



# Science Plan of the Miombo Network

# Rationale

- Concern for a better understanding of the long-term environmental and socio-economic effects of global changes in the kinds and intensities of land use in the dry forests and woodlands of the tropics.
- A majority of rural people in tropical countries depend on these ecosystems for their livelihoods, and they are among the most threatened of tropical ecosystems (agriculture, urbanization, mining, unsustainable forestry practices, etc) and natural disturbances (climate change, fire, etc) .
- The largest area of tropical dry forests and woodlands is situated in Africa (5.5 million km<sup>2</sup>), about half of which occurs in the miombo region.

# Rationale

- Urgent need of high quality research for informed decision-making
- Role of the network in producing and sharing knowledge.
- Road map of the science plan produced three years ago, need to be revised and updated.

# Overall goal of Miombo Network

- To promote an integrative miombo science, linking biological, ecological and social disciplines in an effort to produce relevant new knowledge;
- To provide the scientific bases for the conservation and sustainable use of miombo woodlands in southern Africa; and
- To create a platform of collaboration towards a regional response to issues of climate change (adaptation, mitigation, vulnerability, CDM, etc.)

# International/regional initiatives:

- SADC protocol on forestry 2002;
- SADC Forestry strategy 2010-2020;
- SADC REDD+ program;
- Biomass satellite products to be launched by NASA (GEDI), ESA (BIOMASS) and JPL (NISAR) from 2019;
- WWF miombo conservation program;
- Bonn challenge 2011-2020

# Summary of the discussions 3 years ago:

## Core area I: Patterns and rates of land cover change:

- Produce land cover & land cover change map of the MW eco-region;
- Produce a land cover & land cover change catalogue;
- Improve the understanding of past, present status of Miombo woodlands;
- Develop future scenarios of land use change (+20 years).

## Core area II. Process and drivers of land use change: Understanding past, present and developing future scenarios of miombo cover, better position and role in the REDD+ context.

- Better understanding of the recovery patterns of miombo across different environmental gradient;
- Improve knowledge on the extent of the drivers (contribution of each drivers on biodiversity);
- Define what are the impacts of these drivers on miombo biodiversity and ecology.

# Summary of the discussions 3 years ago:

Core area III. Carbon and Biomass: synthesize biomass data and define its economic value.

- Map aboveground biomass distribution across the miombo eco-region;
- Develop a better understanding of the dynamics in the miombo region;
- Improve estimation on below-ground carbon dynamics in the miombo region;
- Developing products for specific users: natural resource management, CDM, REDD+, etc.
- **Core area IV. Ecology:** understanding issues of utilization, management and undervaluation of resources from the miombo woodland.

# Summary of the discussions 3 years ago:

**Core area V. Miombo ecosystem management and adaptation to climate change:** understanding of past, present and developing future scenarios of miombo cover, better position and role in the REDD+ context.

- Improved understanding of rates and dynamics of use and impacts on the miombo ecosystems;
- Natural resource management policies: effectiveness and needs;
- Ecosystem-based adaptation in the miombo ecosystem.

**Core area VI. Human dimensions of the miombo ecosystem:** potential to enhance community-based forest management and value indigenous knowledge on forest resources management.

- Valuation of miombo woodlands;
- Value addition of miombo woodland resources;
- Incentives and benefit sharing: To promote PPP in SFM;
- Participatory natural resources management: review of lessons and good practices;
- Energy: Sources, alternatives and technologies for efficient production and consumption.



# Key initiatives

- Abrupt Changes in Ecosystem Services (ACES)- UEM, UoE, UZ, U-Lurio, Government authorities, NGOs (LUPA, MICAIA, CTV).
- Exploring the carbon sequestration potential of selected MW in Moz and Zambia (UEM, Copperbelt U).
- Fire-related research program in Niassa National National Research – UEM, UoE, UL-ISA, UVa, Uni-Lurio, NNR authorities.
- SEOSAW (Lead by UoE; submitted for funding)
- Valorization of NTFP (UEM, UL, UZ, UCoperbelt, UP, in progress)

# Proposed updated outline of the MN Science Plan:

- Justification/rationale;
- Socio-ecological importance of miombo woodlands;
- Key questions in the Miombo woodlands;
- Core areas: justification, activities, responsibilities, partnerships, funding, and flagship projects.

# CORE\_AREAS

- Core area I: Patterns, Processes and drivers of miombo ecology and land cover change.
- Core area II: Ecological restoration of miombo woodlands
- Core area III: Miombo woodlands management and climate change adaptation
- Core area IV: socio-ecological relationships in miombo woodlands
- Core area V: governance and leadership for miombo woodlands sustainability

# Break-out groups

**For each core area the groups should discuss around the following issues:**

- Conceptual framework for MW?
- How to contribute to Decision Support Systems?
- List key topics and activities that can be carried out in the short- (5years) medium- (10 years) and long term (>10 years). Activities may be related to: research, capacity building (list the training needs), dissemination strategies.

# Framework for ecosystem services (Kalaba, 2014)

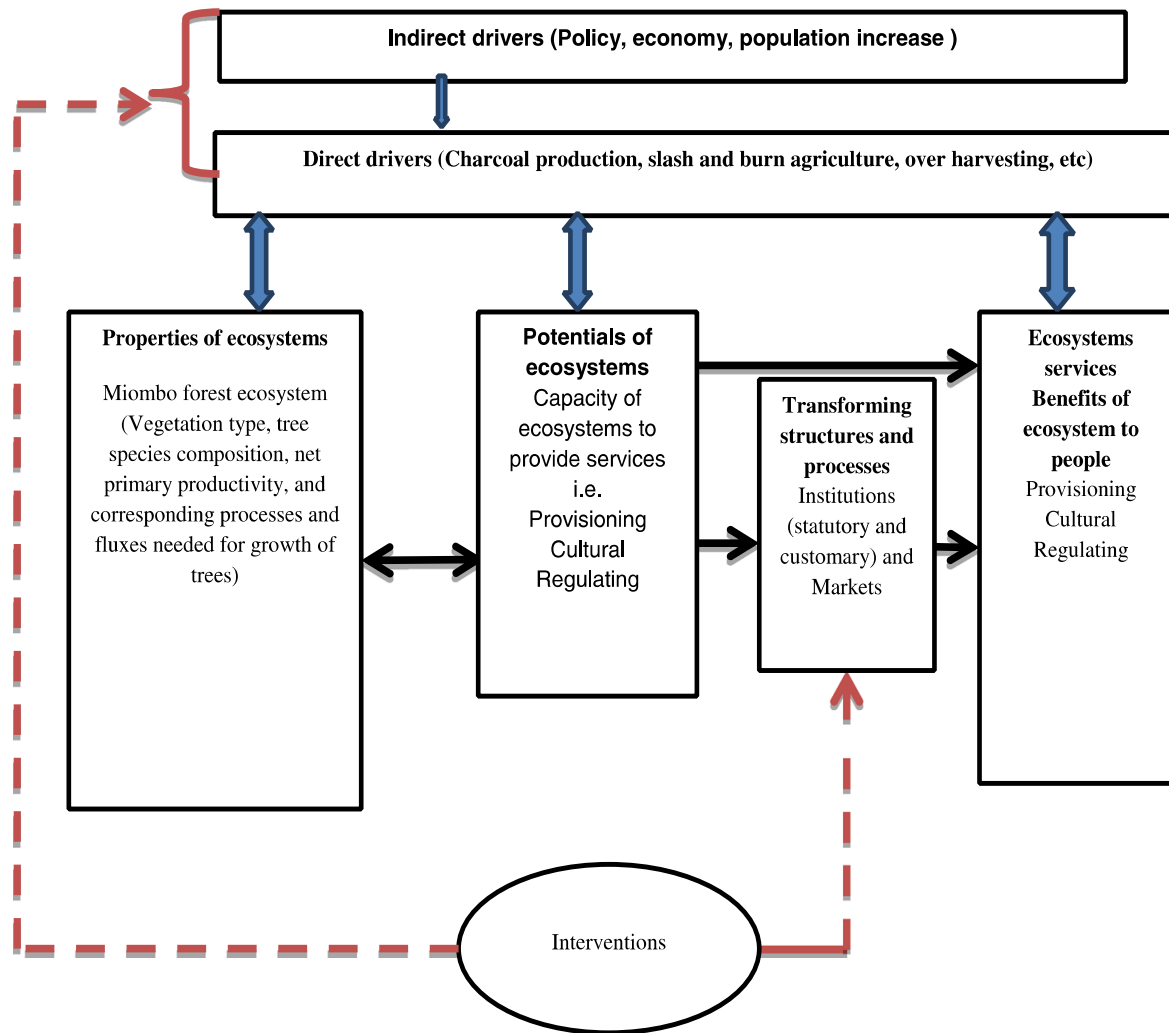


Fig. 3 Framework for ecosystem services assessment for Miombo forest ecosystem services

# Break-out groups

**For each core area the groups should discuss around the following issues:**

- Identify responsibilities/partnerships for activities implementation (private, government, NGO, CBO, etc).
- Identify key funding sources (concrete ongoing or potential calls), and
- 2-3 flagship projects (regional or national): study sites, priorities and schedule, project management, data management and communication, link to international/regional/national needs.
- How can this plan be adopted by each country of the region? How can this plan respond to the real needs of the country in terms of research and decision-making?
- Others

# Group distribution

## Core area I: Patterns, Processes and drivers of miombo ecology and land cover change – Fernando Sedano

1. Noe Hofico
2. Julie Silva
3. Alba Celeste
4. Muri Soares
5. Darlindo Pechisso
6. Malunga Mwape
7. Charity Mbirimi
8. David Nangoma
9. Tereza Alves
10. Valerio Macandza
11. Faura Amade
12. Emeline Assede
13. Mansour Mahamane

## **Core area II: Ecological restoration of miombo woodlands – Coert Geldenhuys**

1. Davison Gumbo
2. Andrew Mariki
3. Ricardo Ribeiro
4. Thais Vieira
5. Andre Nave
6. Natasha Ribeiro
7. Edson Gandiwa
8. Johan Zietsman
9. Mirjam Kuzee
10. Debra Magwadea
11. Tembo Chanyenga
12. Arnela Mause
13. Cornelio Ntumi



## **Core area III: Miombo woodlands management and climate change adaptation – Erick Fernandes/Paxie Chirwa**

1. Salvador Nanvonamuquitxo
2. Aires Mbanze
3. Isilda Nhantumbo
4. Jaime Macuacua
5. Jose Lima Santos
6. Kaala Moombe
7. Michael Gachanja
8. Nico Oosthuizen
9. Paxie Chirwa
10. Rene Machoco
11. Ricardo martins
12. Almeida Siteo
13. Cremildo Rungo

## **Core area IV: socio-ecological relationships in miombo woodlands - Isla Grundy**

1. Christopher Imakango
2. Ana Ribeiro
3. Alcidio Vilanculos
4. Ivete Maquia
5. Judith Kamoto
6. Iva Vaz
7. Alberto Albazino
8. Francisco Nobre
9. Guy Deacon
10. Pekka Virtanen
11. Romana Bandeira
12. Charles Jumbe
13. Muino Taquidir

## **Core area V: governance and leadership for miombo woodlands sustainability - Jöerg Helmschrot /Davison Gumbo**

1. Jose Manuel Batalha
2. Andre Aquino
3. Senganimalunje, T.C.
4. João Estevão
5. Adolfo Bila
6. Cornelio Miguel
7. Martin Wieschemann
8. Maria Rosalda Sousa
9. Rito Mabunda
10. Takuya Homma
11. Concilia Monde
12. Alfan Rija
13. Maria Muianga
14. Juliao Cumbane