Adapting agriculture to changes in Africa – the path to agroecology

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June 2019

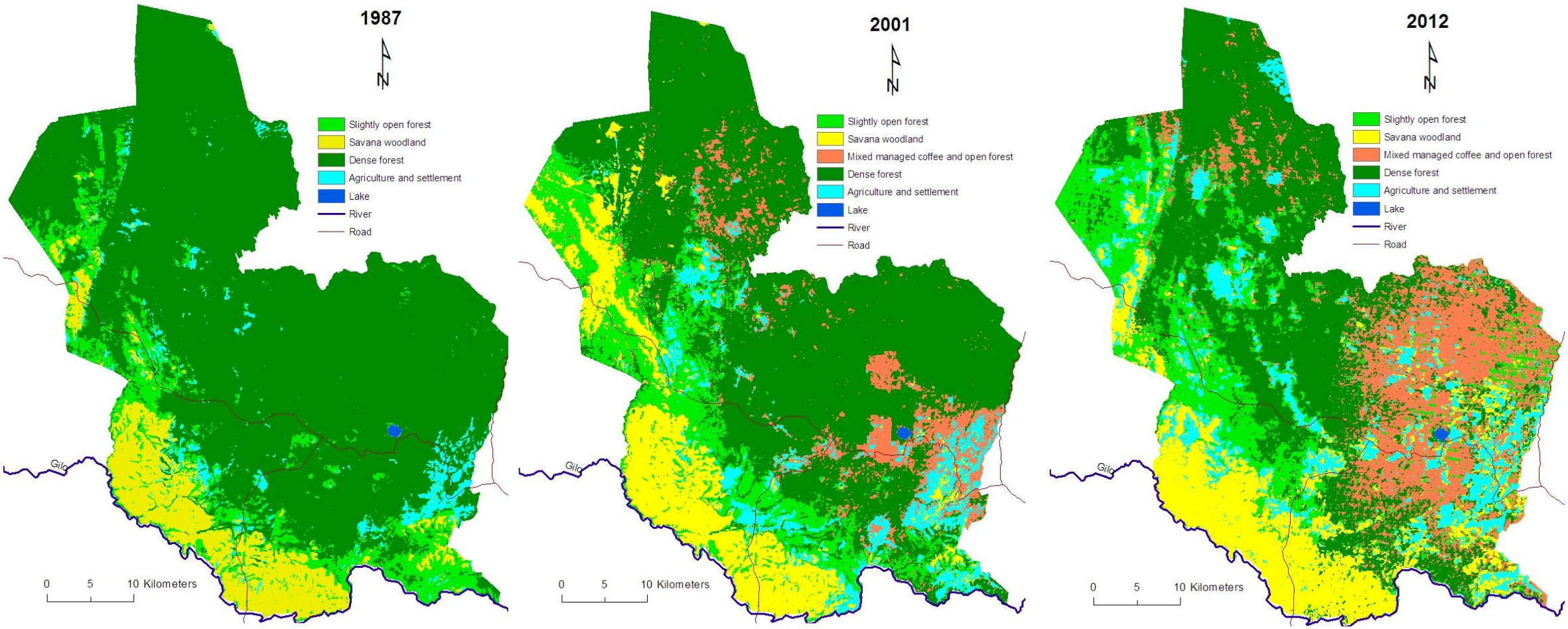
Nairobi, Kenya

Critical Questions for sustainability in Africa (?)

- How can we produce more food?
- How can we produce more, nutritious and healthy food?
- How can we produce more food which is nutritious and healthy with out affecting the biosphere?
- How can we produce culturally appropriate food which is nutritious and healthy and without affecting the biosphere and in a just way?

Challenges to the future of agriculture

- Population explosion
- Land and forest degradation
- Decrease in biodiversity
- Cultural erosion
- Unplanned urbanization
- Climate change


1987
N
Slightly open forest
Savana woodland
Dense forest
Agriculture and settlement
Lake
River
Road
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2001
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Slightly open forest
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Mixed managed coffee and open forest
Dense forest
Agriculture and settlement
Lake
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2012
N
Slightly open forest
Savana woodland
Mixed managed coffee and open forest
Dense forest
Agriculture and settlement
Lake
River
Road
Gilo
0 5 10 Kilometers

TWO COMPETING NARRATIVES FOR THE FUTURE OF AGRICULTURE IN AFRICA

Productivist

Agroecological

Productivist narrative

Focusing on productivity mainly

- agrochemicals
- High Yielding Varieties
- irrigation
- Land consolidation
- Focusing on technology (emerging technologies)
- Training farmers new techniques – knowledge substitution

Institutions pushing industrial agriculture in Africa

Philanthrocapitalists, Development agents, Business with Local scientist and government bureaucracy (NEPAD, CADDP, AU, RECs)

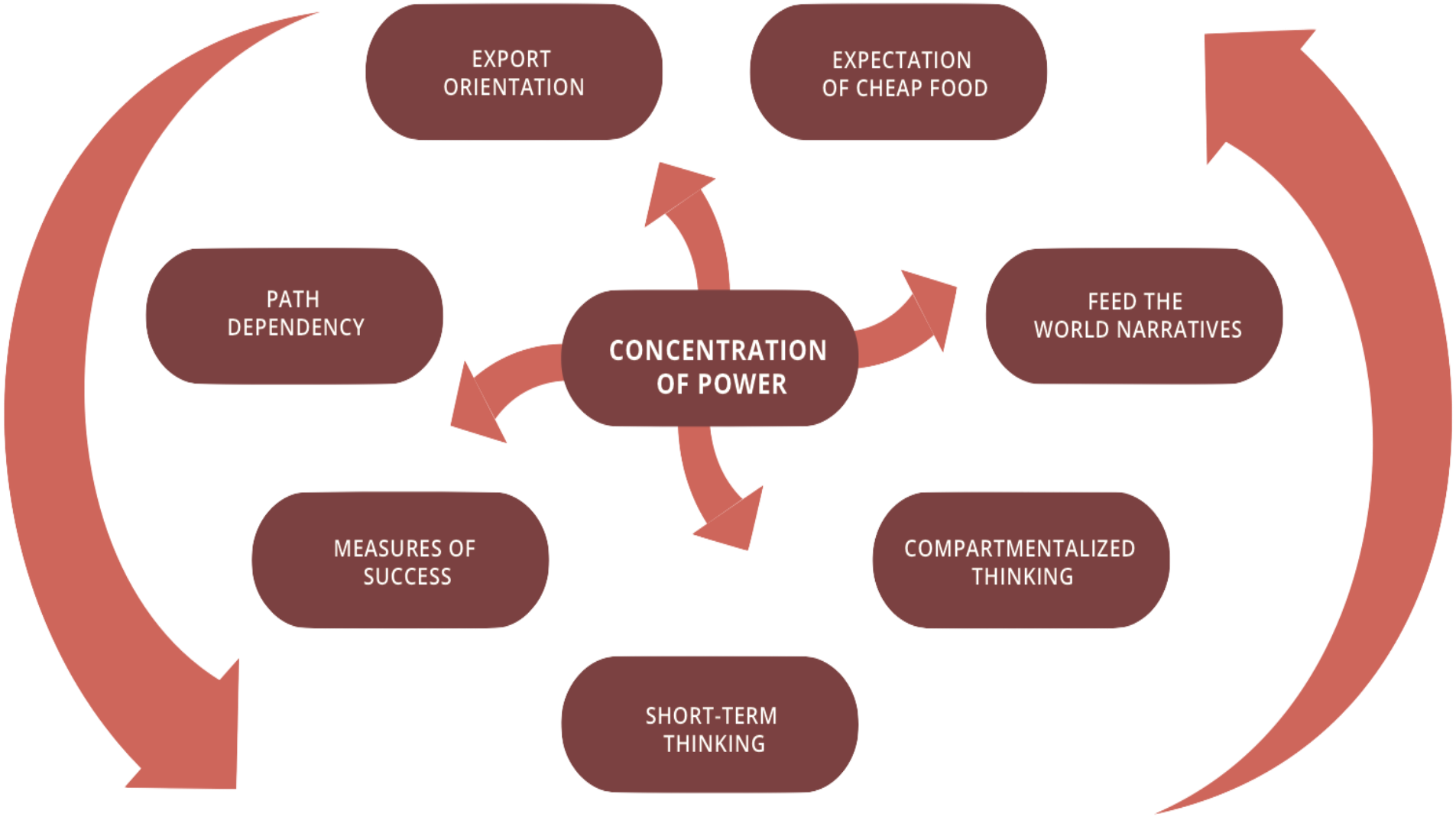
Narratives for industrial agriculture

- Priority to business to feed Africa
- Farmers seed is part of the problem and should be replaced by patented hybrids
- Problem is of calorie so more calories is the solution.
- Land should be given to those who can make it productive.
- Knowledge comes from science
- It is possible to produce one fits all solutions.

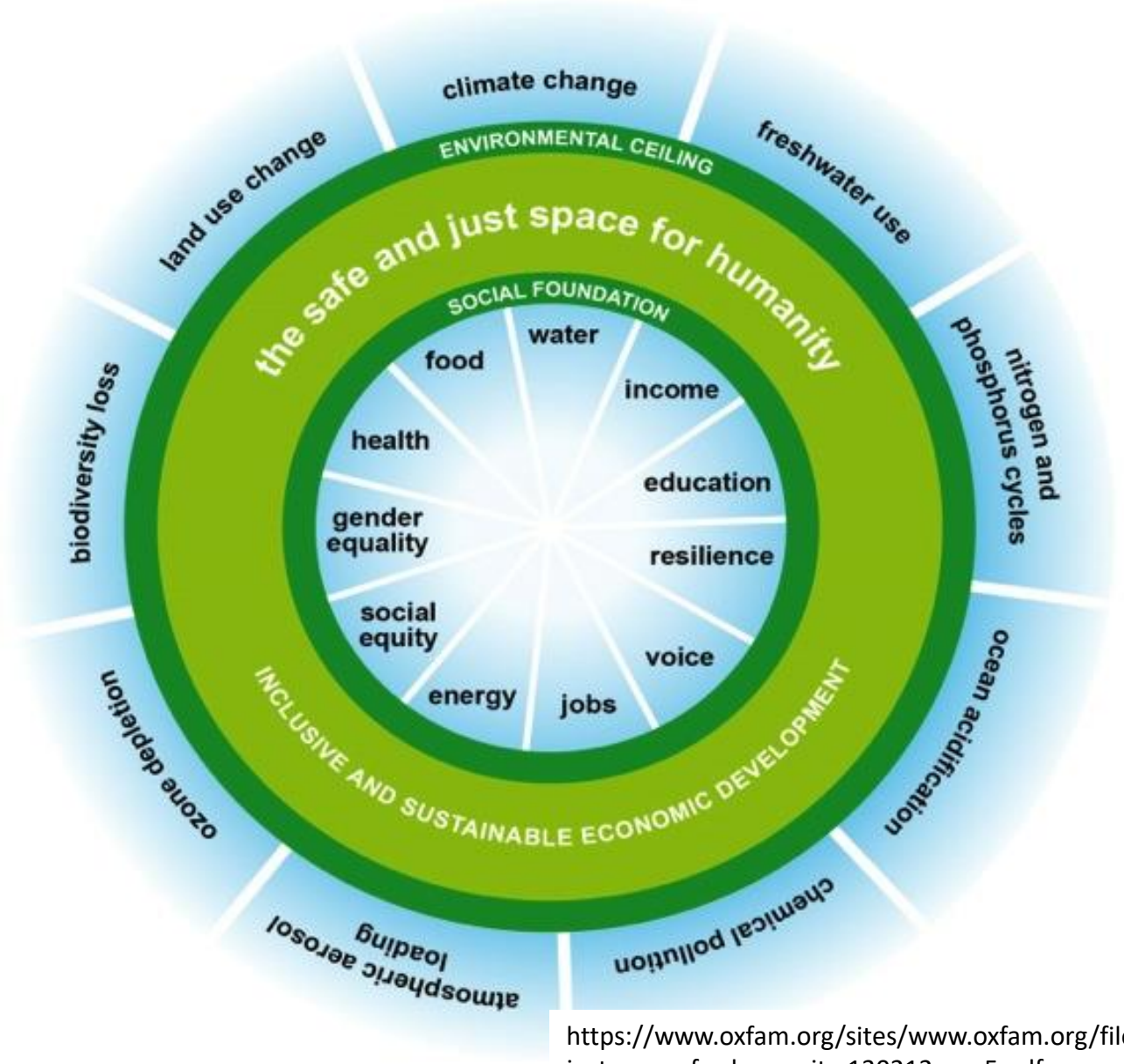
What is wrong with our the current food production system in times of climate change? IPES Food

- **Triple burden of malnutrition**
  - Hunger, micronutrient deficiencies, obesity &NCDs (cardiovascular, respiratory, cancer and diabetes)
- **Environmentally unsustainable**
  - Biodiversity losses, water pollution, soil degradation, GHG emissions, unsustainable use of natural resources, low resilience …
- **Social inequities**
  - Poverty, disempowerment …
- **Neglect of cultural values**

What prevents change: 8 Lock-ins



Planetary and social Boundaries



Kate Raworth

https://www.oxfam.org/sites/www.oxfam.org/files/file_attachments/dp-a-safe-and-just-space-for-humanity-130212-en_5.pdf

Agroecology

Action and change that brings sustainability and resistance to all parts of the food system: ecological, economic, cultural and social.

- **Agroecology as science**
- **Agroecology as practice**
- **Agroecology as a social justice movement**

It has to be all three or it is not Agroecology!

Methods

Conservation tillage

Minimum tillage improves soil structure, aeration and water infiltration/retention, and increases organic matter (maintains soil carbon).

Natural nitrogen fixation

Use of legumes like beans, peas, clover, lucern, acacia are used to fix nitrogen. These plants contain symbiotic bacteria in their roots that sequester nitrogen from the air.

Natural pest control

Increasing resilience to pests, e.g. by favouring pests' natural enemies, use crop rotations and a diversity of crop varieties.

Agroforestry

Integrating trees in farming systems can provide fodder, fuel and shade, erosion control and natural nitrogen fertilization.

Cover crop & mulching

Cover crops and mulching: provide soil nutrients, reduce erosion, and enhance biological pest control.

Rainwater harvesting

Small-scale collection and storing of rainwater combined with innovative watering techniques for better water resource management.

Empowerment and stakeholder engagement

Taking advantage of local stakeholder's knowledge, initiatives and creativity, e.g. through participatory research projects and establishment of value change groups.

Recycling of nutrients

Local recycling of plant nutrients and improved fertility by composting, which build humus that increases water retention and soil permeability.

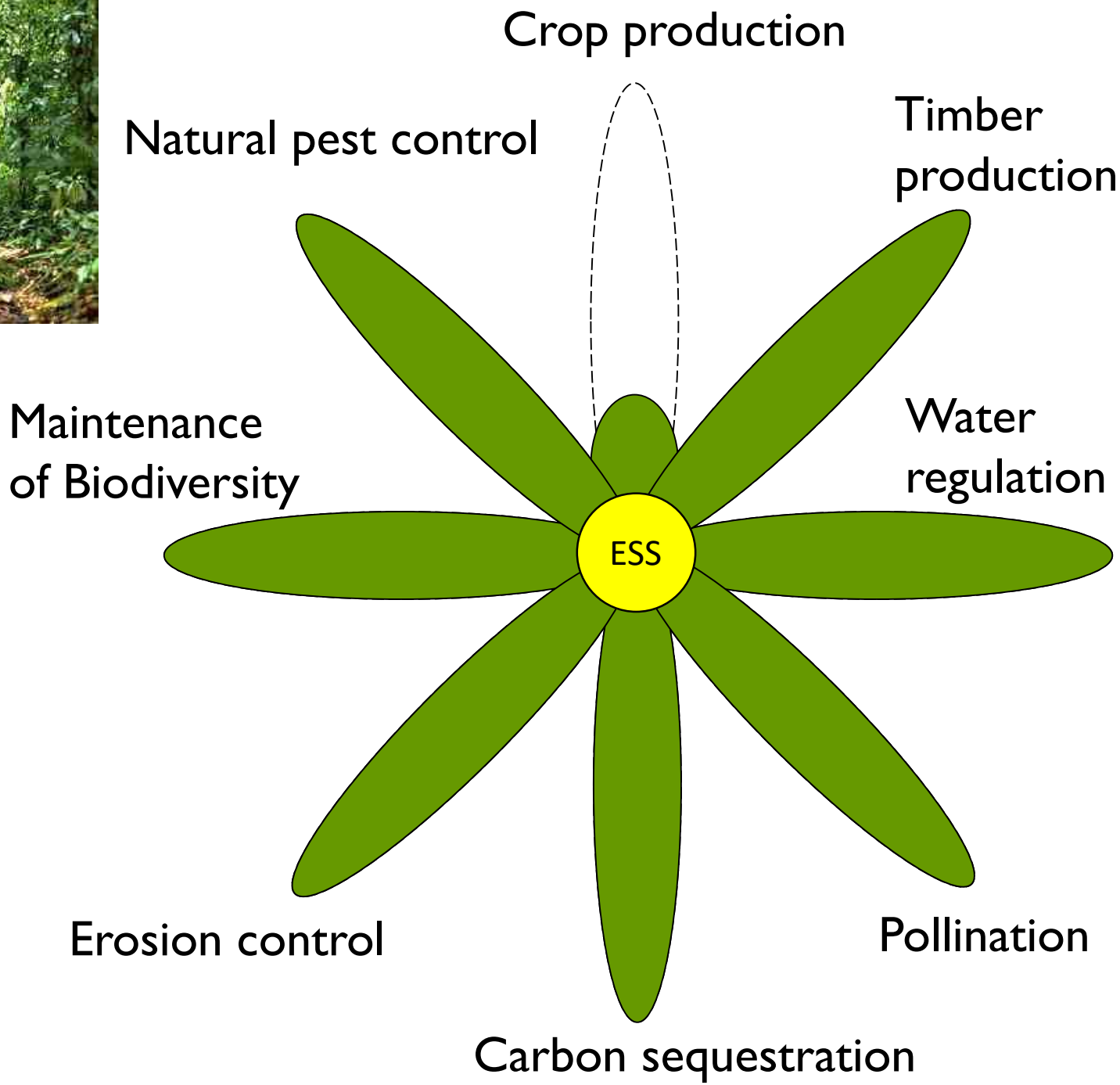
Biodiversity & ecosystem services

Diversity on different scales; varieties, crops, animals, crop rotations, farming systems and use of ecosystems services for more resilient production and food security.

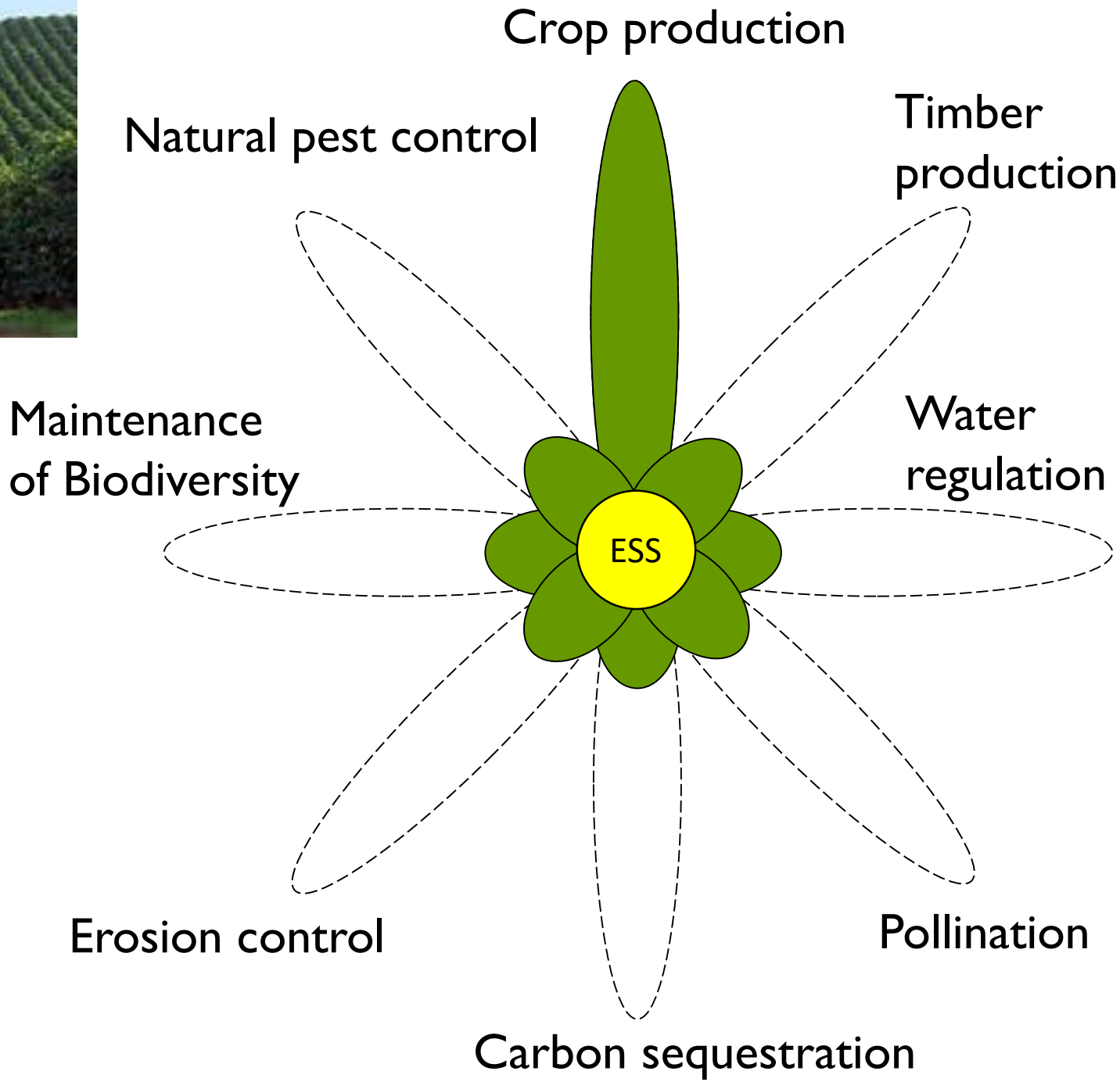
Socio-economic regulations

If agriculture is to deliver both livelihoods and collective benefits, there is a need for economic instruments (e.g. subsidies, certification) and law based regulations (e.g. environmental legislation, procurement schemes).

Natural ecosystem

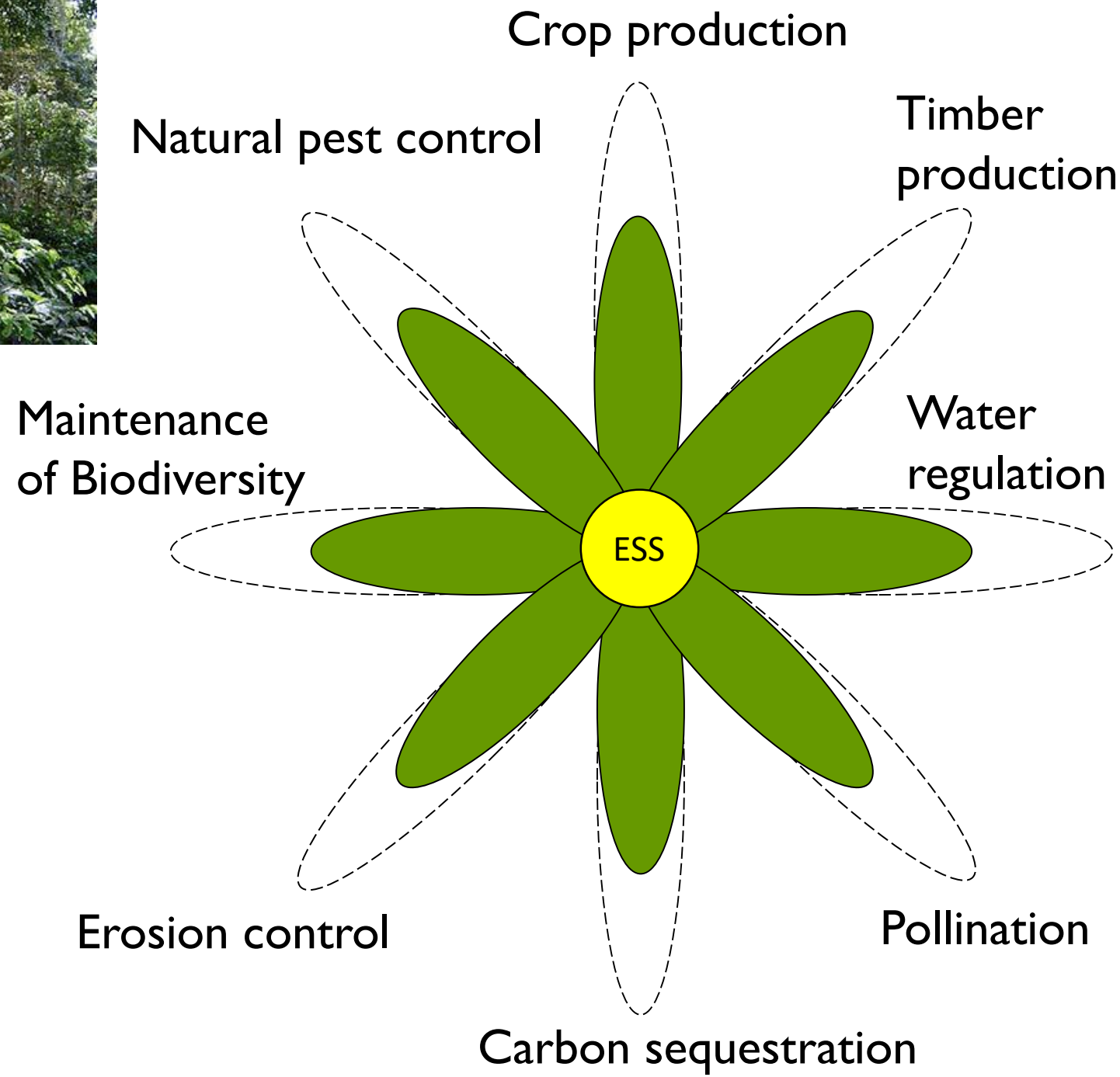


Monoculture



Agroecology

(Agroforestry)



AFSA – What is in a name?

AFSA

ALLIANCE FOR FOOD SOVEREIGNTY IN AFRICA

Purpose is creating single African voice
37 networks of networks – the biggest in the Continent – working in 50 of the 55 countries.

Representing food producers (farmers, fisher folks and pastoralists), women, youth, faith based organizations, consumer groups, indigenous peoples and indigenous CSOs.

Potentially reaching 200,000,000 Africans

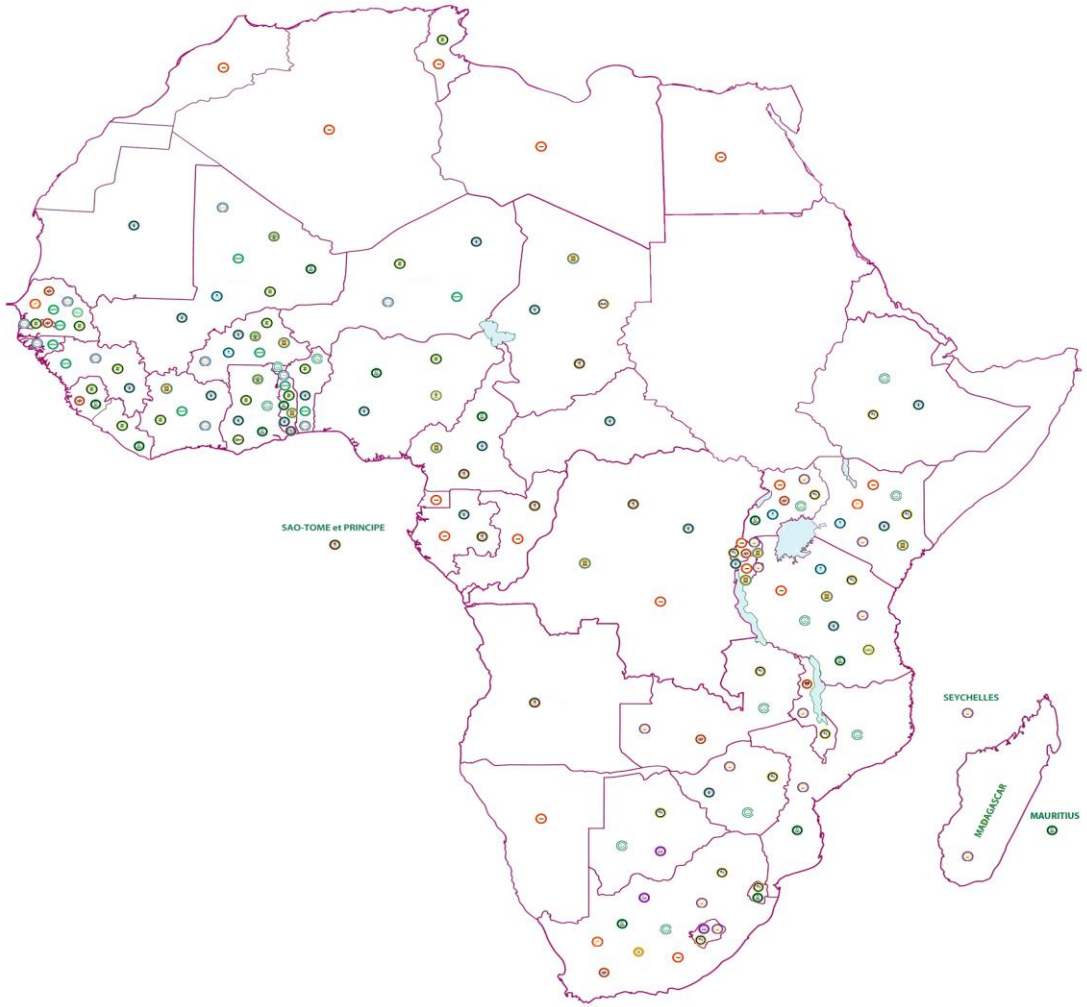
AFSA believes in:

- Championing small African family farming/production systems – through agro-ecology and Farmers Managed Seed System
- Resisting the corporate industrialization of African agriculture – seed and land grabs.

AFSA MEMBERS

* not official logo

Countries where members of AFSA are active



Four working groups

- Land and agroecology
- Citizens for agroecology
- Seed and agroecology
- Climate change and agroecology

AFSA'S THEORY OF CHANGE

The Goal of making a case for agroecology

To make an evidence-based and coherent case for agroecology as the sustainable long-term solution for farming in Africa

AFSA

ABOUT US

WHAT IS AFSA?

www.afsafrica.org/case-studies/

CASE STUDIES

www.afsafrica.org

CASE STUDIES

View All Case Studies Submit a Case Study

Reviving The Ankole Longhorns Of Uganda

Reclaiming Life In Marginal Areas

Promoting Indigenous Maize In Bugiri District, Uganda

Overcoming The Constraints Of Agriculture

Improving Traditional Systems Of Soil Fertility

ALLIANCE MEMBERS

PAGEN

African Biodiversity Network

Pelum Association

La Via Campesina

INADES Formation

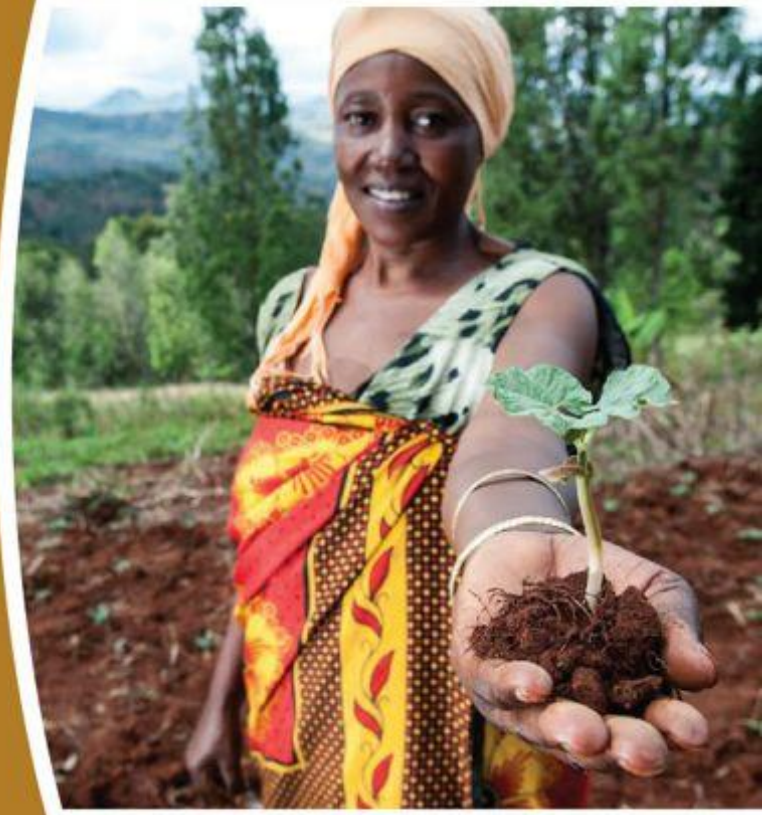
2015

Année internationale des sols

AFSA

ALLIANCE FOR FOOD SOVEREIGNTY IN AFRICA

ALLIANCE PANAFRICAINE POUR LA SOUVERAINETE ALIMENTAIRE



PLAIDOYER EN FAVEUR DE L'AGROÉCOLOGIE

2015

International Year of Soils

AFSA

ALLIANCE FOR FOOD SOVEREIGNTY IN AFRICA

MAKING THE CASE FOR AGROECOLOGY

AGROECOLOGY CASE STUDY

At the homes of Never Ending Food (NEF) intern, Hardwell Kaunye (middle) and former NEF permaculture manager, Luwaya Biswick (right)

Never Ending Food in Malawi

'Never Ending Food' Demonstration Site

AGROECOLOGY CASE STUDY

AFSA
ALLIANCE FOR FOOD SOVEREIGNTY IN AFRICA

Ankole longhorn cows.
Photo: Flickr user Meng Zhang

Reviving the Ankole Longhorns of Uganda

African leafy vegetable enterprise boosts livelihood of rural communities in Kenya

Above: Figure 1: This was our training session where we briefed members on the basic principles, concepts and operationalization of Food Sovereignty

Introduction

In Africa and in particular, Sub-Saharan Africa, it is estimated that there are more than 45,000 species of plants, of which about 1,000 can be eaten as green leafy vegetables. Most of the latter fall within the category of African Leafy Vegetables (ALVs). ALVs are also known to be rich in vitamins, proteins, minerals and micronutrients such as selenium, zinc, potassium, beta-carotene, iron, folate, copper and iodine. They have also been found to have medicinal value in addressing illnesses such a diarrhoea,

AGROECOLOGY CASE STUDY

AFSA
ALLIANCE FOR FOOD SOVEREIGNTY IN AFRICA

Finger millet with Endris closer, Bati (left) · Finger millet field with single plant root system, Kewnit (middle) · With wider spaces between rows and plants, SCI is now becoming the 'normal' way of growing finger millet. (right) Photo: Hailu Araya / ISD

SCI: Planting with Space

The use of finger millet seedlings has shown very positive results in the region of Tahtai Maichew, near Aksum, Ethiopia, as has the use of alternative management practices for a number of other

Unreliable rainfall has pressed farmers to shift their cropping patterns – especially in the most water-stressed regions. When the rainy season comes late, and as the moisture constraints become more

Tigray, Ethiopia

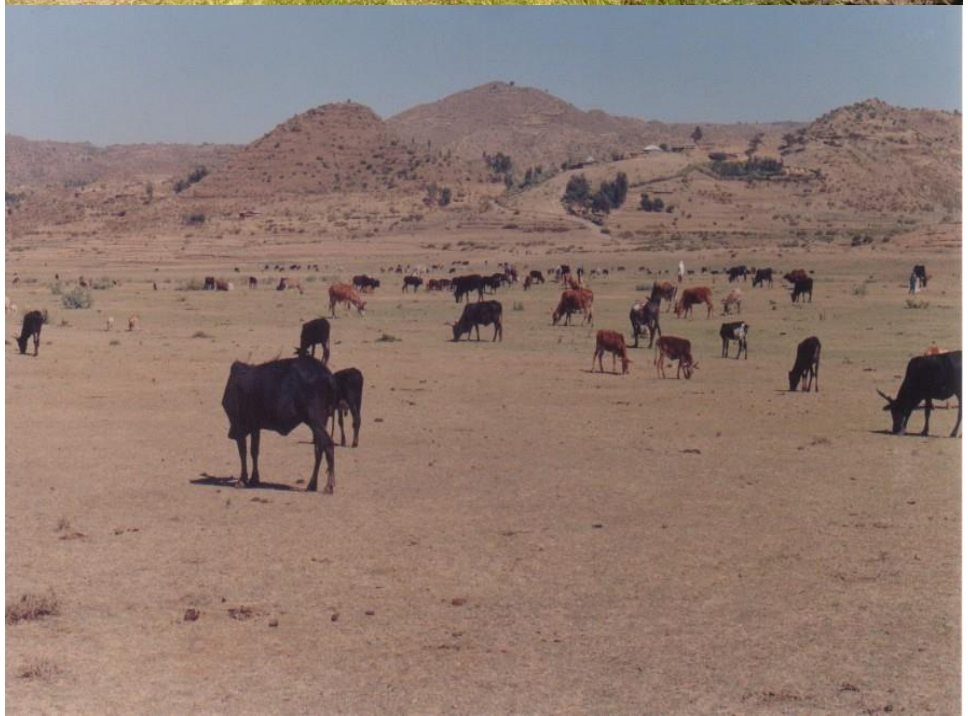
Degraded Land

High over-grazing and burning = Deep, wide and long erosion gullies

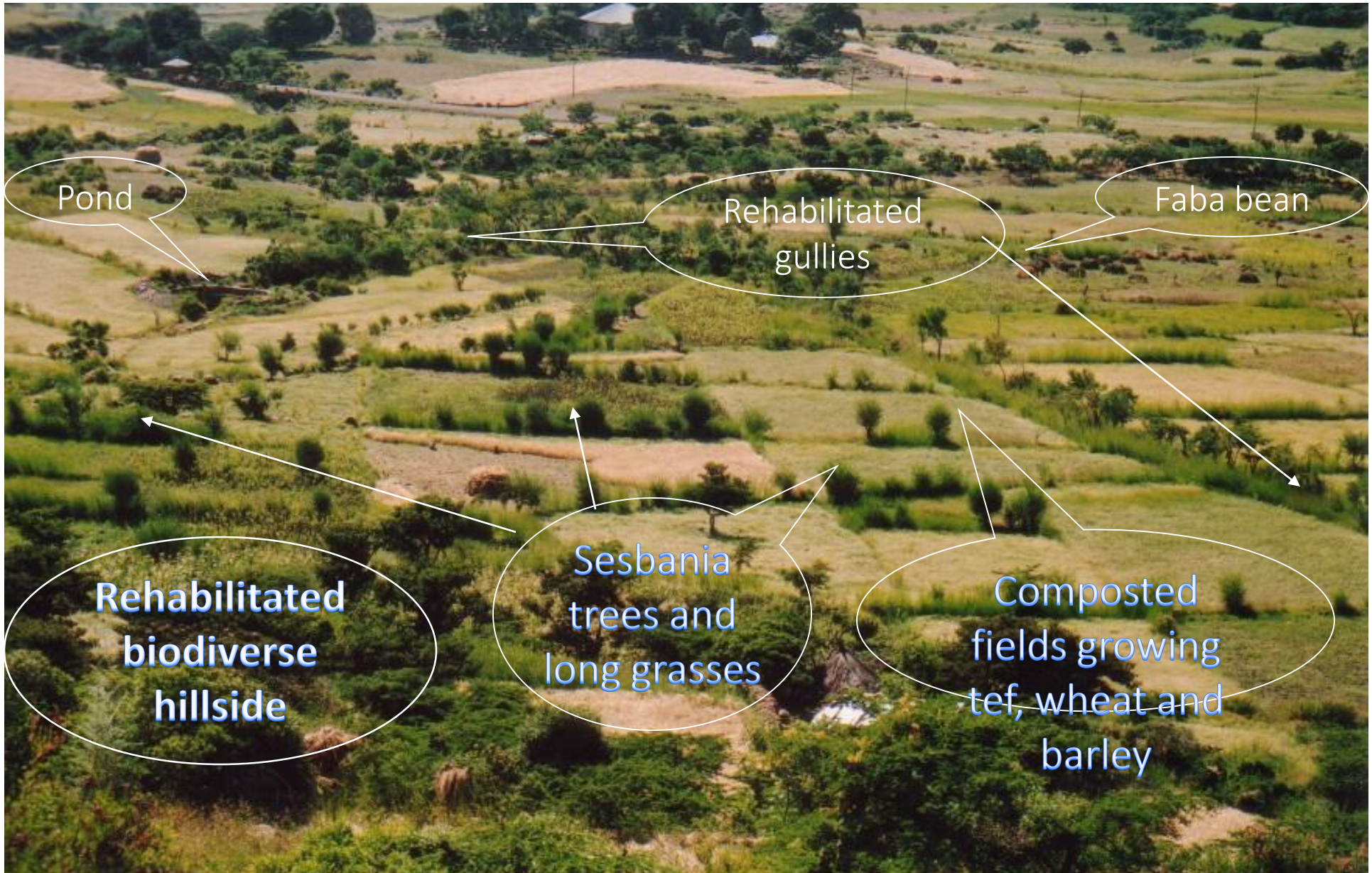
Low soil organic matter = Low soil fertility

Serious food insecurity in dry years

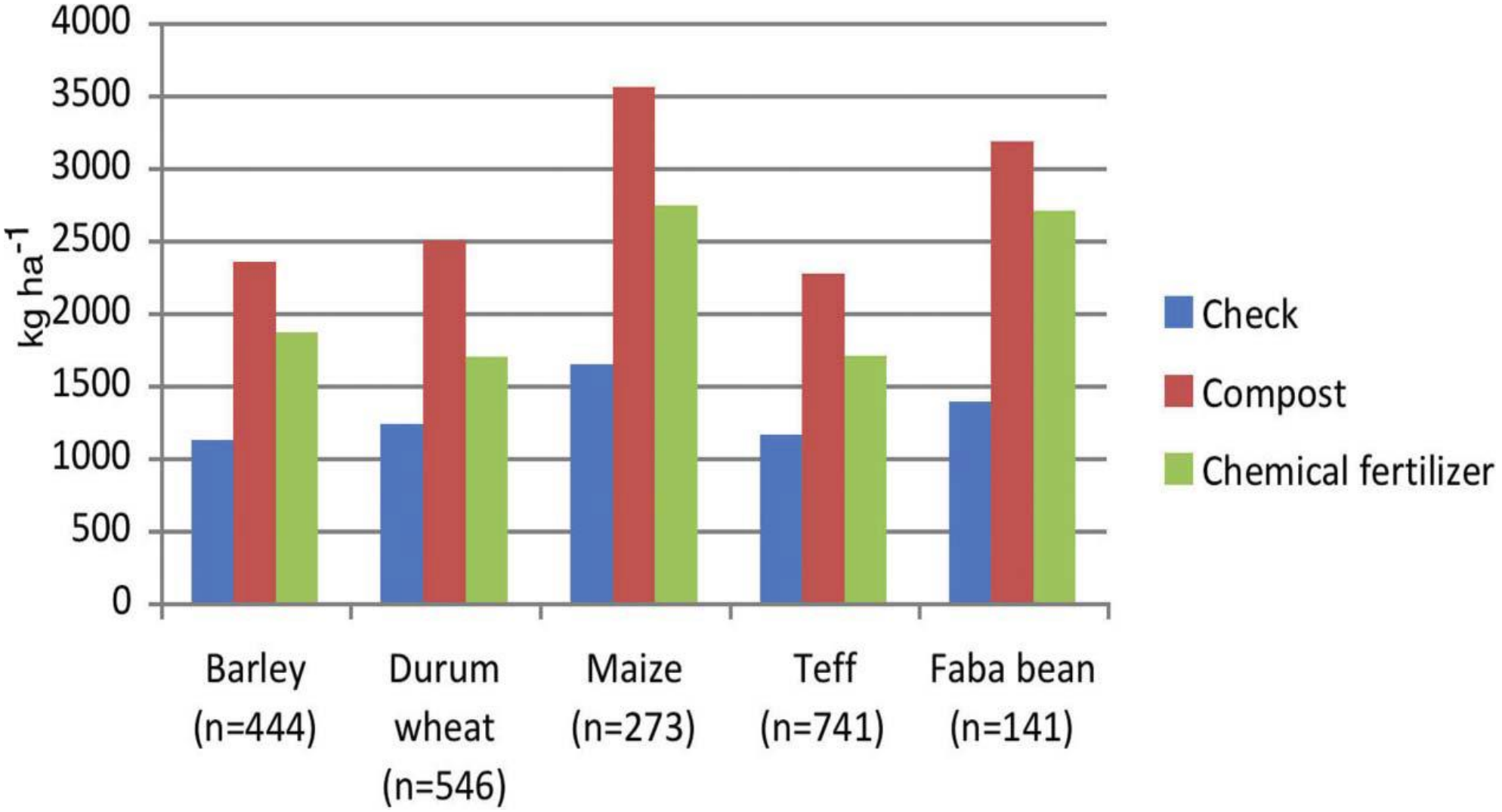
Thousands died in famines



Tigray, Ethiopia - Regenerating Soils, Landscapes and Communities



Tigray harvests - compost and fertilizer



KEY findings

Substantial income increases

Higher yields and productivity

Improved soil fertility

Drought resistant varieties increase yield

Organic markets increase incomes

Increased crop diversity lowers risk, increases resilience

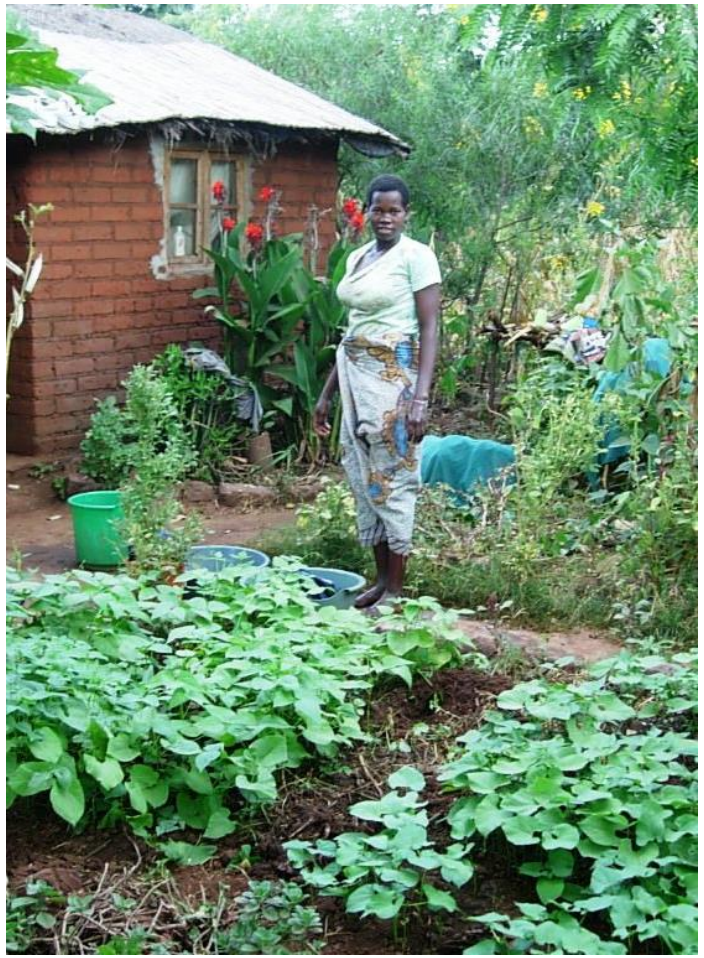


Photo courtesy of Never Ending Food

science

Sieving a pesticidal plant mixture of
Tephrosia vogelii, soap and water
A botanical farm trial in Malawi

Pesticidal plants work, are cost effective, sustainable and safe

Using SCI, tef yields of over 6 tons/ha have been observed under research conditions.

Soil moisture increase reported

practice

- Use of diverse local varieties of food crops improves nutrition, health and food security
- Intercropping, and rotation improve soil fertility, and reduce dependence on external inputs
- Organic fertilizers and composting improves soil fertility

Photo courtesy of TRAX

Social movement

- Formation of farmer groups
- Enhanced social capacity and leadership of farmers.
- Focusing on rural women and youth brings results
- Mediators (CSOs and other actors) play a huge role in mobilizing farmers

Photo courtesy of TRAX

Measuring impact against SDGs

A meta-analysis of the 50 case studies from 22 African countries shows the contribution of Agroecology to the attainment of the UN Sustainable Development Goals.

Sustainable Development Goals	Positive Impacts Recorded	
	No. of cases (Out of 50 total)	% of cases
1. No Poverty	**27**	**54%**
2. Zero Hunger	**50**	**100%**
3. Good Health & Well Being	**11**	**22%**
4. Quality Education	**31**	**62%**
5. Gender Equality	**17**	**34%**
6. Clean Water & Sanitation	**14**	**28%**
8. Decent Work & Economic Growth	**27**	**54%**
12. Responsible Consumption & Production	**33**	**66%**
13. Climate Action	**21**	**42%**
15. Life on Land	**33**	**66%**

AFSA Flagship programs

- Campaign on climate change
- African Food Policy
- Biofertilizers for healthy life and ecosystems.
- Promoting agroecological products

Thanks