REGIONAL TRAINING WORKSHOP

ON

FOREST PLANNING AND FOREST MANAGEMENT IN DIFFERENT FOREST TYPES IN EASTERN AND SOUTHERN AFRICA

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Status of Forests: Forest Area, Growing Stock and Determinants of Change in Forest Status

Prof. Emmanuel F. Nzunda

Sokoine University of Agriculture

Department of Forest Resources Assessment and Management

Morogoro, Tanzania

- Introduction
- Existing situation
- Proposed guidelines
- References

Importance of Assessment of Forest Area:

- Provides a baseline understanding of the extent and distribution of forest ecosystems.

- Helps in assessing forest cover change over time, identifying deforestation or afforestation trends.

- Supports conservation efforts by identifying areas of high ecological value and potential threats.

- Guides land-use planning and decision-making processes related to forest management and conservation.

Introduction

Importance of Assessment of Growing Stock:

- Indicates the volume of standing trees and biomass present in forests.

- Provides valuable information for timber production, sustainable harvest levels, and forest product industries.

- Supports forest carbon accounting and monitoring, crucial for climate change mitigation strategies.

- Guides sustainable forest management practices, ensuring the long-term availability of timber resources.

Introduction

Importance of Assessment of Determinants of Change in Forest Status:

- Helps understand the drivers and causes of forest cover change, such as deforestation, degradation, or reforestation.

- Identifies socio-economic, policy, and environmental factors impacting forest ecosystems.

- Guides the formulation of effective policies and strategies to address deforestation, promote reforestation, and mitigate forest degradation.

- Facilitates the assessment of the effectiveness of forest conservation and restoration initiatives.

Overall Importance of Assessment of Forest Trends and their Drivers:

- Provides a comprehensive understanding of the current state and trends of forest ecosystems.

- Supports evidence-based decision-making for forest management, conservation, and sustainable use.

- Enables the monitoring of progress towards international commitments, such as the Sustainable Development Goals and climate targets.

Introduction

- Facilitates the assessment of the ecological, social, and economic values associated with forests.

- Helps inform land-use planning, biodiversity conservation, and sustainable development strategies at local, national, and global levels.
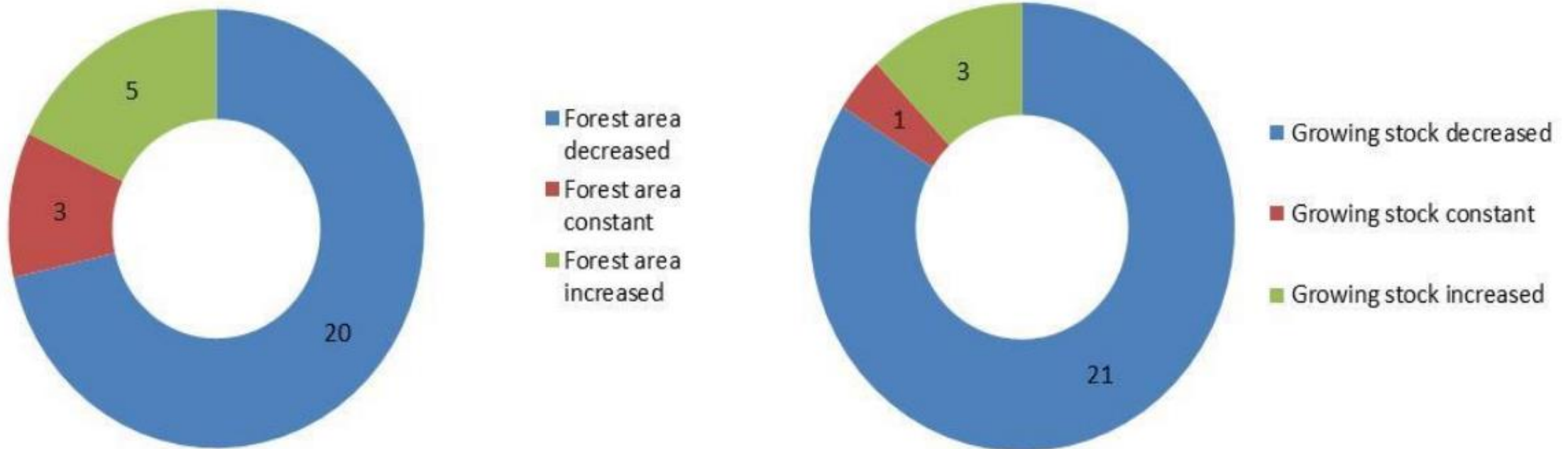
Forest Area and Growing Stock:

Figure 1. Number of selected African countries by change in total forest area and growing stock between 1990 and 2015. Source: Nzunda 2022.

- From Figure 1, three top countries by annual loss of forest area were Nigeria, Uganda and Zimbabwe

- Three countries with the lowest rates of annual forest loss were Sierra Leone, Angola and Sao Tome-and-Principe

- Saint Helena, South Africa and South Sudan had no change in forest area

- Ghana, Gambia, Lesotho, eSwatini and Cape Verde had increase in forest area.

  ➢ Could we learn anything from the four categories of trends in forest area?

- From Figure 1, top three countries by loss in growing stock were Malawi, Tanzania and Nigeria.

- Eritrea, Liberia and Zimbabwe had the lowest rates of loss of growing stock.

- Lesotho had no change in growing stock.

- South Africa, Ethiopia and Sierra Leone had increase in growing stock.

➢ Any lessons from these trends?

Determinants of Change in Forest Status

- Have been classified into three main classes (Mertens and Lambin, 2000; Geist et al., 2006; Jaimes et al., 2010; Nzunda and Midtgaard, 2019; Nzunda 2022):
  - ➢ Direct anthropogenic drivers
  - ➢ Indirect anthropogenic drivers
  - ➢ Biophysical drivers

Direct Anthropogenic Drivers:

- Agricultural expansion
  - ➢ Small-scale permanent agriculture, rather than commercial agriculture, is the main cause of permanent deforestation.

- Infrastructure extension
  - ➢ Roads and railways facilitate access to forests, leading to deforestation.
  - ➢ Urban settlements result in extensive deforestation and degradation of neighboring forests.
  - ➢ Surrounding urban areas engage in agriculture, contributing to deforestation.

- Wood extraction
  - ➢ for fuel, construction, and industrial purposes

Indirect Anthropogenic Drivers:

- Demographic
  - Deforestation occurs due to the expansion of cultivation to support the growing population.

  - Immigrants and refugees often contribute to deforestation and forest degradation.

- Economic

  - Export of agricultural crops and forest products, high poverty levels, and dependence on wood impact forest cover

Indirect Anthropogenic Drivers:

• Technological

➢ Mostly low farming technology
➢ Limited technology for wood conservation and alternatives to wood

Indirect Anthropogenic Drivers:

- Policy, institutional, and cultural factors
  - ➢ Explicit policies, inadequate government investment, unsustainable practices, and weak law enforcement contribute to deforestation.

  - ➢ Institutional bottlenecks, corruption, low transparency, and insufficient capacity affect forest management.

  - ➢ Globalization, in the form of land grabbing

  - ➢ Neglect, failure and disappearance of traditional management systems

- Policy, institutional, and cultural factors
  - ➢ Political instability, conflict, wrong democracy

Biophysical Drivers:

- Drought
  - ➤Kill trees
  - ➤Slow tree growth
  - ➤Increase destructive power of fire

- Destructive animals
  - ➤Debark trees e.g. elephants
  - ➤Browse on leaves e.g. giraffes
    - ❑Livestock may also contribute to forest degradation

- Disease and insect outbreaks
  - ➢ In East Africa in late 1990s and early 2000s large areas of forest plantations were lost due to outbreak of *Cinara cuppressi*

- Fires
  - ➢ Do not kill fire-adapted trees that are beyond a threshold height e.g. trees of some species of miombo woodlands
  - ➢ Slow down and/or prevent forest regeneration and succession from grassland and bushland to forest, thus leading to persistent grassland and bushland

- Floods
  - ➢May kill trees or slow down their growth

Addressing constraints to forest management:

- Sustainable forest management
- Fuelwood efficient cook stoves
- Promoting alternatives to wood for fuel and other uses
- Agroforestry
- Forest fire management

Addressing constraints to forest management:

- Protected areas strategies
- Afforestation or reforestation
- Agricultural intensification
- Permanent agriculture
- Plantations establishment and management
- Livestock rangeland management

Proposed Guidelines

Institutional interventions to overcome constraints:

- Stakeholder involvement through participatory forest management approaches

- Tenure and rights regularization

- Policy and governance reforms

Addressing population growth:

- Attempts to address the root cause of deforestation through population control policies and other techniques have faced challenges.

Economic and market interventions:

- Forest certification and appropriate incentives are used to tackle economic and market drivers of deforestation and forest degradation.

Cumulative effects of interventions:

- **Individual interventions** may have a **low impact** per unit area but significant **cumulative effects over large areas**.

- **Multiple interventions** should be used together to address **different drivers simultaneously**.

References

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THANKS FOR YOUR ATTENTION