NAP Expo 2023: Scaling up adaptation
Chile Global Adaptation Week

Prioritizing Climate Finance for sustainable food production in Africa

Prof Cheikh Mbow

Director General Centre de Suivi Ecologique




Centre de Suivi Ecologique

The Centre de Suivi Ecologique

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1986

Project of Sahelian Pastoral Ecosystems Monitoring

- Create new skills
- Put in place monitoring procedures and processes
- Develop quality HR
- Access to cut-off equipment
- **Limited interventions in the Ferlo**

1993

Creation of Centre de Suivi Ecologique

- Consolidation of knowledge
- Institutionalization
- Involvement in national strategies
- Contribution to national capacity building in geomatics
- **Interventions across Senegal**

2022

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- 1997: Agreement with the State, recognition of public utility
- 2010: First National Entity to implement the CC Adaptation Fund
- 2015 : First National Implementing Entity of the Green Climate Fund
- 2016: ISO 9001 certification
- **Interventions in several African countries**

CSE Ecologique

ADAPTATION FUND

GREEN CLIMATE FUND

FFEM

FAO

Digital Earth AFRICA

WORLD BANK

UN environment programme

Abidjan Convention

GLOBAL CENTER ON ADAPTATION

LE GOUVERNEMENT DU GRAND-DUCHÉ DE LUXEMBOURG

USAID FROM THE AMERICAN PEOPLE

NASA

SERVIR WEST AFRICA

IUCN

GMES AND AFRICA

Structure of the presentation

Section A — Identification of the challenges for solutions

Section B — Various options to bring back a food secure continent (countering imported options)

Section C — A call for integrated approaches

Section D — Ex. of Projects funded through international instruments (e.g. GFC, AF, GCA, FFEM, AU, USAID)

Climate Finance to reduce the food investment gap

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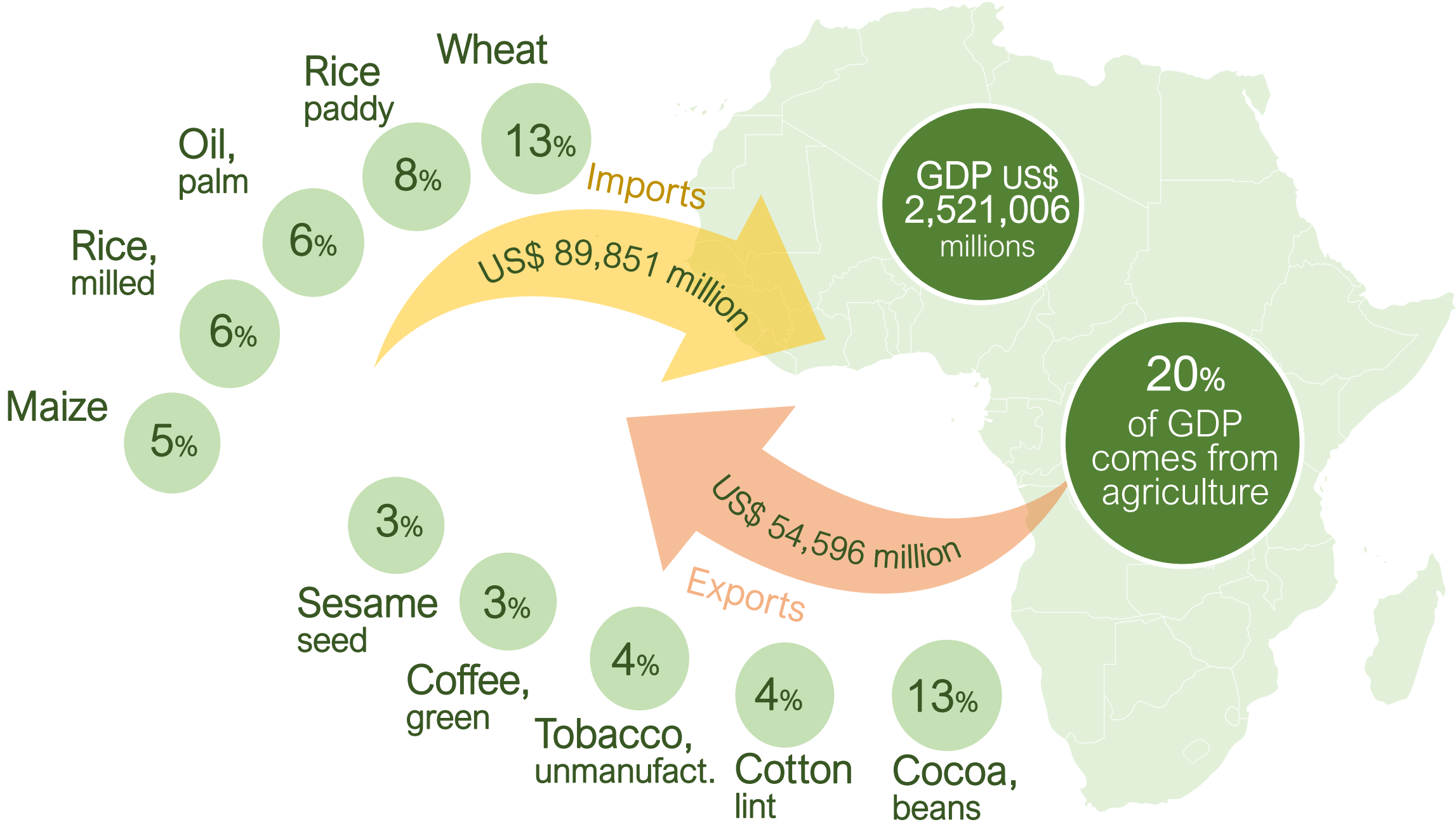

Vulnerable people do not have access to credit

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Demographics

1.4 billion people are live in **Africa**

56% live in **rural areas**

Land-holding

17% are women

83% are men

Small-scale Farmers (<5 ha)

Large-scale Farmers (>5 ha)

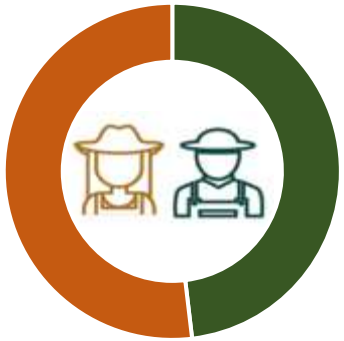
93% **7%**

Jobs in agriculture

48% (226 million)

people are employed in **agriculture, forestry and fishing**

51,1% are women

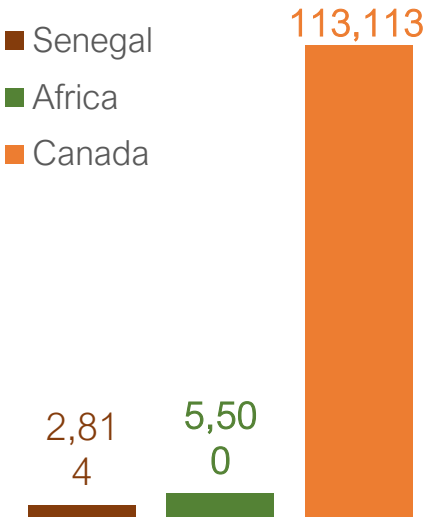


46,4% are men

65% of the labor in agriculture are **youth**

Agriculture productivity and incomes

Value added per worker in agriculture (constant 2015 US$)



Monthly earnings (Average)

US$ **~250** per month

93% of African farmers do this

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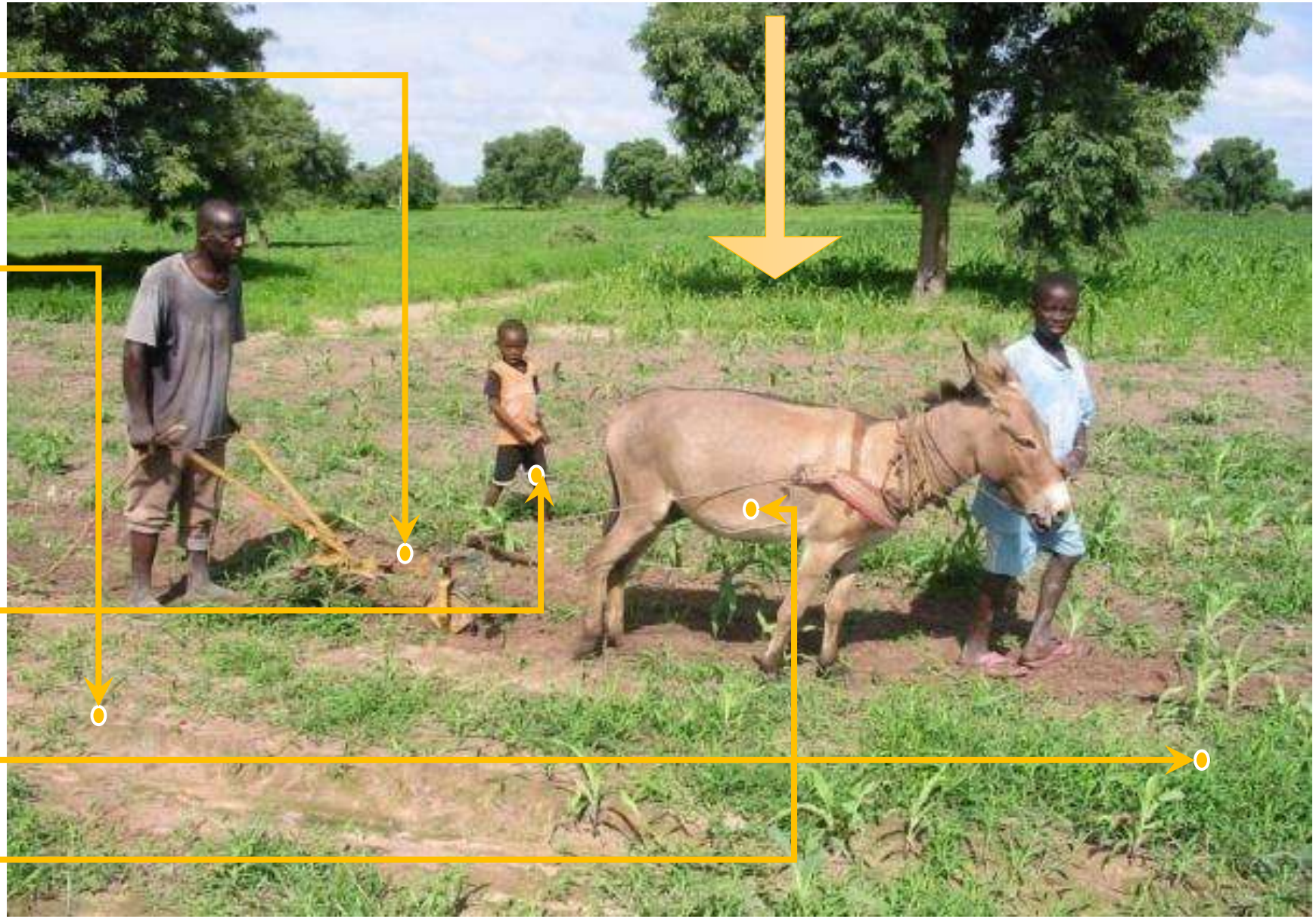
Lack of investment

Land Degradation

Yield Gap

Future food security

Poverty, famine



Leverage points for being food secure

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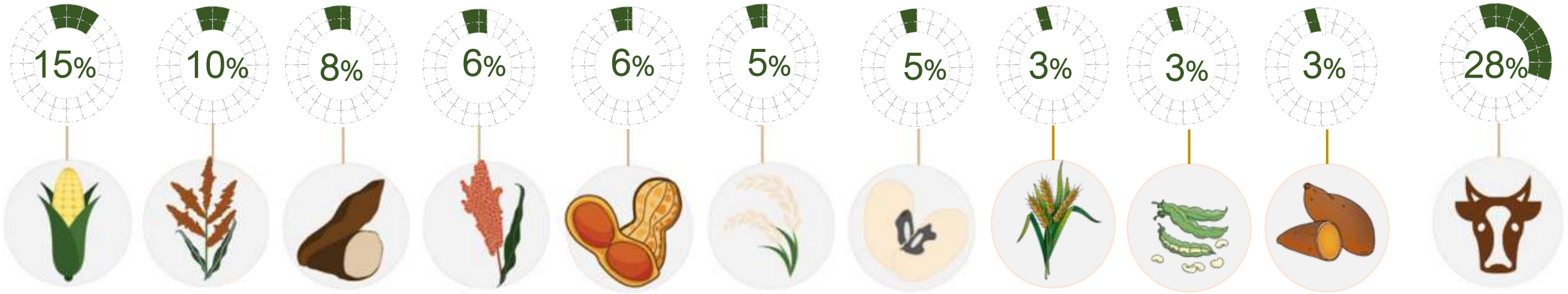
Land use (% of total harvested area)



Maize	Sorghum	Cassava	Millet	Groundnuts	Rice	Cowpeas	Wheat	Beans, dry	Yams	Livestock	
2276	934	8546	651	886	2350	593	3030	855	8597	Bovine	Sheep
									Meat	1539	151
									Milk	5830	258

*Permanent meadows and pastures as % of total land

Yields (Crops: kg/ha; Livestock: yield/carcass weight; hg/animal)

30% is lost, *it can be more than that*, but little can be done unless rural infrastructure and rural farming equipment are improved

Food Security Indicators in Africa

Food security

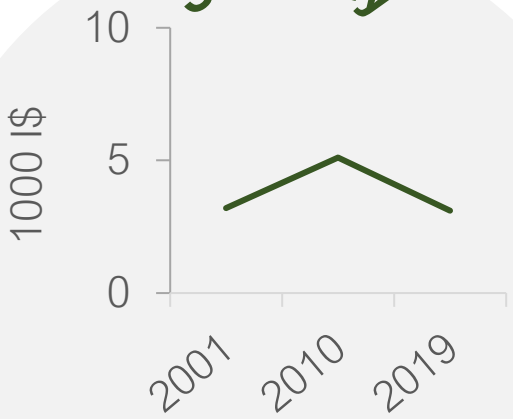
Severe **23%**

20% Prevalence of undernourishment

Moderate or severe **58%**

278 million of people undernourished

Stability



Per capita **food production variability** (constant 2014-2016 thousand int$ per capita)

Availability

Livestock products

MV

Crop products

Calories available (kcal/capita/day)

Utilization

31% children under 5 years of age are **stunted**

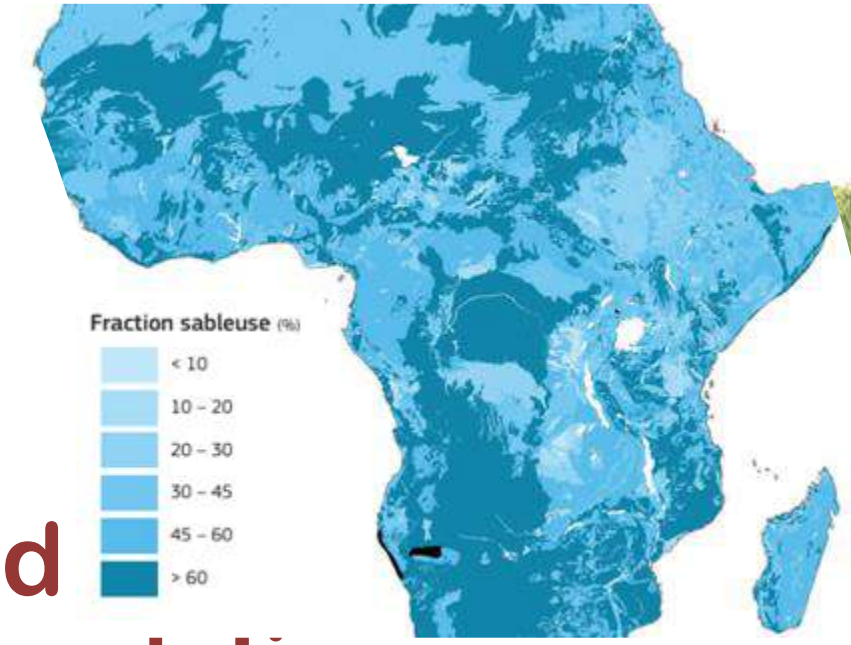
6% children under 5 years of age are affected by **wasting**

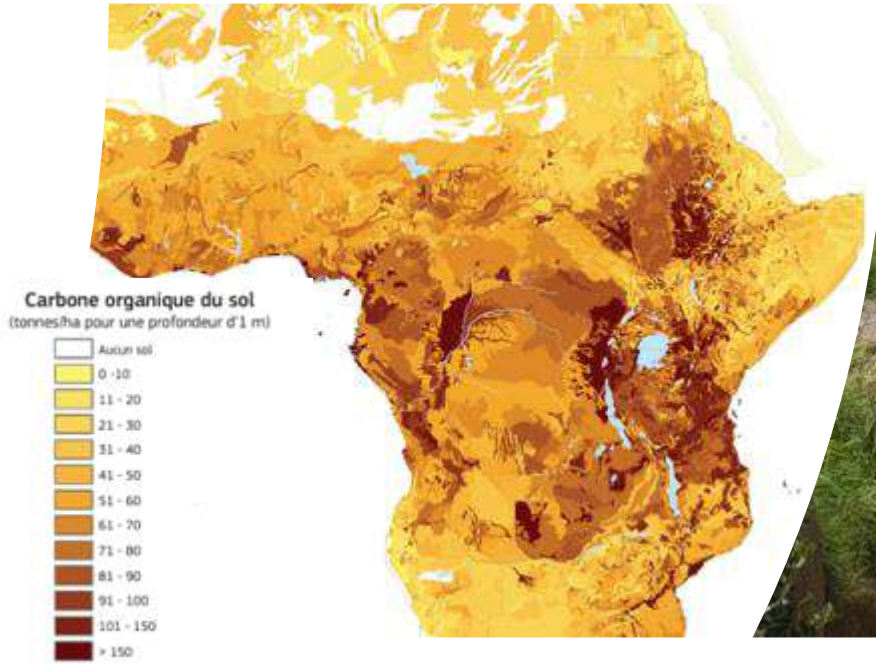
Access

40% of household budget is **spent on food**

33% of total **road** are **paved**

Land degradation





Charcoal production

Climate change and variability

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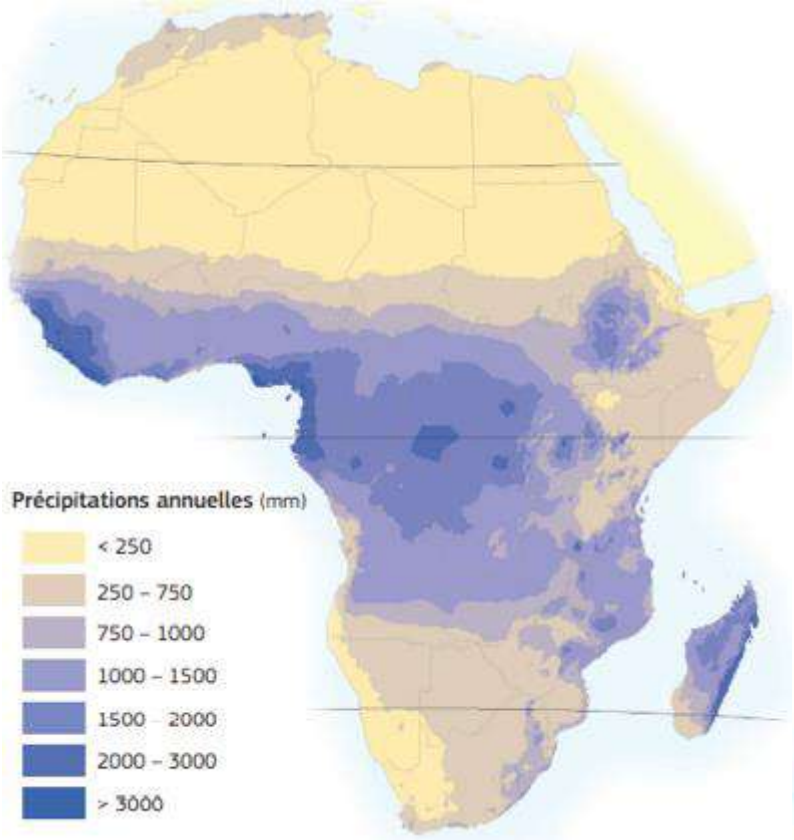

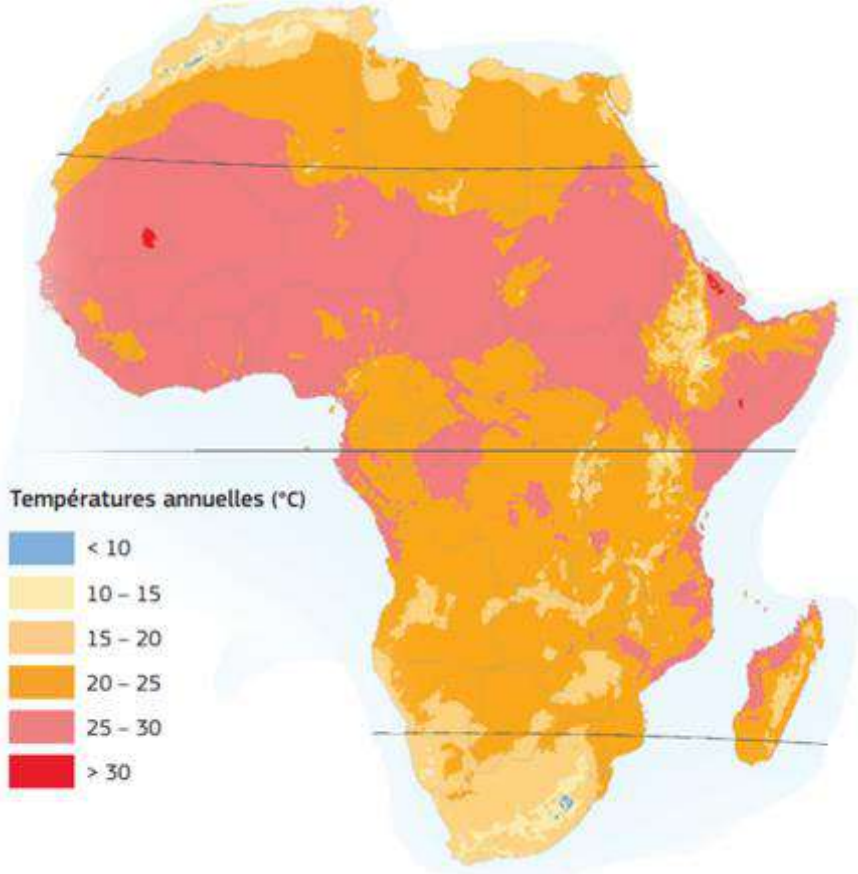

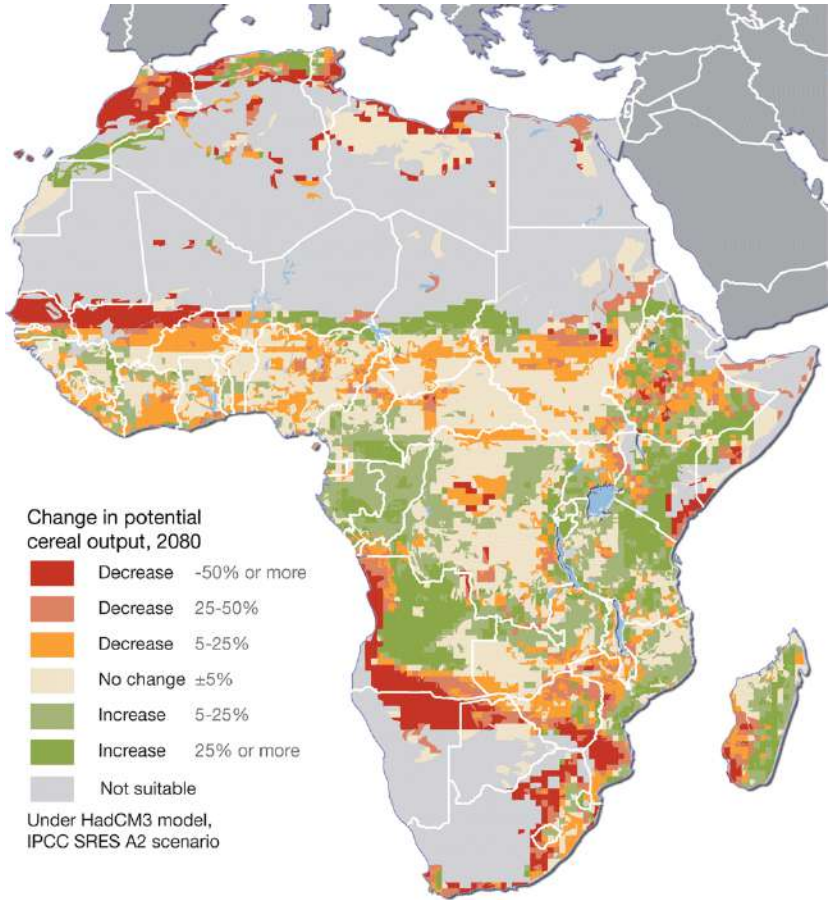

Land use and soil quality change

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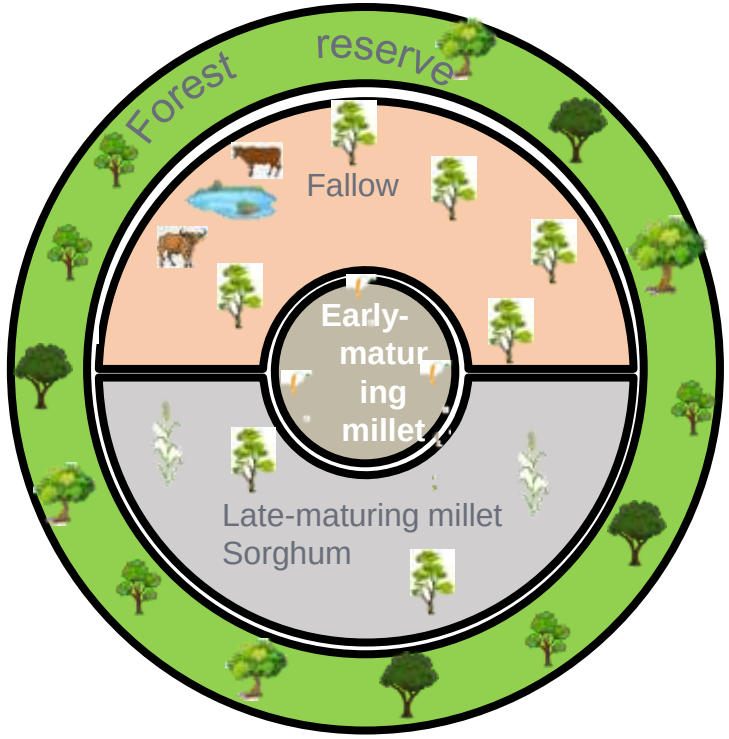
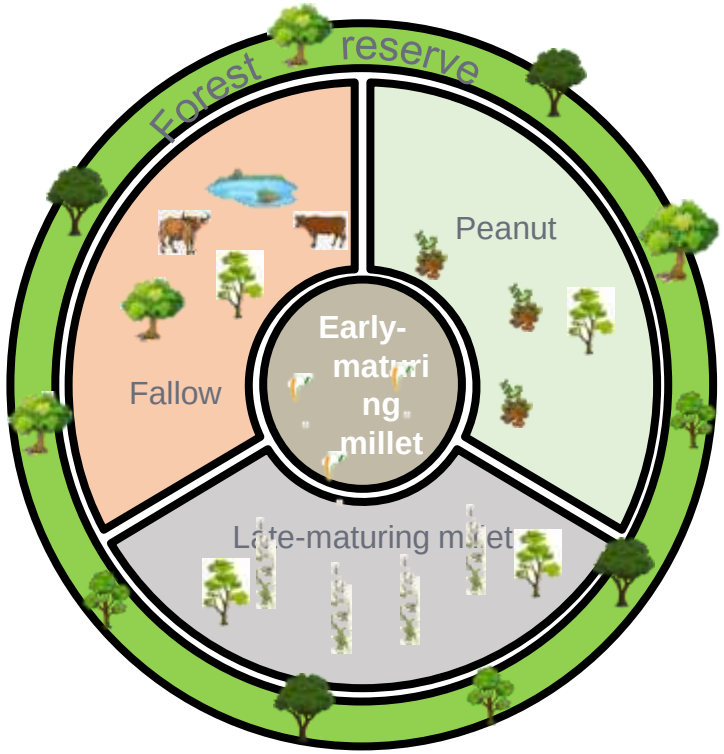


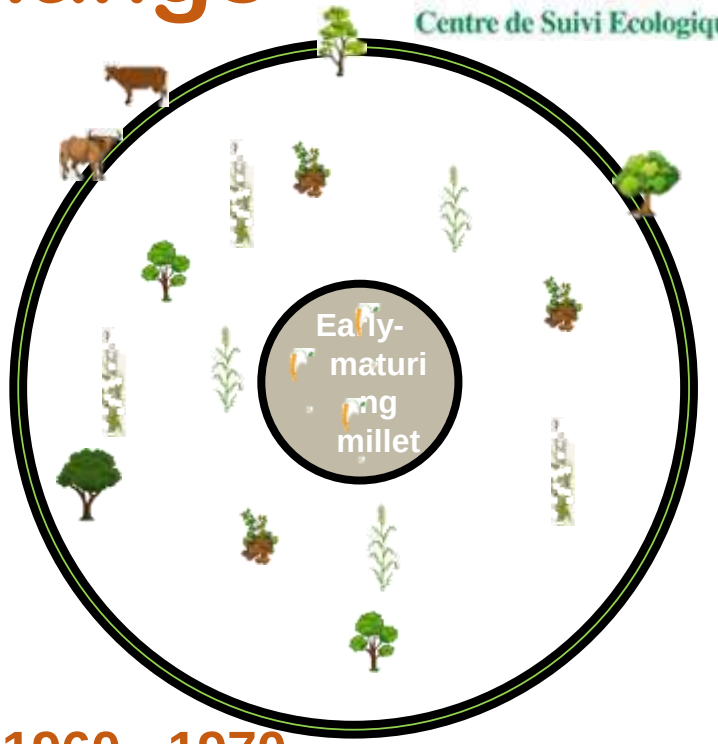
Early xixth century

- Millet/Millet (Hut fields)
- Millet/Fallow (Bush fields)



XX^{e}

- Peanut/Millet/Fallow
- Animal traction



1960 - 1970

- Expansion of cultivated land, reduction of fallow land
- Transhumance

1970 - Present

- Intensification
- Diversification

In Africa, +50% of land is degraded leading to a reduction in crop yields and threats to food security

Inputs and Infrastructure

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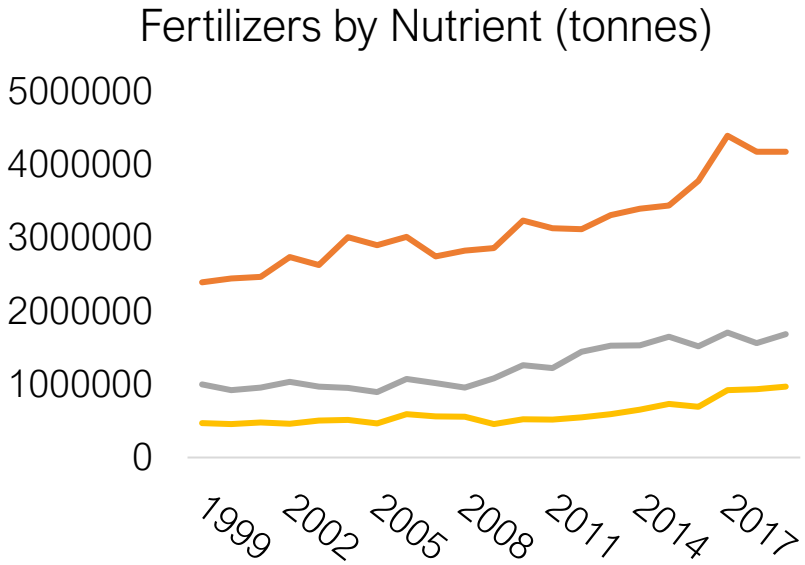
Seeding equipment

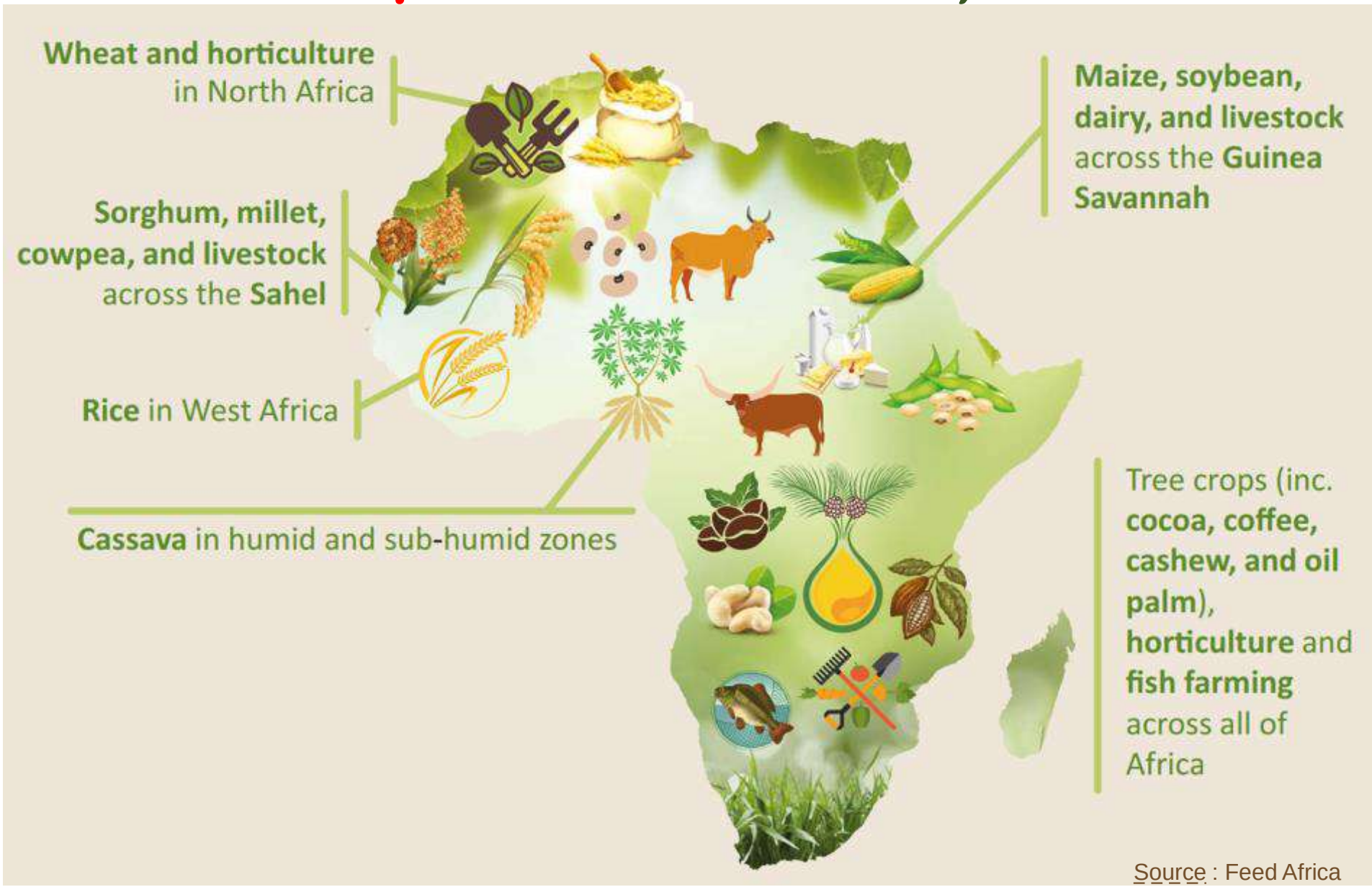
Irrigation

Weed management



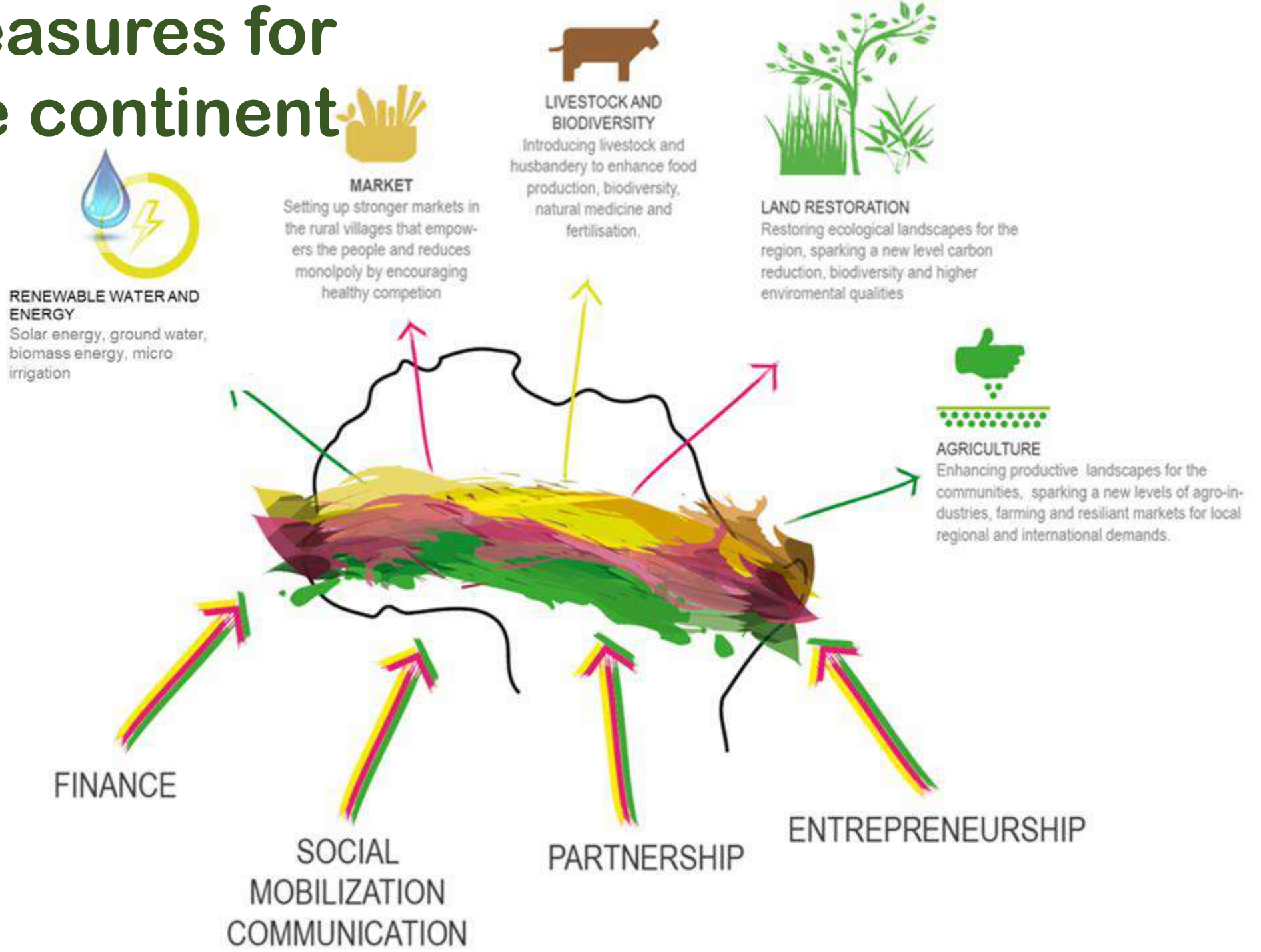
Fertilizer

Priority agricultural commodity (Value chain approach or Compact investment)



Source : Feed Africa

Upstream measures for a food secure continent



Option1: Neglected & Underutilized Species (NUS)

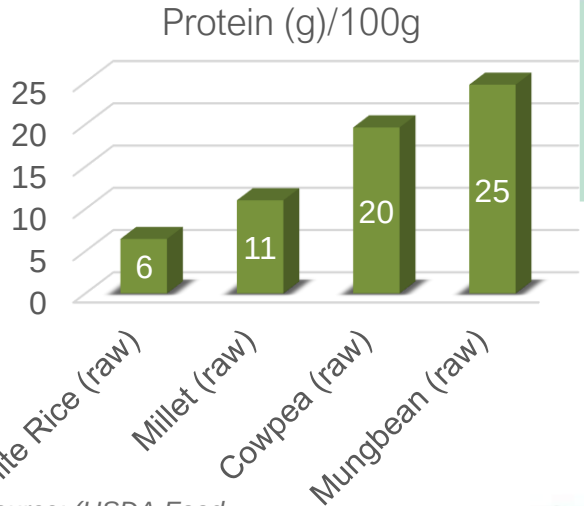
- **Cereal Crops**: Maize landraces, Millets, Fonio (Eragrostis), Teff (Digitaria)…
- **Root and Tuber Crops**: Sweet potato, Taro…
- **Grain Legumes**: Bambara groundnut, Cowpea…
- **African Leafy Vegetables**: Amaranth, Wild mustard, Wild watermelon, Indigenous/Wild Fruits…
- **Trees**: *Moringa oleifera*, *Saba senegalensis*, *Balanites aegyptiaca*…

Domestication: an opportunity for diversification and a resource benefit

Major gaps: agronomic properties, distribution, uses and impacts

Option 2: Alternative crops

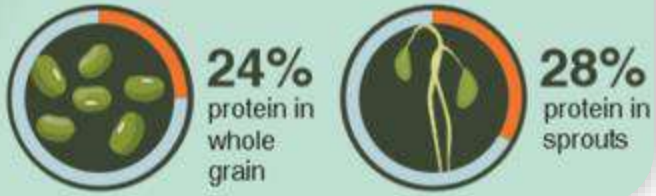
Mungbean [*Vigna radiata* (L.) Wilczek]



Source: (USDA Food Composition Database, 2016)

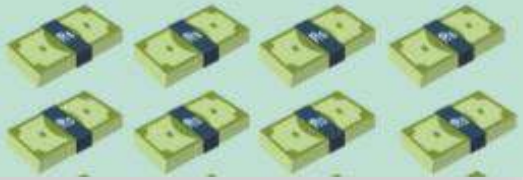
1 Nutritional benefits

Mung bean contains easily digestible globulin protein with



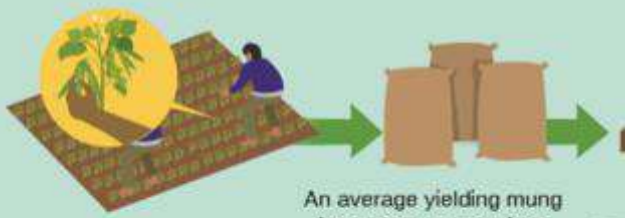
3 Source of income

Mung bean can provide cash income of

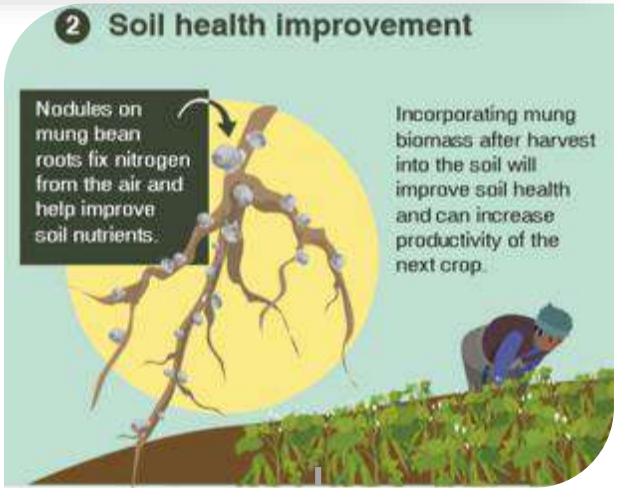


2 Soil improvement

Incorporating mung bean biomass after pod picking can help to improve soil quality and nitrogen content.



2 Soil health improvement



Option 3: Neglected agroforestry Practices

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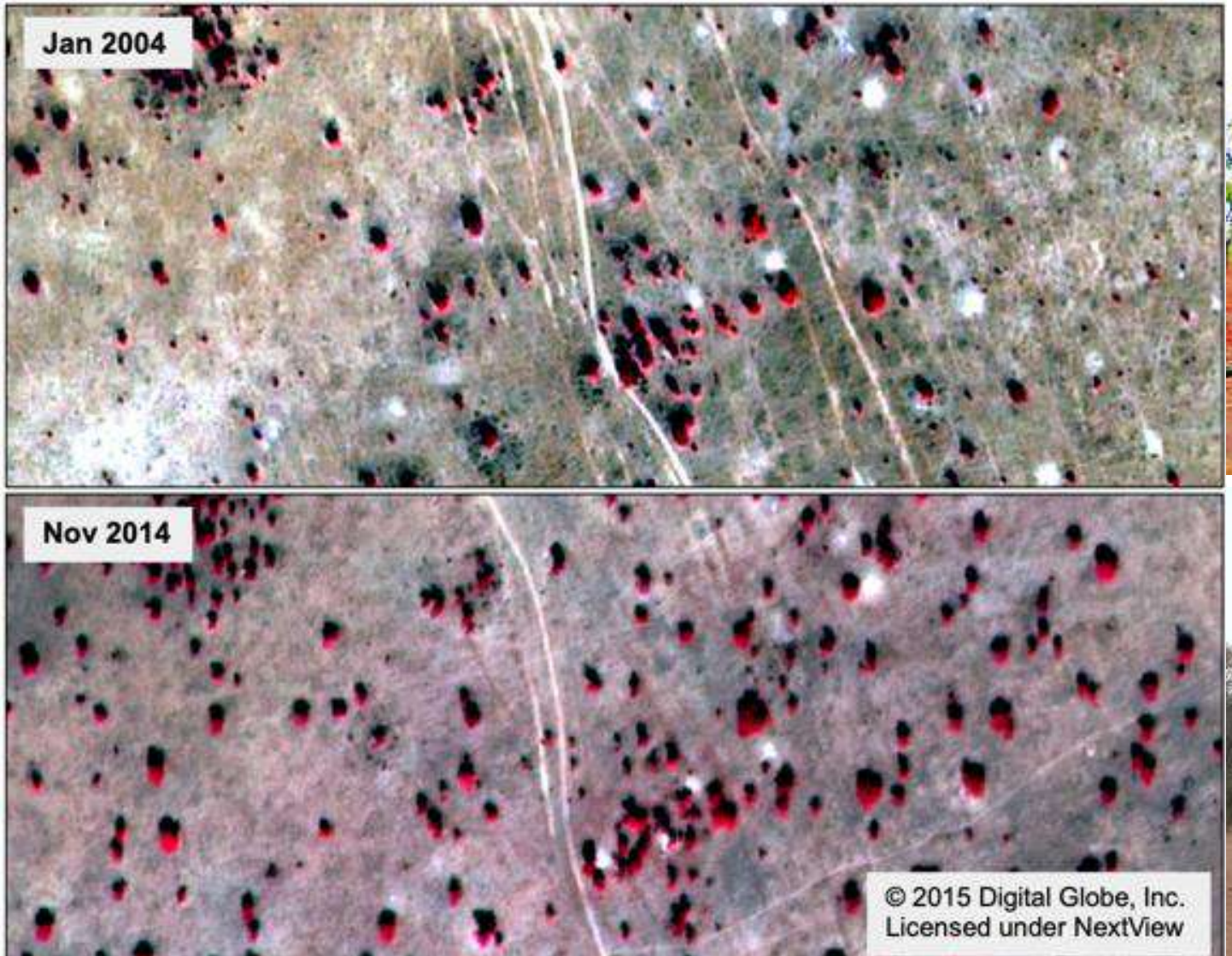

Herds mobility and shifting agriculture

Nature-based solution for erosion control

Option 4: Forgotten water resources

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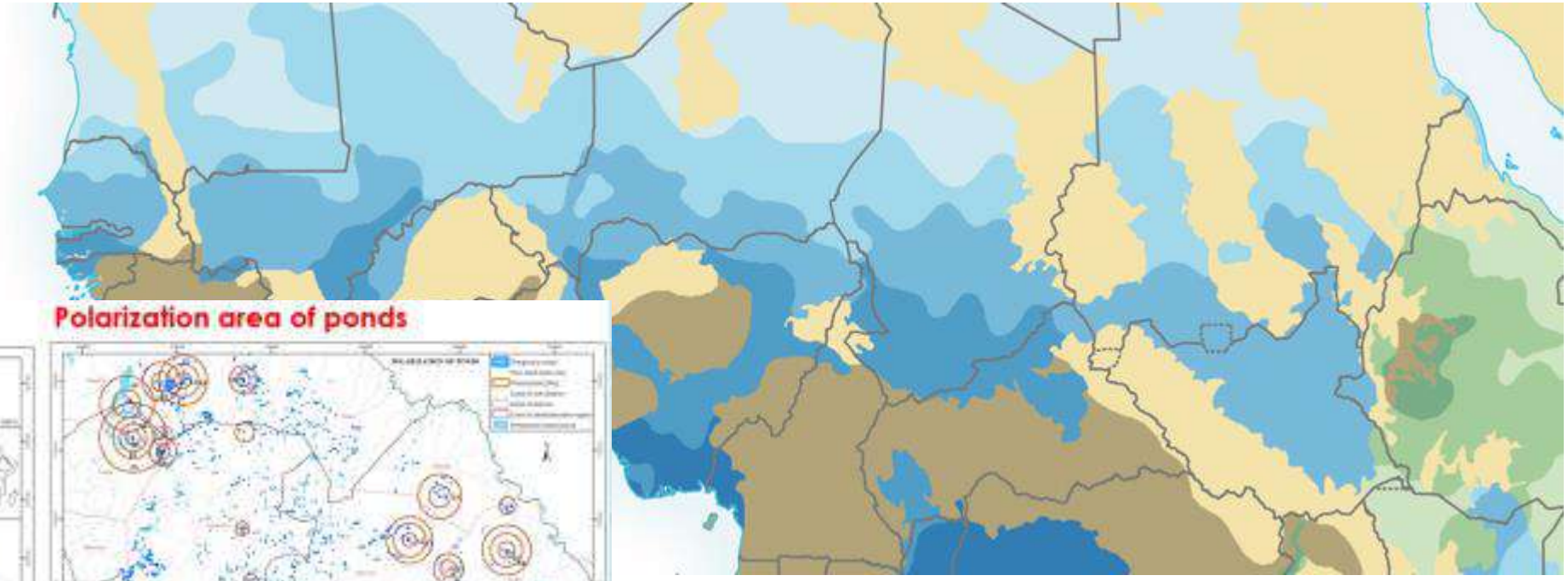
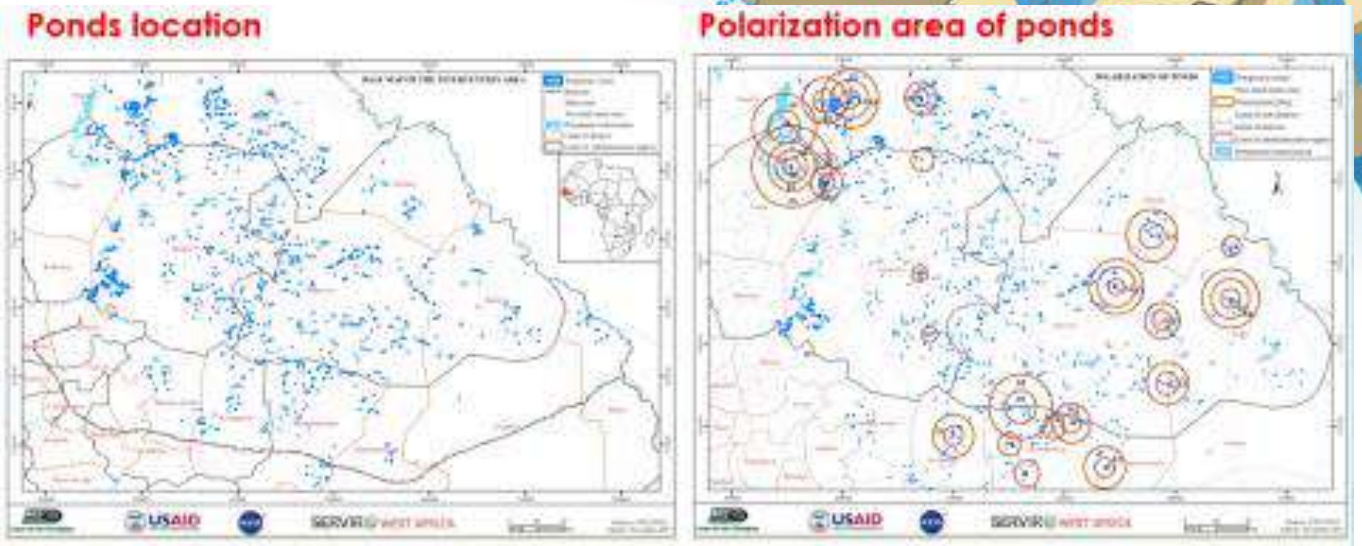


Groundwater recharge (mm/a)

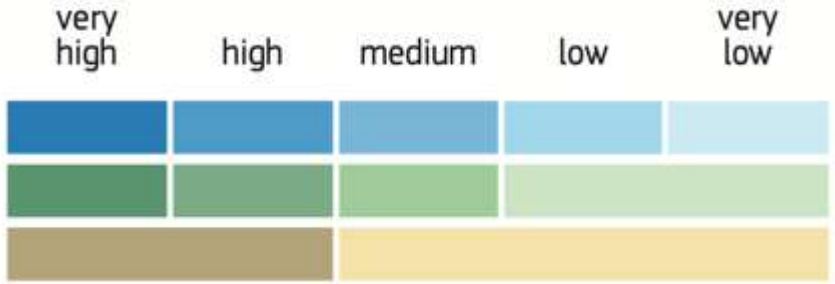


Groundwater resources

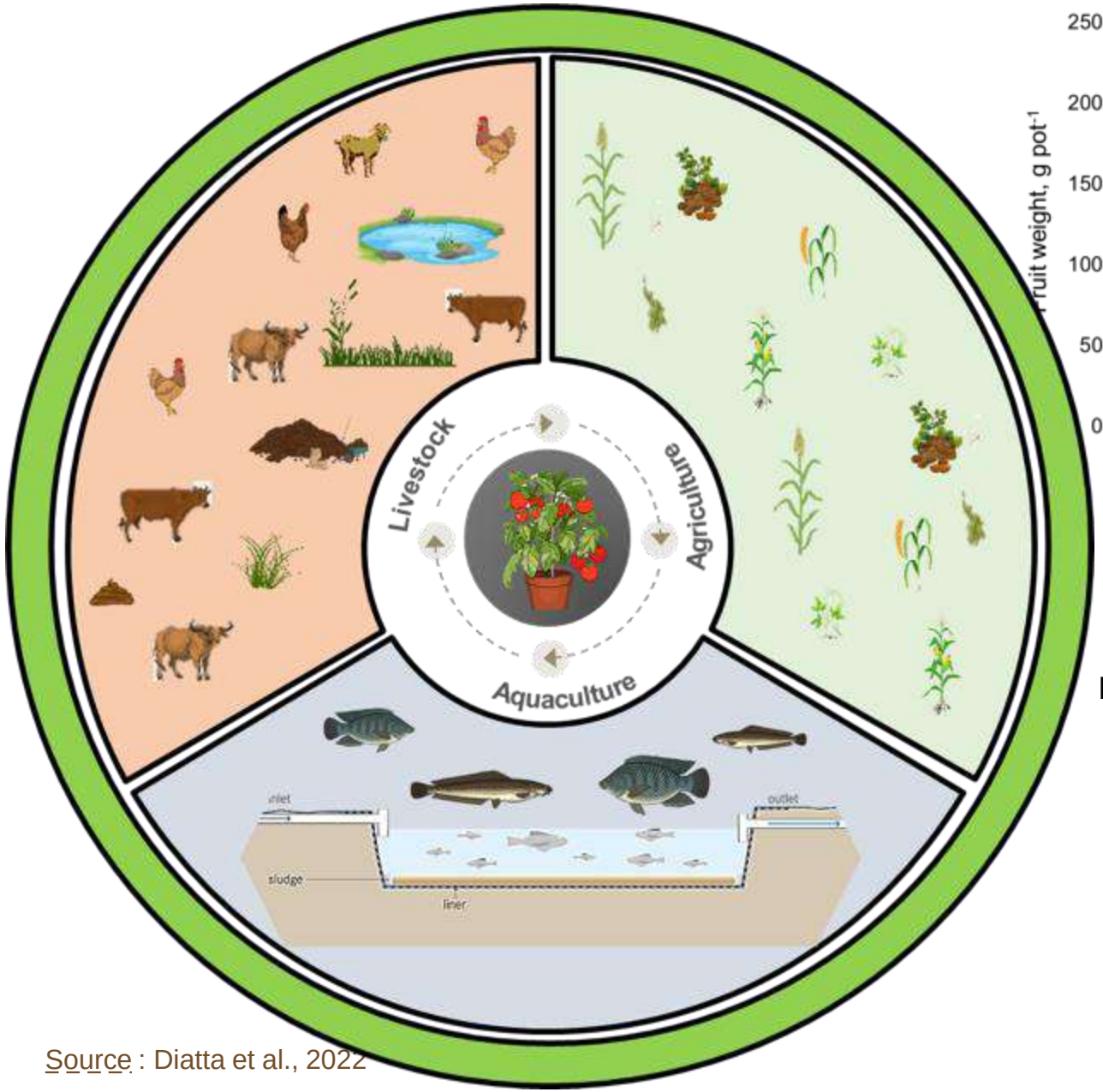
in major groundwater basins

in areas with complex hydrogeological structure

in areas with local and shallow aquifers



Option 5: Integrated management of soil health



Source : Diatta et al., 2022

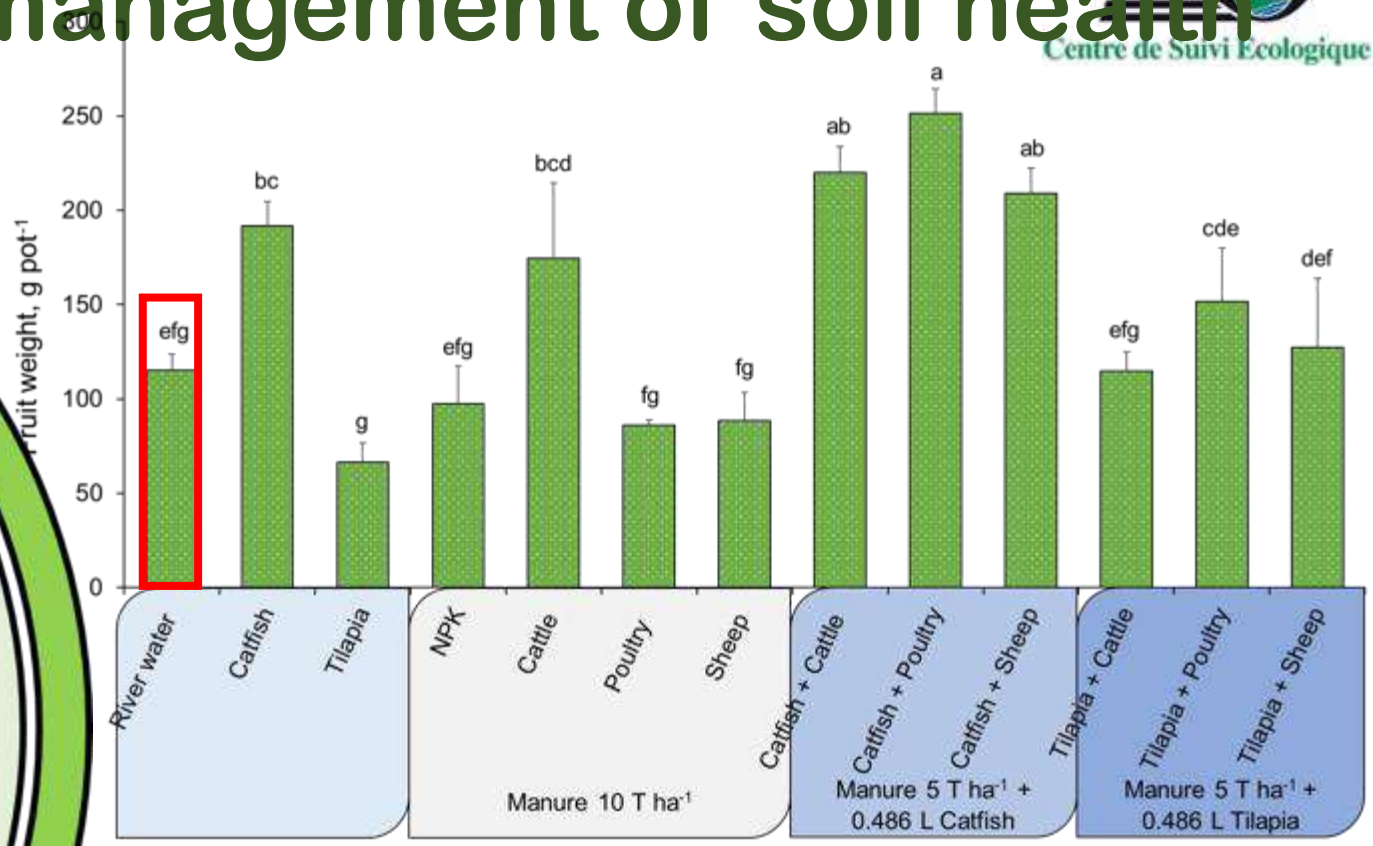
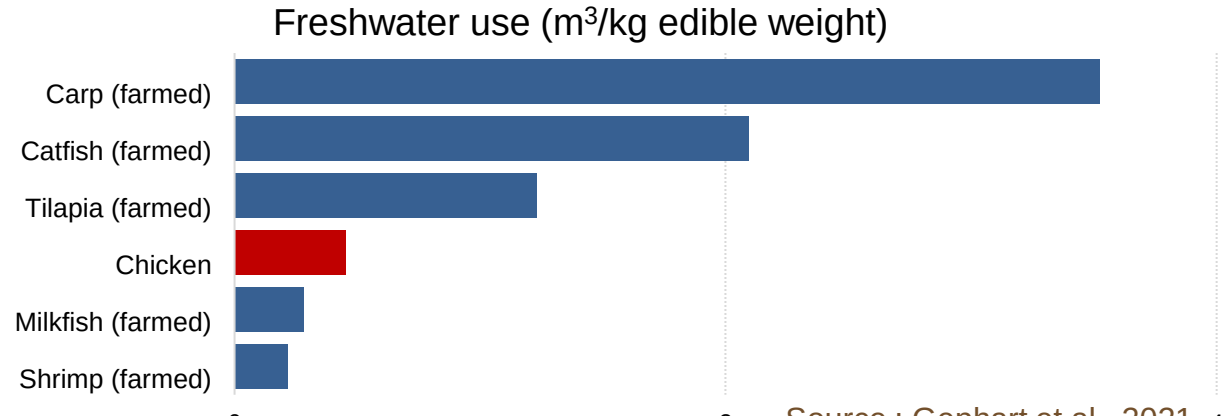
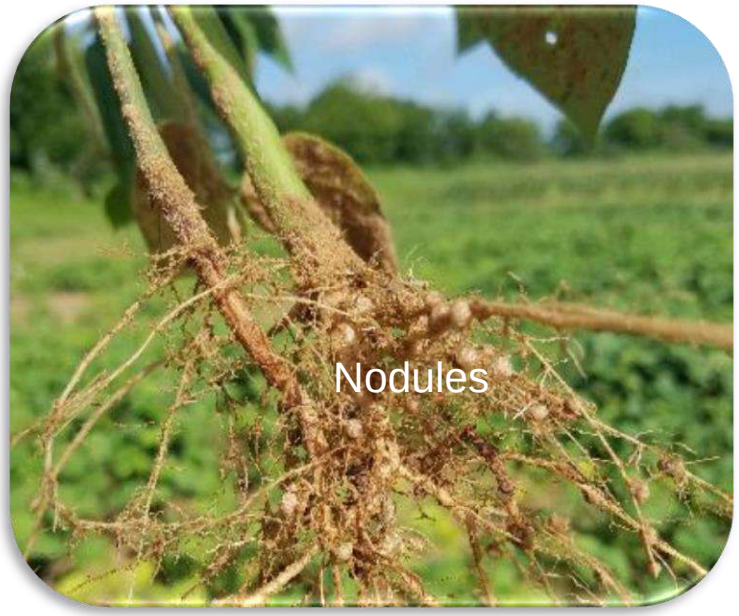


Figure: Tomato yields in Senegal



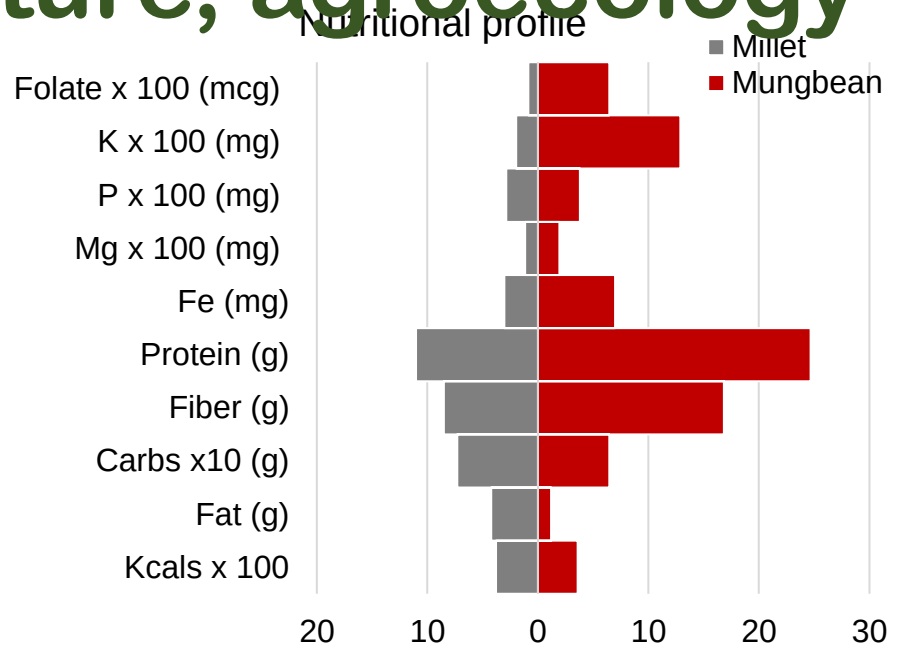
Source : Gephart et al., 2021

Option 6: Climate-Smart Agriculture, agroecology



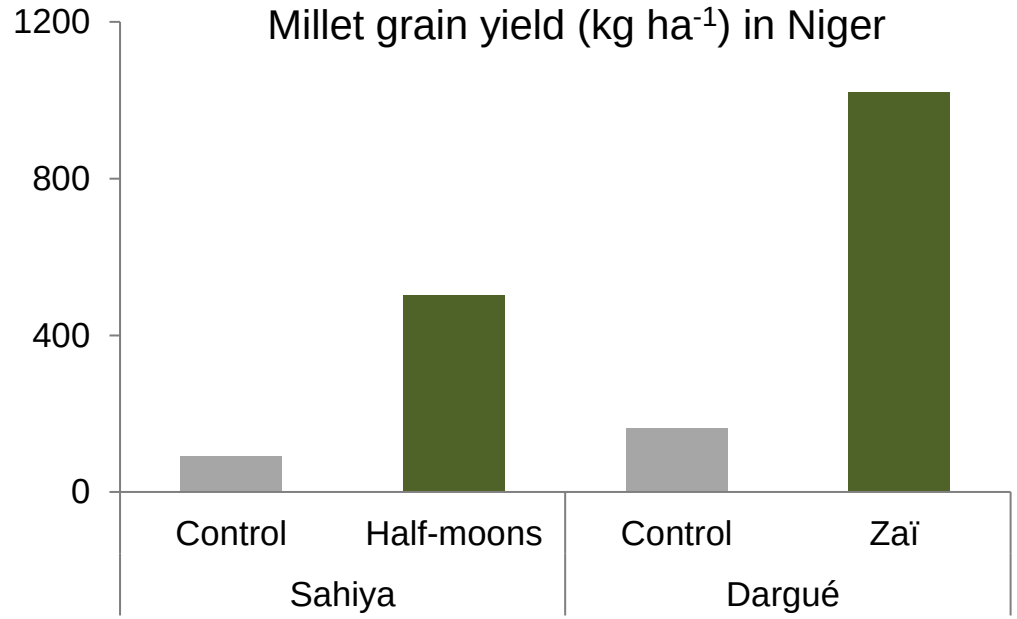
Pearl millet
[*Poaceae, Pennisetum glaucum* (L.) R.Br.]

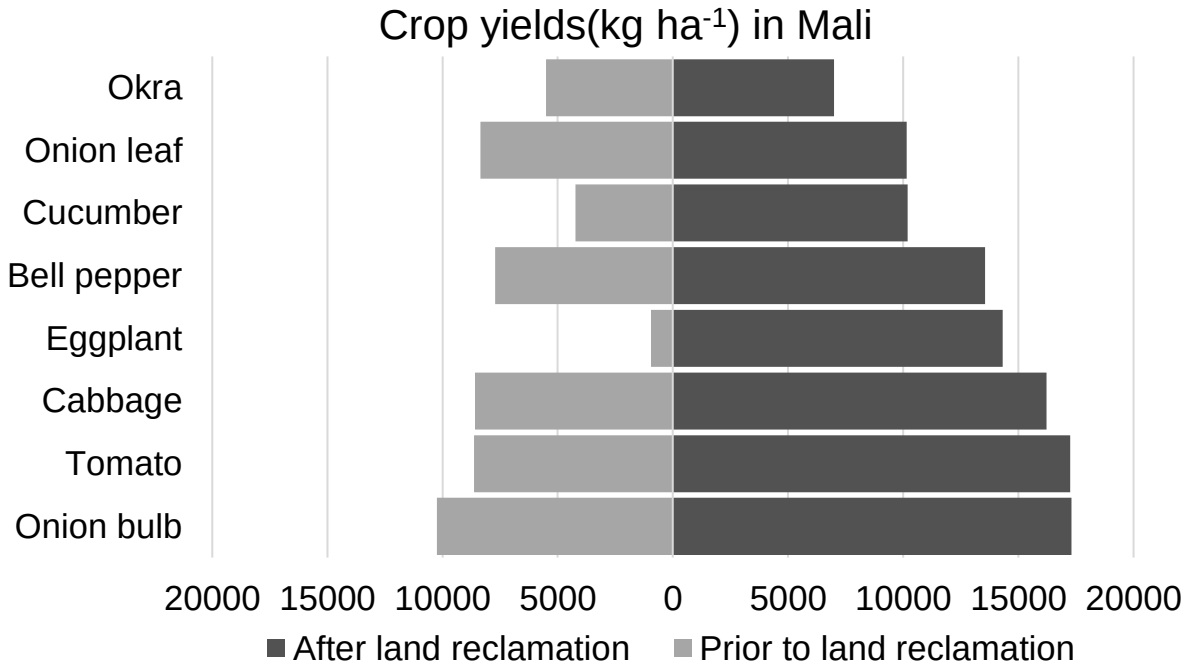
Mungbean
[*Leguminosae, Vigna radiata* (L.)]



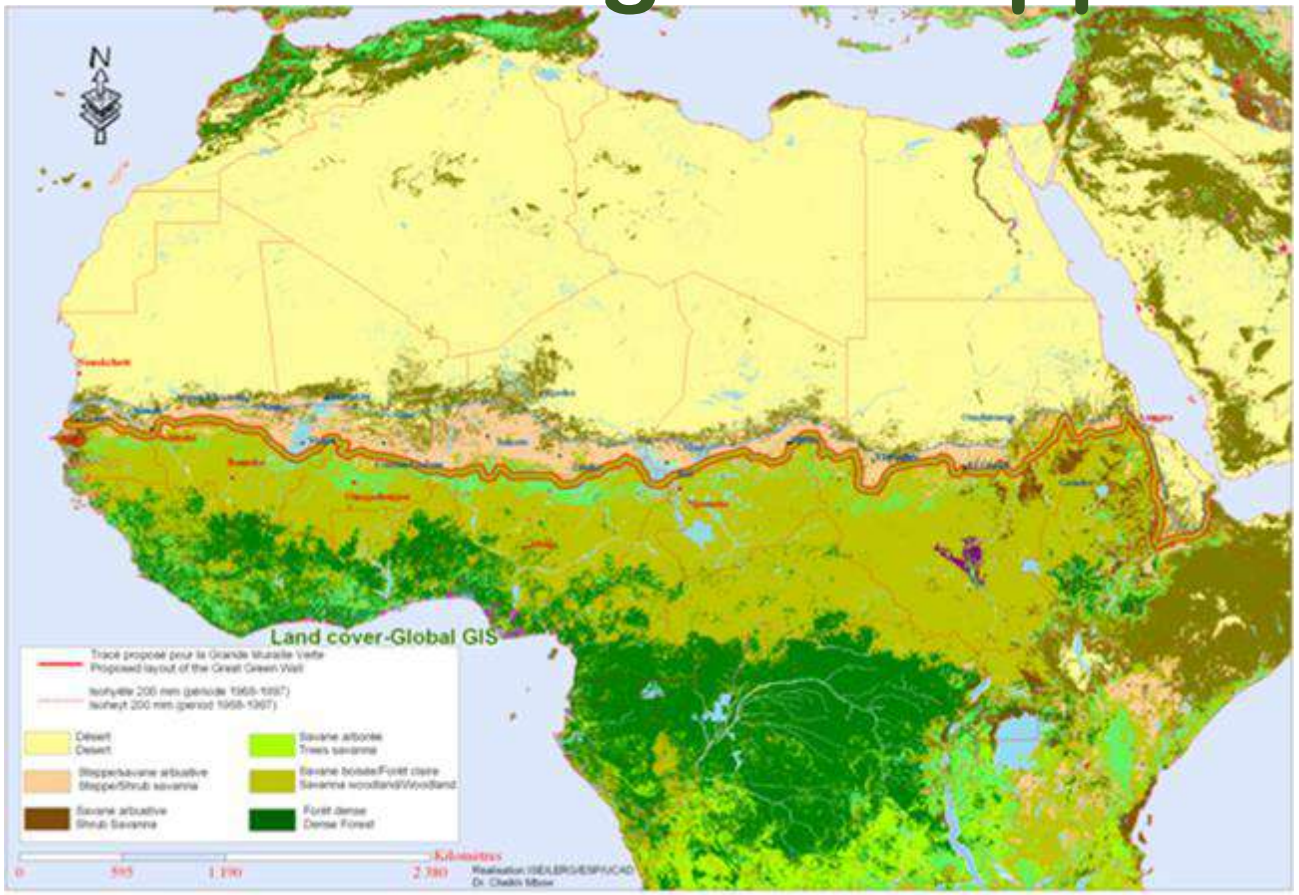
Source: (USDA Food Composition Database, 2016)

Option 7: Land reclamation in drylands





A call for integrated approaches: Great Green Wall



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Program areas with Climate Funds (GCF, AF, GCA, FFEM)

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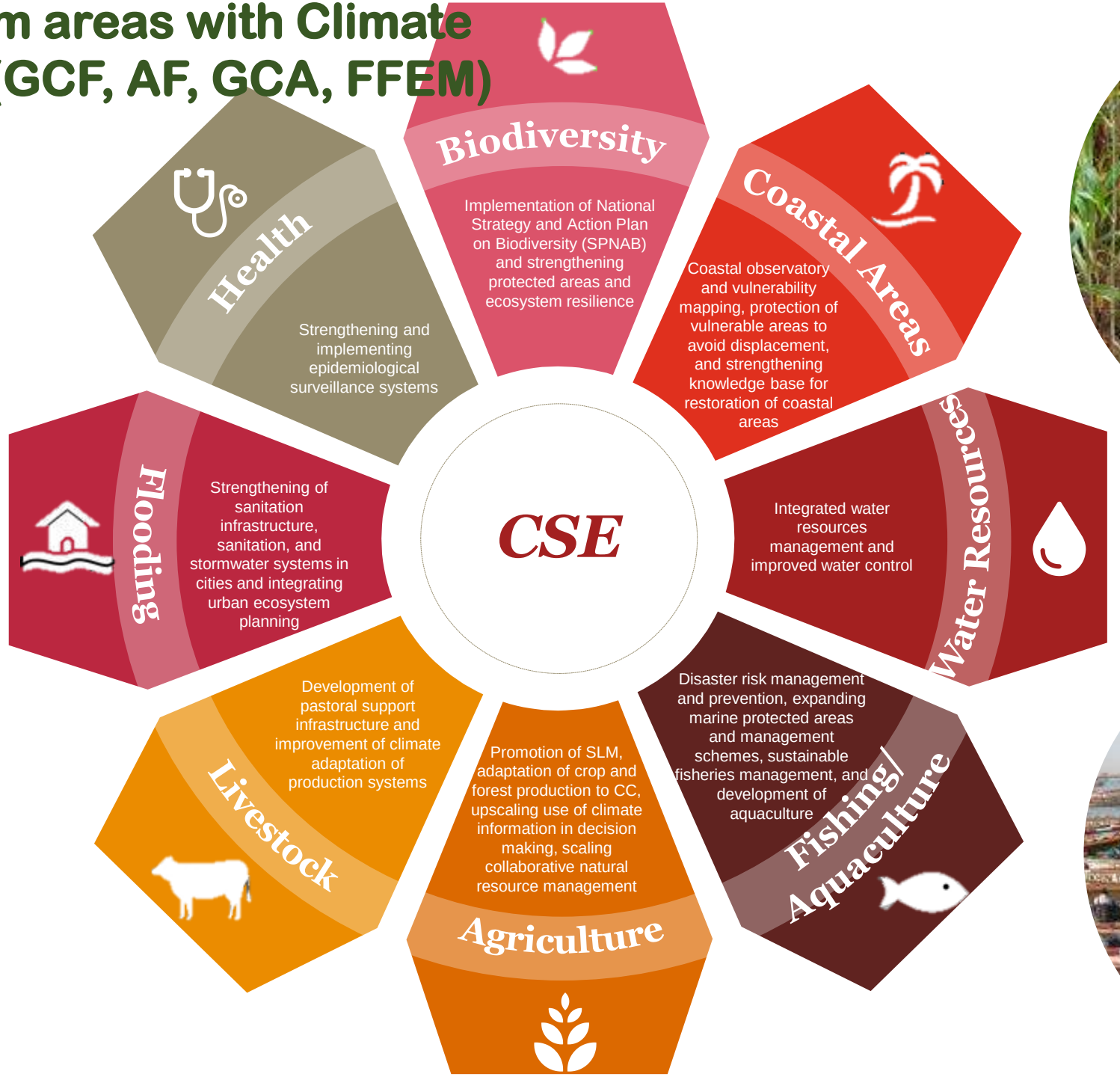
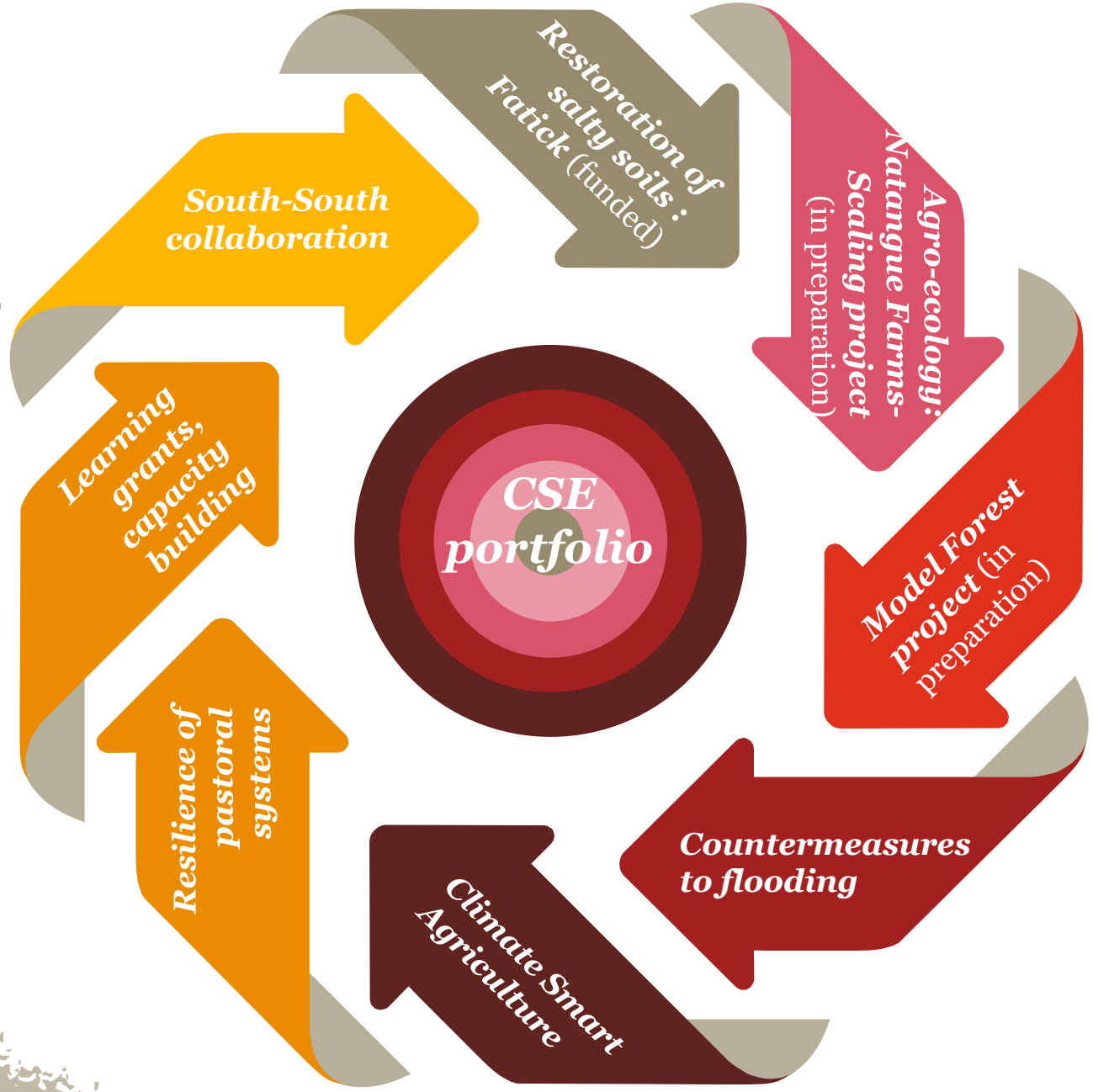


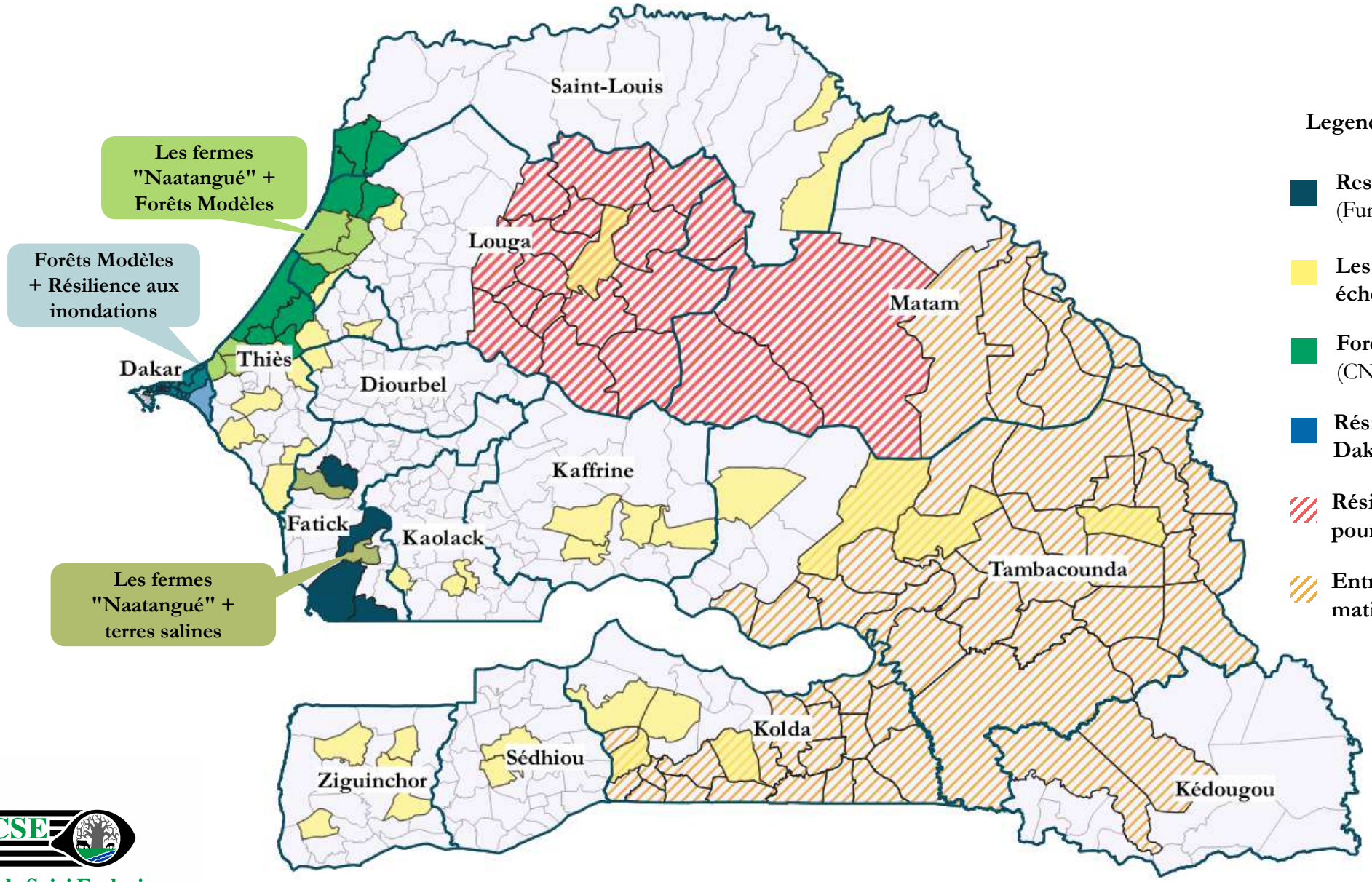
Portfolio

- 6 Projects in the pipeline
- > 56 Million USD

  - **Agriculture**
  - **Forestry**
  - **Livestock**



Glance at the CSE Portfolio at GCF



Legend

- **Restauration des terres salines** (Funded, FAA, FP003)
- **Les fermes "Naatangué" à grande échelle** (FP SAP)
- **Forêts Modèles** (CN SAP)
- **Résilience aux inondations urbaines Dakar** (CN SAP)
- **Résilience aux changements climatiques pour le bétail pastoral** (CN, PPF)
- **Entrepreneuriat agricole intelligent en matière de climat** (CN, PPF)

CSE : COUNTRIES COVERED FOR READINESS WITH AF ANDG CF

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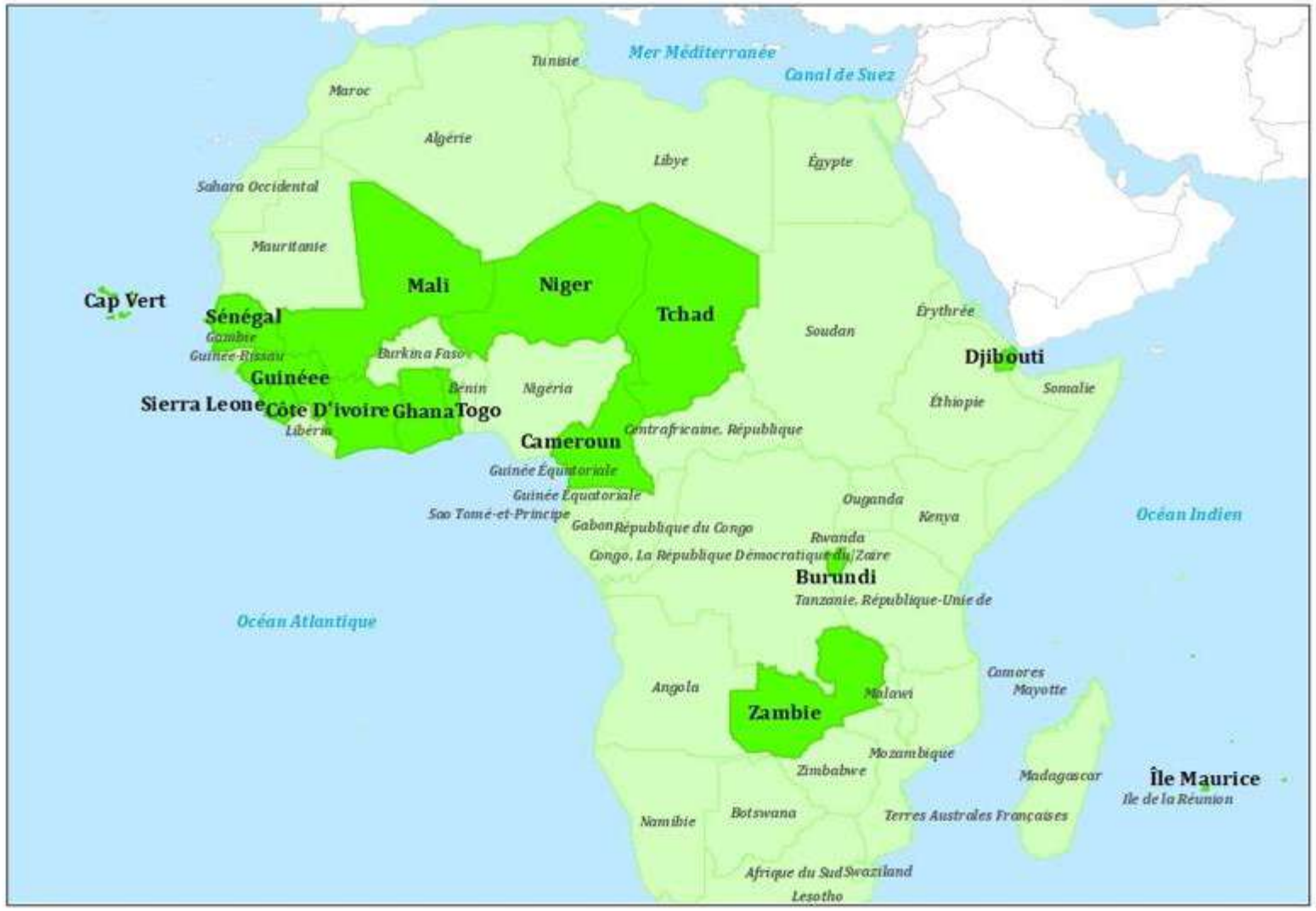
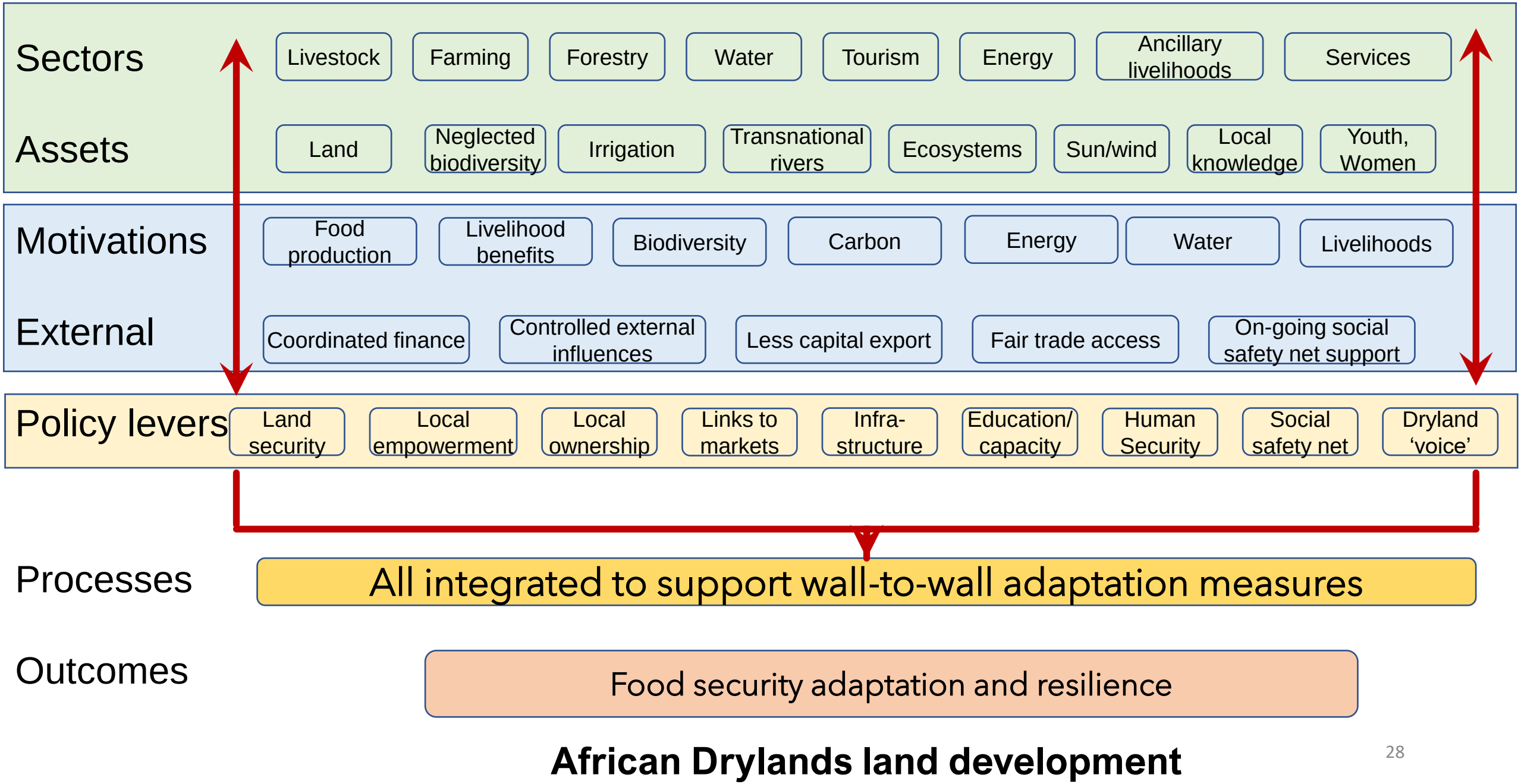


Two Accredited: **BAGRI (2017)** in **Niger &** **FIRCA (2020)** in **Côte d'Ivoire**

8 countries submitted their applications for accreditation at AF (**Mali, Togo, Guinée, Tchad, Sierra Leone, Burundi ,Cap-Vert, et Iles Maurice**)
Readiness Package at AF being implemented (**Zambia et Cameroon**)

Programme Readiness du GCF : **Sénégal, RDC, Djibouti, Tchad, Togo, CI, Ghana, Burundi**



African Drylands land development

Open Access Article

Use It Sustainably or Lose It! The Land Stakes in SDGs for Sub-Saharan Africa

by Cheikh Mbow [1,2]

land

ELSEVIER

Current Opinion in Environmental Sustainability

Volume 48, February 2021, Pages 85-92

Land resources opportunities for a growing prosperity in the Sahel

Cheikh Mbow [1], Mark Halle [2], Rabih El Fadel [3], Ibrahim Thiaw [4]