



# **Overview of forest management and climate change in Ethiopia**

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# Introduction

- The vegetation of Ethiopia comprises over 7000 species out of which over 475 are endemic to the country (Awas,2007).
- It also harbors diverse fauna including 240 species of mammals and 845 species of birds , of which 22 species of mammals and 24 species of birds are endemic (Teketay et al.,2010)

- According to the census by the Woody Biomass Inventory and Strategic Planning Project (2004), Ethiopia owns a total of 59.7 million ha of land covered by woody vegetation.
- Of the total woody vegetation, 6.8% are high forests, 49% constitutes the woodland, 44.2% shrub land or bush land and plantations cover less than 1 percent.
- Current statics show that Ethiopia has 17.22 million ha forest resources i.e. 15.5% the country area referred in the GTP II.
- Ethiopia have been largely dependant on goods and services obtained from forests.

- Accordingly FAO 2010 the sum of the values of firewood, industrial wood and non-timber forest products in Ethiopia amount to USD 752,869,000 per year, the share of fuel wood being 85%.
- Climatic conditions vary widely across Ethiopia, influenced strongly by altitude.
- Temperature and rainfall are the key variables influencing land cover including forest vegetation and land use potential.
- Ethiopia has designed a comprehensive policies and strategies related to forest development and environmental protections at the level of federal and regional states.

# *Impacts of climate change on forest and forest dependent communities*

*Increased risk of fires:* drier conditions will increase the risk of fire, making forest fires more frequent and intense, resulting in degradation.

Once degraded, with dying/ dead trees with high fuel load, the forest become more prone to fire, thus creating a negative feedback loop.

# *Impacts...cont*

*Shift in distribution and extent of natural habitats and biodiversity:* climate change affects the stability and productivity of forests and woodland dynamics in Ethiopia.

*Land use change:* one of the major impacts of climate change is on the patterns on land use. a study forest gain and loss provided an estimate of forest change by biome(MEFCC,2016)

# *Impacts...cont*

*Invasive species*: climate change may create conditions that are more favorable for invasive species.

- There are certain woodland areas in eastern Ethiopia (Afar and Somali) regions where *prosopis juliflora* and *Acacia drepanolobium* is causing considerable socio cultural damage.
- Prosopis, being an aggressive, very deep rooted species is able to draw water from deeper sources than some indigenous species, and thus depriving them of water, resulting in increased mortality, and shifts in species composition in affected areas.



## *Impacts...cont*

*Forest-dependent livelihoods:* changes in forest /woodland ecosystems extent, quality and species composition is likely to have an impact on the livelihoods of forest dependent communities.

The changing climate will impact the species that can survive there and species with narrow ecological range (e.g. highland bamboo, alpine species) are likely to be threatened.

# *Impacts...cont*

- Climate change has the potential to affect timber and non-timber forest products,
- wider ecosystem services (water and soil catchment management and flood protection) and rural livelihoods, which depend on forests for a large proportion of their income, and as a coping strategy during times of drought,
- by damaging the products and service obtained from the forest and causing species extinction specially peoples depended timber production and NTFP such as forest coffee , honey production ,bees wax, medicinal herbs, bamboo, mushroom, latex, gums and resins.

## *Impacts...cont*

- *Changing climatic conditions*: making agriculture more precarious in current agricultural production areas drives farmers to move into higher rainfall areas which are woodland and forest areas.
- *Increase demand on forest to diversify source of livelihood*: as agricultural system become more precarious as a result of climate change may increase pressure on forest.

## *Impacts...cont*

- There are a limited number of **quantitative studies** in Ethiopia on the specific impacts of climate change, but hazards such as outbreaks of pests and diseases and forest fires that are already affecting forest areas are likely to increase in frequency and intensity.
- And also **models** are not yet sufficiently developed to predict the future climatic trends in Ethiopia, increase in climatic variability are likely outcomes of climate change and anecdotal evidence suggests this variability already being witnessed.

# *Existing policies and strategies*

## **Federal Democratic Republic of Ethiopia Constitution /1995**

- All persons have the right to a clean and healthy environment”. As many researches show, one of the mechanisms to ensure this is through forests, which can keep the air, soil and water free from pollutants.

## **Environmental policy /1997**

- The overall policy goal is to improve and enhance the **health and quality** of life of all Ethiopians and to promote sustainable social and economic development through the sound management and use of natural, human-made and cultural resources and the environment as a whole so as to meet the needs of the present generation without compromising the ability of future generations to meet their own needs.

# Policies,, cont

## **Forest Policy/2007**

- The object of the forest policy is to **increase the forestry sectors contribution to economic growth by protecting and developing forest resources.**

## **Forest Development, Conservation and Utilization Policy and Strategy/ 2007**

- The basic aim of the policy is to meet public demand in forest products and foster the contribution of forests in enhancing the economy of the country through **appropriately conserving and developing forest resources.**

## **Energy policy/1994**

- The general content of the policy focused on energy development, energy supply, **energy saving** and utilization capacity, major cross sectoral policies and improvement of organizational structure of the energy sector.

# Policies,, cont

- **Climate Resilience Green Economy(CRGE,2011)**, the CRGE strategy is designed to address the adverse effects of climate change while building a green economy that brings the country to middle income status by 2025,

The forest sectors strategies included in the CRGE are:

- Reduction of natural forest and wood land deforestation to zero
- 3 million ha new forest development
- 1 million ha rehabilitation of degraded lands
- **EIA proclamation (2002), Federal investment proclamation (2012), Federal rural land administration and land use proclamation (2005), Guideline for participatory forest management in Ethiopia (2012), Ethiopian programme of Adaptation on climate change(EPACC,2010),**
- **Forestry Sector Development Program ..draft ,National Adaptation Plans... draft etc are polices and proclamations related to forest and climate change.**

# Policies,, cont

- The intuitional frameworks that govern the forest and climate change issues currently in Ethiopia is the ministry of environment forest and climate change (MEFCC) at a federal level and vertically down to the regions and district level with **bureaus and offices** of environment forest and climate change.



Cont,,,

Federal Environmental Protection Authority  
(FEPA)



Ministry of Environment and Forest (MEF)- 2013



Ministry of Environment, Forest and Climate Change (MEFCC)- 2015

- Establishment of the Ethiopian Environment and Forest research institute
- Different **line ministers** at federal level and bureau and offices at regional level

# Status of forest managements

## **State forest**

- The high land and the low land natural forests of Ethiopia have been managed by regional states. Most of the natural forests don't have management plan.
- PFM is formally recognized in forest proclamations of Ethiopia Federal Government (proclamation No 542 of 2007) and several regional states.
- The involvement of the local communities in the management of forests is under way in the high land forests.

## Cont,,,

- PFM introduced in Ethiopia mainly by NGOs (Farm Africa/SOS Sahel, GIZ, JICA, and others).
- Farm Africa data suggest that nearly 40% of the countries forest recourses ,mainly the high land forests are now under some form of PFM (Temesgen and Lemenih,2011).
- Close to 1.5 million ha of natural forests are currently managed through PFM arrangements (Farm Africa,2015).

# Cont,,,

- To harmonized the different approaches of PFM being introduced in the country ,a national guideline was prepared (2012).
- The guideline target forestry extension workers who facilitate PFM planning process in their locality and for district and zonal forestry professionals to facilitate the establishment and implementation of PFM.
- There is evidence that the demonstration shows the contribution of PFM in reducing deforestation and forest degradation is very high

# Cont,,,

## **Private forest**

- Only plantation forests are managed and developed by the communities and private small holder households, The private forest owned by individual households and communities.
- The Government of Ethiopia already provides incentives to attract private investment in the forest sector. However there is no project registered so far to invest in commercial plantation development using this tax incentives .

## Cont,,,

Major management gaps identified in smallholder plantations:

- Poor seed and seedling quality.
- High dependence on single species.
- In adequate coppice management
- In adequate value addition
- Poor marketing system
- Lack of knowledge on mixed plantation.
- Insufficient extension and land administration services
- Lack of skills and knowledge of experts.

# *Important of adjusting forest management plan and practice to cope with changing climate*

- To improve forest biodiversity, forest health and vitality and productive and protective function of forest.
- To increase the economic and social **benefits** of forests.
- It is a tool to adjust forest related activities and silvicultural interventions according to the factors affecting forest ecosystem that can be influenced by climate change.
- Reducing future cost which incur due to the impact of climate change

# Importance ,,cont

- It **creates** an opportunities to forge additional income from international carbon market and boost organizational esteem .
- It is a means of sustaining ecosystem services **and** forest produce in **perpetuity**
- It safeguard the local communities from natural disasters such as drought, floods, landslides etc .



# *Requirements of adjusting forest management plan and practice to cope with changing climate*

- Supporting **policies and legislations** to adjust forest management plan and practices to cope with climate change.
- **Public awareness** about forest **management implementation** and climate change **impacts**.
- **Institutional arrangement** from the top to the community level.
- **Demarcated area** for the purpose of forest management.

## Cont,,,

- Technical guideline .
- Forest managers and stockholders commitments and involvement in the implementation of adjusted forest management plan.
- Forest managers commitments to meet the international agreements on climate change adaptation and national policies and legislations

- Strong linkage with forest and climate research institutions to monitor the dynamism in climate change and ecosystem interaction with climate change.
- Skilled man power and financial resource
- Assessments of forest and communities vulnerabilities risks to climate change and mitigation options.
- MRV system at national as well as regional level

**Thank you!!!**