;
- Livestock Development: Development of technologies for sustainable and improved livestock productivity; and
- Agro-Engineering: Improvement of Small/Intermediate Agro-Engineering Technologies.

The goal in this sphere is to develop appropriate knowledge and technologies for sustainable and integrated management of natural resources and related target objectives are:

- Develop soil classification map which covers 10,000 square kilometre area;
- Enhance soil productivity by introducing conservation agriculture;
- Enhance productivity of wheat, sorghum, millet, barley, legumes and oil crops through application of appropriate fertilizer rate and crop rotations;
- Develop integrated water productivity at water stressed two agro-ecological Zones to increase the income of the community (Shiketi and Molqui);
- Evaluate the adaptability of eight economically and ecologically important tree species and provenances to a range of site conditions;
- Evaluate and adopt three appropriate agro-forestry technologies (wind break, home-stead and fodder agro forestry) to enhance livestock productivity and raise household income;
- Conduct research to develop knowledge on population dynamics of wild ass, elephant, ostrich and gazelles;
- Conduct research to develop knowledge on the effect of climate change in Forestry and Agricultural development and identify possible mitigation methods; and
- Develop knowledge on Bio-energy

The total estimated cost required for implementing the Management of Natural Resources part of the National Agricultural Research Program under the Five-Year SDP is Nakfa 41,434,250.

The aligned NAP considered the above issues (Natural resources management, agricultural land development and research) and integrated with the UNCCD operational objectives that are directly aligned with outcome numbers 1.1, 1.2, 2.1, 2.2, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 4.1, 5.4 and 5.5 and has indirect relationship with other outcomes.

5.3.3 NAP Implementation Plan:

The matrix drawn below (Table 14) provides the aligned NAP implementation plan containing operational objectives, expected outcomes and associated indicators, time frame, activities and responsible implementing institutions. The proposed action plans are designed to be in line with the operational objectives and outcomes of the UNCCD Strategy (2008-2018) and as well as to the MoA's Five Years Strategic Plan (2014-2018).

Table 14: NAP Implementation Plan (Matrix of Activities)

Operational objectives	Outcomes	Time frame	Proposed actions/Activities	Indicators	Implementing institutions
***Operational objective 1*: Advocacy, awareness raising and education**	**Outcome 1.1:** Desertification/land degradation and drought issues and the synergies with climate change adaptation/mitigation and biodiversity conservation are effectively communicated among key constituencies at the national and local levels.	2017	Improve knowledge and awareness on the issues of the DLDD and the synergies with climate change adaptation, mitigation and biodiversity conservation (sensitization and public awareness) • Develop Communication, Education and Public Awareness strategy for DLDD • Produce and disseminate basic DLDD materials • Educating farmers on DLDD and biodiversity their synergy with climate changes adaptation and mitigation (5500 annually) • Training different stakeholders and staff on implementation of best SLM practices to improve land vulnerability (350 annually). • Create awareness on sustainable forest management and use • Create awareness on sustainable rangeland management and use • Celebrate national and global environment events • Create educational programs on	1.1.1 Number of CSOs and science and technology institutions participating in the Convention processes. 1.1.2 Number and type of DLDD-related initiatives of CSOs and science and technology institutions in the field of education 1.1.3 Number of initiatives for synergistic planning/programming of the three Rio Conventions or mechanisms for joint implementation, at all levels. 1.1.4 Number of trainees and training organized as formal and / or non-formal education on DLDD, biodiversity and the synergies with climate change adaptation/ mitigation 1.1.5 No. of campaigns and events organized in curriculums, media, arts, literature and communities	Lead MoA, partners: MoLWE, FWA, MoMR, MoZA, MoI, MoEM, NUEW, NUEYS, NCEW, Academia, Communities

			SLM/DLDD for schools and colleges • Celebration of National Greening Day (May 15)		
		2016	Develop communications strategies and work programmes across different ministries to integrate SLM into development frameworks and sectroal plans; • Preparation and formulation of joint communication strategies on integrated SLM • Implementation of best SLM practices to improve vulnerable land • Organize land, livestock and crop related festivals/awareness programs on improvement and sustainable management	1.1.5 Number of agreed communication strategies 1.1.6 common work programs 1.1.7 Integrated SLM 1.1.8 established platform	
	Outcome 1.2: Desertification/land degradation and drought issues are addressed in relevant national and international forums, including those pertaining to conservation agriculture, climate change adaptation,	2017	Share experiences and present issues in national and international forums • Present papers related to conservation agriculture, bamboo, afromountane forest • Share experiences on local technologies related to Climate change adaptation, and alternative energy saving	1.2.1 Number and type of DLDD-related international and regional forums participated 1.2.2 Number and type of DLDD-related papers/issues presented in international and regional forums 1.2.3 Number and type of international forums addressing climate change adaptation, biodiversity	Lead MoA, partners: MoLWE, FWA, MoMR, MoZA, MoI, MoEM, NUEW, NUEYS, NCEW, Academia, Communities

	biodiversity conservation and sustainable use, rural development, sustainable development and poverty reduction		• Take practical initiatives on biodiversity conservation and sustainable use, • Establish local Land Degradation Committees experience sharing • Strengthen existing forum and deploy essential participants	conservation and sustainable development and poverty reduction. 1.2.4 lessons learnt	
		2017	Institutionalized national DLDD national communication platforms and strategies • Provide an opportunity for the affected population to periodically assess progress in arresting land degradation and poverty reduction • periodic assemblies of the NAP National Forum on Land Degradation; • Promote and encourage the effective stakeholder participation	1.2.4 Established national forums related to DLDD-. 1.2.5 Number and type of institutions involved and actively participated 1.2.6 lessons acquired and shared	
	Outcome 1.3: Civil society organizations (CSOs) and the scientific community in the country are increasingly engaged as stakeholders in the	2017	encourage and mainstream CSOs and the scientific community increasingly engaged as stakeholders in the Convention processes and DLDD are addressed in their advocacy, awareness-raising and educational initiatives • Involvement of youth and	1.3.1 Number of CSOs and scientific community engaged as stakeholders in DLDD issues 1.3.2 Number and type of DLDD-related initiatives of CSOs and scientific community in advocacy,	Lead: MoA, Partners: MoLWE, FWA, MoMR, MoZA, MoI, MoEM, NUEW, NUEYS,

	Convention processes and desertification/land degradation and drought are addressed in their advocacy, awareness-raising and education initiatives.		women; • Development of a community tool box; • Mobilization of wider target groups (institutions and actors) • Engage community based organizations • Inclusion of NGOs, research and academic institutions, development partners and the media; • Establishment of effective local action groups to address land-degradation issues,	awareness-raising and educational initiatives. 1.3.3 Number of interventions supported by CSO and scientific communities at field level	NCEW and Academia and communities
Operational objective 2: Policy framework formulations	**Outcome 2.1:** Policy, institutional, financial and socio-economic drivers of desertification/land degradation and barriers to sustainable land management are assessed, and appropriate measures to remove these barriers are recommended	2016	Assess various policy, institutional, financial and socio-economic drivers of DLDD and barriers to SLM • Engaging key central and local government ministries in addressing DLDD and SLM issues • Assess degradation barriers at all policy and institutional frameworks • Revise Sector policy and laws to ensure coherency with DLDD objectives and interventions, regulations and strengthen enforcement	2.1.1 Number of initiatives and assessments conducted to identify the drivers of the DLDD and barriers to SLM 2.1.2 Number of policies, institutional, financial, socio-economic drivers and obstacles of DLDD considered	Lead: MoA, UNCCD, MoND, MoMR, MoZA MoLWE, MoJ

		2017	Undertake appropriate measures to remove DLDD and SLM barriers • Application of land-tenure system in pilot areas • Enforce the Land Proclamation (No. 58/1994) in pilot areas and assess its impact. • Review forestry and wildlife proclamation No. 155/2006 and regulations No. 111 and 112/2006 and ensure their implementation • Finalize draft national CITES (Convention on the International Trade of Endangered Species of wild flora and fauna) legislation and implementation • Implementation of revised national policies and proclamations	2.1.2 Prioritized actions and measures 2.1.3 Number and types of appropriate measures undertaken to remove the identified barriers 2.1.4 Pace in the enforcement of land and forestry proclamations	
	Outcome 2.2: Eritrea will revise and update its national action programmes (NAPs) into strategic documents supported by biophysical and socio-economic baseline information and include them in integrated investment	2015	Prepare an aligned national action programme supported by biophysical, socio-economic baseline information, and integrated with investment frameworks • Preparation of an aligned NAP • Approval of an aligned NAP by all key partners and stakeholders	2.2.1 Adopted and revised NAP 2.2.2 Number of initiatives taken to integrate NAPs and SLM and DLDD issues into development planning, investment and polices. 2.2.3 Number of initiatives taken to integrate investment frameworks (IIF) and	Lead: MoA, Partners: MoND, MoF, MoLWE, FWA, MoZA,, MoE, UNCCD/GM academia

	frameworks.		• Familiarization of updated NAP with implementing partners • Promote effective implementation of aligned NAP	financial system (IFS	
		2016	Monitor the integrated investment frameworks that will be implemented and evaluated cost-effectively in collaboration with various sectors and stakeholders • Identification and involvement of key partners in investment programs • Develop an IIF program to identify financial and technical barriers • Prioritization of workable investment plans • Develop an IIF implementation mechanism • Set gradual implementation of IIF • Establish an M&E framework,	2..2.3 Established M&E mechanism 2.2.4 interim and final reports 2.2.5 implementation efficiency and effectiveness	
	Outcome 2.3: The NAP and sustainable land management shall be fully integrated into national development	2017	Integrate NAP and SLM and land degradation issues into development plans and relevant sectoral and investment plans and policies • Revise Sector policy and laws to identify entry points to NAP	2.3.1 Number of initiatives and DLDD/SLM projects integrated into development plans and policies. 2.3.2. Number of initiatives and DLDD/SLM projects	Lead: MoA, Partners: MoND, MoF, MoLWE, FWA, MoZA,, MoE,,

	frameworks and relevant sectoral and investment plans and policies.		SLM mainstreaming Develop a national Drought-preparedness and Mitigation Plan (DPMP) in the context of NAP • Gradual enforcement of SLM legal and institutional instruments (Integration) • Harmonize and coordinate NAP/SLM activities/projects into development plan and relevant sectoral and investment plans and policies	integrated into relevant sectoral and investment plans and policies. 2.3.3 Number of initiatives and DLDD/SLM projects integrated with national investment frameworks.	UNCCD/GM academia
	Outcome 2.4: A financial analysis of investments and ODA development cooperation programmes developed and operationalized with the aim of promoting sustainable land management and improving of affected populations' livelihood	2018	Mainstream UNCCD objectives and SLM interventions into the national development cooperation programmes/projects in line with the investment and sector development plans. • Update the existing NAP mainstreaming document • Mobilize resources for updated and mainstreamed NAP • Enforce mainstreamed NAP • Monitor the implementation status of mainstreamed NAP	2.4.1. Number of initiatives programmes/projects of DLDD/SLM integrated into the investment and sector development plans 2.4.2 Number of national cooperation programmes/projects support DLDD/SLM interventions. 2.4.3 SLM sustainability mainstreamed into the National Strategy 2.44 NAP mainstreamed with MOA and key sector Strategic plans	Lead: MoA Partners: UNCCD, MoND, MoLWE, FWA,, MoF MoZA, CSO, Academia
	Outcome 2.5: Mutually reinforced measures among desertification/land	2015	Promote coordinated interventions and synergies among the Rio Conventions (UNCCD, UNCBD and UNFCCC),	2.5.1 Number of joint planning/programming of intervention among the three Rio Conventions	Lead: MoA, partners: UNCCD, MoLWE,

	degradation action programmes and biodiversity and climate change mitigation and adaptation are introduced or strengthened to enhance the impact of interventions.		• Establish an effective and coordinated Rio Conventions platform • Prepare and strengthen joint implementation plans and regular monitoring of the three Rio Conventions. • Assign roles and responsibilities for each focal institution	2.5.2 Number of programming of the three RIO Conventions jointly implemented at National level 2.5.3. Number and type of desertification/land degradation action programmes, biodiversity and climate change mitigation and adaptation intervention measures executed by relevant sectors.	MoMR, FWA, MoZA, CSO, Academia and communities
		2016	Integrate programmes of action to enhance the impact of interventions • Identify and prioritize SLM potential areas of intervention • Promote and implement SLM practice on prioritized affected livelihood. • Proper cultural practices; • Introduction and application of agricultural technologies • Make an assessment in trends of SLM practices • Establish a coordinated M&E mechanism	2.5.3.institutionalised framework 2.5.4Identified SLM potential area 2.5.5 impacts of interventions 2.5.6 Number of beneficiaries 2.5.7 SLM dimension (piloted)	
Operational objective 3: Science, technology and	**Outcome 3.1:** National monitoring and vulnerability assessment on	2017	Establish a comprehensive biophysical and socio-economic baselines and indicators to enhance a national monitoring system for	3.1.1 Established national monitoring and vulnerability assessment system for DLDD	Lead: MoA, Partners: MoLWE, FWA, MoND,

knowledge	biophysical and socio-economic trends are supported.		DLDD • Assess DLDD biophysical and socio economic baseline monitoring system • Establish an effective emergency-response mechanism to mitigate the effects of drought; • Establish a special programmes for affected livelihood and vulnerable households and pastoralist related to DLDD • Promote and support DLDD monitoring system • Integrated implementation of the NAP to combat desertification and mitigate the effects of drought, NBSAP and NAPA	3.1.3 Number of special programmes/projects established 3.1.4 Number of participants s	CAA MoE, MoZA, Academia and communities
	Outcome 3.2: A national baseline on biophysical and socio-economic trends of DLDD is established and relevant scientific approaches are gradually harmonized, accessed and disseminated	2016	Prepare reliable national biophysical and socio-economic baseline data • Deploy professionals to conduct DLDD baseline study • Train relevant experts on database management of biophysical, social economic issues • Carry out biophysical and socio-	3.2.1 identified and prioritized gaps 3.2.2 Available national biophysical and socio-economic baseline data	Lead: MoA, Partners: MoLWE, FWA, MoND, CAA MoE, MoZA, Academia and communities

			economic baseline studies		
		2017	Develop trends and gradually harmonize and disseminate relevant scientific approaches. • Documentation of best SLM practices following different formats such as LADA - WOCAT • Establish a collaborative team to harmonize and disseminate available DLDD with relevant scientific approaches • Screening of approaches and activities • Introduce community land-use planning • Assist farmers' *in situ* conservation of indigenous crops and landraces. • Identification and documentation of useful grasses and forbs of Eritrea	3.2.3 Established trends 3.2.4 harmonized and adopted scientific approaches 3.2.5 Reports to the UNCCD in line with performance agreed indicators 3.2.6 Access and dissemination of available information.	
	Outcome 3.3: Knowledge on biophysical and socio-economic factors of DLDD and their interactions is improved to enable	2016	Conduct systematic data collection to enhance knowledge on biophysical and socio-economic factors of DLDD • Establish thematic areas on biophysical and socio-economic	3.3.1 Number of thematic areas established 3.3.2 Number of studies conducted 3.3.3 quality of collected and disseminated data	Lead: MoA Partners: FWA MoLWE, MoZA, MoPW, MoTI, MoE, MoI, MoEM, MoND,

	better decision-making.		factors of DLDD • Conduct biophysical studies of DLDD, such as soil fertility, SWC and moisture, Mapping and land classification, composting and green manure, • Develop soil classification map which covers 10,000 square kilometres.	3.3.4 Number of persons/institutions carrying out DLDD knowledge 3.3.5 Soil classification map .	UNCCD, Academia
		2018	Improve Knowledge on biophysical and socio-economic factors and their interactions for better decision-making : • Improve land use knowledge and make available data in DLDD planning • Promote composting and green manure through farmer training and field demonstration • Train farmers on improved pasture and fodder development. • Train farmers on soil fertility management and erosion control • Promote fuel wood plantations in degraded areas • Develop agro-forestry in farm lands	3.3.6 Lobbying and sensitization programmes 3.3.7. Number of institutions and other stakeholders using data on biophysical and socio-economic factors 3.3.8 Number of institutions using DLDD data3.3.8 Number of projected approved and implemented	

			• Establish shelterbelts in areas prone to wind erosion • Improve understanding of the carrying capacity of land; • Improve knowledge on controlling and, managing excessive nutrient losses from agricultural lands;		
	Outcome 3.4: Knowledge of the interactions between climate change adaptation, drought mitigation and restoration of degraded land throughout the country is improved to develop tools to assist decision-making.	2017	Enhance ecosystem and/or watershed based assessment and studies • Collection and assessment of the existing change adaptation and mitigation and restoration of degraded land studies. Align change adaptation, and mitigation and restoration of degraded land studies with all Rio Conventions • Strengthen capacity, to enhance interactions among climate change mitigation and restoration of degraded land • Advocacy and awareness on Multilateral Environmental Agreements (MEA), • Document lessons learned	3.4.1 Number of assessments conducted 3.4.2 Number of scientific literature consulted for the development of the NAP. 3.4.3 Prioritized ecosystems and watersheds for DLDD interventions 3.4.4 an aligned and integrated Rio Convention intervention document 3,4,5 Number and type of training conducted 3,4.6 Lessons documented on Rio Convention interventions	Lead: MoA Partners: FWA MoLWE, MoZA, MoPW, MoTI, MoE, MoI, MoEM, MoND, Academia

		2018	Conservation and restoration of degraded catchments with effective implementation of soil and water conservation activities and afforestation, • Upscale enclosure systems; • Operationalization of protected areas system to enhance wildlife population and diversity • Promote integrated watershed treatments and best SLM practices (annually 7,500 ha)	3.4.7 Number and area of enclosures established 3.4.8 Number of beneficiaries 3.4.9 Number and species conserved 3.4.10 Degraded catchments treated	
		2018	Promote knowledge to climate change mitigation and adaptation and to combating desertification. • Expand systems for the protection of productive land from erosion; • Afforestation with appropriate species Increase vegetation cover by 4,000 hectares annually • Strengthen capacity on Environment Climate change adaptation and mitigation.	3.4.11 Area rehabilitated 3.4.12 Number and type of species planted and survived 3.4.13 Enhanced capacity building 3.4.14 Vegetation cover	
	Outcome 3.5: Effective knowledge-sharing systems, including traditional	2017	Improve knowledge-sharing systems to support policymakers and end users,	3.5.1 Type, number and users of DLDD knowledge sharing websites 3.5.2 Identified best practices and success stories	Lead: MoA Partners: FWA MoLWE, MoZA, , ,

	knowledge, are in place at the national levels to support policymakers and end users, including through the identification and sharing of best practices and success stories.		• Identification and sharing of best practices and success stories. • Dissemination of improved traditional stoves • Promotion of renewable-energy technologies for rural community benefits • Documentation of traditional / customary law on management and utilization of communal grazing lands • Comparative analysis of livestock versus crop production. • Strengthen and document traditional coping mechanisms • Development of appropriate knowledge and technologies for sustainable and integrated management of natural resources	including leaflets, brochures 3.5.3.Type and quality of knowledge disseminated 3.5.4 Number and type of alternative energy saving promoted. 3.5.5 Documented traditional knowledge	MoE, MoI, MoEM, MoND, , UNCCD, Academia
	Outcome 3.6: Science and technology networks and institutions relevant to desertification/land degradation and drought are engaged to support UNCCD implementation.	2017	Strengthen the existing network based on agreed scientific and institutional network related to DLDD and support UNCCD implementation. • Strengthen the existing scientific partnership and networking to support DLDD	3.6.1. Established Science based DLDD networking 3.6.2.Number of institution and Science and technology networks engaged in DLDD 3.6.3 Number of activities related to DLDD executed by the different institutions • 3.6.4 Number and	Lead: MoA Partners: FWA MoLWE, MoZA, , MoE, MoI, MoEM, MoND, CBOs , Academia and communities

			• Creation of networks for collection and access and dissemination on scientific DLDD information • Promote cost effective technologies to impact and address the support of UNCCD interventions • Facilitate Prioritized DLDD research. • Development of communication mechanisms through formation of various target groups	distribution of beneficiaries that use UNCCD based science and technology 3.6.5 Number and type of DLDD research conducted .	
		2018	Enhance science based knowledge to the public through established networks and institutions • Dissemination of DLDD scientific information and technology through the use of local Medias. • Better data collection , analysis and use through the establishment of monitoring and assessment networks • Establish forest and wildlife resources information system for sustainable utilization • Promote advocacy and	3.6.6 Type of information and technology disseminated 3.6.7 Broadcasted information through mass media 3.6.8 Number of publications and advocacy 3.6.9 Forestry and wildlife information system	

			advertisements through the established networking		
Operational objective 4: Addressing capacity-building	**Outcome 4.1:** Develop the necessary capacity at different levels (individual, institutional and system) to tackle desertification/land degradation and drought issues	2017	Update and implement the national capacity assessment needs and recommendation as stipulated in the NCSA document. • Set-up a national task force to revisit NCSA 2007 • Revise national and local capacity building needs assessment • Identify and prioritize beneficiary stakeholders • Establish funding mechanism for short and long term capacity building programs • Preparation of a reference material/manual	4.1.1 Established national task force 4.1.2 Identified training need 4.1.3 Financial resources mobilized 4.1.4 Training materials prepared 4.1.5 Number and type of training programmes conducted 4.1.6 Updated and adopted NCSA document 4.1.7 Number of professionals and local community beneficiaries	Lead: MoA Partners: FWA, MoLWE, MoZA, MoE, MoI, MoND. MoF, Academia, CBOs and Communities
			Carry out capacity building programmes related to DLDD at all levels • Preparation and adoption of NCSA by all stakeholders in line with the strategy • Documentation of lessons learnt		
Operational objective 5: Addressing financing and technology transfer	**Outcome 5.1:** An integrated investment framework developed for leveraging national, bilateral and multilateral resources with a view to improve mobilization,	2016	Develop an integrated investment framework and mobilize financial resources in cooperation with national, bilateral and multilateral institutions • Establish a national integrated Financial System (IFS)Develop mechanism for sustainable	5.1.1 Established National IFS 5.1.2 An integrated investment framework and/or Integrated Financial Strategy 5.1.3 Assigned persons in IFS	Lead: MoA Partners: FWA, MoLWE, MoZA, MoE, MoI, MoND. MoF, Academia, CBOs CSO and Communities

	efficiency and effectiveness of financial and technical resources available to combat desertification, land degradation and drought		financial resources mobilization • Assign technical expertise for proper IIF resourcing		
	Outcome 5.2: Mobilize substantial, adequate, timely and predictable financial resources from development partners to support domestic initiatives to reverse and prevent desertification/land degradation and mitigate the effects of drought.	2018	Develop a strong national partnership and investment framework to support domestic initiatives in collaboration with development partners and key stakeholders • Establish efficient country partnership • Identify possible DLDD financial supporting institutions • Ensure the timely and secured financial resources	5.2.1 An integrated investment framework that support domestic initiatives 5.2.2 Existing and predictable projects and financial resources properly planned and implemented to tackle DLDD 5.2.3 Number of initiatives to mobilize substantial financial resources to reverse and prevent DLDD	Lead: MoA Partners: FWA. MoLWE, MoZA, MoE, MoI, MoND. MoF, Academia, CBOs CSO and Communities
	Outcome 5.3: Promote efforts to mobilize financial resources from international financial institutions, facilities and funds, including the GEF, through mechanism of UNCCD / Sustainable land management (SLM) agenda within the governing bodies of these institutions.	2016	Mobilize financial resources facilities and funds from international financial institutions, • Produce fundable proposals pertaining to SLM • Identify and prioritize interventions of SLM • Promoted UNCCD/Sustainable land management (SLM) agenda • Assurance eligible criteria and frequent follow-up for	5.3.1 Number and type of DLDD-related project proposals 5.3.2. Efforts and number of DLDD-related project proposals successfully submitted for financing 5.3.3 Number of DLDD-related project proposals promoting UNCCD/ SLM agenda successfully submitted for financing to international financial institutions 5.3.4 responses of GEF and other international financial	Lead: MoA Partners: FWA, MoLWE, MoZA, MoE, MoI, MoND. MoF, Academia, CBOs CSO and Communities

			fundraising with GEF and other international financial agencies • Mobilize financial resources with the assistance of bilateral and international agencies	institutions for facilities and funds 5.3.5 Number of consultations and lobbying with financial sources 5.3.6Number of fundraising campaigns 5.3.7 Number of responses of GEF and other international financial institutions, facilities and funds	
	Outcome 5.4: Innovative sources of finance and financing mechanisms are identified to combat desertification/land degradation and mitigate the effects of drought, including from the private sector, market-based mechanisms, trade, foundations and CSOs, and other financing mechanisms for climate change adaptation and mitigation, biodiversity conservation and sustainable use and for hunger and poverty reduction	2016	Explore innovative approaches and financing mechanisms for DLDD and SLM. • Develop innovative strategies for resources mobilization • Create an enabling environment for resource mobilization from all sources including private sector • Introduction of incentive and disincentive mechanisms for climate change adaptation, mitigation and biodiversity conservation	5.4.1 Number of innovative source of finance and financing mechanisms identified 5.4.2. Number of project proposals successfully submitted for financing 5.4.3 Amount of financial resources from private sectors etc 5.4.4 Number of private sectors and other CSOs involved in financing	Lead: MoA Partners: FWA, MoLWE, MoZA, MoE, MoI, MoND. MoF, Academia, private sector, CBOs CSO and Communities
	Outcome 5.5: Promote institutional, legal	2017	Facilitate access to technology through adequate financing, effective economic and policy incentives • Assess institutional, legal and	5.5.1 capacity assessment 5.5.2 Number and type of technologies supported 5.5.3 Number of projects and	Lead: MoA Partners: FWA, MoLWE, MoZA, MoE,

	and human capacities frameworks to create the enabling environment for access to technology through adequate financing, effective economic and policy incentives and technical support		human capacity for technology transfer • Assess existing technologies applicable to the country • create an enabling environment for access to appropriate technology, • Promote the sustainable mobilization, utilization and control of the national financial scheme	amount of Finance mobilised 5.5.4 Policy incentives and institutional frame that support technology transfer 5.5.5 Utilization and access to technology	MoI, MoND. MoF, Academia, CBOs CSO and Communities

6. IMPLEMENTATION ARRANGEMENTS

The aligned NAP included the implementation, monitoring and evaluation mechanism for the timely implementation of the aligned NAP that seeks consideration from the very beginning of its approval date. The outcomes, actions and tasks of the aligned document are to be achieved through exerted collaborative efforts of all partner institutions and stakeholders.

6.1 Implementation Mechanism

The MoA as the national focal institution of UNCCD/SLM platform is the lead and responsible for the coordination and implementation of this aligned NAP. In collaboration with Key partners particularly the MoLWE, MoND, MoMR, FWA, MoZA, MoF, MoE, MoEM, and CBOs. The MoA/AED will ensure the effective implementation of the DLDD/SLM strategic plan and follow-up all necessary impacted measures. To meet these obligations the MoA/AED has the authority to establish working groups, networking and make necessary delegations. Other line ministries are also responsible to implement and monitor their specific concerned outcomes and actions upon agreed assignments. The MoA as mandated for policy formulation, planning and regulatory functions in the agricultural sector, has the overall responsibilities for sustainable management of agricultural and DLDD/SLM related resources.

In collaboration with existing projects and partners, the MoA is expected to strengthen the SLM platform and enhance the existing DLDD/SLM knowledge base. The SLM platform shall support and create a framework where partners, civil societies and other private sector to align and harmonize their respective SLM initiatives; mobilize partners to work together in a more systematic, integrated, coordinated and comprehensive way on SLM issues; leverage and mobilize additional resources for the implementation of SLM related activities; and consolidate and upscale experiences and lessons on SLM.

The MoND has the overall responsibility to lead the process of development planning, and coordinate local and international financed programmes and projects related to combating DLDD issues including the allocation of budgetary resources. The Ministry is also responsible in mobilising resources with key development partners in support of aligned NAP implementation and its efficiency. The Ministry maintains close linkages with all development partners and ensures coordination related support programmes.

MoLWE has crucial responsibility for policy formulation, regulation, concerning land, water and environmental guidelines and management of natural resources. It also embody the facilitation and monitoring of the implementation of international agreements, conventions and treaties, with a view to promoting the country's conservation interests as well as meeting international obligations. The Ministry is also responsible in monitoring the state of the environment, water and land uses.

The MoZA through its regional administrations and all their powers are obliged to know the contents of the document and duly make maximum efforts for the wider dissemination of DLDD knowledge and as well its practical implementation at grass-root levels giving more attention to local

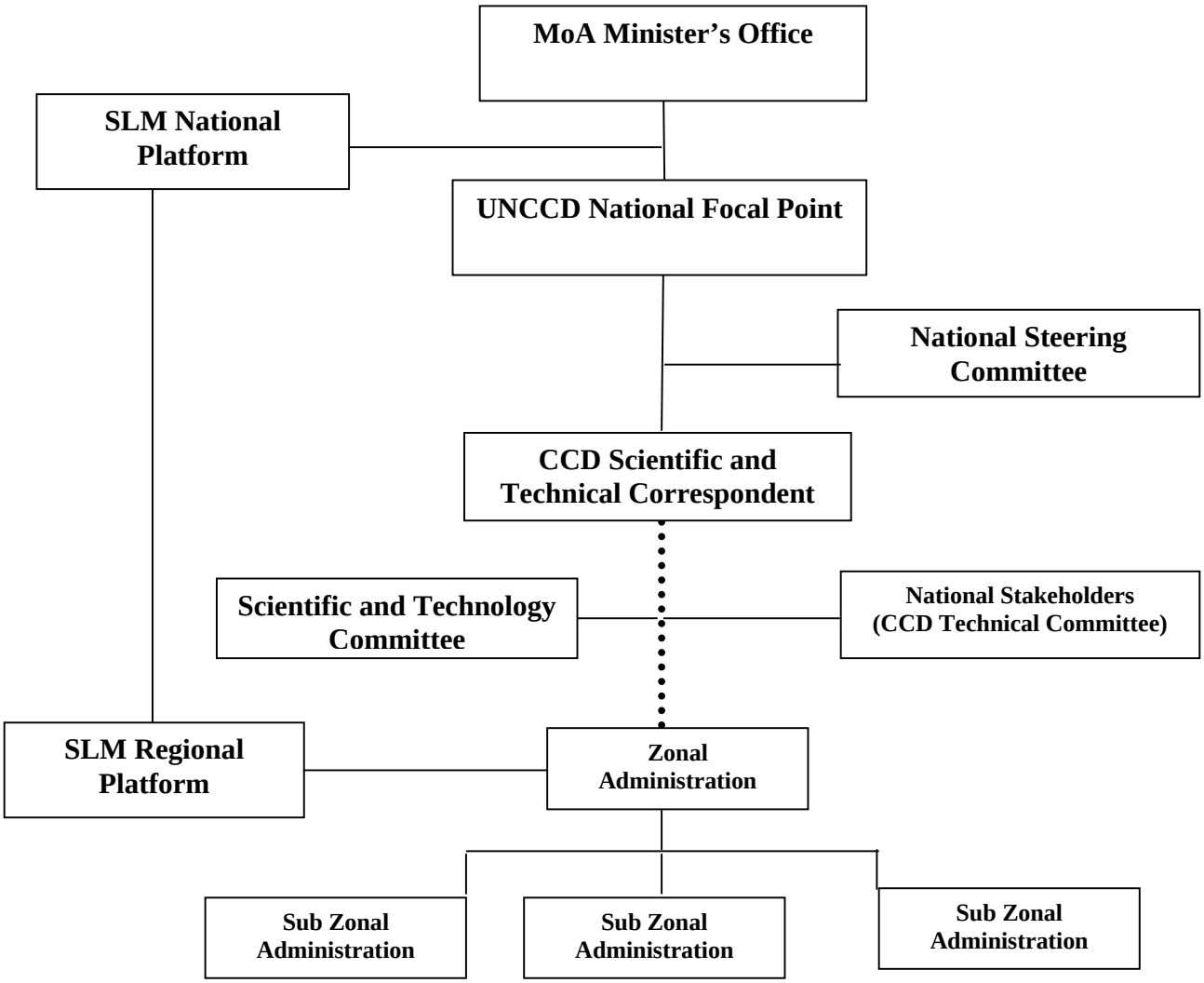
communities. Various tools such as awareness strategies, technical and financial mobilization techniques, land management and use plans need to be organized, promoted and implemented.

The Ministry of Finance (MoF) has the overall responsibility to review the submission and approval of budgets, including securing the Government contribution to programmes and projects related to combating DLDD issues including the allocation of budgetary resources. The Ministry is also responsible in mobilising and controlling resources with key development partners in support of the IFS for the aligned NAP implementation and its efficiency.

The MoE has overall responsibility to incorporate environmental education in school curriculum and organize students to participate in the summer student campaign parallel to the existing environmental awareness-raising programmes and afforestation programmes into schools to engage students in extra-curricular activities.

The FWA has overall responsibility to the development and rational utilization of forestry resources, Protected Areas (PAs) management (coordination, technical backup, resources mobilization, monitoring and evaluation of forestry and wildlife resources) and is potentially one of the lead agencies of natural resources conservation and management.

NAP-ERITREA INSTITUTIONAL FRAMEWORK



6.2 Monitoring and evaluation

The aligned NAP need to be validated by all concerned stakeholders and endorsed by UNCCD Secretariat. Immediately after validation, awareness programmes regarding the aligned NAP and its enforcements should be discussed at all levels with a decision of high commitments. Roles and responsibilities need to be assigned during this time which is important in building ownership and results.

The aligned NAP will be monitored and evaluated in order to meet the requirements of the Eritrean Government and other stakeholders, and to meet the requirements of the UNCCD. During early implementation of the aligned NAP, Monitoring and Evaluation mechanisms need to be given priority at all levels as an integral part of the key partner institutions. MoA MoLWE, MoND, MoF, MoE, MoEM, FWA, and MoZA are the prime institutions need to carry out and undertake functions through the inclusion of appropriate M&E mechanisms including awareness and training programmes, financial resources mobilization and use. In the process of M&E some of the main tasks required to be included are changes of trends, data and information, Provision of outcomes to concerned bodies timely, impacts, etc. Integration and coordination of all stakeholders on M&E activities will assist in taking the best road to effective implementation.

Following the understanding the values and responsibilities, collaborative work plan need to be agreed for the whole process. The agreed task and time frame will serve as benchmarks to measure progress of the intended actions and actions.

Bi-annual and annual reports are to be submitted from all institutions by the coordination of the MoA. The annual report will include a section on financing and resources for implementing the aligned NAP. This will assist to monitor progress against resources.

Evaluation need to take place every two year bases focusing to aligned results and actions. The mid-term and final evaluation will look at stage of NAP development impact and sustainability of results and consequently lead for required adjustments and lessons for further measures, including the contribution to The Strategy (2008-2018) - strategic and operational objectives. It also needs to provide recommendations for further follow-up and sustainability. The collection of these reports will assist to generate the 6th UNCCD report in 2016 and further for 2018.

Hence the MoA in collaboration with UNCCD partners need to oversee and fulfil bi-annual and annual reports, evaluations, other similar reports, reviews, proposals and findings for betterment of UNCCD outlooks.

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ANNEXES

Annex 1: Terms of Reference

CONSULTANCY SERVICES: For Preparing National Action Plan (NAP) Document

1. Introduction

Land degradation, deforestation and climate change induced effects are some of the main challenges in Eritrea. These challenges negatively impact food security, unemployment rates, poverty levels and sustainable development. Land is the prime source of livelihoods in which majority of the Eritrean population depend upon for its wellbeing. Hence its proper and sustainable management becomes mandatory.

Conscious of the above mentioned realities, the Government of the State of Eritrea has been implementing various natural resources conservation and environmental recovery activities and raising the awareness of the general public of the causes and effects of land degradation, deforestation and the negative effects of climate changes thereby mobilizing the general public to participate and involve in the implementation measures of reducing and ultimately halting land degradation, deforestation and the causes that aggravate climate change. Some of the adopted integrated approaches to reduce land degradation, deforestation and climate induced effects have already registered some best practices in sustainable land management (SLM) which are becoming exemplary worldwide.

Article 9 of the Convention determines that the elaboration and implementation of NAPs are the central elements of the strategy to combat desertification and mitigate the effects of drought, thus making their preparation and application fundamental to the attainment of its objectives. The Conference of the Parties (COP) has over the years adopted several decisions which further underline the importance of these tools to the UNCCD process.

With the aim of furthering the improvement and acceleration of the overall implementation process, the COP adopted at its eight session, Decision 3/COP.8 outlining “The 10-Year strategic plan and framework to enhance the implementation of the Convention (2008-2018).” This Strategy spells out four strategic and five operational objectives that should be achieved in the implementation process over the specific period (i.e. 2008-2018), and calls on affected country Parties to align their action programmes and other relevant implementation activities to The Strategy.

The COP at its ninth session adopted Decision 13/COP.9 containing the consolidated indicator for Operational Objective 2, and which also sets out a global target that 80% of all action programmes of affected country parties should be formulated, and or revised: finalized and aligned to the Strategy.

The COP cognizant that the NAP alignment process needs to proceed apace, also adopted at its tenth session Decision 2/COP.10 on the, “Strengthening and enhancing the process of alignment of action programmes with The Strategy.” This decision noted that the alignment process may present a challenge for affected country Parties. It also noted that for the alignment process to be

realized, it will require strong and effective support and that there is need to speed up the process.

Eritrea holds to the objectives of Agenda 21 of the United Nations and it has signed the United Nations Conventions to Combat Desertification in 1994 and ratified it in 1996. The Government of the State of Eritrea (GoSE) prepared its National Action Plan Document in 2002. The NAP document contains 20 bankable projects on combating desertification, land degradation and climate change induced effects.

UNCCD has prepared a Ten-Year Strategic Plan and the Ministry of Agriculture (MoA) has prepared a Five-Year (20014-2018) Strategic Plan where SL activities are incorporated and Eritrea is to align the existing NAP to these plans. To assist in the process the Office of the UNCCD Focal Point for Eritrea wants to recruit a competent and qualified local consultant to carry out this job.

2. Project:

Supporting the alignment of the National Action Programmes (NAP) of Eritrea to the 10-Year Strategy of the UNCCD and to the Sustainable Land Management of the Five-Year (2014-2018) Strategic Plan of the Ministry of Agriculture

3. General Objective of the consultancy

The general objective of the consultancy is to help increase the momentum and efficaciousness of the implementation of the NAP of Eritrea to the UNCCD 10-Year Strategy and to the Sustainable Land Management of the Five-Year (2014-2018) Strategic Plan of the Ministry of Agriculture through providing necessary technical assistant in accordance with the requirements of the alignment process as outlined in the relevant decisions of the UNCCD Conference of the Parties (COP).

4. Specific objective of the consultancy

The specific objective of the consultancy is to support the NAP alignment process of Eritrea to the UNCCD 10 Year Strategy and to the Sustainable Land management of the Five-Year (2014-2018) Strategic Plan of the Ministry of Agriculture, through the provision of all technical guidance and support. At the end of this process, the NAP and all relevant national actions of Eritrea shall be aligned in accordance with the five operational objectives of the Strategy.

5. Specific output of the consultancy

The specific output of this consultancy is:

a) The preparation of a draft of the aligned NAP of Eritrea that will guide the efficient and effective implementation of the NAP and other relevant action in accordance with the five operational objectives of the 10 Year Strategy and the SLM activities envisaged in the Five-Year Strategic Plan of the MoA;
b) Support national consultations for the review and finalization of the draft aligned NAP;

c) Preparation of the final version of the aligned NAP for stakeholder validation, and consequent upon the same, adoption by the relevant authority of Eritrea.

6. Methodology to be used

In realization of this consultancy the consultant shall employ the following methodologies, among others:

a. Review of the existing NAP and all other documents and actions pertaining to the same;
b. Review from the internet the NAP and all other documents of other countries;
c. Initiate a process of consultation with all national stakeholders with the aim of laying the basis for the alignment of the NAP;
d. Work in close collaboration with the UNCCD National Focal Point and the Scientific and Technical Correspondent of Eritrea;
e. Use (1) the 10 Year Strategy and the Action Programme Alignment Guidelines as the fundamental basis for the elaboration of the draft aligned NAP, while being ever cognizant of the national and specific challenges of desertification, land degradation and drought in Eritrea, and (2) SLM Action Plan envisaged in the Five Year Strategic Plan of the MoA;
f. The draft and final version of the aligned NAP must be done in a manner so that they:
   i) Reflect all other important actions that must be aligned
   ii) Contain the relevant indicators so that the future implementation process may be measured;
   iii) Are consistent with the Integrated Financial Strategy (IFS) of Eritrea, which is an essential part of the alignment process;
   iv) Are easy to understand and use;
   v) Reflect the mainstreaming of the NAP in all relevant sectoral development policies of Eritrea
   vi) Are synergistic with other Rio Conventions, namely UNFCCC and CBD;
   vii) Can be easily adjusted in case of future reviews

7. Specific duties of the consultant:

The main tasks of the consultant among others shall be:

a) To write and submit a draft, and following its review, a final version of an aligned NAP Eritrea;
b) To ensure that the final document is as comprehensive and exhaustive as possible bearing in mind the UNCCD 10-Year Strategy, the Action Programme Alignment Guidelines, the national priorities of Eritrea as regards desertification, land degradation and drought and sustainable land management as a whole and the SLM Action Plan of the Five-Year Strategy of the MoA;
c) To make sure that the contents of these documents shall cover the areas that are fundamental to addressing the problems of desertification, land degradation and drought and sustainable land management in Eritrea;
d) That these documents are done in accordance with the conditions, structure and length and in the timeframe prescribed by Eritrea;
e) To prepare these documents following the methodology as outlined in section 6; above;
f) The documents produced shall be submitted in electronic format

8. Relevant documentation

a) National Action Programme (NAP) Document of Eritrea - 2002
b) Five-Year (2014-2018) Strategic Development Plan of MoA
c) Articles 9 and 10 of the UNCCD Convention
d) Decision 3/COP.8: The 10-Year strategic plan and framework to enhance the implementation of the Convention (2008–2018)
e) Draft guidelines for the alignment of the action programme and other relevant implementation activities with The Strategy
f) Decision 1/COP.9: Implementation of the 10-Year strategic plan and framework to enhance the implementation of the Convention (2008-2018)
g) Decision 2/COP.9: Alignment of the action programmes with The Strategy
h) Decision 2/COP.10: Strengthening and enhancing the process of alignment of action programmes with The Strategy
i) Decision 13/COP.10: Assessment of the implementation of the Convention against performance indicators
j) Official CRIC Document: Relevant sections of the report of the ninth session of the Committee for the Review of the implementation of the Convention
k) Technical documents and sectoral policies of Eritrea, such as but not limited to:
   - Agriculture policy
   - Natural resources Management Plan for Eritrea, 1995
   - Land and Zoning Policy
   - Draft Poverty Reduction Strategy
   - Draft Food Security Reduction Strategy
   - Water Policy
   - Forestry and Wildlife Proclamation No.155/2006

9. Qualifications and competencies required

To be able to accomplish the tasks spelt out in this terms of reference, the consultant recruited shall meet the following requirements:

9.1 General qualifications and competencies required

i. Education:

a) An advance university degree natural resources management including social sciences or related field;
b) Very good general knowledge of environmental issues particularly related to UNCCD, UNFCCC and CBD
c) Good knowledge of the environmental issues and in particular the issues of desertification, land degradation and drought of Eritrea
d) Sound knowledge of the UNCCD 10-Year Strategy and the alignment process
e) Sound knowledge of the role and purpose of the NAPs in the UNCCD implementation process
f) Sound knowledge of the NAP process in Eritrea
g) Sound knowledge of the sectoral development policies of Eritrea

ii. Experience

a) At least 7 years working experience in the field of natural resources management and social sciences in Eritrea or in other African countries having similar environmental conditions
b) Experience and expertise in the development of environmental action programmes
c) Must have experience of working in the area of development and or the alignment of action programmes for the implementation of the UNCCD
d) Must have worked on environmental preferably sustainable land management issues in Eritrea

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iii. Language:

a) Must have excellent command of written and spoken English

9.2 Specific qualifications and competencies required

- PhD degree in disciplines related to natural resources management including social sciences (Environmental Management, Natural Resource management, Agriculture, Soil and Water conservation, Forestry, Agricultural Economics and other related disciplines) with 6 years experience to the area of assignment.
- MSc degree in disciplines related to natural resources management including social sciences (Environmental Management, Natural Resource management, Agriculture, Soil and Water conservation, Forestry, Agricultural Economics and other related disciplines) with 10 years experience to the area of assignment

N.B: Any experience that doesn't have close relationship to the area of assignment will not be considered.

10. Other requirements

Submission of relevant documents

- **Curriculum Vitae (CV):** CVs must be original and signed by the expert whose name is appearing on the CV. Photo copies are not accepted.
- **Documents on work experiences:** candidates should produce original and duly signed documents of work experiences.

11. Factors determining technical evaluation

- Experience in related fields of assignment, 40%
- Qualification and competence of key staff for the assignment, 50%
- Adequacy of work plan and methodology of responding the ToR, 10%

12. **Selection Criteria**

- Pass/fail system is the selection method. The minimum score for technical qualification is 80%. Any individual consultant/firm that scores below 80% will not be considered for financial evaluation. The consultant/firm that offers the lowest price quotation from the technically qualified consultants/firms will be the winner of this competition.

13. **Terms and conditions**

1. The consultant would be deemed to have fulfilled the terms of this consultancy on delivery of a final version of the aligned NAP for consideration by the government of Eritrea.
2. Methodologies and products developed and delivered through this consultancy shall remain the exclusive property of the government of Eritrea, and shall only be divulged and/or used as determined by Eritrea.

14. **Timing and reporting (Deliverables)**

1. The consultancy work will take three months effective from the date of signature between the Office of the UNCCD Focal Point for Eritrea and the consultant. The consultant is required to produce a detailed work plan.
2. 1st Draft report of the document should be submitted to the Office of the UNCCD Focal Point for Eritrea at the beginning of 2nd week of the 2nd month
3. 2nd and final draft should be submitted to the Office of the UNCCD Focal Point for Eritrea at the 2nd week of the 3rd month
4. Final document with all comments incorporated should be submitted to the Office of the UNCCD Focal Point for Eritrea in the 3rd week of the 3rd month

15. **Miscellaneous**

- Transport and office facilities are the responsibility of the consultant
- Workshops will be conducted in consultation with the Office of the UNCCD Focal Point for Eritrea and the Office will cover all workshop expenses.

16. **Contact details**

Potential candidates should submit their offers to:
Administration and Finance Division,
Procurement and Supplies Unit,
Postal address: P.O.Box: 1048.
Phone: 291-1-180699,
Telefax: 291-1-181511
Ministry of Agriculture,
Asmara, Eritrea.

Annex 2: List of bankable NAP proposed projects

S.N	Project title	Indicative Budget (USD)
1.	Mapping and Classification for Resources Assessment	2,459,820
2.	Application of Land Tenure System and Introduction of Community Land Use Planning in Pilot Areas	329,417
3.	Assistance to Farmers for in-situ Conservation of Indigenous Crops and Landraces	1,412,785
4.	Soil Moisture Assessment at Water Shade Scale using Remote Sensing and GIS	1,002,936
5.	Community Awareness Raising	518,100
6.	Dissemination of Traditional Wood Stove	2,286,130
7.	Promotion of Renewable Energy Technologies for Rural Community Benefits	2,055,680
8.	Establishment of Gazetted Protected Area	1,564,494
9.	Fuel wood Plantation for Sustainable Supply of Biomass Fuel	7,248,767
10.	Natural Forest Conservation and Management	4,940,552
11.	Woody Biomass Survey	1,337,820
12.	Development of Agro-forestry in Farm Forestry	5,394,276
13.	Identification of useful Grasses and Forbs of Eritrea	330,000
14.	Review and Revising Existing Customary (Traditional) Law on the Management and Utilization of Communal Grazing Land	240,240
15.	Comparative Analysis of Livestock Verses Crop Production	875,325
16.	Livestock Marketing Through Establishment of Marketing Out-lets	4,704,542
17.	Establishment of Shelterbelts in Areas Prone to Dust Storms	1,729,530
18.	Developing a National Drought Preparedness and Mitigation Plan	852,940
19.	Population, Development, and Land Interaction	263,230
20.	Establishing Local Land Degradation Committees	623,480
	Total	**40,170,064**

Annex 3: List of contributors and participants

SN	Name	Institution/Position
1.	Mr. Heruy Asghedom	Director General, UNCCD Focal point-Eritrea
2.	Mr. Abraha Garza	Director General, FWA
3.	Mr. Mebrahtu Iyassu	Director General, Water Resources Department, MoLWE
4.	Mr. Amanuel Negassi	MoA, Minister's Office
5.	Dr. Iyassu G/Tatios	MoA, DG NARI
6.	Mr. Efrem Kiflu	MoA, Director of Administration and Finance
7.	Mr. Amanuel Negassi	MoA, Director of Irrigation and Natural Resources
8.	Mr. Bereke Ogbamicael	MoA, Director Crop and Plant Production
9.	Mr. Fitwi Woldegherghis	MoE, Head, Summer Student Programme
10.	Mr. Ghebremicael Habteab	MoA, PR
11.	Mr. Hadgu G/Endrias	UNCCD Coordinator/CST, MoA
12.	Mr. Gebreamlak Aregai	Ministry of Information, Agricultural Desk
13.	Mr. Semere Zaid	HAC, Department of Land resource and Environment.
14.	Mr. Asghedom Tewolde	Consultant, Economic Development, Project Planning & Analysis
15.	Mr. Fetsumberhan G/yohannes	Consultant, Socio-Economic Studies & Planning Development. Resources
16.	Ms. Freweini Negash	GEF, Small Grant Programme, personal Assistant, UNDP
17.	Mr. Tedros Demoz	GEF, Small Grant Programme, National Coordinator, UNDP
18.	Mr. Yacob Yohannes	MoA, Haed Wildlife Unit, RSD
19.	Mr. Efrem Kiflemariam	CBD Coordinator, MoLWE
20.	Mr. Aman Salh	MoLWE, Department of Environment
21.	Mr. Eyob Gebremeskel	Soil/Water Management Senior expert, MoA
22.	Mr. Yonas Tekleab	Forestry and Wildlife Expert, FWA
23.	Mr. Yohannes T/mariam	Research Division Head, MoMR
24.	Mr. Amanuel Mahdre	Ministry of Agriculture, NARI
25.	Mr. Mulugeta Asmelash	Unit Head, Land use planning, MoLWE
26.	Mr. Iyassu Berhe	Planning and Statistics Division, MoA
27.	Mr. Redae Teclai	Senior Ecologist, MoA
28.	Mr. Michael Berhane	CLMP coordinator, MoA
29.	Mr. Mesghina Ketema	NAP Coordinator, MoA
30.	Mr. Tsegahaymanot Tekle	Energy Division, MoEM
31.	Mr. Kiflemariam Mehreteab	Eritrean Livestock and Crop Corporation
32.	Ms. Abeba Tesfai	Budget Unit, MoA
33.	Mr. Kiflemariam Abreha	Soil Unit Head, NARI
34.	Mr. Estifanos Habte	MoLWE, WRD
35.	Mr. Adam Habteab	UNDP
36.	Mr. Michael Hailemariam	MoF
37.	Mr. Mereteab Michael	MoLWE, DoE
38.	Mr. Iyob Zeremariam	Head, Forestry Conservation and Development, FWA
39.	Mr. Fetsum Hagos	Head, Wildlife Conservation and Development, FWA
40.	Mr. Bereket Tsehaye	MoA, PSD

Annex 4: Semi-structured questionnaires for informant interviews

4.1 Land issues

Date: _____ Name of Interviewee: _____ Position_____

General:

- How far do you think the commitments of UNCCD are?
- What is the level of awareness of the problem at all levels?
- Indicate your contributions to the Convention?
- What can you say about coordination mechanisms and associated problems?
- What can you state on stakeholders involvement at different levels?
- Is there a need to update or produce any framework (law, policy, legislative, planning, programming etc) if yes, what and how?

Specific:

Q1. Please mention the current land use type in Eritrea and their coverage areas?

Q2. List major land degradation type in the country?

- In farm lands?
- In non-farm lands?

Q3. How do you evaluate the traditional and/or current land holding system in the country?

Q4. Mention any necessary legislative measures (i.e. policies, rules, regulation and guidelines) aimed at reforming the system of land tenure; determine land use; and land resources utilizations and SLM Practices? If any, how do you evaluate its implementation?

Q5. Any plan of actions/project/programme by the DoL and/or Ministry:

- To address the issue of land tenure and land use planning with main focus in arresting land degradation and controlling desertification, including giving incentives to farmers invest in land improvement as practice tools for SLM?
- To integrate national land use policies, guidelines, and standards for the implementation of new land-tenure system and SLM?
- In building human and institutional system?
- Information acquisition and dissemination related to land issues?
- Potential source of fund and partners to implement the intended plan of action?

Q6. How do plan of actions or impacts are monitored and evaluated? Please mention possible indicators and outcomes?

Q7. Any further comments/suggestion related to land use and SLM practices and plan of action (short and medium term plan)?

4.2 Agricultural issues

Date: _____ Name of Interviewee: _____ Position_____

General:

- How far do you think the commitments of UNCCD are?
- What is the level of awareness of the problem at all levels?
- Indicate your contributions to the Convention?
- What can you say about coordination mechanisms and associated problems?
- What can you state on stakeholders involvement at different levels?
- Is there a need to update or produce any framework (law, policy, legislative, planning, programming etc) if yes, what and how?

Specific:

Q1. Please indicate the potential arable land of the country (in hectare)?

- Cultivated under rain-fed conditions and
- Under irrigation system?

Q2. List major soil degradation and root causes in farm lands?

Q3. How do you evaluate the trend of soil fertility/degradation in the agricultural lands and the existing agricultural practices?

Q4. Mention any necessary legislative measures (i.e. policies, rules, regulation and guidelines) aimed to improve the soil fertility of agricultural lands through SLM practices? If any, how do you evaluate its implementation?

Q5. Any plan of actions/projects/programmes by the Department and/or Ministry:

- To increase agricultural productivity through the introduction of proper technologies and SLM practices?
- To shift traditional practice to modern system such as SLM and Conservation Agriculture?
- To integrate national land use policies, guidelines, and regulation to support the agricultural improvement on the ground?
- In building human and institutional capacity?
- Information acquisition and dissemination of agricultural degradation issues?
- Potential source of fund and partners to implement the intended plan of action?

Q6. How do plan of action or impacts are and evaluated? Please mention any possible indicators and outcomes?

Q7. Any further comments/suggestion related to agricultural development improvement and plan of action (short and medium term plan)?

4.3 Water issues

Date: _____ Name of Interviewee: _____ Position_____

General:

- How far do you think the commitments of UNCCD are?
- What is the level of awareness of the problem at all levels?
- Indicate your contributions to the Convention?
- What can you say about coordination mechanisms and associated problems?
- What can you state on stakeholders involvement at different levels?
- Is there a need to update or produce any framework (law, policy, legislative, planning, programming etc) if yes, what and how?

Specific:

Q1. Please provide recent water-resources related assessment studies and findings?

Q2. List major factors contributing to decline water potential?

- In surface water?
- In ground water?

Q3. How do you evaluate the existing water resources management?

Q4. Mention any necessary legislative measures (i.e. policies, rules, regulation and guidelines) drawn up by the WRD/MoLWE aimed in managing surface water, ground water, water quality and water resources utilizations? If any, how do you evaluate its implementation?

Q5. Any plan of actions/project/programme by the Department and/or Ministry:

- Enrichment of knowledge on water-resources potential for effective and efficient water resources management?
- Implementation of water-resources development and management strategy and action plans?
- Promoting water-conservation practices?
- In building human and institutional capacities?
- Development of Water resources Information System (assessment, access and dissemination?
- Potential source of fund and partners to implement the intended plan of action?

Q6. How do you monitor and evaluate the impact of the plan of actions? Please mention any possible indicators and outcomes?

Q7. Any further comments/suggestion related to water resources use and management and plan of action (short and medium term plan)?

4.4 Energy issues

Date: _____ Name of Interviewee: _____ Position_____

General:

- How far do you think the commitments of UNCCD are?
- What is the level of awareness of the problem at all levels?
- Indicate your contributions to the Convention?
- What can you say about coordination mechanisms and associated problems?
- What can you state on stakeholders involvement at different levels?
- Is there a need to update or produce any framework (law, policy, legislative, planning, programming etc) if yes, what and how?

Specific:

Q1. Please provide recent alternative energy sources related assessment studies and findings?

Q2. How is the current status in the development and efficient use of various energy sources?

- In urban/semi-urban area?
- In rural or villages?

Q3. How do you evaluate the 'Efficient utilization of indigenous energy resources, promotion of renewable energy technologies, and measures of energy conservation in all consumption sectors as an ideal method for mitigating the effects of climate change and combating desertification?

Q4. List any necessary legislative measures (i.e. policies, rules, regulation and guidelines) aimed at promoting alternative energy sources and efficiency? If any, how do you evaluate its implementation?

Q5. Any plan of actions/project/programme by the DoE/Ministry of Energy and Mine:

- Ensuring the development and efficient use of diverse energy sources?
- Promotion of alternative sources of energy, particularly solar energy, wind energy and bio-gas?
- Promotion of capacity building 'by providing appropriate training and technology in the use of alternative energy sources, particularly renewable energy resources, aiming at reducing dependence on wood for fuel'?
- Specific arrangements for the transfer, acquisition and adaptation of relevant technology to alleviate the pressure on fragile natural resources'?
- Potential source of fund and partners to implement the intended plan of action?

Q6. How do you monitor and evaluate the impact of the plan of actions? Please mention any possible indicators and outcomes?

Q7. Any further comments/suggestion related to development and efficient use of diverse energy sources and plan of action (short and medium term plan)?

4.5 Biodiversity issues

Date: _____ Name of Interviewee: _____ Position_____

General:

- How far do you think the commitments of UNCCD are?
- What is the level of awareness of the problem at all levels?
- Indicate your contributions to the Convention?
- What can you say about coordination mechanisms and associated problems?
- What can you state on stakeholders involvement at different levels?
- Is there a need to update or produce any framework (law, policy, legislative, planning, programming etc) if yes, what and how?

Specific:

Q1. Please provide any recent biodiversity assessment studies and findings?

Q2. How do you assess the status of Eritrea's biodiversity or of its biological resources?

- Terrestrial?
- Marine, Coastal and Islands?
- Agri-biodiversity?

Q3. How do you evaluate the designing programmes of action in conservation and the sustainable use of biodiversity resources, as well as for the rehabilitation of degraded land and combating desertification through integrated watershed treatments/SLM practices?

Q4. List any necessary legislative measures (i.e. policies, rules, regulation and guidelines) of the relevant Ministries (such as MoA, FWA, MMR and MoLWE) aimed at conservation of species and unique ecosystem and/or habitat types? If any, how do you evaluate its implementation?

Q5. Any plan of actions/project/programmes by the relevant Ministries:

- Protection of biodiversity resources and the establishment of conservation areas (PA)?
- Developing an effective conservation and sustainable use of biodiversity resources?
- In building human and institutional capacity?
- Developing biodiversity resources Information System (assessment, access and dissemination?
- Potential sources of fund and partners to implement the intended plan of action?

Q6. How do you monitor and evaluate the impact of the plan of action?

Q7. Any further comments/suggestion related to biodiversity conservation and sustainable use and plan of action (short and medium term plan)?

4.6 Forestry issues

Date: _____ Name of Interviewee: _____ Position_____

General:

- How far do you think the commitments of UNCCD are?
- What is the level of awareness of the problem at all levels?
- Indicate your contributions to the Convention?
- What can you say about coordination mechanisms and associated problems?
- What can you state on stakeholders involvement at different levels?
- Is there a need to update or produce any framework (law, policy, legislative, planning, programming etc) if yes, what and how?

Specific:

Q1. Please provide any recent forestry (afforestation) assessment studies and findings?

Q2. Provide the existing status of forestry/woody vegetation of the country:

- Major classifications?
- Area coverage and status?

Q3. How do you evaluate the programmes of action in afforestation and sustainable use of forest and non-wood forest products as a means to reduce deforestation and combating desertification in general?

Q4. Mention any necessary legislative measures (i.e. policies, rules, regulation and guidelines) aimed at afforestation on degraded catchments and enclosure establishment? If any, how do you evaluate its implementation?

Q5. Any plan of actions/project/programmes by the relevant Ministries:

- Promotion of soil conservation through afforestation?
- Production of fuel wood and construction materials consumption in a sustainable fashion through community participation?
- Rehabilitation of catchments by establishing permanent and temporary enclosures, augmented where necessary by reforestation?
- Promotion of the use of multiple-use tree species and the development of agro-forestry?
- Ensuring the sustainable exploitation of wood and non-wood forest products?
- In building human and institutional capacity?
- Developing forestry resources information System (assessment and dissemination)?
- Potential source of fund and partners to implement the intended plan of action?

Q6. How do you monitor and evaluate the impact of the plan of action on the ground? Please mention any possible indicators and outcomes?

Q7. Any further comments/suggestion related to forestry issue and plan of action (short and medium term plan)?

4.7 Livestock and Rangeland issues

Date: _____ Name of Interviewee: _____ Position_____

General:

- How far do you think the commitments of UNCCD are?
- What is the level of awareness of the problem at all levels?
- Indicate your contributions to the Convention?
- What can you say about coordination mechanisms and associated problems?
- What can you state on stakeholders involvement at different levels?
- Is there a need to update or produce any framework (law, policy, legislative, planning, programming etc) if yes, what and how?

Specific:

Q1. Please provide major assessment studies and findings related to livestock and rangeland management in Eritrea?

- Livestock issues
- Rangeland issues

Q2. List major processes and problems that result in deterioration of rangelands?

Q3. How do you evaluate the existing livestock and rangeland management and use? Support your view with practical example on the ground/case studies, if any?

Q4. Mention any necessary legislative measures (i.e. policies, rules, regulation and guidelines) drawing-up by the Ministry of Agriculture (AED, NARI…etc) aimed to improve the livestock and rangeland management such as SLM practices? If any, how do you evaluate its implementation?

Q5. Any plan of actions/project/programmes by the Department and/or Ministry:

- To increase livestock productivity through the introduction of proper technologies and sustainable land management practice?
- To improve rangeland condition through traditional and modern system such as SLM techniques?
- To integrate national land use policies, guidelines, and regulation to support the livestock and rangeland improvement through sustainable land management practices?
- In building human and institutional capacity?
- Information acquisition and dissemination related to livestock and rangeland?
- Potential source of fund and partners to implement the intended plan of action?

Q6. How do you monitor and evaluate the impact of the plan of action? Please mention any possible indicators and outcomes?

Q7. Any further comments/suggestion related to livestock and rangeland management and plan of action (short and medium term plan)?

4.8 Human-Settlement/Urbanization issues

Date: _____ Name of Interviewee: _____ Position_____

General:

- How far do you think the commitments of UNCCD are?
- What is the level of awareness of the problem at all levels?
- Indicate your contributions to the Convention?
- What can you say about coordination mechanisms and associated problems?
- What can you state on stakeholders involvement at different levels?
- Is there a need to update or produce any framework (law, policy, legislative, planning, programming etc) if yes, what and how?

Specific:

Q1. Please mention any current human-settlement issues in Eritrea?

- Conversion of agriculture land for urban development/settlements?
- Conversion of rangeland for urban development/settlements?
- Conversion of forest area for urban development/settlements?

Q2. List major processes, problems and threats of the settlement that result degradation in the rangelands and forest areas?

Q3. Any current/recent prima facie evidence connecting urbanization with land degradation can you provide?

Q4. Mention any necessary legislative measures (i.e. policies, rules, regulation and guidelines) aimed to improve urban settlement with agriculture and pastoralism sustainably? If any, how do you evaluate its implementation?

Q5. Any plan of actions/project/programme by the Department and/or Ministry:

- To improve human settlement vis-à-vis land degradation issues through modern land use planning system and SLM practices?
- To integrate national land use policies, guidelines, and regulation to support human settlement issues?
- In building human and institutional capacity?
- Information acquisition and dissemination related to human settlement issues?
- Potential source of fund and partners to implement the intended plan of action?

Q6. How do you monitor and evaluate the impact of the plan of action? Please mention any possible indicators and outcomes?

Q7. Any further comments/suggestion related to human settlements and plan of action (short and medium term plan)?

4.9 Drought-Preparedness issues

Date: _____ Name of Interviewee: _____ Position_____

General:

- How far do you think the commitments of UNCCD are?
- What is the level of awareness of the problem at all levels?
- Indicate your contributions to the Convention?
- What can you say about coordination mechanisms and associated problems?
- What can you state on stakeholders involvement at different levels?
- Is there a need to update or produce any framework (law, policy, legislative, planning, programming etc) if yes, what and how?

Specific:

Q1. Please describe any common drought coping mechanism in drought seasons, in time of catastrophic impact of drought…etc?

Q2. List major processes and problem that aggravate drought in Eritrea?

Q3. Any current/recent evidence of relationship between drought and food security can you provide?

Q4. Mention any necessary legislative measures (i.e. policies, rules, regulation and guidelines) aimed to mitigating the effects of drought through sustainable land management practices? If any, how do you evaluate its implementation?

Q5. Any plan of actions/project/programme by the Department and/or Ministry:

- To improve Local Drought Preparedness and Mitigation Plans and strategies (DPMP-Ls)?
- To integrate national land use policies, guidelines, and regulation to strengthen the traditional coping mechanisms and Early-warning system?
- In building human and institutional capacity?
- Information acquisition and dissemination related to Drought-Preparedness issues?
- Potential source of fund and partners to implement the intended plan of action?

Q6. How do you monitor and evaluate the impact of the plan of action? Please mention any possible indicators and outcomes?

Q7. Any further comments/suggestion related to Drought-Preparedness issues and plan of action (short and medium term plan)?

4.10 Awareness, Education, and Training issues

Date: _____ Name of Interviewee: _____ Position_____

General:

- How far do you think the commitments of UNCCD are?
- What is the level of awareness of the problem at all levels?
- Indicate your contributions to the Convention?
- What can you say about coordination mechanisms and associated problems?
- What can you state on stakeholders involvement at different levels?
- Is there a need to update or produce any framework (law, policy, legislative, planning, programming etc) if yes, what and how?

Specific:

Q1. Please list awareness rising and education/training programmes conducted related DLDD?

- Formal education including Science and Technology Institutions?
- By sectors through organizing events, poster-making, pamphlets, and newsletters…etc?
- Other means of dissemination, e.g., radio, and large-circulation newspapers?

Q2. List major limitation factors affecting awareness programmes on desertification, land degradations and effects of drought (DLDD)?

Q3. How can you ensure awareness raising programmes on land degradation in reaching expected users that utilize the land for living?

Q4. List any necessary policy and legislative measures aimed in establishing a comprehensive programme in environmental awareness to transform counter-productive attitudes into supportive and sustainable use of resources? If any, how do you evaluate its implementation?

Q5. Any plan of actions/project/programme by the Departments and/or Ministries:

- To provide development agents and reorganizing community leaders with new knowledge on land degradation?
- Prioritizing the land-degradation messages, determining the methods of information dissemination, and assessing the target audience?
- To integrate national educational policies, guidelines, and regulation to strengthen land degradation and desertification in curriculum development, adult educational, and student secondary-school vacation work programmes?
- In building human and institutional capacity?
- Information acquisition dissemination related to awareness raising and education issues?
- Potential source of fund and partners to implement the intended plan of action?

Q6. How do you monitor and evaluate the impact of the plan of action? Please mention any possible indicators and outcomes?

Q7. Any further comments/suggestion related to Advocacy, awareness raising and education issues and plan of action (short and medium term plan)?

4.11 Socio-economic issues

Date: _____ Name of Interviewee: _____ Position_____

General:

- How far do you think the commitments of UNCCD are?
- What is the level of awareness of the problem at all levels?
- Indicate your contributions to the Convention?
- What can you say about coordination mechanisms and associated problems?
- What can you state on stakeholders involvement at different levels?
- Is there a need to update or produce any framework (law, policy, legislative, planning, programming etc) if yes, what and how?

Specific:

Q1. Please mention impacts of drought in socio-economic issues?

Q2. List major land degradation processes that aggravate socio-economic issues?

Q3. Mention relationship between drought and socio-economic issues/food security?

Q4. Mention any necessary legislative measures (i.e. policies, rules, regulation and guidelines) aimed to develop poverty-alleviation policies to mitigating the effects of drought through SLM practices to improve the quality life of the vulnerable groups? If any, how do you evaluate its implementation?

Q5. Any plan of actions/project/programme by the Departments and/or Ministries:

- To improved community-government partnership, and a prominent leadership role for women in security of tenure for socio-economic growth including SLM technologies?
- Creating enabling environment concerning CBO/CSO, and private sector to generate partnership at various levels;
- Developing of social-welfare services and safety nets.
- To integrate national policies, guidelines, and regulation to empowering people to take action for conserving land through SLM techniques to maximizing productivity?
- In building human and institutional capacity?
- Information acquisition and dissemination related to socio-economic issues?
- Potential source of fund and partners to implement the intended plan of action?

Q6. How do you monitor and evaluate the impact of the plan of action? Please mention any possible indicators and outcomes?

Q7. Any further comments/suggestion related to socio-economic issue vis-à-vis land degradation and effects of drought and plan of action (short and medium term plan)?

4.12 Public participation issues

Date: _____ Name of Interviewee: _____ Position_____

General:

- How far do you think the commitments of UNCCD are?
- What is the level of awareness of the problem at all levels?
- Indicate your contributions to the Convention?
- What can you say about coordination mechanisms and associated problems?
- What can you state on stakeholders involvement at different levels?
- Is there a need to update or produce any framework (law, policy, legislative, planning, programming etc) if yes, what and how?

Specific:

Q1. Describe any public participation issues to addressing the challenges and opportunities of environmental protection and negative impacts of desertification (in creating awareness, technology transfer, fund-raising, tree planting and SWC, and harmful business practices)?

- Role of the chamber of commerce
- Role of the National Union of Eritrean Youth and Students (NUEYS):
- Role of the National Union of Eritrean Women (NUEW):
- Other CBO/CSO

Q2. List major limitation factors that negatively affect public participations in addressing desertification and land degradations issues?

Q3. How do you ensure local knowledge & empowerment specially women awareness through a decentralized and dynamic synergy that enhance protection of environment and land degradation?

Q4. Mention any necessary legislative measures (i.e. policies, rules, regulation and guidelines) drawing-up by the relevant authorities aimed at ensuring active public participations including women empowerments in arresting land degradation and controlling desertification? If any, how do you evaluate its implementation?

Q5. Any plan of actions/project/programme by the Departments and/or Ministries:

- Increasing the awareness of local communities regarding the need for environmental protection and sustainable managements;
- Encouraging communities to protect their environment through sustainable manner; and
- Information acquisition and dissemination related to public participation issues?
- Mobilizing the efforts and resources of communities and partners to implement actions.

Q6. How do you monitor and evaluate the impact of the plan of action? Please mention any possible indicators and outcomes?

Q7. Any further comments/suggestion related to public participation issues and plan of action (short and medium term plan)?