

Analysis of Forests and Climate Change in Eastern Africa and South Sudan

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Workshop on Forest Management and Climate Change in Eastern Africa
14-16 December 2016 , Dar es Salaam



Outline

- Background and Justification
- Objectives
- Methodology
- Observations



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Rationale

- Forest management decisions made now could affect forests many decades into the future.
- It is important for managers to take account of how forests may respond to future climatic conditions
- In designing adaptation options managers may wish to consider their relative contributions to climate change mitigation, and vice versa,
- Then choose management options that have synergistic adaptation-mitigation benefits



Objectives

Major Objective:

- to undertake a baseline study on Forests and Climate Change in Eastern Africa and South Sudan

Specific Objectives

- Review and analyze forestry and climate change policies, institutions, governance, regulations, technical assistance, capacity building and communication
- Evaluate the new challenges, opportunities and constraints posed by climate change to forest management in the pilot countries



Objectives

- Identify gaps in knowledge, policies or regulations required for adequate management responses to climate change
- Identify if and how forest managers are adjusting their management practices to accommodate climate change considerations and what changes they might make in the near and medium term



Methodology

- Desk study
 - to review and analyze forestry and climate change policies, institutions, governance, regulations, technical assistance, capacity building and communication challenges opportunities and constraints with a particular focus on pilot countries.
 - Evaluate and identify how forest managers are adjusting their management practices to accommodate climate including gaps in knowledge, policies and regulations required for adequate management responses to climate change

Forest Resources of the Sub-sub Region

Overview

Tanzania

- 40% of the land area – evergreen forests and woodlands.
- 1.6 million hectares - catchments forests

Uganda

- 24.2% - tropical high forests, woodlands and plantations

Rwanda

6.8 % - Bamboo Forest, Dry Natural Forest, Humid Natural Forest, Plantations



Forest Resources of the Sub-sub Region

Burundi

- 5.4 - Modified Natural and production plantations

Ethiopia

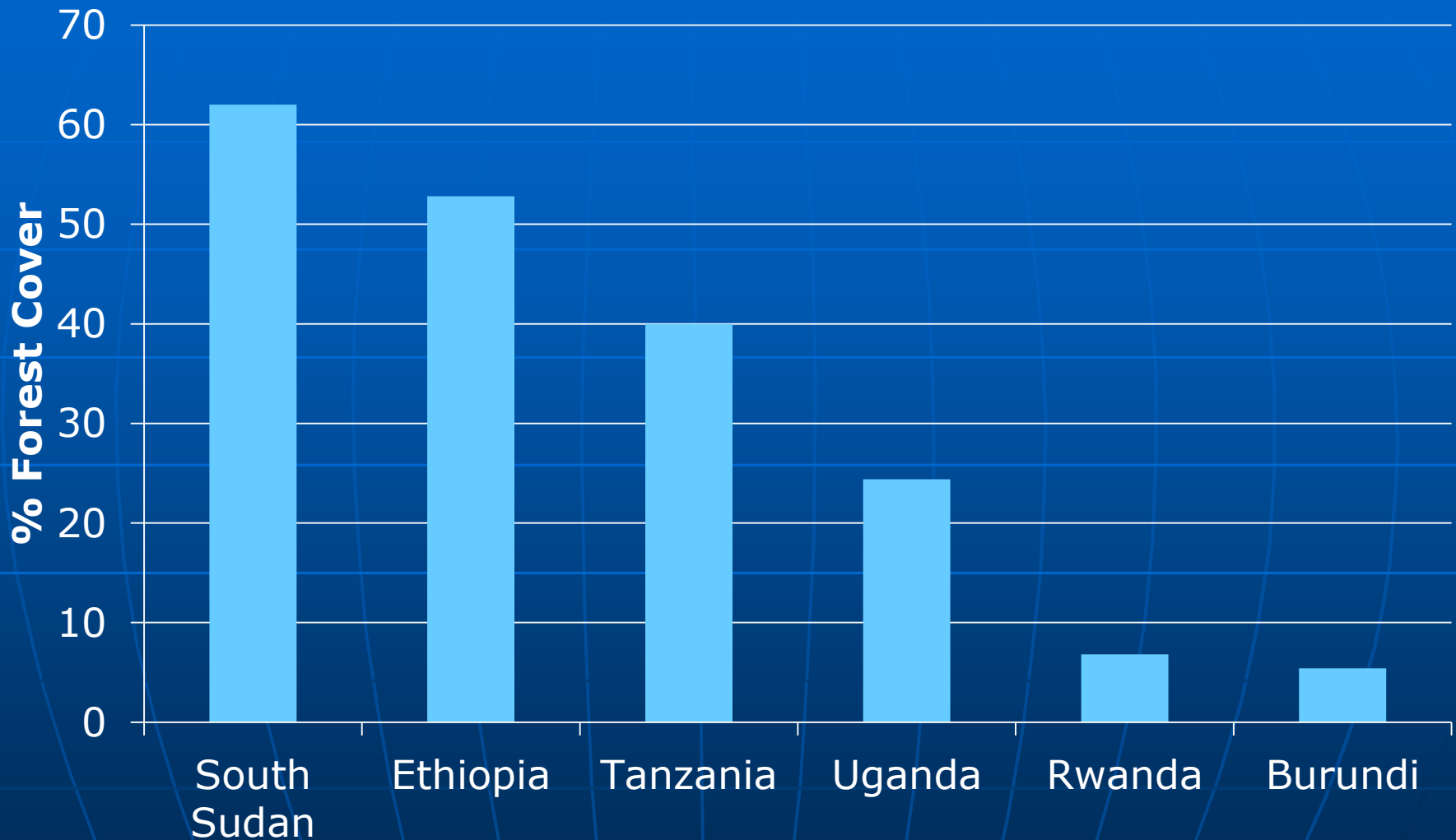
- 52.8% - highland forests, plantations, woodlands, shrublands

South Sudan

- 11.3% - Forests
- 51.6% - Other woodlands (uncategorized)



Summary – % Forest Cover by Country



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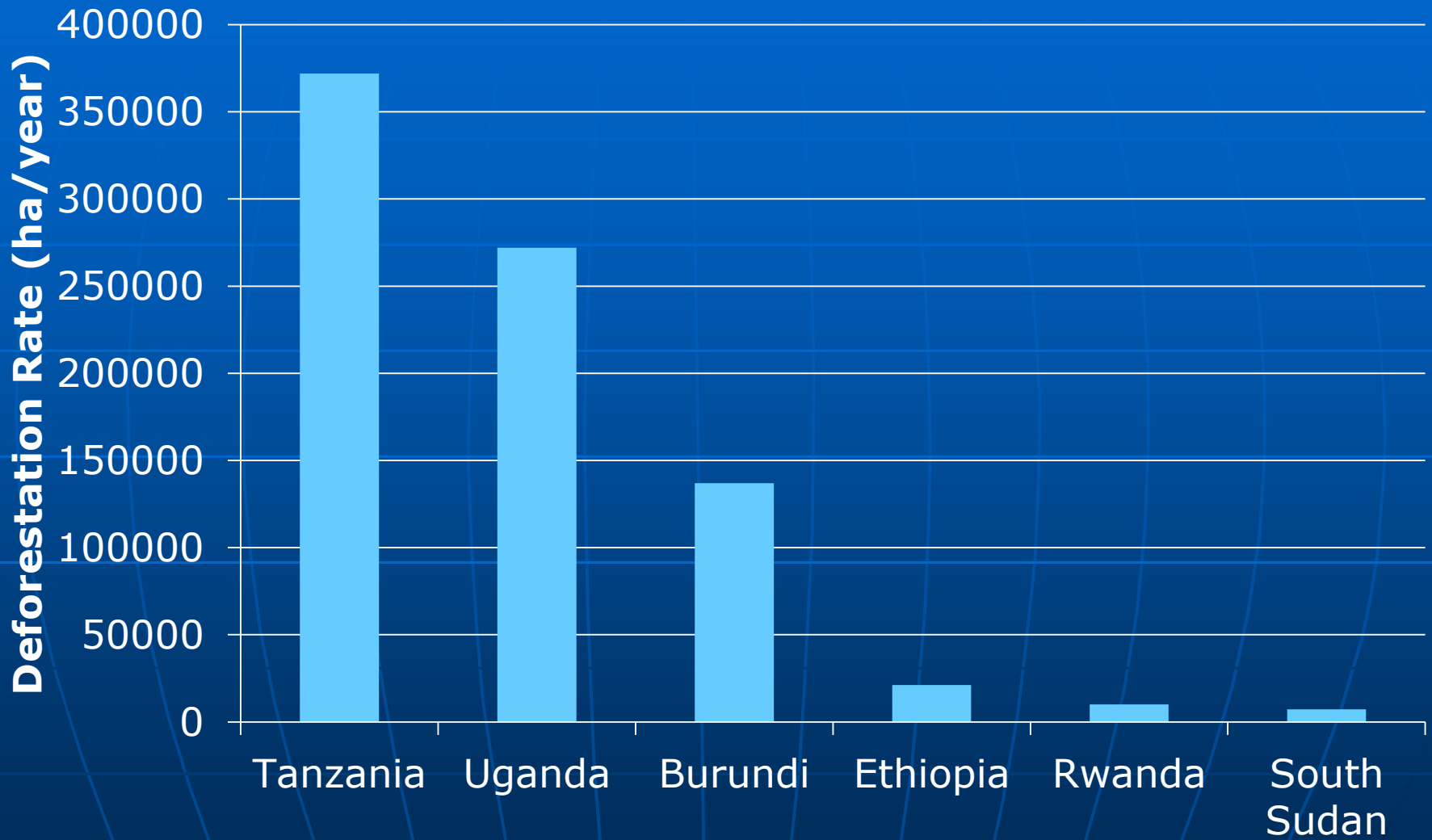
Trends in forest and land use

Deforestation

Tanzania:	Forests – 372,816 ha per year (1995-2010) Woodlands – 248,871 per year (1995-2010)
Uganda:	272,000 ha per year (2005 – 2010)
Rwanda:	10,000 ha per year (2005-2010)
Burundi:	137,000 ha per year (2005 – 2010)
Ethiopia:	21,115 ha per year (2001 – 2014)
South Sudan:	7,272 ha per year (2000 – 2010)

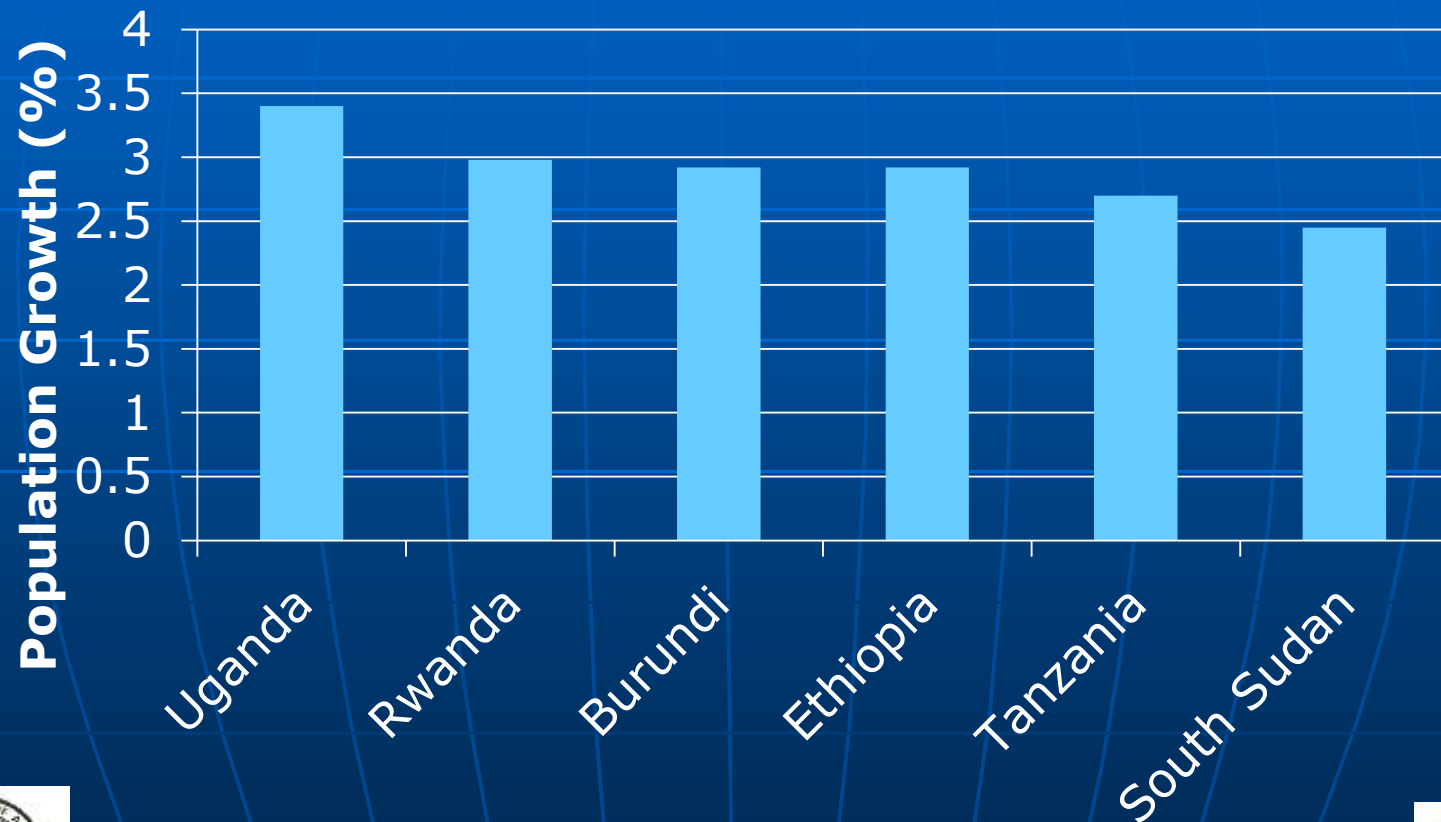


Summary Trends in Forest Resources by Country



Key Demographic Drivers of Deforestation

- Increasing population against static nature of land
- Land demand for agricultural expansion
- Demand for various forest products



Forest Values

- Contribution to GDP: 3-11% (Uganda at 6%, Tanzania at 11%)
- Environmental Protection: Catchment potential – water protection
- Provisioning Services: wood and non wood products



Climate Change Impact

Evidence of climate change

- Increasing Temperatures
- 1° C – 2° Tanzania, 1.5° in Uganda, 1-2° in Ethiopia, 2° in Rwanda, 0.8° for Burundi
- Mixed increase/decrease precipitation
 - increases of up to 25% predicted in some countries
 - Decreases of up to 10% predicted in some countries

Vulnerability and potential impacts

- Conditions unsuitable for the establishment of key species
- Range shifts and disappearance/shrinking of habitats and loss of biodiversity
- Expansion of habitats for some species
- Increase risk of wild/bush fires
- Changes in forest types e.g. forest to woodlands, or woodlands to grasslands

Vulnerability and potential impacts

- Limited availability of forest products and loss of forest dependent livelihoods
- Drying of rivers and streams – water scarcity
- Species that are more vulnerable are those with:
 - limited geographical range and heat intolerant;
 - low germination rates;
 - low survival rate of seedlings; and
 - limited seed dispersal/migration capabilities.

Adaptation – Adapting Forests to CC

Tanzania:

- enhancing efficiency in wood fuel utilization,
- enhancing participatory fire management
- enhancing forest governance and protection
- enhancing sustainable forest management

Uganda

- promoting intensified and sustained forest restoration
- promoting biodiversity & watershed conservation
- encouraging agro-forestry and
- encouraging efficient biomass energy production and utilization technologies



Adaptation – Adapting Forests to CC

Rwanda:

- Promotion of afforestation/reforestation of designated areas through enhanced germplasm and technical practices in planting and post-planting processes
- Employing improved forest management for degraded forest resources and
- Establishment of a national integrated water resource management framework

Adaptation – Adapting Forests to CC

Ethiopia

- Enhancing ecosystem health through ecological farming
- Sustainable land management practices and
- Improved livestock production practices to reverse soil erosion,
- Restore water balance,
- Increase vegetation cover, including drought tolerant vegetation.

Adaptation – Adapting Forests to CC

Rwanda

- Development and rational management of forest resources: raising the forest cover to 20% by 2025
- Promotion of forest resources and
- Human and institutional capacity-building in climate change



Adaptation – Adapting Forests to CC

■ South Sudan

- Promote agro-forestry practices
- Promote afforestation of degraded landscapes
- Develop forest reserves and watershed protection
- Promote alternative sources of energy
- Enforcement of environmental regulations
- Establish conservancies and protected areas
- Establish water points for wildlife in protected areas
- Increase awareness of local
- Introduce fire management plans
- Integrated natural resource management approach



Mitigation Options and Issues

- Deforestation and forest degradation are the major activities that result into emissions from forests.
- Well planned and implemented, forest management practices especially those that aim to mitigate deforestation - major avenues towards enhancing carbon stocks in forest ecosystems.
- Further any activity in the land use sector that increase the biomass on land also increase carbon stocks.



Mitigation Options and Issues

Tanzania:

- The REDD+ strategy identified eight key factors responsible for deforestation and forest degradation that need to be addressed.
- REDD+ initiative - two key instruments have been put in place:
 - Establishment of the National Carbon Monitoring Centre (NCCM);
 - Establishment of the MRV system.
 - Formulation of an institutional arrangement for coordination of REDD+ activities entrenched in the existing government structure on the coordination of climate change programs



Mitigation Options and Issues

Uganda:

- Development of enabling environment for forestry management, including: community forest management groups, forest law enforcement and governance and strengthening forest institutions responsible for forest management and development
- Reverse deforestation trend to increase forest cover to 21% in 2030, from approximately 14% in 2013, through forest protection, afforestation and sustainable biomass production measures
- REDD+ and R-PP



Mitigation Options and Issues

Ethiopia:

- Mitigation actions are based on the sectors of agriculture (livestock and soil), forestry, transport, electric power, industry (including mining) and buildings (including waste and green cities)
- Mitigation options hinge on four pillars of which the forestry relevance is the pillar on protecting and re-establishing forests for their economic and ecosystem services



Mitigation Options and Issues

Rwanda:

- Promote environmentally sustainable use of biomass fuels, and sustainable forestry, agro forestry and biomass energy that includes mandating the licensing of sustainable charcoal production techniques

Burundi

- Burundi is to make it possible to meet the sustainability objectives defined in national policies and strategies.
- Under the National Reforestation Programme, Burundi has undertaken to increase its carbon dioxide gas well through 4,000 hectares of annual reforestation over the course

South Sudan

- Embarking on a sustainable development path and employ the latest clean technologies to realize a low carbon, climate-resilient development outcome

Adaptation - Mitigation Synergies and Trade-offs

- So far adaptation and mitigation have been treated separately,
- However the mitigation or adaptation measures undertaken by different countries have both adaptation and mitigation components.
- Example is integrated sector approach where each sector is contributing to adaptation activities that simultaneously contribute to mitigation



Climate Change Policies, Strategies and Issues

- All the countries have adopted an integrated approach to climate change adaptation and mitigation
- Developed several policies, strategies and plans that directly or indirectly address issues pertaining to climate change and their impacts on various sectors.
- The sectors further have put in place policy directives that seek to provide the solutions to the impacts of climate change.
- These policies, strategies and plans further provide guidelines and steps towards addressing adaptation and mitigation priorities by the various sectors that are affected by climate change

Integration of climate change issues into forest policy

- All countries have strategically put the forestry sector at the forefront of mitigation and adaptation to climate change.
- Reflected in different strategies legal and institutional frameworks to enable realization of forestry contribution to climate change adaptation/mitigation.
- Issues considered with respect to forests include enhancing efficiency in wood fuel utilization, participatory fire management, forest governance, protection of forest resources and enhancing sustainable forest management.



Integration of climate change issues into forest policy

- Within the water sector for example forestry features well with respect to enhancing integrated basin catchment and upstream land management for hydro sources and
- In the energy sector enhancing the use of renewable energy potential across the countries features well as a mitigation policy
- The National REDD+ strategies focus on sustainable forest management and is a key issue in policy where forest management features substantially
- The Climate Change Strategies reiterate the role of forestry in climate change mitigation especially in the aspect of REDD+ related to sustainable forest management

Institutional framework of organizations dealing with forests and climate change

- Governmental and non-governmental organizations have the mandate to undertake actions to mitigate and adapt to climate change.
- The focal points and national authorities for international agreements/initiatives are based in relevant sectors
- Climate Change policy is not meant to replace sectoral policies, but rather to provide a framework for the harmonization and coordination of the various sectoral efforts
- Example Ethiopia's Climate Resilient Green Economy Strategy (CRGE) is a multi-sectoral body aiming at both climate change adaptation and mitigation objectives



Financing and Technology Transfer

- The past has seen most adaptation/ mitigation projects in the Eastern African region primarily supported and funded by bilateral sources
- Many also received funds from multilateral donors.
- Private foundations also contribute to mitigation/adaptation actions
- Some countries like Ethiopia at least for its budget spending, the country seems to depend mostly upon its own resources for financing public activities designed to address climate change



Constraints/Challenges to Adaptation and Mitigation

- Resources – Financial and Technical
- Poor knowledge on options especially at the grassroots
- Inadequate incentives – e.g. REDD+
- Poor on the ground implementation of policy or adaptation/mitigation actions where available



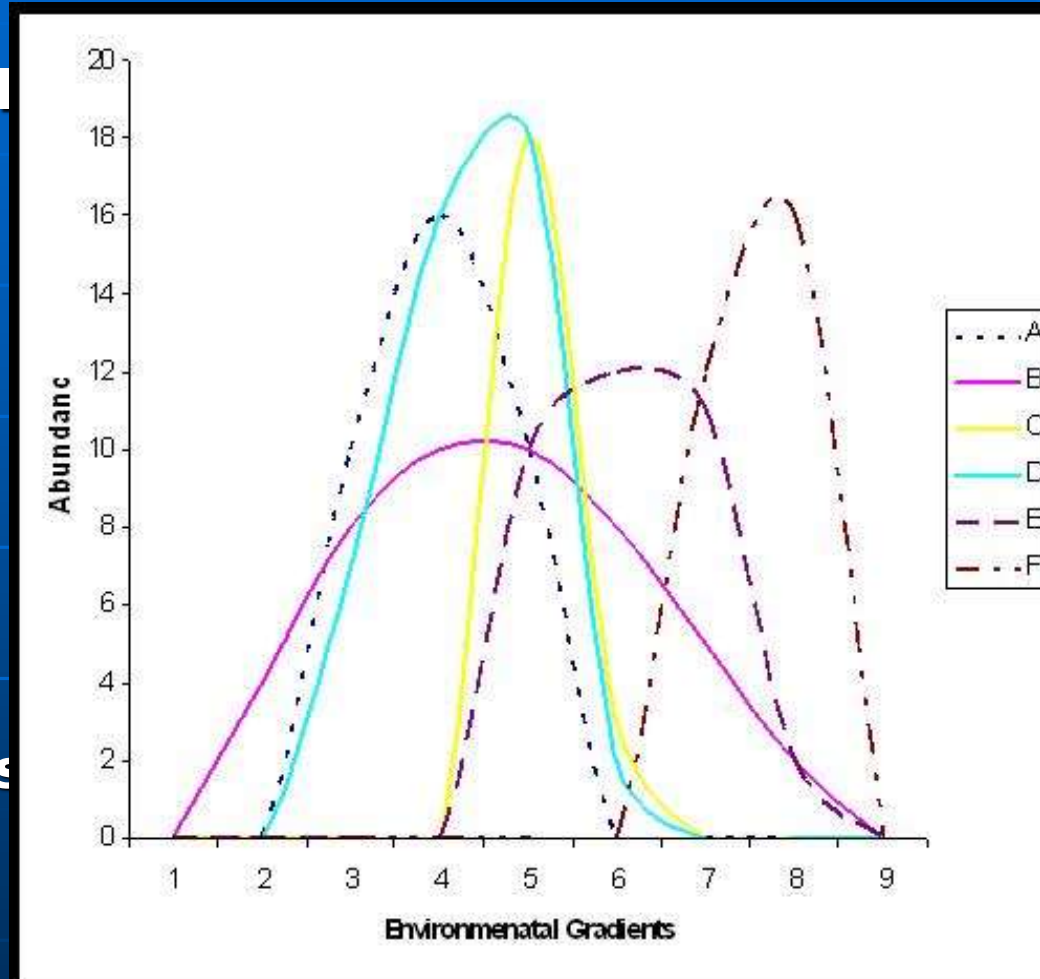
Key Issues

- Most CC impact on forest ecosystems in extrapolated from the general impact on habitats
- Understanding CC impact on forest ecosystems require assessments of impact and response by individual species
- Climate Change adaptation and mitigation is integrated into sector activities
- Internally generated funding for CC adaptation and mitigation is limited for most of the countries



Species Responses

- Different species have different environmental requirements thus respond to environmental factors differently
- Species respond to
 - variation in the environment
 - biotic interactions
- The response determine the survival and abundance of a given species
- Species can associate if they have the same or nearly same requirements
- A species that can utilize the existing resources more efficiently will likely become more abundant and outcompete the other species





Thank you!



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