

STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT (SESA) AND ENVIRONMENT AND SOCIAL MANAGEMENT
FRAMEWORK (ESMF) – DRSLP, HORN OF AFRICA By Hany SHALABY

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Acronyms:

AfDB: African Development Bank

ARI: Acute Respiratory Infections

ASCMPs: Adapted Sub-catchment Management Plans

ASP: Agricultural Sector/Food Security in Eritrea Project

AQUASTAT: FAO Global Water Information System

BAU: Business as Usual

CAER: Climate Adaptation and Economic Resilience

CAHW: Community Animal Health Workers

CC: Climate Change

CPP: Country Programming Paper

CSP: Country Strategy Paper

DRSLP: Drought Resilience and Sustainable Livelihood Program

EIA: Environmental Impact Assessment

EIS: Environmental Impact Statement

EPLAUA: Environmental Protection, Land Administration and Use Authorities

ESA: Environmental and Social assessment

ESIA: Environmental and Social Impact Assessment

ESMF: Environmental and Social Management Framework

ESMP: Environmental and Social Management Plan

EU: European Union

EWBMs: Energy and Water Balance Monitoring System

FAO: Food and Agriculture Organization

FPCU: Federal Project Coordinating Unit, Ethiopia

FSSP: Food Security Strategy Paper

GoSE: Government of the State of Eritrea

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HFSS: Household Food Security Strategy

IAs: Implementing Agencies

IDCC: Intergovernmental disasters' and conflicts committee

IFAD: International Fund for Agricultural Development

IGAD: The Inter-Governmental Authority on Development

INC: Initial National Communication

I-PRSP: interim-Poverty Reduction Strategy Paper

IWRM: Integrated Water Resources Management

M&E: Monitoring and Evaluation

MLWE: Minister of Land, Water and Environment

MoA: Ministry of Agriculture

MoLWE: Ministry of Land, Water and Environment

M &R: Measuring and Reporting

MST: Mobile Satellite Team

NAP: National Action Program

NAPA: National Adaptation Programmes of Action

NEAPG: National Environmental Impact Assessment Procedures and Guidelines

NEMP-E : National Environmental Management Plan

NIP: National Indicative Programme

NR: Natural Resources

NRMNG: Natural Resources Management

NUEW: National Union for Eritrean Women

NUEYS: National Union of Eritrean Youth and Students

OECD: The Organization for Economic Cooperation and Development

OOB: Out of the Box

OSSREA: Organization for Social Science Research in Eastern and Southern Africa

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PCU: Project Coordination Unit

PPE: Personal Protection Equipment

QBS: Questionnaire-based surveys

RAP: Resettlement Action Plan

RPCUs: Regional Project Coordination Units

SESA: Strategic Environmental and Social Assessment

UNCCD: United Nations Convention to Combat Desertification

UNDP: United Nations Development Program

UNFCCC: United Nations Framework Convention on Climate Change

VDC: Village Development Committee

WAT/MST: Appraisal Team/Mobile Satellite Team

WRD: Woredas

ZPIU: Zoba Project Implementation Unit

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EXECUTIVE SUMMARY

Following the impact of the drought crisis on the lives and livelihoods of the over 13.4 million people in the Horn of Africa and the consequent suffering as well as loss of human and animal lives, the Heads of States of IGAD member countries met at a Summit in Nairobi, 8-9 September, 2011. After lengthy deliberations on the problems associated with the drought, they came up with the Nairobi Declaration committing themselves to new and significant investments in the dry-lands to end drought emergencies. They also underscored the urgent need to "reform the system of emergency humanitarian response in the region, aiming to enhance resilience and promote long-term solutions and integrate drought risk reduction and climate change adaptation into development planning and resource allocation frameworks".

One of the main objectives of the Horn of Africa four (4) countries' Program "Drought Resilience Sustainable Initiative" in Ethiopia, Eritrea, Somalia and Djibouti, and for which a SESA has been prepared, is therefore to improve food and nutrition security and enhance resilience to external shocks.

Originally the countries covered by the DRSLP were Ethiopia, Eritrea, Somalia, Djibouti, Sudan and Kenya. These countries may choose to join the Program based on the resources made available to them by the Bank or other sources and their immediate priorities. On this basis, Djibouti has requested not to join. As for Somalia, they expressed the need to be included, however there are deep differences between the different regions on their approach to the Program. As for Sudan, a SESA was conducted earlier but due to lack of resources, the country dropped out of the Program's first phase (DRSLP1). So the SESA of the DRSLP1 covers the Sudan Component. However we feel that the agro-ecological conditions and the challenges around natural resources management are quite similar in all the Horn of Africa countries and provide a good basis for making inferences at the regional and programmatic level to Sudan from the three SESAs conducted in the three countries of Ethiopia, Eritrea and Somalia. The previous SESA conducted and which covered Sudan provided valuable information useful in the DRSLP II

Climatic risks pose a serious challenge to countries' emerging development priorities for agricultural development, livestock raising, forestry conservation and water resource management. Adaptation options have been identified on the basis of desk-based assessments emanating from the Ministry of Agriculture, coupled with limited ground-truthing through consultations with individuals from governmental agencies and non-governmental organizations, and through discussing the Program with other donors (IFAD, the UNDP, and the EU). Pastoralists are among the most vulnerable communities. Over the years, pastoralists have evolved a production system that adapts to the fluctuations in feed and water supply availability. The major river basins and the areas with relatively higher rainfall and soil fertility of the rangelands serve as the dry season camp, while the open grazing land of the drier areas form the wet season camp. This traditional coping practice has been disturbed by a number of factors, including increasing conflicting land use pressures, land degradation, and newly established Government policies, e.g. on settling mobile people.

The SESA for the Drought Resilience and Sustainable Livelihood Program is part of the process of pre-appraisal and appraisal of the Program. The SESA has produced an ESMF that will be used only to comply with the Bank's ISS procedures. The ESMF and accompanying SESA are not legal requirements in most of the program's countries.

In terms of projects' implementation, the environmental guidelines in the three countries visited call for a number of steps in the environmental assessment of projects. The first step would be the screening step as

it is up to the Environmental department to agree with the categorization class (A, B, and C). The environmental screening categorizes Natural Resources Sector Projects, particularly Dams, Rivers and Water Resources as Category A or B. The categorization depends on the surface area of the storage, higher than 0.5 km² is Category A and less than 0.5 km² is Category B. The dam projects in Ethiopia and Eritrea are considered category A (and are not the best and unique adaptation infrastructures for the two countries), therefore a full EIA will be required.

The AfDB's environmental strategy in relation to this program will include:

- assessments (supporting EIAs)
- supporting measures (like establishment of resource labs) and management initiatives contribute to the development and upgrading of master plans for water and land resources
- introducing health and disease management programs
- promoting environmental security and conflict management to avoid climate related migration and displacement.

The ESMF describes the proposed RPLRP program, identifies likely social and environmental cumulative impacts by the Program itself and facing the Program (climate change impacts) and proposes management measures to mitigate them and adapt the sector(s) (agriculture, livestock, water, forests) to climate change during implementation. Preliminary assessments of the potential environmental and social impacts of the RPLRP have been elaborated and the respective measures to mitigate them and adapt the sectors outlined as well. The institutional framework for operationalization of the ESMF has been defined based on: i) the regulations presented by the Ministry of Agriculture and the Ministry of Environment in the respective countries and ii) the specific recommendations for inclusion of some agencies that are deemed pivotal with regards to attaining meaningful inclusion of vulnerable groups. Furthermore, overall effective implementation of the program on the ground has been made. For effective mainstreaming of the ESMF into the institutions, capacity building strategies have been proposed, the most important one being training and recruiting in-house Environmental Management, Adaptation and Social Development Specialists/Consultants as a long-term and sustainable solution to Ministries of Agriculture's current limited capacity to effectively implement the ESMF. Based on the preliminary assessments as the specific locations and the technical nature of the projects, there is a need to involve the communities and thus to hold a public consultation as some of the projects planned might require full ESIA's. Overall, the impacts, risks and challenges of the RPLRP should vary from project to project, but they can be effectively mitigated through the mitigation and adaptation measures proposed, by strictly following the requirements and guidance and by providing the financial resources in the ESMF. These resources are estimated at 1,250,000 USD.

In this context, the Results-Based Management and the Logical Framework Approach of the Program will use common management, monitoring and evaluation approaches used to differentiate among outcomes, outputs and activities in this Program and related projects. Measurement and evaluation frameworks for adaptation monitoring will include the right qualitative, quantitative and binary indicators. These indicators must include the effects of future climate change, especially for a Program with longer-term implications, such as the DSRLP, a typical infrastructure adaptation investment Program.

The indicator most appropriate for “mainstreaming” (Result) at the country level would be that a Component of the Program be totally dedicated to environmental management, monitoring and evaluation, gender and community adaptation, sustainable and adaptive livelihood and disaster reduction. It is only through this dedication that the sustainability, transformational and developmental objectives of the DSRLP could be achieved.

Programmatic recommendations from the SESA and at the DSRLP level call for: i) the participation in a trans-boundary public consultation under the auspices of IGAD and led by the Ministries of Environment of the three countries; ii) the setting up of a National Agriculture Adaptation Bureau in the MoAs to come up with sustainable sectoral adaptation strategy and action plans; iii) the creation or the rehabilitation and updating of a national climate early warning systems to be part of the regional ClimDev for the Horn of Africa; and iv) the setting up of a regional coordination committee to intervene in conflicts such as those related to transhumance, trans-boundary natural resources utilisation and populations migration due to natural disasters and to oversee a regional disaster’s reduction and compensation fund / CAER (Climate Adaptation and Economic Resilience Fund).

The IGAD secretariat is the regional coordinator of the DSRLP’s activities including the implementation and monitoring of the recommendations of the SESA, at the regional and national levels. The global appraisal report and the country reports along with legal agreements involving the participating countries, IGAD and the bank, will be the binding documents for all parties to commit to the implementation of the activities derived from the SESA recommendations.

INTRODUCTION

1. The Organization for Economic Cooperation and Development (OECD defines an ESA as being the process by which environmental considerations are integrated into the preparation and adoption of policies, programs, plans and actions. An ESA looks at a number of factors:

- The extent and nature of the likely environmental effects;
- The need for mitigation measures to reduce or eliminate adverse effects;
- The likely environmental impact of potential adverse effects;

It is possible to include the impacts of climate degradation and the environment in a program, for example by asking the following policy questions:

- What is the current state of the environment in its broadest sense?
- What are the relevant criteria and to be used for evaluation indicators?
- What methods should be used to assess the vulnerability and future adaptation needs, and to characterize future climate risks?
- What are the likely impacts of climate change on the effectiveness of policy, plan and program envisaged, as well as the target population?
- What are the impacts exerted by the policy, plan or program on environmental sustainability and development results?
- What are the barriers, costs and impacts of these options?

Finding the answers to these questions through a SESA for the Drought Resilience and Sustainable Livelihood Program will ensure that policies and programmes not only prevent negative impacts on the environment, but are somewhat safeguarded from negative impacts from the environment.

The SESA is divided into two parts: the Scoping and the SESA per say.

A. SCOPING

CONTEXT, RATIONALE, RISKS and CHALLENGES

2. Following the impact of the crisis on the lives and livelihoods of the over 13.4 million people affected and the consequent suffering as well as the loss of human and animal lives, the Heads of States of IGAD member States met at a Summit in Nairobi, 8-9 September, 2011 and deliberated at length on the problems associated with the drought and came up with the Nairobi Declaration committing themselves to make new and significant investments in the dry-lands to end drought emergencies and pledged, among other things to "launch regional projects to address the underlying causes of vulnerability in drought-prone areas, in particular emphasis on pastoralists and agro-pastoralists to promote disaster risk reduction, ecosystem rehabilitation and sustainable livelihood base transformational and developmental practices".

They also underscored the urgent need to "reform the system of emergency humanitarian response in the region, aiming to enhance resilience and promote long-term solutions and integrate drought risk reduction and climate change adaptation into development planning and resource allocation frameworks".

The extensive discussions within IGAD secretariat and Member States emphasized the need for a paradigm shift from emergency response to joint long-term interventions aimed at creating resilience and economic development. The meeting also highlighted the importance of a coordinated approach to address the effects of climate change.

At the end of the Summit an agreement was reached to "develop the Horn of Africa Regional Disaster Resilience and Sustainability Strategy Framework to reduce the impact of disasters in the region considering existing frameworks and programs of action and to allocate significant portion of national revenue to fund these projects". In line with what has been stipulated above, AfDB has decided to finance part of the Program in phases and in a number of countries. Thus the main objective of the Horn of Africa four (4) countries' AfDB initiative "Drought Resilience Sustainable Initiative", and for which a SESA has been prepared, is to improve food and nutrition security and enhance resilience to external shocks.

AfDB PROGRAM'S DESCRIPTION

Context

3. The proposed Drought Resilience Program (Eritrea Component) is an integral part of a regional and long term endeavor engaged by the Bank in collaboration with the Governments in the Horn of Africa. In this multi-phased initiative the Bank intends to address the regional and long term challenges caused by drought and climate change through resilience building and enhancement of sustainable livelihoods of the communities

Description of DRSLP

4. The objective is to enhance drought resilience and improve sustainable livelihoods of the communities in the severely drought prone regions with limited Government or donor interventions.

Components

In line with the GoSE policies and priorities, the DRSLP is structured around 4 components:

Component 1 or Natural Resource Management: This component focuses on the development of water harvesting infrastructure, enhancement of rangeland development and rehabilitation, soil and water conservation, afforestation and small scale irrigation.

Component 2 or Market access and trade: Under this component, market related infrastructures will be developed to improve livestock and agriculture products mobility (quarantine stations, check-points, slaughtering facilities), trade and value chain development. Activities will include construction/equipping of markets, storage and processing to enhance commercialization.

Component 3 or Livelihoods support: The project will seek to improve livelihoods of the population in a sustainable manner through i) upgrading of animal and crop production, animal health related services, and ii) identification of sustainable alternative livelihoods sources to enhance women and youth involvement.

Component 4 or Project management and capacity building: Necessary support and follow up system will be provided to ensure the smooth implementation and monitoring of the project. This includes the establishing of the Project Coordination Unit (PCU) at MoA, enhancing capacity and required logistics.

SITUATION ANALYSIS

5. East Africa is facing the worst food crisis of the 21st Century. Across Ethiopia, Somalia, and Kenya, 12 million people are in dire need of food, clean water, and basic sanitation. Loss of life on a massive scale is a very real risk, and the crisis is set to worsen over the coming months, particularly for pastoralist communities.

It is no coincidence that the worst affected areas are those suffering from entrenched poverty due to marginalization, conflict and lack of investment. While severe drought has undoubtedly led to the huge scale of the disaster, this crisis has been caused by people and policies, as much as by weather patterns. An adequate response to the current crisis must not only meet urgent humanitarian needs, but also address these underlying problems.

Prolonged drought in the Horn of Africa is the immediate cause of the severe food crisis already affecting around 10 million people in parts of Kenya, Ethiopia, Djibouti and Somalia. Rains have failed over two seasons, with a strong La Niña event having a dramatic impact across the east coast of Africa. Now this year's wet season has officially ended, there is little prospect of rain or relief before September.

How far the current conditions, classified by the UN as "pre-famine" – one step down from "catastrophe" – can be attributed to climate change is not clear. The last intergovernmental panel on climate change report suggested that the Horn of Africa would get wetter with climate change, while more recent academic research has concluded that global warming will increase drought in the region. However, according to aid

agencies, the weather has become more erratic and extreme in recent years. The same area suffered a drought in 2006 as well as flash floods.

The structural causes of the crisis go deeper. The Horn of Africa has long been one of the most conflict-riven areas of the world and a focus of geopolitical struggles from the days of the British Empire, through the cold war, to today's the "war on terror".

Its strategic position at the opening to the Red Sea and its oil and mineral interests have attracted foreign powers for over 150 years, as Alex de Waal, programme director at the Social Science Research Council, points out.

In 2007, the US launched air strikes against suspected al-Qaida cells in Somalia, and its fear that funds could be diverted to terrorist hands has seen the US cut food aid to the area. Northern Kenya and southern Ethiopia have been home to ethnic Somalis for generations, but the populations are marginalised by central governments. The protracted war in Somalia has driven more than 20,000 more Somalis into Kenya in the past two weeks, says the UNHCR. Thousands have also fled drought and fighting in southern Somalia into the equally water-starved border areas of Ethiopia.

The Kenyan government has periodically tried to close its border, although it is now open with 1,200-1,550 refugees a day crossing, according to some reports. They are being drawn to the refugee camp complex at Dadaab, built in 1991 at the beginning of Somalia's civil war. It has a maximum capacity of 90,000 but is now overwhelmed by in excess of 370,000 people.

The World Food Programme has been feeding 4.3million people in Ethiopia, but had to reduce rations in March as funding ran out – in Kenya, it and the Kenyan government are giving food aid to 2.4 million people.

Beyond the debate on climate change's role in the current crisis in East Africa, one thing is clear. If nothing is done, climate change will in future make a bad situation worse. Urgent action is required at global and local levels if today's food crisis is not to be a grim foretaste of future hunger and suffering.

To avoid catastrophic levels of global warming:

Urgent action is needed now by all governments to slash greenhouse gas emissions, if devastating levels of warming this century are to be averted.

- The total current pledges of emissions cuts are inadequate, all governments must increase their efforts to keep the chance of limiting global temperature rises to 1.5°C within reach.
- Developed countries must lead by increasing their current targets to cut emissions to more than 40 per cent below 1990 levels by 2020, and start to mobilize the \$100 billion per year they have committed for climate action in developing countries.

To improve food security and strengthen climate resilience:

Even if action to cut global emissions is forthcoming, the inertial impact of greenhouse gases in the atmosphere is such that East Africa faces decades of disruptive climate change. National governments and the international community should dramatically increase long-term investment towards building the

resilience and boosting the productivity of pastoralists and smallholder food producers in the Horn of Africa. These efforts must focus on:

- disaster risk reduction, to adapt both development and humanitarian strategies to ensure that they both reduce the risk of future disasters. Drought cycle management offers a useful approach which needs to be more effectively and consistently implemented by governments in the region.
- climate change adaptation, to build the capacity of vulnerable people to thrive in spite of changes to the climate affecting their livelihoods. Better information about how a changing climate will affect farmers and pastoralists at the household level is needed, and in a form which is useful to them.
- long-term investment in livelihood protection measures and smallholder food production, to start to reverse the economic and developmental marginalization in affected areas.

Evaluation of Challenges and Risks (Horn of Africa)

6. The challenges in the Horn of Africa, are:

Low Levels of Infrastructure: The risks described above are also compounded by low levels of infrastructure development. Although in a number of countries, modest infrastructure is already in place, poor infrastructure and limited connectivity remain a major bottleneck to the development of these regions/countries.

Low implementation capacity: Limitations in institutional and human capacities, inadequate expertise, logistical shortfalls and management-related problems in are major hurdles that may retard implementation of programs. Most of the regions where the Program may be implemented, suffer from lack of skilled expertise and the existing human resource has limited capacity that result in low level of implementation.

Climate Change: Global warming has challenged the world's socioeconomic conditions in general and exacerbates the natural resource base of pastoralists and agro pastoralists in particular. The effects directly impose their negative effects on land and water in particular, and worsen the life of the pastoral people and their livestock.

7. Risks facing the Horn of Africa countries are the following:

- i) Recurrence of Drought or the increased frequency and depth of drought in particular during the past decade and its impact on livestock populations, which directly affects food and nutrition security of populations which lack of coping mechanisms;
- ii) Population Growth versus Shrinking Resources or the rapidly growing human populations contrasting with a reduction in natural resources (land, water) due to degradation, climate change and alternative use of these resources (e.g. for crop production);
- iii) Deep-seated Poverty and the marginalization and political conflicts in the majority of the Horn of Africa countries with the result that the respective governments, due to the nature of the political systems in these countries, are the sole guardian of governance in NR and that commitments have to be made from these governments to address poverty in the dry-lands.
- iv) Violent Conflicts and the violent resource-based inter-clan and other conflicts in the border areas are also major risks, particularly in Somalia and South Sudan, to the implementation of programs. Although they are occasional occurrences, they further complicate the vulnerability of the populations.

KEY ADAPTATION NEEDS: ERITREA AS EXAMPLE

8. Eritrea is a country of rich resource potential, richly varied geography, and dedicated human capability.

It has made significant development strides as it emerges from a long-running war in promoting sustainable development policies, engaging in international environmental processes, and seeking to strengthen its human and institutional capacity. Climatic risks pose a serious challenge to Eritrea's emerging development priorities for agricultural development, livestock raising, forestry conservation, and water resource management. For each of these sectors, adaptation options have been identified on the basis of desk-based assessments coupled with ground-truthing through limited stakeholder consultations, including mainly individuals from governmental agencies (limited non-governmental organizations, and grass roots communities across the country).

Vulnerable Groups in Urgent Need of Adaptation

9. In Eritrea as in other countries of the Program, the groups that are most vulnerable to climate risks are those that directly depend upon natural resources for their livelihood. Women, children, and elderly people are the most affected in any group. A brief description of each vulnerable group in the areas visited follows:

Subsistence farmers: These include rain-fed and spate and well-irrigated farmers. Subsistence rain-fed farming is particularly vulnerable to climatic hazards due to the low adaptive capacity and practices that are increasingly incompatible with climatic variability. Small-scale irrigation farmers are also vulnerable because decreased rainfall and drought reduce the availability of irrigation water thus affecting productivity. Flooding also destroys wells and other irrigation infrastructure.

Rural dwellers: Forest or woodland-dependent rural inhabitants are also highly vulnerable. People that harvest gum and incense, as well as women that derive their livelihoods by weaving doum palm leaves and selling wood and other forest products are also vulnerable social groups.

Pastoralists: Pastoralists are most impacted by recurrent drought through reduced livestock production and reduced livestock products such as milk.

Urban poor: The urban poor are vulnerable to thermal stress and sea level rise through destruction of livelihood activities, price increases in local market, increases in diseases burden such as Acute Respiratory Infections (ARIs), shortage of water both in quantity and quality due to drought and salt water intrusion and shortage of fuel wood.

While each of the above communities is already adversely affected to some degree, long-term climate change will deepen their vulnerability to a variety of health impacts. The most highly impacted will be people with low immunization, refugees, rural children, pregnant women, pre-school children and people living in campsite areas. These vulnerable groups have devised numerous kinds of coping strategies to deal with agricultural production in the face of climatic variability. However, many of these strategies are proving to be no longer effective.

Key adaptation activities needed in each of the vulnerable sectors are briefly summarized below.

Agriculture

10. Major adaptation activities and needs identified for crop production during consultations are as follows: Improve soil fertility and moisture retention using conservation, fertilization, and alternative cropping techniques;

Increase water supply through irrigation, water diversion structures, ponds, wells, and the optimization of farming practices;

Control pests and plant diseases through regular weeding, crop rotation, and planting of appropriate crops;

Time crop cultivation in direct response to changing patterns of rainfall;

And breed drought- and disease-resistant high-yield crops to maintain and/or improve crop production levels.

Livestock

11. Major adaptation activities and needs that have been identified for livestock production during consultations are as follows:

- Implement community-based development and/or rehabilitation of rangelands in specific areas;
- Select animal species and breeds more able to cope with climatic variability;
- Establish dairy production models suitable for specific areas;
- Increase job opportunities in order to diversify household income; and q Reduce overall livestock numbers, while simultaneously improving productivity livestock retained.

Forestry

12. Major adaptation activities and needs that have been identified for tree- and shrub- covered areas during stakeholder consultations are as follows:

Encourage afforestation of degraded landscape/watersheds by constructing terraces, micro basins, and check dams;

Promote agroforestry practices as a way of diversifying land production systems;

Plant a mix of drought resistant indigenous and fast growing exotic species through community forestry initiatives;

Encourage natural regeneration through enclosures augmented with enrichment planting in biodiversity protected areas;

Promote wood energy substitutes (solar, wind, kerosene, liquid propane gas, electricity) and wood consumption efficiency (i.e., improved stoves); and

Encourage alternatives for wood in traditional house construction.

Water Resources

13. Major adaptation activities and needs that have been identified for water resource management during stakeholder consultations are as follows:

- Improve water use efficiency by introducing water saving irrigation systems like drip and sprinkler irrigation;
- Enhance groundwater recharging mechanisms;
- Develop effective soil and water conservation projects;
- Increase awareness, education and training for farmers, MoA staff and Zoba offices on resource utilization, particularly on soil/water conservation;
- Upgrade the existing national climatological network;
- Increase knowledge of water resources through stream flow gaging stations for major river basins and groundwater monitoring;
- Introduce/expand irrigated agriculture, especially spate-irrigated agriculture for crop/livestock production;
- Promote good water resource management and efficiency through new regulations;
- Conduct impact and adaptation research on water resources; and
- Develop accessible community awareness programs on climate change and adaptation options.

Public Health

14. Major adaptation activities and needs that have been identified for the protection of public health during stakeholder consultations are as follows:

- Establish drought early warning systems;
- Improve the quality of water supply and sanitation systems;
- Improve emergency preparedness;
- Encourage supplementary feeding;
- Upgrade health infrastructures (i.e., enhance vaccination, improving housing standards, monitor and raise awareness of vectors and diseases); and
- Develop integrated control approach for vector-borne diseases.

SUMMARY OF STAKEHOLDERS' AND INSTITUTIONAL ENGAGEMENT AND IMPLEMENTATION ARRANGEMENTS

15. The overall responsibilities of coordination of the DRSLP –lies in MoA (as the executing agency). The project will be coordinated by the Project Coordination Unit (PCU) under the Ministry of Agriculture at the HQ level. Tentatively, a light Project Coordination Unit composed of a Coordinator, an Irrigation Expert (with soil and water specialization), a Natural Resources Management Officer, a Gender Officer, an Environmentalist, an Administrative and Finance Officer, a Procurement Officer and an M&E Officer. Qualified PCU staff will be appointed by the Government. Lacking skill or unqualified could be recruited or upgraded by the project.

Oversight responsibilities in Eritrea, for example, will be assumed by the Project National Steering Committee chaired by the Minister of Agriculture and including the Minister of National Development, the Minister of Finance, the Minister of Land, Water and Environment (MLWE), President of National Union for Eritrean Women (NUEW), National Union of Eritrean Youth and Students (NUEYS) and the Governors of the participating Zobas.

At the Zoba level, the project will be implemented by the concerned sectors in the Zoba Administration under the supervision of the PCU. A technical committee will be established and composed of (representatives of the line Ministries, representatives of communities' representatives of Civil Society. This technical committee will be chaired by DG of Agriculture and Land. A Zoba Project Implementation

Unit (ZPIU) will be composed of qualified Government appointees (Project coordinator, Livestock specialist, Agronomist, Soil and water conservation specialist, Forestry/Environment specialist, Agricultural extension specialist, Accountant and Cashier).

In terms of partnerships and collaborations, the National Agricultural Research Institute will be responsible for crop, forage and pastoral plants germplasm development and evaluation in collaboration with the forest and tree crops nurseries and farm based germplasm development. The Zoba Administration Agricultural Divisions will backstop producers and communities who will carry out crop and livestock production, environmental protection, soil and water conservation and afforestation activities. The MoLWE can assist in meteorological and other environmental management and climate adaptation aspects in collaboration with the Regulatory Services Department on aspects relating to the impact assessment of the project. The Hamamelo Agricultural College will assist in the training of Staff at the Central and Zoba levels. MOA and Zoba Administrations will be responsible for watershed characterization and agricultural infrastructure development. Implementation agreements will have to be signed between these institutions to identify the management and resources.

To put this programme into effect the GoSE through the Ministry of Agriculture (MoA) and the various community based organizations such as the Village Development Committee (VDC), the National Union of Eritrean Women (NUEW), the National Union of Eritrean Youth and Students (NUEYS) sensitize and mobilize the farming communities to construct structures like soil and stone bunds on farm lands, land levelling and construction of river diversion canals for developing spate irrigation. The main idea of such interventions is to keep the rain water and river floods on the farms. Such interventions will result in increasing crop and livestock production and productivity per unit area.

B. THE ESMF PER SAY

16. This section of the SESA will examine the ESMF, namely:

- 1) The mitigation of impacts of the various projects, initiatives and activities of the Program (Management measures, actions, roles and responsibilities, timeframes, monitoring and costs of implementation of the ESMF);
- 2) The adaptation (residual) approaches that can contribute to resilience and sustainable livelihoods, particularly against the risks and challenges of climate change and specifically against droughts.

ENVIRONMENTAL AND SOCIAL MANAGEMENT REQUIREMENTS

17. The selection, planning, design and implementation of the projects under the **Program*** have to be consistent with the relevant national environmental and social management requirements as well as the African Development Bank safeguards policies applicable to the program and its projects. In each case, national regional, zone, countries appraisal Team/MST and local community will have to be actively involved in screening, reviewing, approving, implementation and monitoring of projects and activities that are identified.

This ESMF will, at the country level, identify and describe in detail national environmental and social legal requirements to be considered when implementing the program.

Potential Environmental and Social Impacts

18. It is expected that the Program* will be beneficial to communities and to the environment since environmentally and socially sound natural resource management; small scale and micro irrigation water resource development and management; water development for rural water supply and for livestock; market center development; livelihood development; pasture rehabilitation and incorporation of forage crops into pastures; etc. will be implemented.

Notwithstanding the positive effects expected from the Program and its activities, these can also may also have negative environmental and social as well as human health impacts mainly during the construction and operation phase of the projects/activities especially those related to infrastructure. Potential negative environmental impacts are expected to be related to management of waste water, solid waste, misuse and abuse of agrochemicals for crops and livestock, disposal of chemicals and containers, loss of vegetation, soil erosion, soil contamination, water and air pollution, salinity development, occupational safety and health issues during animal dips and in the veterinary laboratories, etc. Cumulative and trans- boundary impacts may occur where the Anseba river with its pollution load from the capital Asmara joins in with the Barka river and enter into Sudan, unless the water shed management system of these two intricate rivers is well studied and prevents this impact.

Potential social impacts from the projects may be related to (a) land acquisition, tenure and use and property losses and restriction from access to resources as a result of implementing the above infrastructure projects; (b) water use conflict (if any) between the upstream and downstream water users; (c) exclusion of vulnerable and underserved groups or women from participating in, and benefiting from, project interventions; (d) increase in malaria and water borne diseases; and (e) impact on physical and cultural resources.

The DRSLP is expected to have the following **positive impacts**:

- Infrastructure facilities are to be shared by different ethnic groups and this can help achieve peace building goals of increasing interaction and fostering cooperation;
- Better and hygienic environment for trade in livestock and livestock products will be established by the project which will be a large positive benefit to the communities and local governments;
- The implementation of the project will bring about employment opportunities for people in the community;
- The planned rehabilitation and construction of valley dams will provide sources of water for the pastoral communities which in the long run can bring about change of their lifestyles from pastoral to sedentary agriculture;
- The cattle markets once constructed will be sources of income for the local governments through collection of market dues;
- The cattle markets will also have good waste management facilities in their vicinity through the project such as toilets;
- The project plans to focus on supporting appropriate alternative income generating enterprises for the households. This has a very large positive impact in terms of socio-economic empowerment of the households and creating food security at household level;
- Demarcation of livestock routes will make control of diseases fairly easier as veterinary staff can then manage the movement of livestock in cases of livestock disease out-breaks;
- Training of local veterinary staff, Community Animal Health Workers (CAHWs), local leaders, and overall veterinary staff will enhance skills for livestock health management in the communities. Therefore, the capacity building in the project will help to develop skill for modern agriculture in

the districts and the communities for better delivery of services for social and economic transformation;

- The DRSLP areas will have better information on natural resources especially range lands which will help pastoralists adapt to changing and harsh climatic risks there by minimize loss of livestock;
- Some groups in the Project area are both agriculturalists and pastoralists who keep cattle, goats, and sheep. The new facilities including water points, markets, and rehabilitation of rangelands will improve upon their pastoral livelihoods and access to market in addition to recognizing their rights to natural resources especially watering points;
- Distribution of drought tolerant crops will provide the project beneficiaries with drought tolerant crop varieties to overcome famine one of their major problems. The groups will also benefit from extension services to realize sustainable food production to feed their communities. This will all enhance the agricultural skills of the project beneficiary communities thereby enhancing their sustainable livelihoods;
- Famine is an issue in some of the Zobas and the construction of storage facilities is likely to ensure safe storage practices to avoid losses due to storage pests;
- Conflict management with particular focus on cross-border issues is likely to promote peaceful coexistence, and to eradicate the discrimination and animosity that has existed amongst pastoral communities in the project area;
- Construction of pest management facilities such as spray races and dips will enhance tick management strategies in the districts covered under DRSLP;
- Upgrading of existing regional veterinary laboratories will further improve delivery of veterinary services and general better management of disease in the DRSLP districts;
- The project will put in place pesticide management facilities which will safeguard environment from pollution from such agrochemicals; and
- Revitalization of strategic animal check points and holding grounds under the project will ensure measures for disease control will be enhanced thereby curbing aspects of disease spread and thefts.

Potential Negative Impacts and Mitigation Measures

19. The potential negative impacts may be trans-boundary but in general are expected to be site-specific and reversible, with implementation of the proposed mitigation measures. Such impacts include:

- Construction of valley dams has potential to disturb the landscape around the dam through site clearance, excavation, establishing areas for storage equipment and construction materials, establishing accommodation facilities and parking, access roads. Such works can have impacts on the integrity of the environmental settings around the area. This is to be mitigated through ensuring that, works are kept to the minimum and restricted to the sites designated for the valley dams and their support facilities. In addition, the contractors should stockpile the topsoil excavated for restoration and re-vegetation of the site after works which will allow for normal re-vegetation and prevent any subsequent erosion and siltation;
- Dam construction creates borrow pits which degrade the environment through extraction of fill materials for embankments. The borrow pits if poorly restored can be breeding sites for malaria and other water based vectors. The contractors should restore borrow areas as part of their contracts and the obligation should be built in the contract and the District Environment Officers should certify to ensure compliance;
- The excavation works for valley dams generates volumes of cut to spoil materials which will need to be disposed from the site. In addition, the cut to spoil materials generates loose soils that can silt the water sources. It is proposed that, the contractors will lease dumpsites for the cut to spoil

materials and should be sited outside water sources. The sites be leased from landlords in the area after a negotiated payments for such sites;

- The construction and rehabilitation works for the dams involves use of plant equipment whose storage and operations can have attendant impacts on environment in terms of noise and compaction of soil thereby affecting soil percolation ability. Since RPLRP envisages rehabilitating valley small dams, it means the construction process will involve fairly light equipment which will have minimum impacts on soils. Also, the works will be of short-term nature thus reducing impacts on environment;
- In addition, dam embankments can pose safety risk to both livestock and the communities. If the banks are high, safety of cattle to access water becomes an issue as well for the communities to draw water. In some instances, children can be tempted to swim in the dams and may end up drowning. Fencing the dams and reservoir may be required to prevent access to the embankment and its reservoir. This will serve to control access to deep sections. Secondly, sensitizing communities on the risks associated with the dams be done before they are operational. In all, provision be made for safe watering and collection of water by the communities;
- Construction based impacts arising from excavation works during construction markets and associated project infrastructures will generate dust and other health associated implications on the workers and neighboring communities. This is to be mitigated through provision of Personal Protection Equipment (PPEs) and observing good engineering practices during construction;
- Potential loss of vegetation cover through site clearance will be mitigated through limiting excavations to areas needed for establishment of project infrastructures and subsequent site restoration after works;
- Potential relegation of traditional crop varieties in favor of projects high yielding varieties that will be developed by the project. The traditional varieties are adapted to the local environment. It is suggested that, farmers be sensitized on the need to keep along their old crop varieties as well as BoA keeping such germplasm in their seed Banks;
- Site clearance works for infrastructure such as slaughter construction can lead to soil erosion, loss of vegetation and sedimentation of nearby water areas. This can be mitigated through restricting works to designated areas and planting vegetation after close of works;
- The construction of slaughter facilities will raise issues relating to construction waste management, dust and noise amongst others. The contractor will follow best construction practices as will be enshrined in the contract;
- Operation of slaughter facilities will generate a host of public health issues that can compromise the quality of meat products. It is suggested that, the Public Health Inspectors as well as Veterinary Officers at the District take charge in ensuring that, the operations of such facilities comply with the Public Health Proclamation;
- There can be instances when animals die in markets due to transportation or disease. In addition, some meat in the slaughtered in the market could be declared unsafe for human consumption. Condemned meat in and dead animals could be disposed through use of special constructed pits in the vicinity where such carcasses can be disposed and waste engine oil poured on. Where resources allow, incinerators can be constructed or possibilities of use of existing incinerators in some of the health centers should be explored. In any case slaughterhouses are considered category 1 projects and they would be the subject of a full assessment, according to the environmental legislation;
- Accumulation and management of solid waste during operation of markets. This can be addressed through contracting out the operations and management of such markets by the area local governments;
- Markets during their operations can have issues of crime triggered by alcohol consumption etc. The area police will be available to maintain law and order in such areas;

- HIV/AIDS is one of the potential concerns resulting from operations and consumption of alcohol. HIV/AIDS service providers to provide condoms in strategic locations in the markets. This should be done by the project through collaboration with existing HIV/AIDS service providers;
- Livelihoods interventions at household level can fuel instances of domestic violence against women by men over resources. It is common, when women get resources especially money; men tend to grab it for their needs. This intervention ought to build in mechanisms to protect women;
- Operation of the cattle markets can bring about transmission of livestock diseases. The area Veterinary staff will issue movement permits for cattle that are to be taken to the markets and this will be done after inspection of the animals to ensure they are healthy and fit for human consumption;
- Apart from meeting a basic human need, new water points could have a direct impact on the spread of livestock and human diseases since most water sources are shared in the region. The Project will sensitize communities on risks of sharing water sources with livestock;
- If new water point construction does not take into account grazing patterns, it has risk of creating environmental degradation by promoting permanent grazing patterns in which, pastoralism tends to concentrate around water sources. The project in its plan, has attempted to spread out its plan on water supply interventions to create evenness of water availability to avoid this concern;
- The plan to support alternative income generation enterprises at household levels will require careful planning and consultations to avoid gender based violence especially when husbands want to grab all the resources at the expense of the wives;
- Increased agricultural production as a form of livelihood diversification and land use may come at the expense of use seasonal grazing areas. To ensure that RPLRP interventions are conflict sensitive, MoA will have to carefully monitor the impact of agricultural livelihoods development and rangeland use among groups within the communities. This will be critical to reduce the likelihood that expanding agricultural land use will further conflict among groups relying on rangelands access;
- The same impact may occur outside the country's borders (trans- boundary impacts): because of different coping skills and capacity between groups / tribes at borders but also because of strategic, regional and intra state conflicts (in Somalia for example), some of them (groups) may expand and migrate into rangelands that are accessible to the other groups outside their own borders, thus creating conflicts and even wars. One of the mitigation measure will be to seek and accept international arbitration when such conflicts occur but also to prevent these types of conflicts by organizing public consultations under the guidance of IGAD and a dialogue committee.
- Seed and planting materials distribution programs can have a number of social risks, including creating dependency among communities for hand-outs, and limited crop performance when seeds distributed do not fit local contexts or do not reflect farmer variety preferences. In addition, free distribution of seeds can also create high expectations among recipients that, the project will continue to provide seed year in year out. To avoid creating dependency syndrome amongst the project beneficiaries, MoA will have to limit free seed distributions to a specific period and the project design should include a mechanism to inform and educate recipients about planning and savings for future seed purchases.

Table 1 and 2 below detail the potential environmental and social impacts and mitigation measures for agricultural water and community water supply development and management projects and subprojects. Table 1 is for (a) improvement and/or upgrading of traditional schemes; (b) improvement and/or rehabilitation of malfunctioning and partially functioning existing schemes; (c) construction of new SSI schemes such as micro-dams, gravity and pump diversions, and groundwater development (shallow wells), whereas, table 2 is for construction of small dams and other water harvesting and storage structures for irrigation purpose.

Table 1: Potential environmental and social impacts of, and mitigation measures for various existing projects/schemes

Potential impacts	Potential mitigation measures
Waterlogged soil (Vulnerability to water logging) due to overwatering; inadequate drainage	<ul style="list-style-type: none"> • Assess soil characteristics and either avoid or provide adequate drainage for areas prone to water logging • Use good irrigation management, matching water demand and supply by location • Design a high water-efficient irrigation system/methods like drip irrigation systems • Encourage farmers to value water resources by establishing a system of water user fees tied to consumption • Use of lined canals or pipes to prevent seepage wherever applicable • Regulation of water application to avoid overwatering (including controlled turn-out to allow cutting off water supply to irrigation ditches)
Water storage requirement and viability (soil permeability)	<ul style="list-style-type: none"> • Test the soil percolation and ensure an impermeable layer in the structure design
Salt build-up on irrigated land	<ul style="list-style-type: none"> • Assess the potential for high salinity and employ alternative irrigation methods and schedules • Install and maintain subsurface drainage system • Incorporate soil additives. Add gypsum to either the irrigation water or the soil before irrigating • Plant salt-tolerant catch crops
Crops wilting or dying as a result of changes to soil chemistry, including acidification and alkalization	<ul style="list-style-type: none"> • Monitor soil chemistry. • Identify indicator plant species. • Consult soil scientists. • Apply soil nutrients, conditioners and chemicals where feasible.
Soil erosion (furrow, surface)	<ul style="list-style-type: none"> • Proper design and layout of furrows or field avoiding too steep a gradient • Land levelling • Design of terraces on hillside minimizing surface erosion hazard
Scouring of canals	<ul style="list-style-type: none"> • Design of canal system to minimize risk and use of lined canals
Clogging of canals by sediment	<ul style="list-style-type: none"> • Design and management of canals to minimize sedimentation • Provision of access to canals for removal of weeds and sediments • Measures to minimize erosion on field
Clogging of canals by weeds	<ul style="list-style-type: none"> • Design and management of canals to minimize weed growth • Provision of access canals for treatment and removal of weeds
Dry wells for drinking water and irrigation	<ul style="list-style-type: none"> • Implement different ground water recharge activities like water conservation work/watershed management

Potential impacts	Potential mitigation measures
	<ul style="list-style-type: none"> • Limitation of withdrawal so that it does not exceed “safe yield” (recharge rate) • Encourage farmers to value water resources by establishing a system of water user fees tied to consumption
Water quality deteriorated or made unusable by upstream land use and pollutants discharge	<ul style="list-style-type: none"> • Control of land use in watershed areas • Prevention and control of pollution sources • Water treatment prior to use
Deterioration of river water quality below irrigation project and contamination of local ground water (higher salinity, nutrients, agrochemicals) affecting fisheries and downstream users	<ul style="list-style-type: none"> • Improved water management; improved agricultural practices and control of inputs (particularly biocides and chemical fertilizers) • Implementing soil erosion from the irrigation field to prevent washout of agrochemicals and fertilizer • Imposition of water quality criteria
Existing water sources supply/yield depletion	<ul style="list-style-type: none"> • Assess water supply and existing demands, and manage sustainability
Sensitive downstream habitats and water bodies	<ul style="list-style-type: none"> • Identify and avoid effects of diversion or extraction on downstream ecosystems that depend on the surface or groundwater supply
Reduced water quantity for downstream users, waterways and wetlands; intermittent streams run dry	<ul style="list-style-type: none"> • Reassess water available for irrigation; may need to irrigate a smaller area • Use pipes instead of open canals wherever feasible to prevent water loss from evaporation • Promote local and regional watershed management
Introduction or increase in incidence of water born or water related diseases	<ul style="list-style-type: none"> • Avoidance of stagnant or slowly moving water • Use of straight or slightly curving canals • Installation of gates at canal end to allow complete flushing • Filling or drainage of borrow pits along canals or roads • Disease treatment
Land Acquisition	<ul style="list-style-type: none"> • Avoid occupied land. Prepare procedures to ensure equitable resolution
Private assets displaced	<ul style="list-style-type: none"> • Avoid occupied land. Resettlement scheme ensuring at least equal standards of living • Sitting of projects to minimize the effects
Increased inequitable access to irrigation water	<ul style="list-style-type: none"> • Design and manage system to improve access by “tail-enders” (users whose fields are farthest from the water source). • Establish and enforce a volume-based water fee. • Improve system management, including maintenance of main canals.
Hinterland effect due to increased migration into area due to successful Project	<ul style="list-style-type: none"> • Ensure adequate social and other infrastructure to meet needs of immigrants
Informal land uses displaced or access restricted	<ul style="list-style-type: none"> • Avoid interference with informal land users, and take measures to provide access to alternative lands or resources

Potential impacts	Potential mitigation measures
Increased social tensions/conflict over water allocation	<ul style="list-style-type: none"> Establish a water users committee through the Kebele and equitable rules for water allocation
Environmentally sensitive areas disturbed	<ul style="list-style-type: none"> Identify and avoid forest, riparian and wetland habitats with particular biodiversity
Local incapacity/inexperience to manage facilities	<ul style="list-style-type: none"> Establish an operations and maintenance manual, authority and provide training to persons responsible for operating the system
Local incapacity/inexperience with irrigated agriculture	<ul style="list-style-type: none"> Provide training to farmers on sustainable irrigated agriculture

Table 2: Potential environmental and social impacts of and mitigation measures for dam, ponds, tanks and other water harvesting structures for irrigation purpose

Potential impacts	Potential mitigation measures
<ul style="list-style-type: none"> Water pollution from construction and waste disposal Soil erosion Destruction of vegetation, sanitary and health problem from the construction camp 	<ul style="list-style-type: none"> Careful location of camps, buildings, borrow pits, quarries, spoil and disposal site Precaution to minimize soil erosion Land reclamation of pit/quarry site
Loss of land (agricultural, forest, range, wetland) by inundation to form reservoir	Sitting of dam to decrease loses; decrease of size of dam and reservoir; protect equal areas in region to offset losses
Formation of sediment deposit at reservoir entrance creating backwater effect and flooding and water logging upstream	<ul style="list-style-type: none"> Sediment flushing, sluicing Upper catchment treatment using soil and water conservation measures including area closure Constructing silt trap
Poor land use practices in catchment areas above the reservoir resulting in increased siltation and loss of storage capacity	<ul style="list-style-type: none"> Land use planning efforts which include watershed area above the dam/reservoir/pond Control of land use in watershed (especially prevention of conversion of forest to agriculture)
Creation of quarry sites or borrow pits (to get selected materials for construction) that cause spread of vector born disease, safety hazard on the animals of the community	<ul style="list-style-type: none"> Identify the most environmentally sound source of materials that is within budget Develop logging, quarrying and borrowing plans that take into account cumulative effects Site quarries and gravel pits so that they are not visible to travelers on the roads Decommission/restore area so it is suitable for sustainable use after extraction is completed Install drainage structures to direct water away from pit Discuss with local community the option of retaining quarry pits as water collection ponds for watering cattle, irrigating crops or similar uses
Scouring of riverbed below dam	<ul style="list-style-type: none"> Construction and maintenance of protection structure below the dam to protect the river bed scouring

Potential impacts	Potential mitigation measures
Increase of water-related diseases	<ul style="list-style-type: none"> • Design and operation of dam/reservoir/ponds/other water harvesting structures to decrease habitat for vector • Vector control • Disease treatment
Loss of life and property of the downstream community, and erosion problem due to Dam failure	<ul style="list-style-type: none"> • Implementing the small dam safety guideline prepared for the project
Loss of property and life entering into water harvesting structures/ponds	<ul style="list-style-type: none"> • Fencing the structures
Water loss due from water harvesting structures/ponds/reservoir through seepage and/or evaporation	<ul style="list-style-type: none"> • Assess soil characteristics to avoid cracking of the water harvesting structures • Designing properly in such a way that loss of water is avoided
Conflicting demands for irrigation water use	<ul style="list-style-type: none"> • Planning and management of dam/reservoir in context of the local development plans; equitable allocation of water among small holders farmers
Social disruption and decrease in standard of living of resettled people	<ul style="list-style-type: none"> • Maintenance of standard of living by ensuring access to resources at least equalling those lost; provision of health and social services
Land Acquisition	<ul style="list-style-type: none"> • Avoid occupied land. Prepare procedures to ensure equitable resolution
Private assets displaced	<ul style="list-style-type: none"> • Avoid occupied land. Resettlement scheme ensuring at least equal standards of living • Sitting of projects to minimize the effects
Environmental degradation from increased pressure on land	<ul style="list-style-type: none"> • Choice of resettlement site to avoid surpassing carrying capacity of the land • Increase of productivity or improve management of land (agricultural, range, forest management)
Environmentally sensitive areas disturbed	<ul style="list-style-type: none"> • Identify and avoid forest, riparian and wetland habitats with particular biodiversity
Damage to downstream ecosystems from reduced water quantity	<ul style="list-style-type: none"> • Use dam/reservoir operations to mitigate changes in flow regimes of rivers and prevent weeds and diseases

Environmental and Social Management

20. The ESMF emphasizes that projects' planning should strive for plans and designs that avoid or minimize creating adverse environmental and social impacts. It also provides guidance how these could be explicitly managed. The Program* has been categorized as 'B' to be confirmed by the SESA. This means that projects and activities may not require a full scale environmental and social impact assessment (ESIA). However, and based on the environmental legislation in Ethiopia, Eritrea, Djibouti and Somalia, environmental and social analysis is necessary and appropriate environmental and social management plan has to be prepared to prevent, minimize, mitigate or compensate for adverse impacts. **A guide for sub-projects screening and environmental assessment in compliance with each country regulation and the Bank**

ISS will be elaborated the beginning of the program implementation. This guide will ensure that the required adjustment to the context of each country.

Implementation Arrangements

21. The ESMF of the Program* will consist of four steps involved in the screening, environmental and social management plan (ESMP) preparation, review and approval of projects and interventions to be supported under the Program*, and public consultation and disclosure both at Woreda (Ethiopia)/Zoba (Eritrea) and Somalia. Quarter and annual reports should be prepared by the coordination units and the executive agency in Somalia. These quarter and annual reports should capture the experiences and lessons from implementation of the ESMF and any other safeguards instruments. Quarter and annual report forms will be completed by the FPCU or executive agency in each country. The environmental specialist at IGAD will compile all regional ESMF reports for onward submission to the Environmental Authorities in each country and to the AfDB.

Implementation, Supervision and Monitoring

22. Environmental and social monitoring needs to be carried out during the construction as well as operation and maintenance of the projects or identification and implementation of household interventions in order to ensure that mitigation measures are implemented, have the intended result, and that remedial measures are undertaken if mitigation measures are inadequate or the impacts have been underestimated within the environmental and social assessment (ESA). At the countries level the FPCU will be responsible for the day to day monitoring and reporting of feedback throughout the whole process. At the community level, communities, through their representatives, will be trained to undertake both compliance monitoring and effects monitoring. The FPCU, and Regional Project Coordination Units (RPCUs), regional Implementing Agencies (IAs) and EPLAUAs in Ethiopia and equivalent teams in Eritrea and Somalia will also be responsible for the monitoring and evaluation of the implementation of the ESMF. FPCUs in the countries, will conduct result monitoring of all safeguard policies, including those that were not triggered. The purpose of these reviews is to support compliance with safeguard policies, to identify the emergence of any unforeseen safeguard issues, to determine lessons learnt during project implementation; to provide recommendations for improving future performance; and to provide an early warning about potential cumulative impacts. Annual review workshops will be conducted at regional and federal level with the objectives to: assess project performance in complying with ESMF procedures, learn lessons, and improve future performance; and assess the occurrence of, and potential for, cumulative impacts due to project-funded and other development activities.

INSTITUTIONAL CAPACITY BUILDING AND STRENGTHENING PLAN

23. The implementation of project interventions will be undertaken in a decentralized fashion. Since there is safeguard implementation and monitoring capacity problem especially at Woreda/Zoba and community level to implement the ESMF and other safeguard instruments, the GoE staff at all levels will be provided training and skills upgrade to strengthen their capacity to carry out and report on social and environmental impact assessments for sub-projects as well as their implementation; to ensure adequate and effective compliance and effect monitoring; and more important to learn about adaptation methodologies and adaptation implementation at both levels, institutions and communities. Besides capacity building activities for effective implementation of the ESMF and other safeguard instruments, technical assistance will be required for each country. The Project will work closely with civil society, research and academia,

consultancy firms and the AfDB's safeguard specialists to implement all safeguards instruments. A Capacity Building Training plan will be prepared at the inception phase.

ESMF IMPLEMENTATION BUDGET

24. The budget for the implementation of the ESMF and other safeguard instruments for capacity building training and general technical support has been included in this ESMF. However, the budget for the implementation of specific mitigation and compliance actions such as entitlements and compensation payments have not been included here since the budget for such mitigation measures can only become clearer when the nature and scope of the projects have first been identified, and the magnitude of potential impacts have been predicted through a screening and vetting process. In general the budget for the mitigation measures has been included in the costs of the components and should be sought there. At this juncture, detailed budgets will be prepared and shared with the World Bank for clearance, and mitigation measures will be satisfactorily executed prior to commencement of the subproject activity on the ground.

It is noted that the budgets differ somehow between the different 4 countries based on the total program's allowance for each country. For Ethiopia the ESMF covers some 15 woredas and is geared towards the livestock sector and its interventions. In Somalia, the ESMF concentrates on capacity Building and Prevention as well as coaching some adaptation pilot projects. In Eritrea, the program calls for a sophisticated adaptation program in the most vulnerable Zobas with significant environmental interventions and an adaptation component that is well structured and integrated.

25. The estimated ESMF Budget (during 5 years of project implementation) is to:

1. Elaboration and validation of a guide of **sub-projects screening and environmental assessment in compliance with each country regulation and the Bank ISS. USD 90,000.00 (30,000.00 per country).**

2. Develop the implementation of proper mitigation and adaptation measures following the ESMF (4 - step process): budget covered by the components and activities in the components.

3. Ensuring the proper implementation of Forestry and Wildlife Conservation and Development Proclamation No. 155/2006:

- Hire an international legal consultant to undertake a review process of the Forestry and Wildlife Conservation and Development Proclamation No. 155/2006
- Hire local legal consultant
- Develop regulations for implementing the Forestry and Wildlife Conservation and Development Proclamation No. 155/2006
- Organize a three day workshop on the review process as well as on the regulations
- Finalization and submission of a revised Forestry and Wildlife Conservation and Development Proclamation
- Conduct awareness raising workshop in all Zobas and other stake/holders regarding the Forestry and Wildlife Conservation and Development Proclamation.
USD 130,000.00

4. Review and update Environmental Impact Assessment Procedures and Guidelines for Agricultural Projects:

- Hire an international consultant for (20 days)

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- Undertake a review process of the Environmental Impact Assessment Procedures and Guidelines
- Organize a two day workshop
- Communicate and diffuse the new guidelines
- Finalize the Environmental Impact Assessment Procedures and Guidelines for Agricultural Projects
USD 140,000.00

5. Develop guidelines and standards in the use and management of irrigation water in adaptation (to CC) as well as in soil conservation activities:

- Hire an international consultant
- Develop standards and guidelines
- Communicate and diffuse the new guidelines
- Organize a two - day workshop
- Finalization and submission of standards and guidelines
USD 100,000.00

6. Capacity building activities: Identify appropriate institution abroad Train 6 staffs in advance natural resources management

- Conduct local training in natural resources management, including EIA and adaptation (to climate change) activities.
USD 160,000.00

7. Monitoring and Evaluation: In order to increase the mobility of Regional Inspectorate staff at the Zoba level for the purpose of the M & E of the ESIA's (assessments):

- Hiring an international consultant to set up and follow up the monitoring system;
- Purchase of hardware such as twelve motorcycles, six Laptops, six GPS, and six digital cameras.
USD 100,000.00

8. Adaptation options (qualifying and testing) and the mainstreaming of Adaptation in the Agriculture and Water Resources sectors to the Zobas level.

USD 200 000 (including capacity building and adopting adaptation options that are scientifically selected and appropriate and sustainable)

9. Early climate warning system (drought and flood) and related relay stations (5 agrimet stations)
An Energy and Water Balance Monitoring System (EWBMS), may receive every 15 minutes Meteosat visual and thermal infrared images. These are processed in near real time to hemispheric data fields of cloudiness, precipitation, temperature, radiation and evapo-transpiration. These data are subsequently used to feed a 3-dimensional rainfall- runoff forecasting system. In this way problems caused by very high or very low discharges can be anticipated and timely action can be taken.
USD 100 000 (budget may be provided by IGAD)

10. Environmental monitoring including baseline (soil and water and air quality)
USD 210 000

11. Public Consultation and communication at regional and national level. USD 90,000.00

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12. Total ESMF USD 1, 250 000 divided per country:

- Somalia = USD 200,000.00
- Eritrea = USD 300,000
- Ethiopia = USD 750,000.00

ANALYSIS OF ALTERNATIVES

The review and analysis of alternatives to the proposed project and the proposal of other more sustainable solutions that can achieve the same goals are an essential part of strategic environmental assessment. It is important to recall that despite efforts by countries and the international community, the drought continues to cause loss of human life and livestock in the countries of the Horn of Africa.

The zero option clearly shows several negative consequences:

- The people and livestock continue to suffer from recurrent drought with implications for famines and the disappearance of cattle
- The destruction of vegetation due to climate change and longer periods of drought;
- The livestock population will continue to die of drought and disease, and people will have no more resources to buy food. This will obliged a big number of households to move to other areas or downtown.
- Scarcity of drinking water will continue and force residents to walk several kilometers for search of a water source;
- The zero option does not promote job creation and rising incomes. The fact of the lack of income of the population will lead to the problem of access to social services (education, health care, etc.).
- The establishment of water supply infrastructures for livestock will lead the population to access to food (dairy products, vegetables and others). Access to employment of temporary residents will be an opportunity to increase income and meet their social needs.
- The major risks of the project on biophysical resources will be mitigated by the siting criteria of subprojects sites, preparation of environmental and social management plan for negative impacts and their implementation.
- The risk of water-borne diseases will be mitigated by the establishment of an appropriate of IEC program and preventive and curative treatment. In addition, accompanying measures of capacity building for improved management of infrastructure available to the beneficiaries.

Considering the above and the importance of program positive impacts on drought resilience and sustainable livelihoods in the region of the Horn of Africa proposed by the AFDB, it is clear that the option not implementation of the program is an option not to be considered.

PUBLIC CONSULTATION

26. The overall objective of public consultations in the framework of strategic environmental and social assessment is to involve stakeholders and beneficiaries in the decision making process regarding the selection, implementation and evaluation of sub-projects. Programme preparation started with a broad-based consultation with the various stakeholders concerned. This process will continue during programme implementation. In this regard, various stakeholders were also consulted during the SESA preparation

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process. The public is mainly composed by members of beneficiary communities, community leaders, youth groups, women groups, civil society organizations and NGOs working in the regions and local authorities. These components of the public will participate in the choice of sites, implementation and activities monitoring. The overall objective of public consultations on strategic environmental assessment is to trigger a process that involves programme stakeholders and beneficiaries right from the design phase. This consultation process has to be formalized, reinforced and carried on during programme implementation. All stakeholders directly or indirectly concerned by the programme have to be informed and involved in its implementation. These are essentially members of the beneficiary committees, local elected representatives and opinion leaders, women and youth organisations, civil society organisations and NGOs, local authorities, etc. In this regard, the execution of the program will be underpinned by a general information, awareness-raising and consultative programme that involves all the stakeholders concerned. The formulation and implementation of this important consultation programme is factored into the project costs.

RESIDUAL CHALLENGES AND RISKS: MITIGATION AND ADAPTATION

27. To tackle the phenomenon of climate change effectively, human societies have put in place a combination of mitigation and adaptation mechanisms and strategies. Whereas mitigation aims at avoiding or lessening the impacts of the unmanageable, the goal of adaptation is to manage the unavoidable (The World Bank 2008b).

Mitigation strategies entail taking deliberate steps to counteract the risks from climate change by making choices that reduce greenhouse gas pollution. Initiatives for the mitigation of climate change effects include investments in clean energy in the developing world to help their transition to a lower carbon development path, the adoption of less greenhouse gas-intensive technologies, searching for efficient transportation technologies so as to reduce carbon emissions, and adopting better forestry and agricultural techniques to improve livelihoods, reduce soil erosion, and protect bio-diversity (The World Bank 2008a; 2008b).

On the other hand, Adaptation refers to "**changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change**" (AMCEN 2011, 52). It basically has to do with the adjustment in natural or human (eco)systems as a means for ameliorating the actual or anticipated adverse effects associated with climate change by moderating harm or exploiting beneficial opportunities (IPCC TAR 2001b). Adaptation entails grappling with the changes that are already underway by evolving coping mechanisms through taking practical steps to cushion oneself from the likely disruption and damage resulting from the effects of climate change (Levine and Tirpak 2006; IPCC 2007). As such, it aims at reducing vulnerability to climatic change and vulnerability of communities, regions, and nations to climate variability, and promoting sustainable development (IPCC 2001). Adaptation mechanisms may be structural, technological and behavioral changes. These could be anticipatory or reactive, private or public, autonomous or planned (IPCC 2007; AMCEN 2011). From a temporal perspective, adaptation interventions can be short or long term, localized or widespread (IPCC 2007). According to The World Bank (2008a), adaptation calls for more resilient infrastructure, broader disaster relief and preparedness measures, and new agricultural technologies and practices to counter the increased climate risks.

Despite increasing mitigation and adaptation initiatives across the globe in general and Africa in particular, the phenomenon of climate change and variability remains one of the major threats to economic growth and development the world over. Whilst it affects people of all color or races across the world, its impacts are distributed disproportionately as manifested not only among different regions, but also in terms of level of economic development, ecosystems, age and gender (IPCC 2007; UNFCCC 2007; Kraub 2011). As

such, certain regions and groups are more vulnerable to climate shocks and likely to experience more severe consequences than others. For instance, the effects of climate change are expected to hit developing countries the hardest (The World Bank 2008b). In Africa, climate change, variability, and associated growing disaster risks present an additional burden to sustainable development by threatening and impeding the attainment of the Millennium Development Goals (AMCEN 2011). Here, escalating temperatures, changing rainfall patterns, rising sea levels, and more frequent weather-related disasters pose risks for health, water supply and sanitation, agriculture, forestry, fisheries, food supply, energy, transport, industry, mining, construction, trade, tourism, environmental protection, and disaster management (The World Bank 2008b). This will in turn undermine any gains made in the fight against poverty, hunger and disease, thereby endangering the lives and livelihoods of billions of people (Ibid.).

According to studies (Hesse and Cotula 2006; Oesterle 2008; Oxfam International 2008; Djoudi and Brockhaus 2011), in Africa, dry land ecosystems as well as pastoral communities inhabiting them are the most vulnerable to the impacts of climate change and variability. Although the pastoral way of life is dependent on the rearing of animals (cattle, camels, donkeys, sheep and goats), such areas are characterized by moisture stress, unreliable rainfall and fragile landscapes that affect availability of grass and pasture. The magnitude of this problem is best understood when one considers the fact that an estimated 50 million pastoralists live in sub-Saharan Africa inhabiting arid and semi-arid regions. The literature indicates that livelihoods of pastoral communities are dependent on climate-sensitive resources such as water and pasture. Pastoralists in Africa are also vulnerable people who often suffer repeated, multiple and mutually reinforcing shocks that affect their families, their settlements and their livelihoods due to famine, drought, floods, and other climate change-induced disasters. In these communities, women are the main actors in agricultural production and water collection — activities that are susceptible to risks of climate change and variability. Women are not only playing key roles in managing the natural environment but are also heavily affected by the outcomes of climate change and variability.

Adaptation

28. As stated above development challenges and risks face the Horn of Africa. Each country is facing variably a number of development challenges and risks, including food security issues and inadequate rural infrastructure with limited market access for agricultural products. Low domestic crop and livestock productivity and production (biodiversity) combined with adverse climatic conditions are important causes of poverty and food insecurity in Eritrea. Small-scale farmers dominate the agricultural sector. Typically, such farmers are living in conditions of persistent poverty and rely on rain-fed and traditional practices. This combination renders them highly vulnerable to climate variability. Numerous other development challenges are taking place simultaneously with increasing climate risks. For example, depletion of forests – primarily for household fuel use – threatens biological diversity, human communities, and reduces other valuable services forests provide. Other risks include soil and water contamination and pollution.

29. Recurrent drought has been adversely impacting the pastoral communities in the Horn of Africa in general, and is anticipated to continue to do so in the near future as a result of climate change. Pastoral communities have managed climate variability for millennia through the use of a diverse number and range of coping mechanisms. Such mechanisms have been developed over the years and are hinged on traditional resource management and governance approaches. The breakdown of these traditional resources management practices, mainly attributed to a weakening of traditional authorities as a result of the imposition of more modern, national and political approaches, has greatly disrupted both sustainable resource management and the adaptive capacity of pastoral communities in the arid and semi-arid lands in the Horn of Africa. Disjointed and uncoordinated approach to resource management by different governments and the exclusion of local communities in both planning and the execution of these is exacerbating an already bad situation. For example, the indiscriminate development of water points in the

ASALs of Kenya, without prior consideration of the potential adverse social and ecological consequences of such actions, has actually resulted in environmental degradation and reduced adaptive capacity of the pastoral communities rather than the envisaged opposite impact. The same is true for the other countries undertaking Adaptation (to climate change) projects.

30. The description and objectives of some of the Program's activities may be true for the Ministries of Agriculture but are they in conformity with the NAPA for Eritrea, Ethiopia, Djibouti (and Somalia) and with the Integrated Water Resources Management Strategy for the same countries? Are dams the best adaptation infrastructures for the water resources sector in these countries? The reservoirs and the trapped water are subject in these arid countries to high evaporation losses. The answer to these questions will take time, testing, demonstrating and monitoring. In a developmental program, a component is usually dedicated to carrying out piloting and scientific adaptation experiments in order to maximize the value of the interventions. Linking and integrating approaches (for example component 1 to 2 and to 3) as well as introducing innovative approaches is key to adaptation in the water (small scale irrigation) and agriculture sector (combined with conservation agriculture). Another innovative approach will be to develop and promote through this project an integrated approach to water and land management with a view to building community resilience and adaptive capacity to drought. One of the key focus areas would be the integration of rangeland management and sub-catchment management plans and approaches focused and aimed at producing a combined approach referred to as "Adapted Sub-catchment Management Plans" (ASCMPs). These ASCMPs are usually tailored to certain regions and are designed to help realize sustainable land and water management practices that will enhance resilience to drought and climate change.

MoA's perception is that they are trying to access and generate more water for agriculture by building supply infrastructures rather than conserving precious water resources and adapting the sector to changing climatic conditions and developing adapted agriculture.

Governance and Public Participation

31. During our short field visits in Eritrea, we have seen a public institution, namely the MoA and the Governor of more than one region, very involved in the design of this Program. They have shown us examples of existing infrastructures and sites for new infrastructures. We have also seen crops being planted and livestock led to drinking from reservoirs. In contrast we have neither seen the Ministry of Environment as part of the tours nor the communities empowered or participating in the decisions: water usage, irrigation, agriculture, types of crops, management of existing infrastructures and monitoring some of the activities. We strongly believe that for an adaptation programme both the Ministry of Environment and the Communities must be strongly involved, empowered and well trained to become resilient to the next natural disaster.

I have set up an informal (internet) group to discuss the type of involvement of the communities in the Horn of Africa, their role, how and when they should be involved and why they should be involved early in the process. The participation of the stakeholders and the shareholders is required at the Scoping stage but also at the final stage of the SESA. Let us consider that in one way this informal group is a form of pre – scoping involvement and here are the results and some elements of this involvement in a series of questions and answers.

32. How do Community engagement practitioners manage 'non-participation'?

Non participation is a massive issue in NRM management. It can include not participating at all, participation that then falls away, sporadic participation and forced participation. So what are some of the processes, practices, strategies that are used to engage people initially and/or sustain and maintain

participation? What are some of the reasons for non - participation, drop outs and not being able to sustain participation long term? A related question is how to ensure the community takes ownership and continues to work in adaptation projects?

The first step is to examine what non-participation really means. Starting from the premise that communities will participate in things that matter to them, then non-participation is an important signal to program's organizers. Rather than fight it or blame it on lazy or disinterested people, it is best to interpret it as what it is: a message from those who are non-participating. It might just be that they see no real connection to their felt interests. It might also be that they are protesting the process (perhaps with other subtle and not so subtle techniques that the organizer is unaware of).

In either case, it usually means that the organizers have not done enough work to truly understand the values, objectives, needs, and intentions of the communities who are non-participating. Unfortunately this is all too common in the current development paradigm that only concerns itself with external and objectively measurable things such as roads and dams built, number of people trained, plans approved, etc. Ignoring the interior of both individuals and entire groups is to invite programs' failure.

Once this perspective is realized, then if communities cannot say "no" to participate then their "yes" is equally meaningless (Peter Block "Flawless Consulting: Getting Your Expertise Used"). On the opposite, when communities realize that you respect their decision to say no and do not feel coerced to say yes, that indicates a new message and tone of openness for a new conversation/public consultation that might actually contribute to their needs rather than more "same old same".

If the organizers cannot "guarantee" ownership and if people don't feel ownership, it is usually a combination of: a) not that important to them, and b) they do not have the power and opportunity to co-create. They sense (and are usually right) that the project is not theirs to begin with as the organizers have not redistributed power. So how can organizers expect them to feel ownership for something that is not theirs?

There are many participation techniques but the tools are far secondary to the stance you take with respect to participants, far secondary to the decision about how much power the organizers are willing to share. Saying a process is "participatory" is really meaningless because there are many levels of participation ranging from nothing to complete control by the community.

In general, there are two types of public process. First, there is the public process that supports continued colonization in its various disguises and second, the public process that supports de-colonization, decentralized and community led decision-making. The colonial processes are those that are funded within the existing institutions and most of the African sectorial ministries and which have a high potential for being co-opted by short term development goals. Those that occur in conflict with the existing political economic institutions and are not funded by them have long term survival value among affected communities. Participant's ownership of agenda seems essential but accumulated social capital of groups that brings cohesiveness and trust are key attributes of highly participatory groups. The presence of a 'champion' and effective facilitator/broker usually make things happen.

But it is not about participation - which incidentally reflects the wants of the facilitator - rather about involvement - which reflects the wants of the change target or audience. The terms such as "consultation" are the more and more insulting to the process. Consultation seems to mean in the development community "here is a plan, tell us your objections so we can bully you as experts into a rational understanding of what this is all about and why you must comply". That communities don't participate should be sending a clear signal that the nexus of power remains utterly out of kilter. One can be utterly aghast at the basic techniques

employed and the lack of a scientific approach to determine stakeholders and the weighting attached - and much more, so, that no differentiation is made between shareholders and stakeholders.

Community participation is often reduced to the actual work of 2-3 people and depending on their other commitments their contributions can seem sporadic but are actually planned in a cyclical way in order for them to meet all their other commitments. The best way to ensure a consistent level of contribution is to have the wider community involved through a governance and management mechanism so they have a secure, long term, formally recognized role in the resources. To do that it is necessary to work with and for people, rather than 'on' people, where the latter is a typical approach. Changing practitioner mindset around this (indeed encouraging people to identify that they have this mindset even subconsciously, is difficult) one of the issues we are engaging with is bring a systematic and scientific approach to community engagement but usually little time, resources and funding is devoted to the human or social side of NRM management.

In this respect what are the power dynamics and governance systems that encourage engagement in Eritrea and do they need to be different for indigenous and non-indigenous people or for stakeholders (communities) and shareholders (the MoA). What a 'good' governance system looks like in Eritrea? And how do governance systems (or not) diffuse or 'neutralize' power?

Just to note that it is sometimes the conventional scientific approach and technical rationality that has done so poorly with communities, precisely because it tends to ignore the internal realities of those people as science generally focuses on the external, measurable, tangible indicators. While the right to manage resources is often fundamental for communities that have a long history using those resources, every community or stakeholder has values that are critically important to them. Advocating neutralizing power, if it is redistributing or equalizing power is far more important. Neutralizing may mean to eliminate and no one has power then absolutely nothing gets done by anyone in any manner. The definition of power is the ability to move things and communities want to move things.

Measuring success in the traditional sense of meeting the goals laid down at the outset could be a failure. Opening to the emergence of things that the communities want to define success very differently, but probably not in the way you it was defined in the log frame. Donors want reasonable guarantees of success, thus practitioners have to offer low hanging fruit. Anything higher on the tree increases the risk of generating things that are not anticipated but which are needed by communities.

Answering the above questions:

Q. 1) What are government systems that encourage engagement?

A. The emerging adaptive co-management institutions for natural resource management could provide a model.

Q. 2) Do Indigenous and Non Indigenous governance systems need to be different?

A. Yes. Sensitivity to initial conditions is key to natural resources management. In order to learn anything we must respect and understand what is already there. Indigenous governance (and languages) should be fortified where they exist so that the cultures can remain. The northwest coast of British Columbia has First Nations successfully managing their land and people by a system that is thousands of years old. But it also will continually adapt (as it has done in the past) to changing environmental conditions to grow and maintain social-ecological resilience for sustainable communities into our 'postmodern' future. Thus integrating the economic, social and ecological systems.

Q. 3) How do we know what a good governance system looks like?

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A. Although our technologies and impact have changed there are many human values that have remained the same. Respectful consideration of indigenous governance methods for managing ecological systems has borne fruit (winning Elinor Ostrom the Nobel Prize in economics a few years ago). There is much more work that can be done (following up with Ostrom) in this area so that we are able to recognize and support a good governance system when we see one.

The business of public involvement has to do with stakeholders and shareholders. But it also has to do with indigenous title and rights holders (where these rights are protected constitutionally). The distinction between stakeholder and shareholder which exists in business but nowhere in the environmental literature is confusing. When shareholders are referred to, they are the original indigenous land owners - in fact, rather than owners - the "custodians". There is immense knowledge locked in the hands, minds and hearts of custodians. Stakeholders are merely utilities intermediaries - government, media, prospective benefiteres who are prepared to invest something as long as they receive something gainful in return. The "target" groups or beneficiaries are not "stakeholders" but shareholders. Governments are not shareholders - their fundamental roles are to serve their constituents (and in doing so, themselves). Governments create and modify constitutions implicit in which they rule over rights to land. ‘

According to the discussion above there are certain activities and projects that could not be successful without the communities: these are most of the development and adaptation activities that aim food security, water security and Vulnerability reduction /Resilience buildup.

Analysis of Drought Vulnerability/Resilience

33. Vulnerability/resilience refers to the characteristics and circumstances of communities, systems or asset which make them susceptible/resistant to the damaging effects of a hazard. Assessment of drought vulnerability/resilience level – as to what is at risk and why – therefore begins by measuring the nature and magnitude of drought hazard effects over time. This process entails the identification in Eritrea and in each country in the Horn of Africa of direct and immediate consequences of a drought, which include reduced crop yields, livestock losses and groundwater depletion, as well as the tracking of secondary and longer-term impacts, including income and livelihood losses and migration of population.

This understanding of drought and its causes would lead to the conceptualization of better adaptation programs while realizing that drought is perceived by communities differently. For a community, it is the lack of water. For another it is a failed harvest and the lack of food. For the third it is migrants / refugees in search of means of survival in an already stressed environment.

Examples of direct and indirect impacts of droughts in economic, environmental and social contexts are closely related to each other. The direct and indirect impacts of drought are here enumerated:

Additional costs and losses for farmers

- Loss of annual and perennial crops
- Damage to crop quality
- Reduced land production, e.g. due to wind erosion
- Infestations by insects
 - Plant Diseases
- Damage to crops by wild animals
- Increased income losses for farmers due to lower crop yields
 - Increased irrigation costs
- Cost of new developments in water: wells, dams and pipelines
 - Long-term losses of organic matter

- Loss to industries directly dependent on food production (agro-industrial processors)
- Increased commodity prices

Costs and losses for livestock owners/producers

- Reduced productivity of pastures and of reception capacity for animals
- Increased time to get to pastures
- Reduced weight of cattle and milk production
- Increased livestock diseases
- Closure / limitation of public lands dedicated to grazing reserves
- Fires along pasture routes and corridors
- Forced reduction founders livestock (seeds)
- High cost / unavailability of water for livestock
- Decrease during the livestock market
- Disruption of reproduction cycles (delayed reproduction, spontaneous abortions)
- Increased predation and poaching

Costs and losses to industries and urban activities

- Increased cost of water and sanitation
- Reduction of public water supplies
- Impacts on Transport
- Higher cost / lower availability of hydro-electric power
- Higher cost or unavailability of water for horticulture, food processing and value – added manufacturing
- Reduced productivity of forests and timber production
- Increased pollution, including dust
- Diseases' increase
- Drops of tourism revenue, from for example wildlife's enthusiasts
- Increased risk of credit

Source: National Drought Monitoring Center (NDMC), University of Nebraska (2006).

The environmental impacts of drought are:

Hydrological

- Lower water levels in reservoirs, lakes and ponds
- Lower water rates in streams
- Loss of wetlands
- Increased depletion of groundwater and land settlement
- Time and costs increased for the collection and movement of water
- Reduced water quality, particularly due to salination and increased temperature
- Waterborne diseases
- Soil erosion by wind and water

Biological

- Loss of trees and vegetation
- Loss of animal species
- Fragmentation and destruction of wildlife habitats
- Migration, concentration and increased predation
- Loss of biodiversity

The social impacts of drought are:

Reduction of quality of life

- Increased workload for women in collecting water and fuelwood
- Decrease in the level and in the variety of food sourced
- Increased recovery operations in public spending
- Increased poverty
- Exodus to the cities, cross-border migration
- Reduction or modification of recreational activities
- Disturbance of cultural practices and belief systems / values
- Loss of cultural and aesthetic values

Increased conflict

- Between water users
- Political conflicts
- Conflict management
- Other social conflicts, for example, scientists and media

Health

- Physical and emotional stress, such as anxiety, depression and loss of personal security
- Health problems due to decrease of various flows : cross contamination, sanitary flows reduced, pollutant concentrations increased, and fire fighting low capacity
- Lesser nutrition (quantity and quality)
- Loss of life
- Public fire hazards in routes / forest
 - Increased respiratory ailments
- More diseases caused by increased concentrations of wildlife

Source: NDMC, University of Nebraska (2006).

34. The impacts of drought are often very different, falling damage to both structural and non-structural and extending over a wide range in time and space, in contrast to other natural hazards such as floods, hurricanes and earthquakes. The ultimate goal of the GRS is to reduce the impact of hazards in a comprehensive manner by addressing all the factors of vulnerability. But in reality, the lack of resources - financial, technical, human and time - we will probably be forced to practice targeting impacts to be monitored, for example by limiting them to areas, population groups or activities data.

Different criteria can be used for the weighting of impacts. They concern the direct economic costs, the geographic distribution, the duration of the impact, urgency, changes over time, equity, public priorities, and the ability of recovery of the affected area. In categorization, it is sometimes useful to consider the time factor and make a distinction between direct impacts and indirect impacts. Direct and immediate impacts are often biophysical impacts associated with water levels, crop yields and changing disease vectors, while indirect impacts and long-term cover a wide range of difficulties in livelihoods.

The proposal for the development of National Action Plan guidelines (Convention United Nations Framework on Climate Change [UNFCCC], 2002) includes a multi-criteria analysis for prioritizing adaptation needs, and includes categories following:

- Loss of lives and livelihoods
- Health Impacts
- Food security and agriculture
- Availability, quality and accessibility of water
- Critical Infrastructure
- Cultural Heritage
- Biodiversity
- Management of land use and forestry
- Coastal Zones and losses associated land
- Damage to other environmental amenities

Weighting and ranking of drought impacts should exercise participation, especially in close consultation with affected communities. Mobilization of the community can be very useful for the evaluation of impacts and prioritization of problems identified as the importance of experienced drought impacts may vary depending on local circumstances, including the availability of mechanisms and coping skills. Classifying each local impact and leveraging indigenous knowledge, we can arrive at definitions of risk and approaches GRS to be adapted to local situations.

The identification and prioritization of drought impacts raise an important question: why these significant impacts are they produced, or why would they occur? Mapping the relationships of cause and effect that determine these impacts, we can better situate the underlying trigger immediate or extended interactions between these factors and how these interactions give rise to vulnerability or resilience in of a society.

35. The concept of vulnerability should be understood here in a contextual sense, rather than general. They combine different immediate and underlying factors, embracing human, economic dimensions social, political, physical and environmental. Although the observed impacts of drought can be similar from one place to another, all the causal conditions may also vary significantly from one place to another, which can expose a community to more disaster risk by another drought. For example, in a community, the loss of income caused by a failure of crops (impact) can be attributed to poor selection of plants, caused simply by the lack of confidence of farmers in the value of the introduction of drought resistant seeds in the use of hybrid varieties, or the allocation of risk between different cultures. Their decisions could be based on a limited knowledge of the different options culture and lack of accessible and appropriate extension services. In another community, the loss of income could come from deeper economic, social and political causes, for example, a lack of local market for reasons of historical marginalization, insecurity in the right land use, the prevalence of endemic diseases such as HIV / AIDS, or the pursuit of tribal conflicts on the other side of the border. The importance of strengthening the capacity of communities to choose patterns of adaptation and technically occur in the implementation of these schemes and the master is inevitable to combat drought.

Gender and Climate Change in the Horn of Africa

36. Concerning the impacts of climate change and variability vis-a-vis gender, various studies (Oxfam International 2005; Neumayer and Pltimper 2007) document the nexus between the two. A London School of Economics study of disasters (cited in Neumayer and Plumper 2007) conducted in 141 countries shows that gender differences in deaths from natural disasters are directly linked to women's economic and social rights. Similarly, a report on the 2004 Asia Tsunami by Oxfam International (2005) raised alarms about the

gender dimension of the problem as the majority of those killed and those least able to recover were found to be women. Some reports indicate that women provide up to 90 per cent of rural poor people's food and produce 60 - 80 per cent of the food in most developing countries. Nevertheless, they are insufficiently represented in decision-making processes on community-based climate change adaptation and mitigation strategies. The same reports also indicate that women's relative lack of education and access to information on projected climate change impacts, such as rainfall patterns, effective natural resource management strategies, such as efficient water use, crop diversification or rotational grazing, limit their ability to cope with or adapt to the effects of climate variability and change (Ibid.).

Among pastoral communities, the limited available evidence supports the view that women, relative to their male counterparts, suffer more from climate change-related problems (Denton 2002; IPCC 2007; UNFCCC 2007; Aklilu and Alebachew 2009; Anderson, Hesse and Nassef 2009). This can be understood in terms of the differential roles played by the sexes among pastoral communities. To illustrate this, women care for children and weak livestock, meaning that they are left behind whenever severe drought forces men to migrate to distant places in search of water and pasture. In addition, women are responsible for the procurement of food for the family and hence, highly dependent on the natural environment (Dankelman 2002). Therefore, any degradation in the environment would adversely affect them more than men (Dankelman 2002; UNFCCC 2007; Anderson, Hesse and Nassef 2009). Put another way, frequent droughts and/or heavy precipitation that may reduce the availability of food for the family will ultimately undermine women's ability to provide for their families or increase their burden more.

That men and women are affected differently by climate change suggests that the sexes also differ in terms of the adaptation mechanisms they employ. As Cannon (2002) testifies, men and women experience different vulnerabilities and play different roles in coping with natural disasters. In particular, women's informal rights to resources (especially to land and water), lack of finance, and lack of knowledge (awareness/understanding) due to their low levels of education, have a bearing on their adaptation and coping strategies (Mogotsi, Nyangito, and Nyariki 2011). For example, women are thought to rely more on traditional coping strategies. In this regard, they naturally travel long distances to gather wild fruits to provide for their families as well as grass and tree fodder to feed cattle and small goats and sheep (Conroy 2002).

Despite the existence of gender-based differences in the effects of climate change and in adaptation and coping strategies, studies on the link between climate change and variability in sub-Saharan Africa, in general, and southern and eastern Africa, in particular, are limited. In particular, there have not been any country-specific in-depth studies or comparative studies that assess the gender dimensions of climate change and variability, especially on pastoral communities. As such, no proper examination of the situation has been made on the important insights and knowledge that pastoralist women developed on climate change adaptation through their experiences in their community and households. Again, except for case studies from a few countries (Botswana, Mozambique, Namibia and South Africa), the positive contributions of women in relation to climate change adaptation are not yet well recognized, studied and documented. By the same token, women's intimate knowledge about resource management and adaptation skills has not been well researched in eastern and southern Africa regions.

The applications concerning women in Eritrea are numerous and can be detailed in site specific or region specific ESAs since most of the projects emanating from the Program will require full environmental and social assessments. For this SESA and across the Horn of Africa we strongly suggest to allocate or use a 30: 70 ratio for Women: Men activities and budgets (this ratio is the ratio utilized in the most "conservative" society in Somalia).

Are Dams efficient Adaptation Structures?

37. Dams may be necessary where water management policies are in place and a water budget system exists and is respected by all water users. Although smaller dams are affordable solutions to store water, a large number of them or a cluster of small dams are not without significant impacts. Before constructing new small dams, it would be better to determine the feasibility of increasing their water and energy production obtained with the enhancement of existent dams. Currently, the technologies are available to improve already constructed dams and allowing consistent production gains with less territorial impacts. Constructed small dams created environmental disasters in arid and semi - arid region and transformed lakes and wetlands to a desert- like.

Most often, dams are supposed to be used for the production of hydroelectricity, and are presented as contributing to the reduction of greenhouse gases, but irrigation follows and access to water may become difficult for downstream countries. The challenge is to carry out serious environmental impact assessment, taking into account cross-border effects and consulting neighboring countries. However cross-border cooperation has been discussed with the officials of the MoA and the Governor of the Region but political constrains hamper these contacts, particularly with Ethiopia and also with Sudan.

There may be two general types of dams: needed and investment-profit inspired. In Eritrea, with abundant runoff in certain parts of the country, agriculture and economic development may lag due to lack of water and power. A well planned and designed dam may be a strong element for improving standard and quality of life for the people of Eritrea. The key element here is to require an extremely comprehensive environmental analysis with external review to ascertain that every element of the potential impacts to the environment (including social impacts) is considered and addressed through modifications to the design and management of the dam. The alternative of solar and wind as energy source works well if providing water for domestic supply, irrigation, and industrial development is not a key element, which is highly unusual. The size of dams can be trimmed down by looking at these alternative energy sources and reduce hydropower generation, if electricity is not the only purpose. We have seen a number of dams under construction and after discussing them with the officials of the MoA we believe that they are needed to provide more water for agriculture. As for their role as adaptation infrastructures, they present a number of shortages for the conservation of water: a high evaporation rate, potential pollution of groundwater in certain parts of the country near Asmara the capital , and contamination of the water collected and stored if utilized for drinking for humans. There may be better structures or systems for ‘‘adaptation’’ and for water harvesting than dams. The use of dams as adaptation structures has not been studied enough and evidences that they provide a viable solution against drought are not conclusive, particularly in the arid and semi - arid Eritrea. In addition the lack of monitoring and management of these structures is evident and there are no climate data to support the construction of dams for water conservation versus groundwater storage for example. To the question of should we build more dams for adaptation to climate change and to eventually contribute to the reduction in greenhouse gases, the answer is that it depends on the purpose and the technical and economic feasibility, social acceptability and environmental soundness of design, construction, operation and maintenance.

Also we do note that neither we have sufficient information to believe that past decisions to embark on dam projects had taken full account of essential considerations such as technical and economic feasibility, social acceptability and environmental soundness of design, construction, operation and maintenance, nor we have good climate data and technical assessments that dams in Eritrea might be excellent and sustainable adaptation solutions to droughts and floods. What about storing water in aquifers below the ground? Unlike surface reservoirs, groundwater is shielded from the punishing rays of the sun. This means farmers, cities, and other water users can rely upon stored groundwater when water is in shortest supply at the surface.

There should be regulations in the use and storage of water resources based on studies. The use of surface water and groundwater should be judicious, giving more priority for surface water. In doing feasibility studies for increasing irrigation, hydrologic analysis is one primary consideration in deciding irrigation schemes (reservoir, river run off/diversion, groundwater), along with other aspects - geology, climate and climate change, topography, soil classification, agronomy, environment, social, and economics. In Eritrea the control of the water resources of the State is not centralized and has passed from the MoA to the Ministry of the Environment and the roles are still confused. Israel is the only country in the planet that has a centralized system that manages essentially every drop of rain that infiltrates into the aquifers of the regions (including the territories they have annexed), as well as the few rivers in the country. The central agency tells farmers how much they can withdraw, and control water use for most all purposes with a strict system of permits and stiff penalties for violators. In Eritrea, the challenge of enforcing water regulation and making it work with permits and penalties is a real one and it is very difficult to fight the fluctuations in the water regime, from scarcity to flooding. Finally, while a comprehensive EIA study is highly recommended for every dam project, it may not resolve the whole problem especially if the recommended measures are not incorporated and religiously monitored by the regulatory agency. If after an EIA is conducted, dams are allowed to be constructed, guiding principles should still apply. These are:

- 1) Dams, big and small, should be objectively built on a scale, absolutely necessary, after studying a number of parameters including geo-magnetic responses from every site;
- 2) Construction strategies would differ from one water body to another, depending on the fluid dynamics - tributary and distributary evaluations including seasonal fluxes;
- 3) Catchment areas decide the location and nature of construction of dams;
- 4) Fault lines and fractures decide the life of a dam, if built across.
- 5) For large and cluster small dams, a policy decision at the national level (calculating the local and regional utility levels) for the next 99 years - with provision for climate change and escalation;
- 6) Quantification of the discharge - a segmented "filling in" and release according to requirements for crops and public utility;
- 7) Emergency Control Protocols have to be always in place;
- 8) The Neck-Point hydrology in the case of dams built across the main flow rail has to be calibrated every now and then according to lentic volume of the storage side, particularly with earthy construction;
- 9) Life in water (both the sides of the dam), has to be ensured for continuity of seasonal migration and proliferation;
- 10) The construction quotient has to be in conformity with the pressure bearing structures.

Even after considering all the known and relevant factors, surprises still emerge and the big question remains unresolved: are these dams the most efficient adaptation structures? Compared to other alternatives? One assessment method which may shed some light is a benefit – cost analysis.

Adaptation Alternatives in a Dry and Semi-Arid Regions

38. In addition to storing water more effectively than surface reservoirs, underground storage presents some intriguing possibilities to defuse seasonal water-related tensions between communities or even countries. Typically, monsoon rains and other heavy wet season weather events overwhelm river systems, causing disastrous flooding sometimes exacerbated by engineering projects along waterways and flood plains. Most of these excess waters are later lost as run-off to the ocean.

In river basins that experience high seasonal precipitation, populations impacted by flooding often blame upstream communities or countries for livelihood losses and other damages incurred during the wet season. Meanwhile, when the dry season later reduces river flows, tensions can flare again, with downstream water users accusing upstream users of withholding water.

In these situations, could underground water storage help communities in the upper and lower portion of a river basin better manage tensions associated with flood and drought cycles?

Some groundwater researchers think so. By increasing underground water storage capacity and simultaneously decreasing flood danger, this approach could make water users in certain river basins less likely to cast blame upon neighboring communities for excess or insufficient water supply, while enabling greater agricultural production and livelihood security.

Consequently, some researchers even recognize the potential for improved storage of wet season rains to ease trans-boundary water disputes at the international level.

It perhaps comes as little surprise that a growing chorus of water storage experts is optimistic about underground storage's upside potential. It is a relatively straightforward and low-tech approach, and if implemented correctly, could represent a potent weapon in the battle to adapt to climate change and water-supply variability. But the same experts who champion the approach also voice caution.

First and foremost, effective underground water storage requires a site with the right soil conditions, appropriate aquifer types, and sufficient average annual rainfall. Many attempts at underground water storage have not proven successful because the selected aquifer recharge sites did not meet these criteria. Even when an ideal site is chosen, groundwater contamination poses a significant threat to effective aquifer recharge. Concern about groundwater pollution at aquifer recharge sites is an issue. A lack of "cheap and effective methods to treat water" represents one of the main obstacles to wider use of underground storage, particularly in Eritrea.

A third issue associated with underground storage may seem counterintuitive, but there must be demand for stored underground water from local water users. Some regions are in fact so groundwater-rich that the water table below the surface is quite shallow, with little capacity to receive additional water from the surface. In these cases, more intensive pumping of aquifers may be needed, to not only enable additional cropping seasons for farmers, but also reduce wet season flooding. (If these aquifers are strategically pumped during the dry season, the water table drops, so that when monsoon rains arrives, the aquifer may more effectively serve as a sponge to absorb floodwaters.)

In other instances, the concept of underground water storage must be introduced to communities that traditionally rely on rivers, lakes, and reservoirs to meet their water needs. "Some regions simply do not have a culture of using groundwater. For that reason, it is crucial that these communities be consulted carefully about underground water storage proposals, and that they be involved as shareholders or stakeholders once an underground storage project gets underway.

The question that remains to be answered is:

Can underground water storage add real depth to the water security of arid and semi-arid regions?
Water storage should certainly be one of the option to address drought and flood challenges, but it has to be done carefully.

Underground water storage can mitigate cross-basin tension but it depends upon total environmental factors. Simply storage and distribution of all precipitation is not enough to ease the tension once the tension is prevailing. Other factors such as minimizing evaporation loss, run off of water and improving water holding capacity of the soil are crucial factors in favor of underground water storage.

To be effective, planning for underground water storage has to consider not just local soil conditions, aquifer types, and precipitation patterns, but also local political institutions and the needs of local water users from different economic sectors.

We believe that ESIA's for different projects would address these issues and would shed some light on the option of underground storage as an adaptation solution. With climate change projections of huge unpredictable floods and droughts and the politics of storage dams, ground water storage might be one best option.

Resilience and Sustainable Livelihood: two outcomes to be achieved

39. Translating the conceptual insights of the MoA and immediate field results generated by the field work and the research on adaptive strategies (NAPA and discussions with the Ministry of Environment) into practical courses of action requires careful analysis of the points of entry and leverage where external actors – whether NGOs, governments, international donors, or others – could actually make a difference. The starting point for this must grow from a recognition of certain basic system principles about livelihood. Livelihoods are vulnerable where:

1. Livelihood systems are poorly diversified and locally bounded because transport, communication, isolation, financial and other forms of physical and institutional infrastructure do not allow information, resources, products, jobs and people to easily and rapidly flow into and out of flood- and drought-affected areas;
2. Barriers to access to institutions exist thereby creating situations of unequal access to resources and to opportunities central for adaptation;
3. Gaps exist between institutional layers at different levels such as when local, regional market and government organizations, and national policies are poorly connected;
4. The physical infrastructure on which local livelihoods depend is itself poorly adapted to flood and drought dynamics and/or is being undermined by long-term processes of environmental degradation;
5. Households lack the skills required to diversify or change livelihood systems threatened by floods and drought;
6. Households lack the ability to accumulate or obtain access to financial and other reserves they can draw on to finance changes in livelihoods or the access they have is structured by exploitative relationships.

The Program has looked into these issues, despite them being marginalized and compartmented in different components. We recommended to group all these livelihood activities into one component but also to be geographically and issues specific in addressing the types of vulnerabilities and livelihoods. For example; when groups are engaged in narrowly-based forms of economic activity, vulnerability depends not on wealth but on the factors affecting the sustainability of that narrowly based livelihood system.

When long-term processes of environmental degradation, such as groundwater overdraft, coincide with natural climatic variability, vulnerability can increase dramatically. It is important to recognize that this type of vulnerability is not confined to drought situations. In flood-prone areas, increasing drainage congestion (a long-term process of environmental degradation similar to groundwater overdraft) increases the flood vulnerability of any livelihood system where fundamental assets are subject to destruction when flooding occurs.

In both flood and drought situations, access to secure sources of water for domestic uses was identified as a central issue by local populations. During droughts case, the physical availability of water for domestic use is often a central concern, while in the case of floods, water quality (pollution) is the limiting factor. In both cases, however, access to good quality water for domestic use is essential if individuals/households

are to remain in their homes and avoid forced displacement. Furthermore, in both cases access to a sufficient supply of good quality domestic water has direct implications for both health and livelihoods.

During floods and, to a lesser extent, during droughts disease is a major concern. Virtually all villagers in drought and flood-affected areas raise the issue of flood-related illnesses. Illnesses usually are gastro-intestinal and related to the use of contaminated water for drinking and other domestic purposes. Households are often aware of the link between disease and polluted sources of supply for domestic water needs. They try to address it by, for example, boiling their drinking water. The lack of dry fuel, however, often limits their ability to do so. The lack of safe water is further complicated by the presence of sediment and of on-going pollution loads including direct defecation into waters. As a result, the water available for all uses – hand washing, bathing, laundry, animal use, and so on– is highly polluted and the pathways for disease transmission many. The health impact of limited drinking water availability in drought areas comes through several channels. First, in many drought-affected areas where local water supplies have dried up, the collection of water is, in itself, a major task involving many hours of work under extreme conditions. Individuals, particularly women and children, often have to walk many kilometers under the hot sun in order to meet the needs of their family. The physical labor can wear down people’s resistance to disease itself. In addition, villagers often reported increases in diarrhea.

Many of the above strategies for coping with floods and droughts may appear simple and, in relation to the impacts of flooding and droughts, at best partial. Both characterizations are on many levels accurate. Communities’ participation and involvement in the management of these new infrastructures and issues would deter underlying factors that are central to both livelihood resilience and adaptive capacity strategies.

Management, Monitoring and Evaluation System

40. For IGAD, it is clear that any drought resilience and livelihoods programme must include drought risk reduction and adaptation practices as well as the mainstreaming of these two elements into development and budget planning.

Looking at the definition of resilience it is the capacity of an individual, community, or institution to dynamically and effectively respond to shifting climate impact circumstances while continuing to function at an acceptable level. Simply, the outcomes of this Program should be the ability to survive, recover from, and even thrive in changing climatic conditions. They include the ability to understand potential impacts and to take appropriate action before, during, and after a particular event, such as a typhoon, major flooding or prolonged drought, to minimize negative effects and maintain the ability to respond to changing conditions.

A Management, Monitoring and Evaluation System requires a rigorous linkage between assumptions, activities, outputs and outcomes to achieve a change that will lead to the accomplishment of the overall goal as described by IGAD.

The major challenges faced through the implementation of the MM&E framework are as follows:

- the unequal importance placed on the value of MM&E across shareholders and stakeholders and the non-participation of important stakeholders and shareholders;
- the lack of consensus on important terminology and on what the terminology represents, particularly on the terms of Adaptation and Resilience and Livelihoods and how to achieve these;
- the difference in approaches to MM&E but also to the guiding principles underlying the system such as the participation of all shareholders and stakeholders;
- the asymmetry in interests for each MM&E project.

M&E Program Level Indicators will be used to measure the success of the Program in achieving the following:

- I. Coverage: the extent to which projects engage with stakeholders (individuals, households, communities, community-based organizations, government agencies, policymakers, etc.).
- II. Impact: the extent to which projects deliver the intended results, or bring about changes in behavior that support the portfolio's objectives.
- III. Sustainability: the ability of stakeholders to continue to implement adaptive interventions on timescales that extend beyond project lifetimes.
- IV. Replicability: the extent to which projects generate results and lessons that are potentially useful in other, comparable contexts, and the extent to which these lessons are disseminated and acted upon.
- V. Standard indicators at both the portfolio and project level will cover the four key categories described above into which adaptation processes fall, and within which the Program will seek to deliver results: I. policymaking and planning II. Decision-making for investment III. Natural resource management and IV. Community practices.

Project Level Indicators

Individual project level indicators will track the same parameters as the Program level indicators described above: (I) coverage, (II) impact, (III) sustainability and (IV) replicability. Each of these parameters will be evaluated using a small number of standard project level indicators applicable across all activities in keeping with the structure at the programme level.

The M&E framework for an individual project will be developed by adapting standard indicators to the particular project context. In practice, this will involve decisions such as:

- identifying which stakeholders should be represented to assess coverage;
- identifying factors creating conditions of vulnerability in order to identify precisely what is sought for 'vulnerability reduction' in the project context;
- framing questions relating to perceptions of project impacts and likely sustainability to align with the context of project activities.

As mentioned previously, MM&E at the project level will be based on a combination of quantitative and qualitative indicators. Quantitative indicators will be based on the direct measurement of factors such as whether a Management and Conservation system of the resources exist (e.g. the PES or payment for environmental services), a benefit –cost assessment has been carried out for the adaptation options, the number of alternatives considered for the adaptation options, the number of stakeholders involved in the project, the number of policies developed and/or revised as a result of project interventions, the population reached by interventions such as the distribution of climate forecast information, specific resources available to support resilience to climate stressors, and so on.

Qualitative indicators will be subjective in nature, representing the perceptions of stakeholders, for example regarding the efficacy of particular project interventions or conditions of vulnerability to climatic stressors. These indicators are most likely to be based on data gathered using questionnaire-based surveys (QBS), which allow subjective perspectives to be conveyed as scores. In QBS, stakeholders are asked to rate relevant conditions or aspects of a project by assigning a score from 1 to 10 at the beginning of, and throughout, the project. These scores can be used to construct indicators which present subjective,

qualitatively-derived information as a score, permitting comparisons to be made across projects, and enabling project level indicators to be aggregated at the Program level.

The standard project scale indicators for M&E, applicable across all activities are :

Coverage:

- i. Number of households, businesses (or other appropriate units) engaged in vulnerability reduction or adaptive capacity development activities, as a proportion of households or other units in the community or region targeted by the project.
- ii. Number of policies introduced or adjusted to incorporate climate change risks.
- iii. Number of investment decisions revised or made to incorporate climate change risks.
- iv. Number of stakeholders (individuals, households, communities, etc.) served by new or expanded climate information management systems (e.g. early warning systems, forecasting, etc.).

Impact:

- i. Percent change in stakeholders' behaviors utilizing adjusted practices or resources for managing climate change risks, assessed via QBS.
- ii. Percent improvement in stakeholders' capacities to manage climate change (e.g. communicate climate change risks, disseminate information, or make decisions based on high quality information), as relevant, assessed via QBS.
- iii. Percent reduction in perceived vulnerability: a. Percent improvement in stakeholder perceptions of vulnerability to a recurrence of primary climate change-related threat(s), assessed via QBS, combined with b. Perceived success of project interventions in delivering mechanisms to reduce vulnerability, assessed via QBS.
- iv. Percent improvement in perceived adaptive capacity: a. Percent improvement in stakeholder perceptions of the range or robustness of options available to cope with recurrence of primary climate change-related threat(s), assessed via QBS, combined with b. Perceived success of project interventions in delivering improvements in options to cope with climate change-related threat(s), assessed via QBS.

Supplementary indicators specific to the activities addressed by the individual project(s) should also be considered, where possible:

Sustainability:

- i. Number of beneficiaries of project receiving training in implementation of specific adaptation measures or decision-support tools.
- ii. Local (or spatially appropriate) availability of skills and resources necessary to continue adaptation after conclusion of project, assessed via QBS.
- iii. Support for project activities among participating communities as assessed by QBS.
- iv. Number of outside programs, policies or projects incorporating project results into their processes.
- v. Replicability or the number of "lessons learned" from the project.

FINAL ANALYSIS: RISKS AND CHALLENGES

41. The following table summarizes the risks identified during the pre-evaluation mission to Eritrea, the assumptions and the mitigation measures to be considered including adaptation interventions.

Depending on the objectives to be considered for the Program, whether it is the CPP’s or the Ministries of Agriculture, the design, structure, targets, beneficiaries and results would vary considerably. The CPP’s objective is clear: “to launch regional projects to address the underlying causes of vulnerability in drought-prone areas, in particular emphasis on pastoralists and agro-pastoralists to promote disaster risk reduction, ecosystem rehabilitation and sustainable livelihood base transformational and developmental practices”. They also underscored the urgent need to "reform the system of emergency humanitarian response in the region, aiming to enhance resilience and promote long-term solutions and integrate drought risk reduction and climate change adaptation into development planning and resource allocation frameworks". In this respect, the two words, transformational and developmental, are key guiding elements of the program. As for the MoA in Eritrea for example, the overall objective of the program is “to contribute towards the food and nutrition security, poverty eradication and increment in the job creation which are the main objectives of the Government of the State of Eritrea” with a specific objective of drought resilience.

The following table shows the disparities between the two objectives in the structure of the program.

MoA	CPP	Clarification	Indicator MoA/ CPP
BAU (Business as Usual)	Out of the Box (OOB)	This program resembles more the objective (above) of the MoA rather than the CPP’s	Annual Food Guarantee in kg or tons/ change in the number of vulnerable people over the life span of the program
Bank’s Investment is financial and operational (rate of return on assets)	Investment ought to be transformational, developmental, societal, social and sustainable (rate of return on the social and human capital)	Bank invests or finances infrastructures (hard assets) for the majority	Percentage investment in hard assets (infrastructure) versus soft and human assets
The MoA is the counterpart	The Ministry of the Environment ought to be also the co-counterpart		
Investment geared towards the Government or the stakeholders	Investment geared towards the shareholders	The notion of stakeholders /shareholders is innovative as the shareholders are the communities or the custodians and owners of the land in the vast sense of the word	

MoA	CPP	Clarification	Indicator MoA/CPP
Target Groups: Public/government	The Poor, The Vulnerable, the Socially deprived classes		
MoA's objective is more water , both accessible and in sufficient quantity by building infrastructures	Conservation and adaptation in the water and land sectors and resources lead to availability and sustainability	Integration is a key word in adaptation by working for e.g. on the integration of surface water and groundwater in the same management scheme	
Component on Infrastructures attracting most of the investments	Separate component on Environmental and Social Management, Soft Adaptation and Mitigation, Gender Mainstreaming and Sustainable Livelihood should represent a 1/3 of the total budget	The Environment and Adaptation to CC is not a cross cutting theme in this program and should attract at least 1/3 to 1 /4 of the investments and include a pilot adaptation project (or choices), capacity building, an early warning system and a communication strategy (GEF is absent in this programme)	Ratio of Infrastructure's to Environmental Investment (1 being the ideal case) meaning that as much is spent on soft human capital than on hard assets. In a developmental program, the key ingredient is empowering communities to be able to rebound, replicate, repeat, innovate, and achieve development with no external assistance. An indicator would then be the capacity of the communities to be resilient.

The following table summarizes the potential and residual risks facing the Program in Eritrea (as one of the implementing countries) and the proposed mitigation measures.

Risks (residual)	Assumptions	Mitigations
Pollution (risk) of water resources	Infrastructures are multi-purposes because of scarce resources; up-streams are contaminated and watershed management are not applied; cumulative impacts are real and sending polluted water to neighboring countries may result from the Program	<ol style="list-style-type: none"> 1) Construct separate infrastructures for livestock's, irrigation and potable water with clear guidelines and procedures for the use of these infrastructures /reservoirs 2) Watershed management is adequately used to understand the upstream recharge and downstream release of water; 3) Trans- boundary water shed agreements are enforced 4) EIAs and ESMPs are properly prepared 5) Adaptation interventions are scientifically and properly studied.
Pollution risk of soils/land	Improper use of soil resources and of pesticides	<ol style="list-style-type: none"> 1) Smart and conservation agriculture is practiced; organic natural fertilizers are favored; production of natural fertilizers are practiced; 2) EIAs and ESMPs are properly prepared and enforced.

Risks (residual)	Assumptions	Mitigations
Adaptation Risk	Design and methodologies not efficient and options are neither tested nor piloted;	1) Introduction of new, innovative methodologies and assessment tools (PES, climate early warning systems, REDD +, benefits costs analysis); communities adaptation methods are favored and indigenous knowledge and methods are encouraged and tested and updated; participation of the communities is mandatory.
Trans- boundary risks (pollution, migration, land use conflicts)	Existing conflicts afflicting already communities (pastoralists and agro pastoralists; three-state Somalia; Somalia/Ethiopia, Kenya /Ethiopia)	<p>Actions Under IGAD</p> <ol style="list-style-type: none"> 1) Creation of the Intergovernmental disasters' and conflicts committee (IDCC) 2) Environmental reference labs for Measuring and Reporting (M & R) 3) Public consultation and communication plan covering the countries of the Horn of Africa 4) Early warning systems installed at borders 5) A compensation fund is put forward for emergency assistance
Governance risk	Governance in NR failing particularly with the complexities of three states in Somalia and the political system in Eritrea (top to bottom approach)	1) In Eritrea governance is dictated from the top and communities are mobilized to work on adaptation projects non voluntarily: introduce NGOs into the adaptation scene
Adaptation Infrastructure risk: Dams* and other adaptation options	The environmental impact of dams	1) Dams to be integrated in a Watershed and Rangelands Management Program

*Dams waste precious water which is lost through evaporation and seepage. Dams silt up, they have a very finite life span and storage capacity is reduced quite quickly. They do untold damage to both wildlife and

humans and alter the natural cycles of rivers and allow the transport of pollution loads from point A to point Z.

CONCLUDING REMARKS

The SESA describes the proposed RPLRP program, identifies likely social and environmental impacts by the program itself and facing the program (climate change impacts) and propose an environmental and social management framework with measures to mitigate the impacts and “adapt” the sector(s)(agriculture, livestock, water, forests) during its implementation. The institutional framework for operationalization of the ESMF has been defined based on the regulations presented by the Ministries of Agriculture in the countries visited and the specific recommendations for inclusion of some agencies that are deemed pivotal with regards to attaining meaningful inclusion of vulnerable groups and overall effective implementation of the program on the ground have also been made. For effective mainstreaming of the ESMF into the institutions, capacity building strategies have been proposed with the most key being training and recruitment of in-house Environmental Management, Adaptation and Social Development Specialists as a long-term and sustainable solution to Ministry of Agriculture’s current limited capacity to effectively implement this ESMF. Based on the preliminary assessments as the specific locations and the technical nature of the projects, there is a need to involve the communities in these adaptation and mitigation projects and thus to hold a public consultation as a starting point as some of the projects planned might require full ESIA. Overall, the impacts, risks and challenges of the RPLRP should vary from projects to projects, but they can be effectively mitigated through the mitigation and adaptation measures proposed in ESIA and ESMPs and with the concurrence of appropriate budgets and by strictly following the requirements and guidance.

RECOMMENDATIONS

Recommendations from the SESA call for:

- i) the empowerment of the Ministries of the Environment as an active party in a Regional (tripartite) Committee responsible for the organization of a trans-boundary public consultation under the auspices of IGAD in order to mainstream the results of the SESA at the 3-country level;
- ii) the categorization of some of the potential projects in the SESA (s) calls for ESIA and ESMPs to be prepared as category 1 as many of the impacts, risks and challenges at the project level must be mitigated and adaptation solutions found, if resilience and sustainable livelihoods, are to be achieved for communities and vulnerable groups. The EIA should be accompanied by the participation of the communities in the implementation of these projects/activities;
- iii) the setting up of a National Agriculture Adaptation Bureau in the MoA to come up with sustainable sectoral adaptation strategies and action plans;
- iv) the setting up or the rehabilitation and updating of a national climate early warning system to be part of the monitoring and evaluation of the climate in the Horn of Africa (ClimDev) and;
- v) the contribution to a regional disaster’s reduction and compensation fund / CAER (Climate Adaptation and Economic Resilience fund).

This Program to be transformational must be the subject of a public consultation The (design) Bank’s Program must be presented to IGAD in order for them to assess if the goal and outcomes of the program are to be achieved across all three countries and if not take the necessary steps to realize the objectives in a sustainable manner.

ANNEXES

RESUME SESA ETHIOPIA

The Drought Resilience and Sustainable Livelihood Program (DRSLP) is the subject of a SESA (Strategic Environmental and Social Assessment). According to the Terms of reference drawn by the Bank, the overall objective of the SESA is to assess the sustainability and optimal character options, priorities and investment objectives of the DRSLP, with a particular focus on environmental, socioeconomic and institutional challenges associated with its implementation. This is mainly to assess systematically, objectively and consistently if the types of intervention proposed contribute optimally to environmental and social plans and development objectives of the countries concerned. The SESA will also identify the risks associated with climate change in the Program and provide appropriate adaptation scenarios. It is worth noting that the DRSLP can be viewed as a series of small and medium scale integrated adaptation projects. The SESA must also meet the environmental requirements of the countries concerned and the environmental policies and cross-cutting issues of the AfDB. The proposed Program, in fact the proposed future projects in the DRSLP, have been tentatively classified in category No 2 of the Bank. SESA, on one hand, is a tool that could clarify and confirm the categorization of future projects, and on the other hand allow concerned parties /countries to maximize the positive impacts of interventions and mitigate the negative impacts of these same interventions.

Specifically , the results of SESA would be to: i) propose a useful Environmental and Social Management Framework (ESMF) for the implementation of the DRSLP, including tools for environmental and social management program at national and regional level; ii) propose a program to strengthen the capacity of stakeholders in the implementation of the program at national and regional level; and improve the design of the Program in order to realize its transformational and developmental objectives, namely Resilience and Livelihoods.

In our discussion with the State Minister of Natural Resources (MoA), Ethiopia, and with the National Program Coordinator, they commended the SESA as being an innovative and analytic tool that will be able to facilitate sectoral political priorities. They have also noted how the SESA can mainstream this program high in the shopping list, both on its technical content (climate change and environment) but also on the geographical front as the number of Woredas to be included in DRSLP I and II is 50 in total out of 145 pastoral and agro pastoral areas needed. The Ministry nevertheless, has also expressed its concern that the environmental and social aspects of this Program as well as climate change issues have been repeatedly brought out in many documents and initiatives: on this point they have specifically asked the AfDB mission to integrate in the SESA, the World Bank document that has preceded the SESA, namely the ESMF, in order to harmonize the MLDB interventions under the same program. With regard to this specific harmonization and validation step, we have discussed this issue with the Ministry of Environment and Forests (MEF) and they have told us that the SESA is not compulsory in the Ethiopian compliance legislation and that institutionally they do not have the capacity to validate the SESA. However they have expressed a very strong interest in being involved technically in the Scoping and Consultation phase / component of the SESA but also in the monitoring and evaluation once they have acquired capacity through capacity building, coaching and awareness and through communication workshops.

Furthermore, the Environmental Consultant has partially assessed, time allowing, the baseline situation in the regions selected for the activities recommended. He has also identified the primary stakeholders (and shareholders) in the Program and initiated the process to determine the strengths and weaknesses of these stakeholders/shareholders as well as their needs in terms of capacity building. Challenges have been also discussed with some stakeholders/shareholders, namely natural resources management, water resource management, livestock development and rangelands, climate change issues and gender, and carbon emissions in the livestock sector, but also potential conflicts between herders and agriculture settlers and land use. Other regional challenges include migration from Kenya and from Somalia for natural resources

exploitation. We have clarified to the stakeholders and shareholders that the SESA is a useful and efficient tool to discuss all these issues through a regional stakeholder's validation workshop. Finally an ESMF has been prepared to mitigate any significant impacts. The ESMF remains however a Bank's document and does not necessarily binds the Government of Ethiopia which has its own procedures.

In terms of implementation arrangement, the EPA published in 2003 Environmental Impact Assessment Procedural Guidelines, which provide a background and general guidance to EIA and environmental management in Ethiopia. The document provides guidelines for EIA standard procedures and defines the roles and responsibilities of all parties involved. Additionally, the guidelines list specific environmentally sensitive areas and ecosystems, but without particular reference to Ethiopian conditions, and also highlight aspects of potential environmental impacts related to water, air, noise pollution and so forth. Furthermore the guidelines provide a list of projects and activities which require full, preliminary and no EIA. Additionally, the EPA published an Impact Assessment Guideline Document in 2000, which identifies key sectors that should be subject to EIA. Those sectors highlighted are agriculture, industry, transport, mining, dams and reservoirs, tannery, textile, hydro-power generation, irrigation projects and resettlement projects.

The licensing agency plays a very decisive role in the EIA system. This agency can be any governmental body empowered by law to issue an investment permit etc. The agency, in this case the MoA is required to ensure that prior to issuing licenses and permits, proponents submit, for instance, an Environmental Clearance Certificate awarded by the appropriate environmental agency.

The main stages in the proposed draft EIA procedural (implementation) guidelines comprise four levels. The application of pre-screening is recommended in recognition of its importance to enhance the overall effectiveness of the EIA system. Prior to any screening or scoping process the proponent and the respective environmental or sectoral agencies establish contact and hold consultation on how best to proceed with the EIA. This process of pre-screening consultation saves time and fosters a mutual understanding about the requirement. According to the EIA procedural guidelines (EPA, 2003) the decision is made on the requirement and the level of EIA during the screening processes. At this stage a proponent initiates the process by submitting the project profile, or an initial environmental examination report after undertaking an initial environmental assessment, to the relevant environmental agency. This screening or initial environmental examination report needs to include a description of the proposed activities and its potential impacts, characteristics of the location, size, and degree of public interest, institutional requirement, environmental enhancement and monitoring considerations. Based on this report a decision is made whether an EIA is required and whether a preliminary assessment or a full-scale EIA has to be undertaken.

Based on these findings, and because of the requirements of the AfDB and IGAD, we have suggested to the MoA for efficient implementation of the Program to group all environmental and climate change activities under one component (including the existing ESMF) and to conform to the objectives of the Promoter of the Program (IGAD), namely drought resilience.

With regards to the environmental and social activities that may be grouped under one component (subcomponent) of the Program, these comprise a number of activities that include:

1. Mitigation projects or measures in the face of adverse (negative) environmental impacts;
2. The baseline determination of carbon emissions from the livestock sector for comparison during and after the implementation of the program;
3. Mini-adaptation and community based projects to maximize the positive environmental benefits of the interventions at the zones / woredas levels;
4. Capacity building activities to boost the skills and abilities of the MEF to address the requirements of a SESA including compliance, monitoring and evaluation;

5. Capacity building activities to boost the MoA to address the requirements of Adaptation to Climate Change, noting that the DRSLP is a large regional adaptation program in response to successive droughts that has been put forward from the CPP following to the Drought disaster in 2011;
6. Monitoring and evaluation of impact and performance indicators, both internally in the Program and externally by a third party;
7. Awareness and Communication including an Inception Workshop for SESA validation in Ethiopia and regionally that will use the SESA of this program to start drafting appropriate SEA legislation;
8. Environmental management consulting that requires the services of an international environmental consultant and national consultants on a part time basis and spread over the duration of the project. The Consultant will have, among other tasks, to prepare the ESMPs for each woreda /project.

A detailed costing of the elements of the updated ESMF has been carried out. The total figure is tentatively estimated at 12.5 USD million of which 750,000 USD is strictly for the ESMP(s) in each Woreda (15 of them * 50.000 USD). Most of the other costs would be split on the various components and by activities and require innovative financing.

Financing an adaptation and environmental soft stand - alone component (once all above activities would be grouped under one component, a Soft Adaptation Component or SAC) would come from:

For activities 1,2 and 3, the Program is an Adaptation Program and therefore the costs of the measures /mini projects related to these in the ESMF are partly already embedded in the costs of the activities for the respective components, therefore the budget's allocations are only for extras/ additionalities such as technological and technical improvements well documented in official proposals; for equipment and measuring devices; and for capacity building directly related to the implementation of these mitigation or adaptation measures. It is recommended here to interact with the current GEF program that the AfDB is preparing to source of some of the funds for activities 1 and 3;

For activities 4, 5 and 7, the allocation is for capacity building and awareness and communication activities. The source of the budget for these will not come from the program's loan. The source of the budget will be derived from the grants that are pledged in a number of CC programs and for which IGAD is the coordinator and/or the MEF is the Coordinator. These include the CPP, the Ethiopia Green Economy Program/Strategy, the GEF program, CLIMDEV, and the Ethiopian NAPA. Activities 6 and 8 will be financed through the Program.

Climate change mainstreaming smartly could be achieved if a Component of the Program is totally dedicated, technically and financially (estimated at about 20 % of the budget) to environmental management, community adaptation, sustainable and adaptive livelihood and disaster reduction. Adaptation, resilience and environmental protection, gender and livelihoods in the livestock sector are no longer cross cutting issues, they are the core of the Program. Furthermore, the Program in Ethiopia contains some important challenges and risks that should be gradually mitigated by the time the Program is completed: gender in the livestock sector to be well integrated (30 % of budget for gender based activities) – carbon emissions in the same sector to be well under control (after baseline assessment and the capacity of farmers to raise more animals on fewer hectares and pastures being land - registered and not added on land cleared of vegetation or “deforested”) – and coping strategies for droughts and floods at the national and regional level being progressively addressed, enforced and reaching equilibrium. It is only in this dedication and climate risks' mitigation and adaptation that the sustainability, transformational and developmental objectives of this Adaptation Program could be achieved.

Soft “adaptation” recommendations from the SESA in Ethiopia call for: i) the participation of the Ministry of Environment in a trans-boundary public consultation and regional dialogue on the common strategies towards climate related natural disasters and conflicts; ii) the setting up of a National Agriculture Adaptation committee at the Ministries of Agriculture to come up with sustainable adaptation and mitigation strategies and systems in the sector; iii) the setting up a national climate data base and early warning system(s) to be part of the monitoring and evaluation of the climate and related regional programs including CLIMDEV; iv) the contribution to a regional disaster’s reduction compensation fund under IGAD (to be set up by the Bank) and managed by a conflicts - solving and compensation, coordinating, regional Committee constituted of several neighboring countries; and v) the preparation of a CDM project in relation to gender activities to mitigate for potential emissions from the livestock sector.

RESUME SESA SOMALIA

The DRSLP is born out of the devastating drought conditions brought about by its severe impact on the environment in the Horn of Africa. Based on the Strategic Environmental and Social Assessment (SESA) and the Environmental and Social Management Framework (ESMF) that has been required for the DRSLP Program, the Somalian part of the Program may be classified as AfDB’s **Category 2 (as for Ethiopia and Eritrea)**. **This categorization** still requires more environmental screening to confirm (or not) and to determine if part of the environmental evaluations include populations’ displacement and RAPs (not because of the Program but within the Program’s sites and the neighboring countries). The screening should be based on Somalia’s and international environmental regulations as required by the authorities responsible for environmental management in the country with guidance and input from the Bank’s ISS Procedures. The environmental management responsibility could be a complex endeavor in view of the partition of the countries into Regions that claim to be autonomous and with their own regulations (Puntland, Somaliland) and resettlement/ compensation systems.

Activities such as water infrastructure rehabilitation and development (development of earth dams, sinking of boreholes, setting up of livestock holding and quarantine grounds, and livestock market structures) require detailed screening and assessment. During the technical and feasibility studies and before the implementation of the projects/ subprojects, ESIA’s may be undertaken to screened and deemed category 1 projects, with subsequently, Environmental and Social Management Plans (ESMP) prepared. Actions to mitigate possible negative environmental impacts resulting from the construction work and displacement of populations and households will be included in the project’s and works’ contracts.

Somalia’s deteriorating humanitarian situation calls for urgent, immediate capacity for the Somalia Transitional Federal Government (TFG) to be able to deliver basic services, including environmental services, for its people. This can be made possible if there is a public service that is equipped with the necessary knowledge and is committed to service delivery.

As part of its overall strategy for the restoration of peace and stability in Somalia and achieve drought’s resilience, the DRSLP in Somalia will consider the immediate capacitating of the government’s institutions a priority. Furthermore, high program’s risks were identified in the SESA. The higher risk to the program remains the relationship between the Federal government and the States/Regions, particularly on institutional, implementation and capacity building (CD) arrangements and their impacts on the success of the Program.

In Somalia, the Program will advance on the following CD and environmental objectives:

- Leadership building up and environmental mainstreaming;
- Gender’s empowerment particularly women;
- Utilizing Somalia’s potential, skills and resources and local natural knowledge;

- Developing capacity of capacity developers as environmental and natural resources' experts exist already in the countries and their skills need to be built;
- Knowledge, technology and evidence based innovations that match the scale of the sectoral problems and the level of preparedness;
- Integrated planning, monitoring and implementation for results; and
- Coaching via the management of pilot adaptation projects.

As a way forward, the SESA would be endorsed by the FG that will organize, at the Program level with IGAD, a Dialogue and Validation workshop that will include all States and the AfDB to discuss and validate the outputs and the outcomes of SESA, and this before the final negotiations of the Program.

The DRSLP is a response to the devastating climate change evidenced by drought, environmental degradation, and poverty of the Horn of Africa's vulnerability communities residing in the ASAL. The project is designed to address the root causes of the enhanced, devastating slow onset disasters while building medium to long-term resilience. This is to be achieved by investing in integrated land management and ecosystem restoration and protection. More specifically, DRSLP will develop water and marketing infrastructure for livestock, crops and fisheries while enhancing human and institutional capacity to withstand the impacts of climate change and increase the number of people capable of generating and handling climate change information. DRSLP will contribute to the implementation of the SCCF/LDCF adaptation strategy to climate change through the integration of both immediate and longer-term climate-resilient initiatives into pastoral livelihoods in Somalia facilitating their transition from a drought disaster management to a drought risk reduction approach.

Current coping strategies in the way they are practiced in Somalia can only be considered as a measure to cover short term needs for cash, or exacerbate social and environmental injustice like the establishment of enclosures and are in no respect capable of mitigating or adapting to the conditions of climate change on the long run. The baseline assessment, although not quantified, shows a long term carbon balance unanimously negative. Unfortunately, due to the specific political situation of the country, Somalia is also not part of international adaptation schemes and cannot benefit fully from prospective financial agreements on carbon sequestration, CDM schemes, etc. although there is certainly a potential.

Key areas of future adaptation strategies can certainly be seen in carbon sequestration through improved understanding and management of the interactions of grazing and vegetation recovery, and in assessing the true potential of water harvesting for agriculture purposes without negatively impacting pastoralism. Finally new social mechanisms for adaptation could be identified, as for instance insurance systems as a support to the currently overstretched solidarity systems which also help to avoid overstocking and overgrazing.

The DRSLP recommended long term interventions for Somalia are therefore climate change's adaptation and mitigation measures that are critical in the management and efficiency of rainwater harvesting, the conservation of rangelands and water catchment areas. The program intends to develop infrastructure and livestock marketing systems which will help open up the project areas for improved trade and income, which in turn will reduce poverty and cushion the pastoralists against climate change by reducing their risks and vulnerability. In the short term, capacity building is a priority for Somalia as well as being part and interacting with the regional DRSLP alliance under IGAD.