

FERDERAL DEMOCARTIC REPUBLIC OF ETHIOPIA

MINISTRY OF AGRICULTURE

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FORESTS, RANGELANDS and CLIMATE CHANGE in the NEAR EAST REGION

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1. Introduction

Ethiopia is found in the Horn of Africa. It is surrounded on the south by Kenya and Somalia, in the east by Somalia and Djibouti, in the north by Eritrea and in the west by Sudan. The country has an area of 1,104,000 square km, about twice the size of France, and a population of 65.3 million in 2001. Ethiopia is a country of great geographical diversity with altitudes ranging from 110 meters below sea level to 4620 meters above sea level. It is made up of high and rugged mountains, flat-topped plateau, and deep gorges with rivers and rolling plains. There are 18 major agricultural zones and 62 sub-zones having their own physical and biological potentials and constraints. The climatic conditions closely follow the topographic conditions: the higher areas being wetter and cooler, and the lower areas drier and hotter. In general, about 50 percent of the country receives annual rainfall ranging from 800 to 1600 mm. But for about 55 percent of the country, the variation of annual rainfall might be as high as 50 percent. In terms of effect, slopes and runoff on the highlands, and high temperature and evaporation in the lowlands have adverse effects. The majority of the Ethiopian population is concentrated in the highland plateau, which shows alpine vegetation, while the lowlands are characterized, by bush lands, woodlands, savannah grasslands and semi-arid shrubs. Small rains come during February and March, while the big rains predominate from June to September. One consequence of the rugged terrain is a poor transportation system, a major obstacle to development, limiting the nation's capacity to provide services and exploit natural resources.

Ethiopia is highly vulnerable to drought. Drought is the single most important climate related natural hazard impacting the country from time to time. Drought occurs anywhere in the world but its damage is not as severe as in Africa in general and in Ethiopia in particular. Recurrent drought events in the past have resulted in huge loss of life and property as well as migration of people. The other climate related hazard that affects Ethiopia from time to time is flood. Major floods which caused loss of life and property occurred in different parts of the country in 1988, 1993, 1994, 1995, 1996 and 2006.

The annual average temperature between 2070-2099 is projected to be 26.92 °C. (Cline 2007) According to the country's First National Communications to the UNFCCC, temperature across the country could rise by between 0.5 and 3.6 degrees Celsius by 2070.

On a country aggregate level Average precipitation 1.97 mm per day simulations suggest that the average daily rainfall amount will lie around 1.97 mm between 2070-2099 (Cline 2007). Decreases in rainfall amount will be exacerbated by higher evaporation rates associated with the increasing temperatures. Projections of precipitation are more uncertain than projections on temperature and considerable regional variations exist. According to the country's First National Communications to the UNFCCC, precipitation is expected to decrease in the northern regions, while southern areas could see an increase of as much as 20%.

Food insecurity is an integral part of poverty in Ethiopia. Climate change is projected to reduce yields of the wheat staple crop by 33% (NAPA). At present, agriculture dominates the Ethiopian economy, accounting for nearly half of GDP and for the vast majority of employment. While the country is highly dependent on the agricultural sector for income, foreign currency, and food security, the sector is dominated by small-scale farmers who employ largely rain-fed and traditional practices – a state which renders Ethiopia highly vulnerable to climate variability (as seen during past persistent drought), and thus to climate change. Desertification, brought on by human land-use pressures and recurrent drought, has consumed significant land area and continues to threaten

Water resources: run-off to Nile tributaries (Abay and Awash Rivers) is projected to be reduced by up to one third due to climate change. Ethiopia has twelve major river basins, including the Blue Nile. Its riparian systems, combined with its eleven major lakes, make Ethiopia the “water tower” of Northeast Africa. Climate change is projected to cause a drying of wetlands (affecting threatened bird species breeding sites). Although, Ethiopia has relatively abundant water, it has one of the lowest reservoir storage capacities in the world: 50 cubic meters per person compared with 4,700 in Australia (UNDP HDR, 2007/08). In Ethiopia and Kenya, two of the world's most drought-prone countries, children aged five or less are respectively 36 and 50 percent more likely to be malnourished if they were born during a drought. For Ethiopia, that translates into some 2 million additional malnourished children in 2005 (UNDP, HDR 2007/08).

Climate change is projected to cause encroachment of malaria from lower altitudes in Somalia and Afar regions to higher altitudes in Tigray and Amhara (NAPA 2007). The total population at

risk of endemic malaria for the year 1990 in Ethiopia in areas where the climate is more than 75% suitable for malaria (malaria endemic; perennial or seasonal) was 6,508,530 (source: <http://www.mara.org.za/popatrisk.htm#Prev>) In Ethiopia, an epidemic of cholera following the extreme floods in 2006 led to widespread loss of life and illness (UNDP HDR, 2007/08).

Deficits in access to modern energy can create a vicious circle of environmental, economic and social reversal. Unsustainable production of charcoal in response to rising urban demand has placed a huge strain on areas surrounding major cities such as Addis Ababa in Ethiopia. In some cases, charcoal production and wood collection has contributed to local deforestation. As resources shrink, dung and residues are diverted to fuel use instead of being ploughed back into fields, undermining soil productivity.

2. National priority actions for addressing climate change in forestry

Invest in forest resource management to enhance climate resilience, enhance livelihoods of people living near and in forest areas, and promote resource conservation. Invest in reforestation and afforestation, and in their sustainable management. Forest fire prevention, risk surveillance, and response (Strengthen capacity to monitor forest and biodiversity resources, evaluate their status and threats and formulate actions Develop and test new governance arrangements for forest resources)

Scale up investment in livelihood focused participatory rural development including sustainable land management, watershed management and community driven development (CDD) approaches

More than a billion seedlings are planted in each year, starting from 2007 till now and it will continue. Progressive achievements are also recorded on free public mobilization in soil and water conservation at each region, beside normal safety net program which is food for work program undergoing at districts where food security is a prominent problem.

Regarding pastoral area development the government has undertaken different programs in the rangeland management and pasture development. At four regions (Oromia, Somali, Afar and SNNP) infrastructure and small scale irrigation development for irrigated rangeland and clean water access are undergoing activities to settle and stabilize the nomadic community.

3. Key gaps, constraints and challenges in addressing climate *change*

- Inadequacy of cross-sect oral links of ministries and line departments;
- Lack of linking elements such as cross sect oral federal committees;
- Lack of elaborated links of federal and regional sector offices involved in environment and Development;
- Lack of capacity, i.e., absence of a center or an institution for research and development (R & D) on climate change adaptation;
- Lack of efficient outreach mechanism on environment to local communities;
- Oversight of long-term environmental impacts of short-term economic benefits;
- Economic challenge, i.e., limited finance for environment;
- Low level of awareness for environment;
- Low level of public literacy;
- High level of poverty;
- Inadequate capacity to exchange information among NMSA and NAPA project and or action. Plans implementers:
- Traditional livestock production practices, weak rangeland management

4. Assistance required for climate change actions

- Financial support
- Capacity building
- Experience sharing in climate change activities
- Source of information on recent climate change
- Human resource development at different level

5. Recent climate change activities and projects related to forests and rangelands

5.1 Humbo and Soddo Community-Based Natural Regeneration Project

The overall goals of this project are the sequestration of carbon in a biodiversity native forest, and the simultaneous reduction of poverty in the Humbo and Soddo with support of education, health, and food security financed by carbon funds. The restoration of 4,000 to 5,000 hectares of biodiversity natural forest with expected sequestration of an estimated 300,000 to 400,000 tons of CO₂ by 2017.

5.2 The Bale Eco-Regional sustainable Management Program (BERSMP)

- A six year, 2 phase PNRM program
- FARM-Africa/SOS Sahel in partnership with OFWE working to catalyze the adoption of PNRM with policy and practice.
- Previous PFM project in Chilimo, Bonga and Borena
- BERSMP is a large scale implementation in the Bale mountains based on previous initiatives
- Covers 14 woredas (10 in Bale and 4 in West Arsi zones of Oromia)
- Implementation area covers 20,000 km²
- ca 1.5 million people in the target woredas

5.3 Ethio wetland and natural resource association (EWNRA)

Areas of Interventions

- Wetland assessment and capacity building
- NTFP-PFM forest management in south west Ethiopia
- Integrated Wetland-watershed management, Methu, Oromia and Fogera, Amhara

5.4 Participatory forest management (PFM)

The project has been funded by European Union, the total budget allocated is 7.5 million euro. It is implemented at four regions, Amhara, Oromia, Benshangule and SNNPR.

5.5 TREE SEEDLING PLANTING:- every year more than a billion seedlings are produced and planted overall of the country. This activity has started at the beginning of Ethiopian millennium and it has continued in the same way. Even if different environmental and manmade problems are made difficult to have excellent survival of the planted seedling, according to annual survival rate calculation in average 60-70% of planted seedling are in a good situation.

5.6 Free public mobilization in soil and water conservation:- previously the community was not interested to engage in free soil and water conservation activities unless they

were became part of saftyment program(food for work) but due to the rising impact of climate change and strong effort of the government, the community has became aware of the impact of environmental change and how much is important their contribution to ward sustainable management and development their Owen environment. Based on the above fact the community at each region agreed to mobilize for free soil and water conservation in each year from 20- 40 free days based on the agreement of the community at each region.

6. Funding opportunities

- **SCIP-DFID:-** Strategic Climate Institution Program
- **EU-ACCGA**
- **NAPAS(National Adaptation Programmes of Action) and NAMA(Nationally Appropriate Mitigation Action) funding opportunity**

7. Recommendations and conclusions

In regard to forest, soil degradation, biodiversity and rangeland management, the GoE (MOFED) noted some major challenges: the fragile initial conditions and population pressure. In this regard, Ethiopia's strategy, as laid out in the PASDEP, revolves around: (i) ensuring community led environmental protection and sustainable use of environmental resources as well as paying attention to gender equality and improved livelihoods; (ii) rehabilitating affected ecosystems and enhancing the capacity of ecosystems to deliver goods and services, particularly biomass, for food, feed, and household energy; (iii) preventing environmental pollution; integrating environmental objectives, including mainstreaming gender equality aspects in all development activities. Programs to implement this strategy include water harvesting, reforestation, composting, improved use of fertilizers, and diversification of fuels away from reliance on firewood and charcoal. Some of the most important challenges that need to be addressed to realize this goal have to do with the capacity building and protection of biodiversity through legislation. However, most of the direct threats causing the devastation of the ecosystem come from clearing land for agriculture, overharvesting, overgrazing, overhunting and climate change. The latter manifests itself in the form of in Lack of strong coordination mechanism both at the federal and regional levels. As mentioned above the issue of natural resource management was a key target in the PASDEP, now it also must emphasized in the new five year plan, GTP.

It is obvious that climate change shown its impact in overall activity of the country. As it is known more than 83% of the population is engaged in agricultural related activities which is mainly dependent on rain fall but due to weak natural resource conservation and management draught has shown its influence on food security of the country, so working on adaptation and mitigation are the key means to proposed economic development. Beside strenginizing on going activities in forestry development, soil water conservation and irrigated rangeland development, it is also important to create regional and international integration to share experiences in mitigation and adaption of climate change, to support each other in financial and capacity building.