September 29th - 30th, 2016
Palmeraie Golf Palace,
Marrakesh

INITIATIVE AAA
ADAPTATION DE L'AGRICULTURE AFRICAINE

MARRAKECH
COP22|2016|CMP12
UN CLIMATE CHANGE CONFERENCE

29 - 30 septembre 2016
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HIGH-LEVEL MEETING ON THE INITIATIVE FOR THE ADAPTATION OF AFRICAN AGRICULTURE TO CLIMATE CHANGE "AAA"

RENCONTRE DE HAUT NIVEAU SUR L'INITIATIVE POUR L'ADAPTATION DE L'AGRICULTURE AFRICAINE AUX CHANGEMENTS CLIMATIQUES "AAA"

ETHEL SENNHAUSER

Director of the Agriculture Global Practice, World Bank

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Agriculture in Africa under Climate Change
Challenges, Action and Opportunities

Ethel Sennhauser

Director, Global Agriculture Practice
The World Bank

September 29-30, 2016
Marrakesh, Morocco

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CONTEXT

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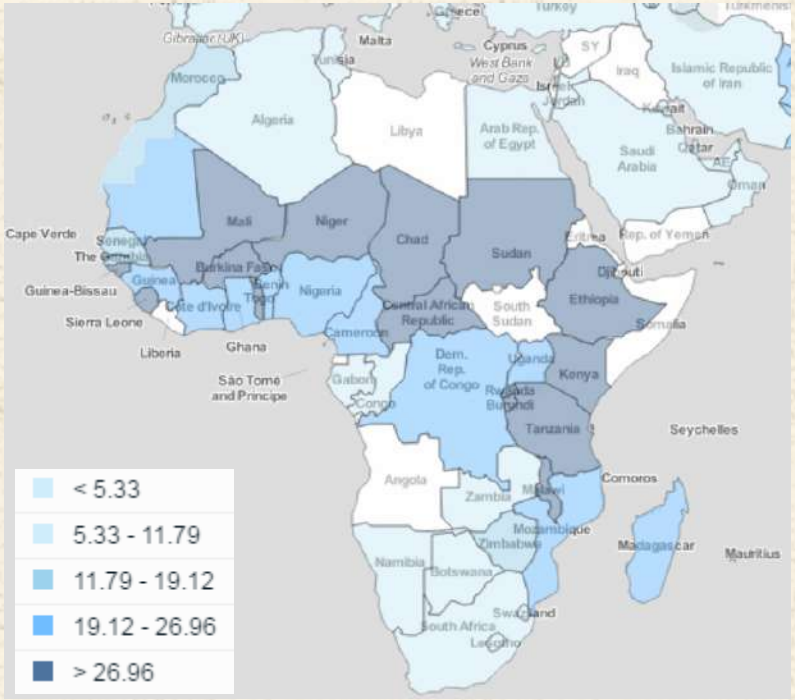
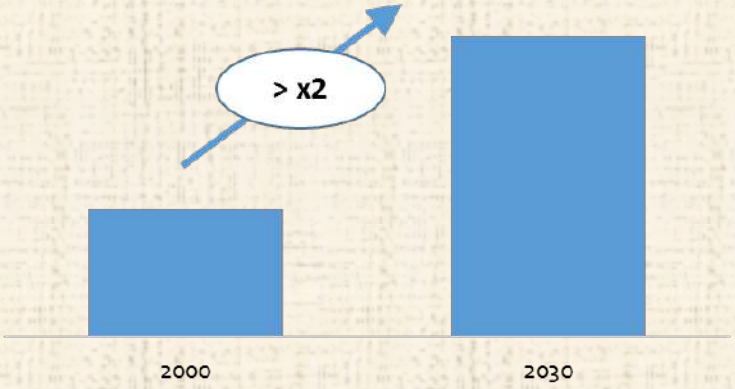
Agriculture Remains of Critical Economic Importance in Africa – Rapid Growth in Population and Food Demand Will Drive Further Growth

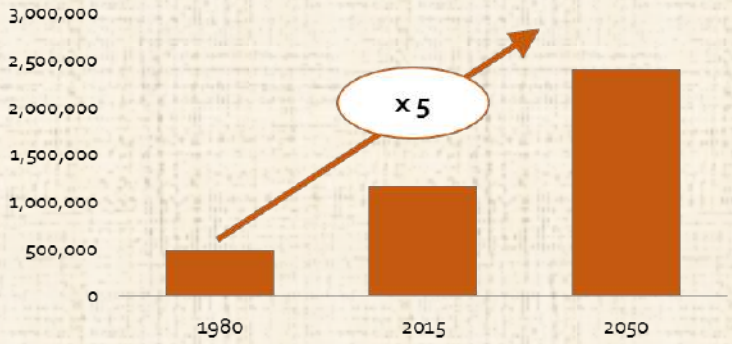
Agriculture Value Added as a Percentage of GDP in 2014



By 2030, Food Demand in Africa will Multiply by More Than Factor 2 over 2000 Levels



By 2050 Africa's Population is Projected to Multiply by Factor 5 over 1980 Levels



Agriculture in Africa

- *Employs 65 percent of the labor force*
- *Accounts for 32 percent of gross domestic product*

Source: World Bank 2015, UNDP 2012, FAO 2013

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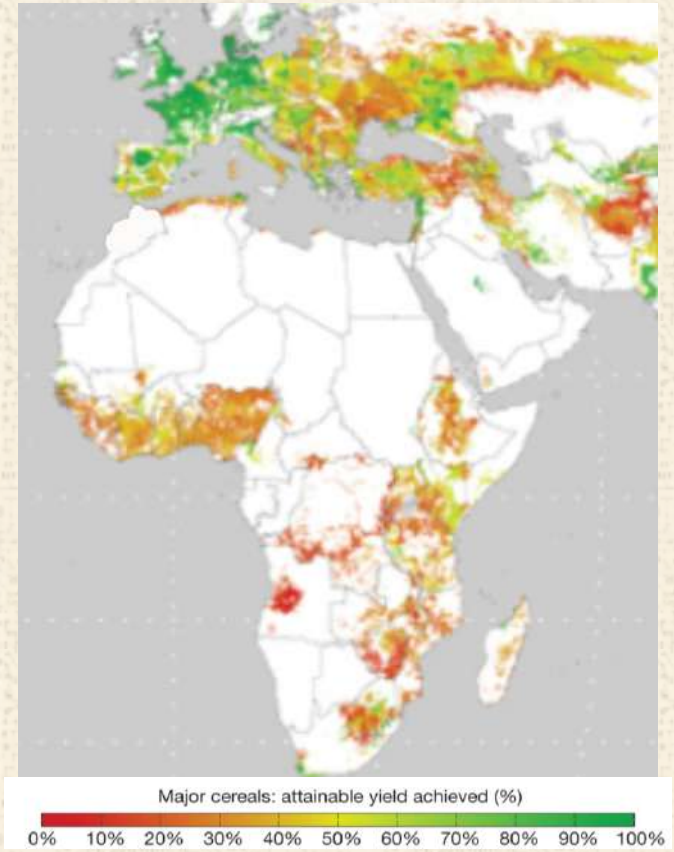
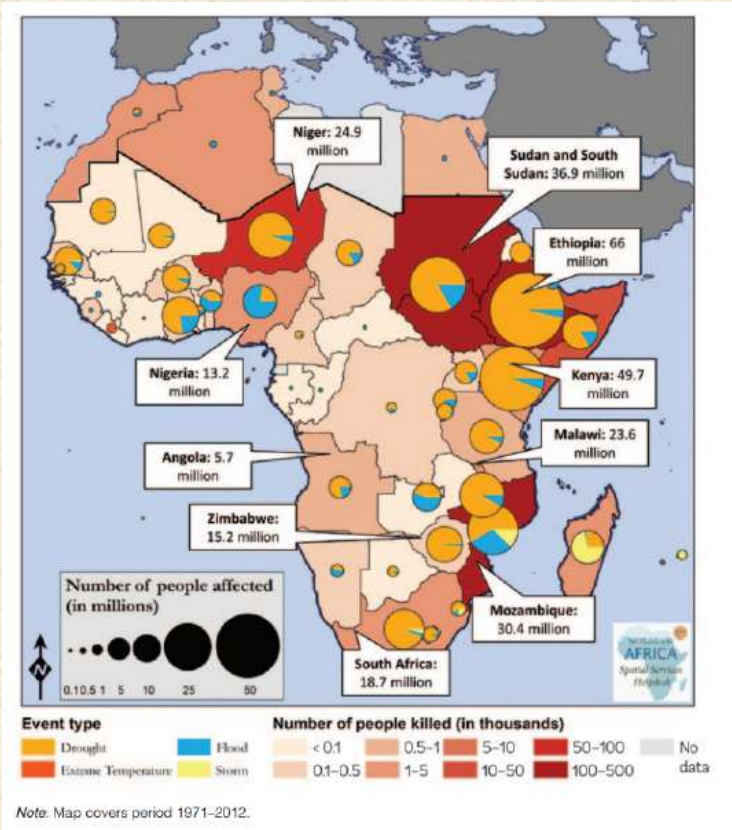
Challenges Are Substantial Even in the Absence of Climate Change

Yield Gaps for Major Cereals



Yields remain significantly below potential.

Selected Impacts of Natural Disasters Across Africa 1971-2012



Extreme events are already taking a heavy toll.

Source: Mueller et al. 2012, World Bank, 2015

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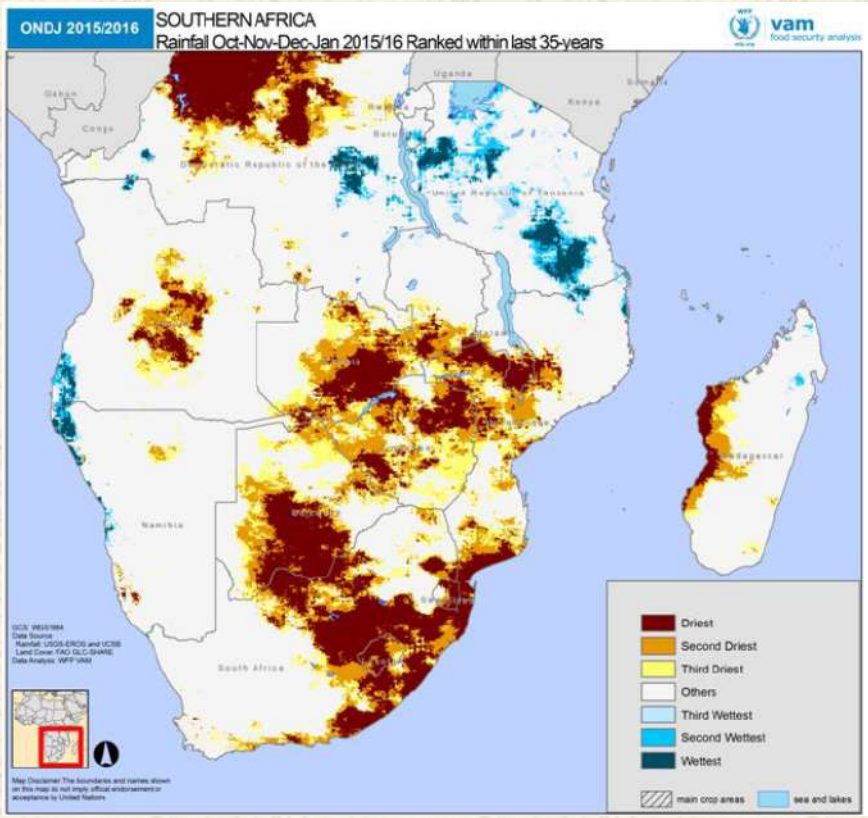
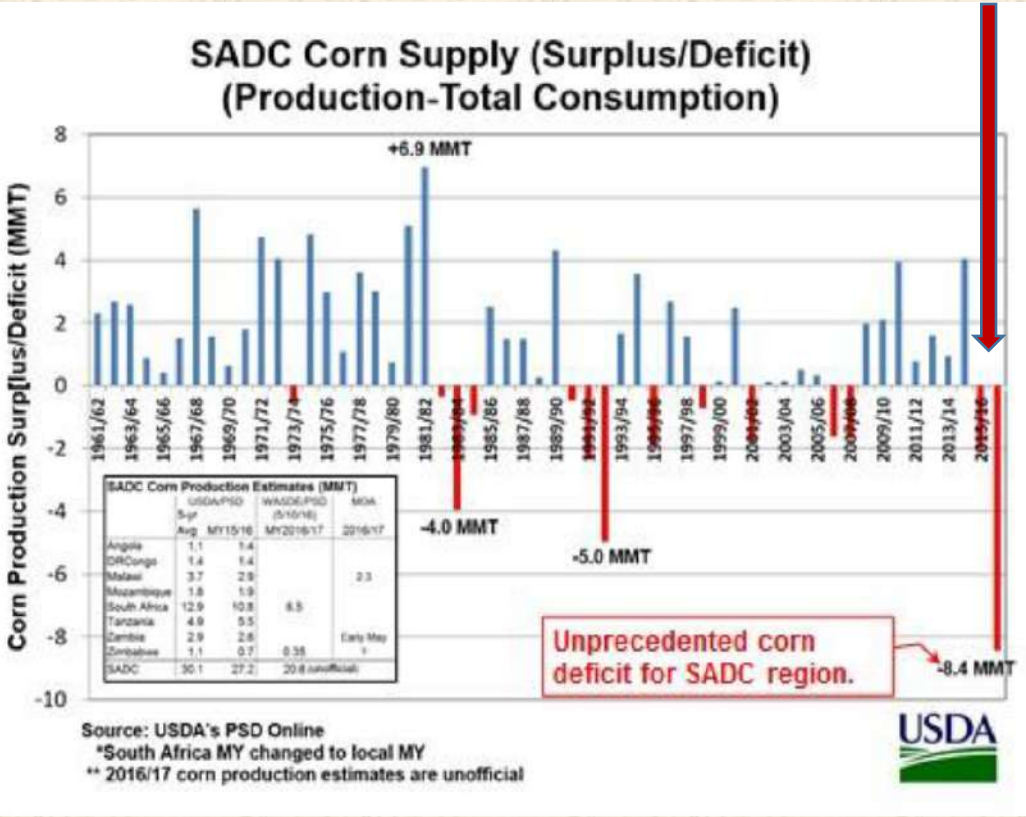
2016 El Niño resulted in severe drought & Corn deficit for the Southern African Development Community (SADC)

El Niño related severe drought



2016 El Niño related Corn deficit



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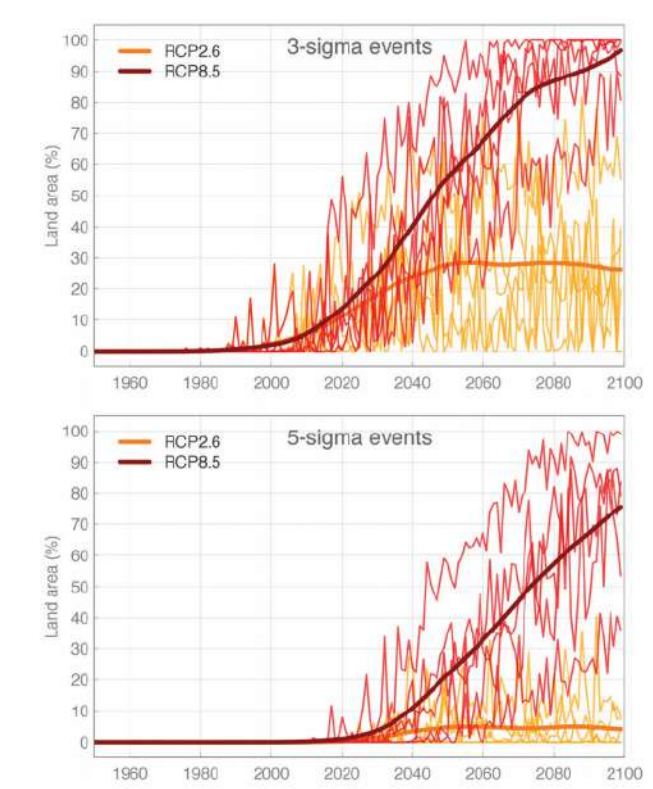
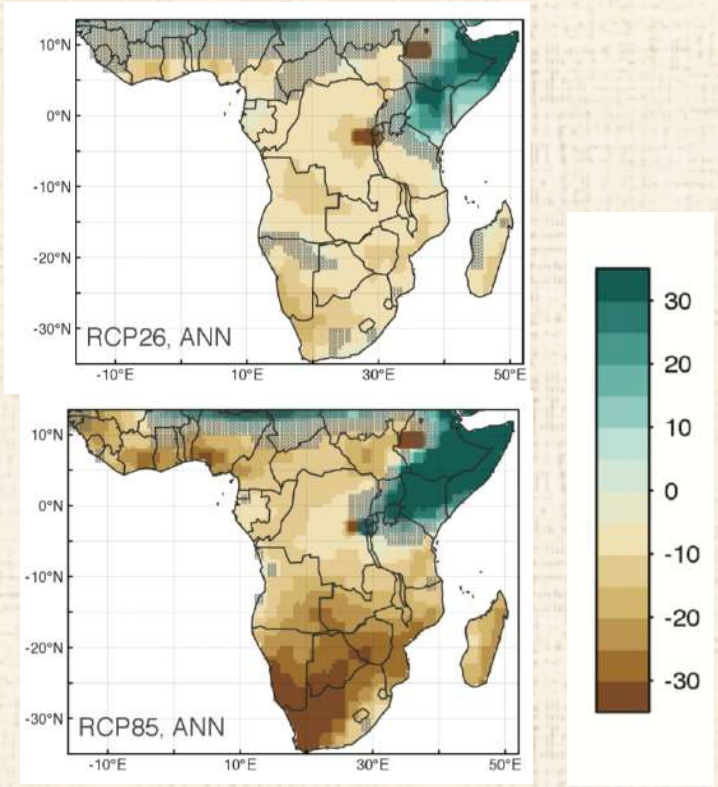
Climate Change Will Bring Increased Temperatures and Aridity

Extreme heat events are likely to increase dramatically



Multi-model mean (thick line) and individual models (thin lines) of the percentage of Sub-Sahara African land area warmer than 3-sigma (top) and 5-sigma (bottom) during austral summer months (Dec, Jan, Feb) for scenarios RCP 2.6 (low warming) and RCP 8.5 (business as usual)

Aridity is likely to increase across large parts of the continent



Multi-model mean of the percentage change in the Aridity Index in a 2°C world (left) and a 4°C world (right) for Sub-Saharan Africa by 2071–2099 relative to 1951–1980

Source: Turn Down the Heat, June 2013

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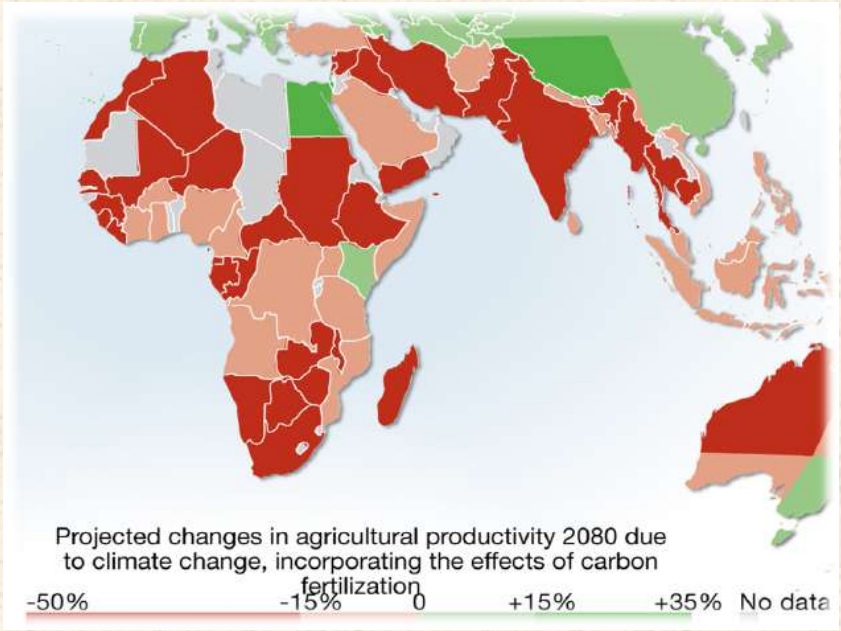
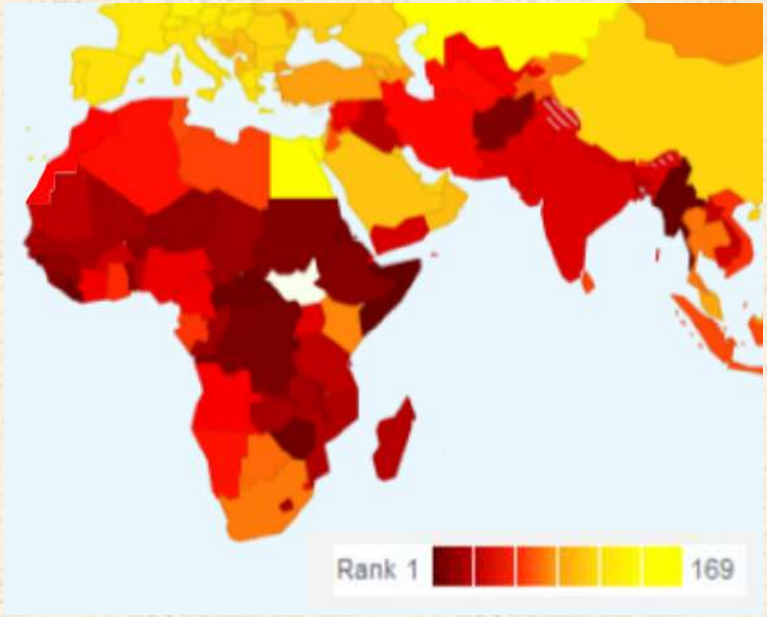
Climate Change Impacts on Agricultural Productivity Are Likely to Be Strongly Negative Overall – and African Agriculture Highly Vulnerable

Projected Changes in Agricultural Productivity by 2080



Agricultural productivity will come under pressure from Climate Change, with large parts of Africa expected to experience downward yield pressure of above 15%.

Global Ranking of Vulnerability to Losses in Agricultural Productivity



When factoring in vulnerability and coping capacity into expected losses in agricultural productivity, African countries rank among the most vulnerable.

Source: UNEP/GRID-Arendal Maps and Graphics Library, Wheeler 2011

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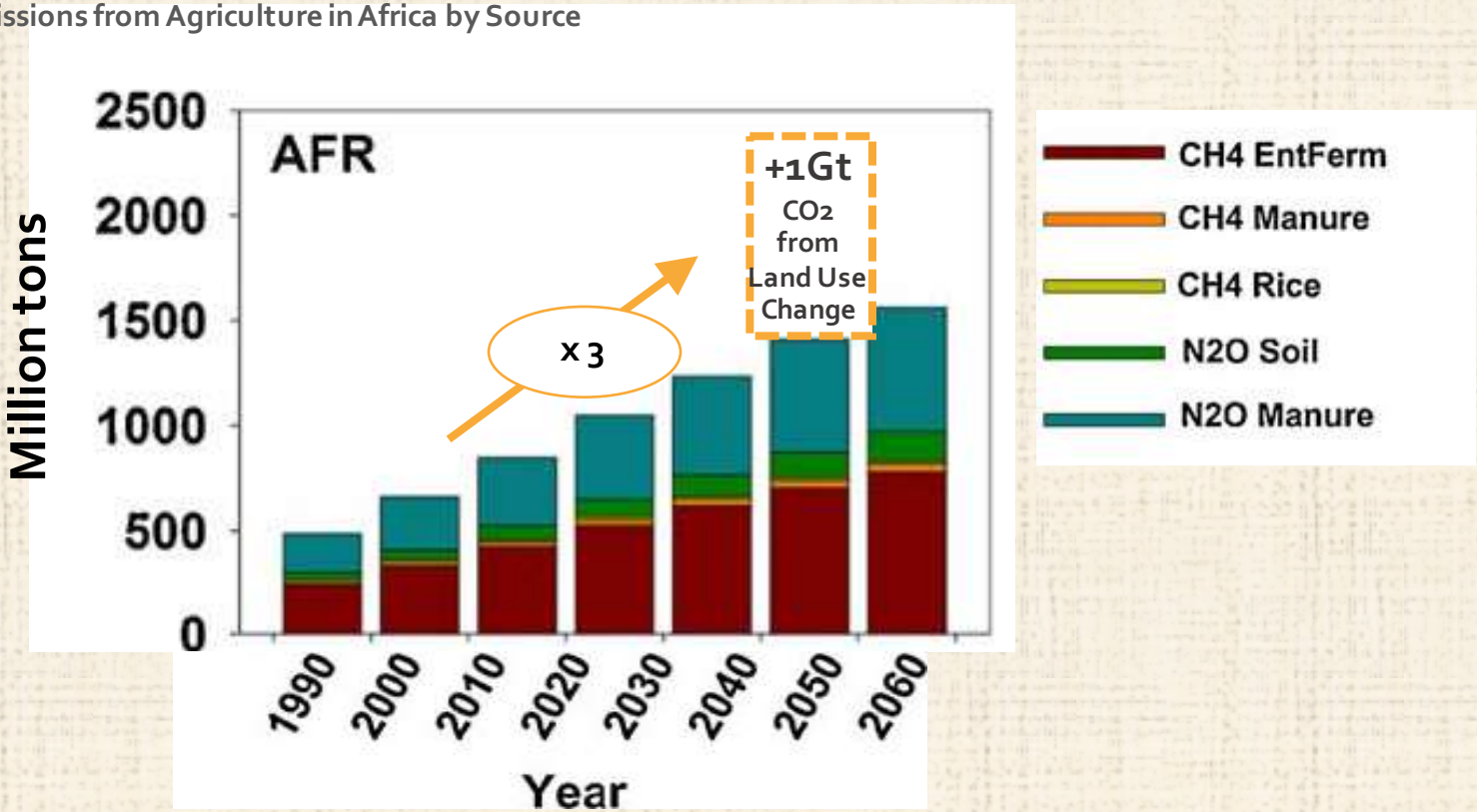
Emissions from Agriculture in Africa under BAU are Likely to Triple by 2060



After adding land use change emissions, total African agriculture under Business As Usual will result in almost 2.5 Gigatons of CO2 equivalent per year by 2050…

…representing ~12.5% of the total safe 2050 emission budget from all sources to limit warming to 2C.

Source: Popp et al. 2010

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ACTION

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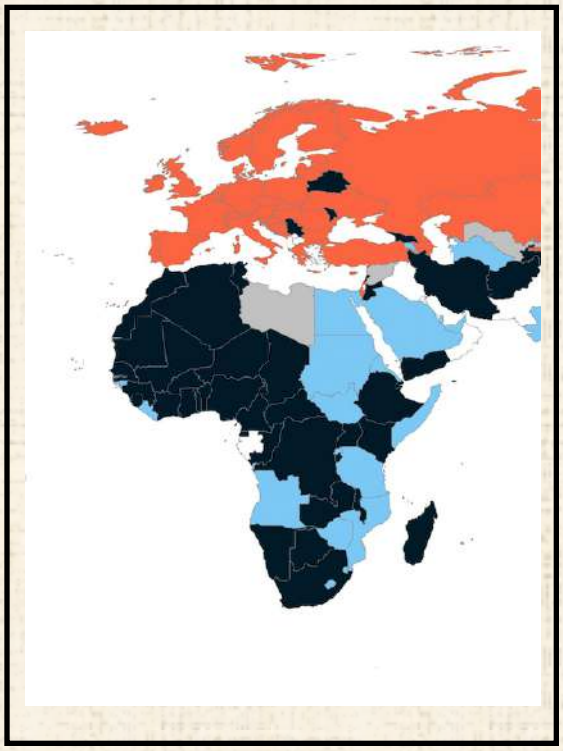
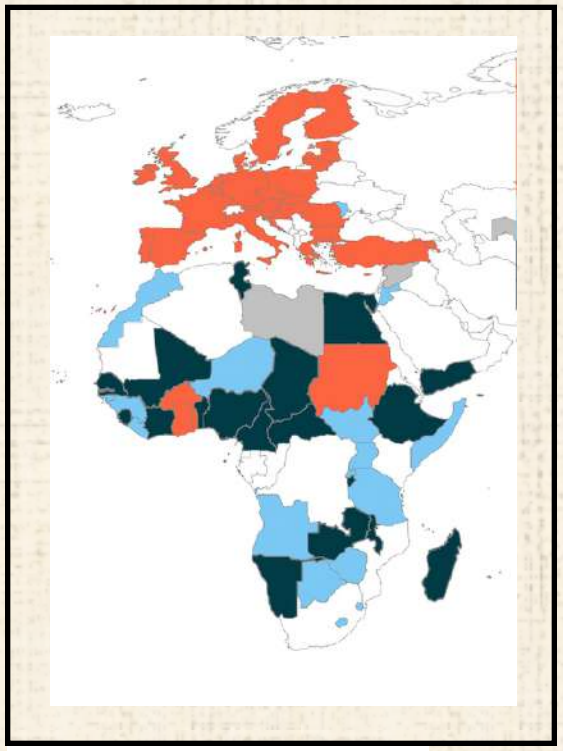
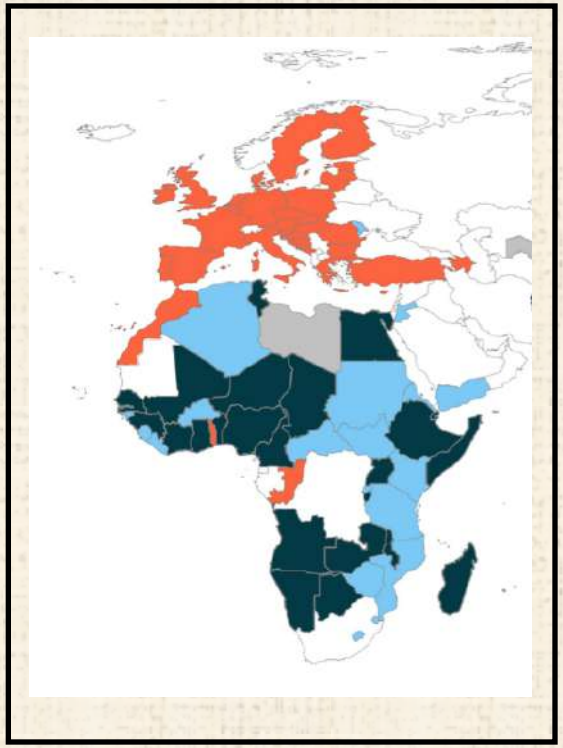
Agriculture Features Very Prominently in the INDCs of African Countries







A majority of African countries included agriculture both under Adaptation and Mitigation in the INDCs, covering both cropping and livestock systems.

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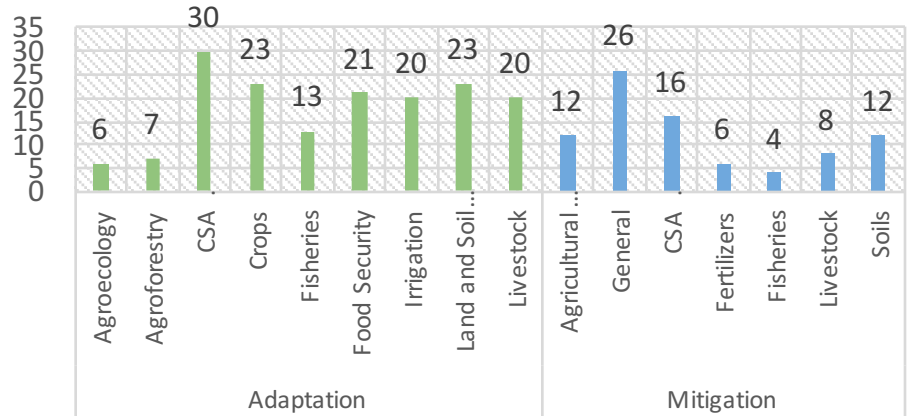
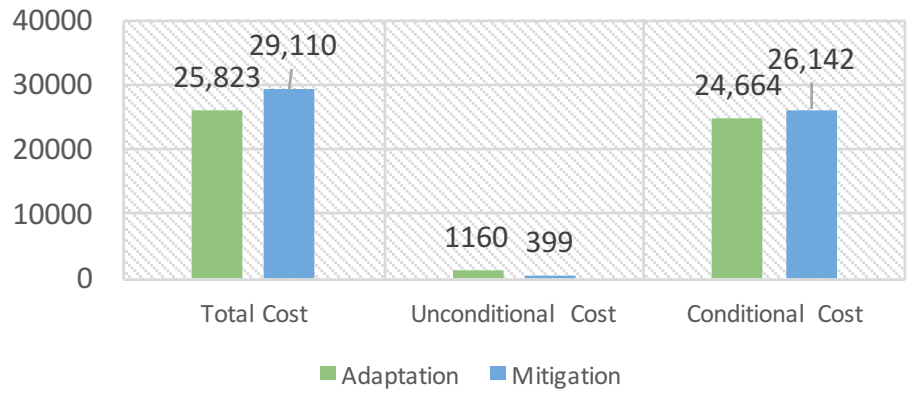
Commitments Cover Diverse Agriculture Sub-Sectors Adding Up to a Self-Reported Cost Estimate of Almost $30 Billion

Number of Countries with Commitments in Agricultural Subsectors



Self-reported Cost Estimates for Agriculture Commitments (in Millions USD)



Country Example: Comoros

Sectoral Target:

- 100% of farmers use techniques and varieties adapted to the impacts of climate change by 2030.

Country Example: Zambia

Sectoral Policy:

- Develop and implement policy incentives for farm diversification.

Country Example: Senegal

Sectoral Actions:

- Promote technologies for sustainable land management;
- Promote agriculture insurance;
- Promote climate change information;
- Scale up of joint management of natural resources.

Conditionality: ***Conditional***
Investment Needs: ***USD 1'600 Million***

Source: Climate Policy Team-CCSA

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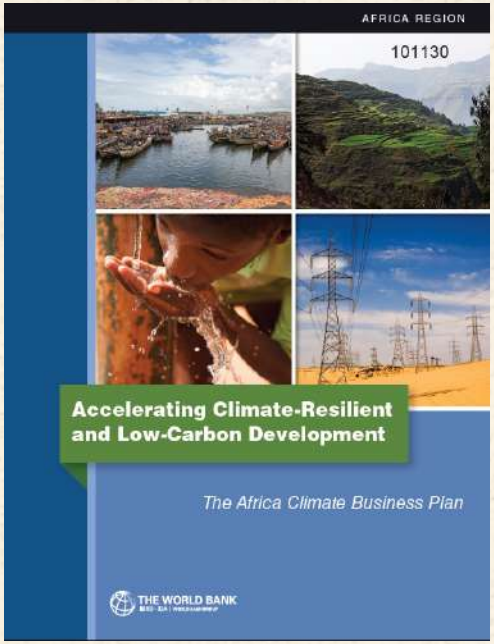
The Africa Climate Business Plan (ACBP): A Contribution to Close the Funding Gap for Climate Change Investments in Africa

Resources and Outcomes for ACBP and Climate-Smart Agriculture in Africa

Source	Amount ($ million)
Domestic sources	240
IDA	1,300
Private sector	240
Climate finance (GCF, GEF, CIF, and so forth)	100
Other development finance (bilaterals, multilaterals)	320
To be determined	800
Total fast track (resources raised by 2020)	3,000
Longer term (additional resources raised by 2024)	2,000

Outcomes by 2026
25m farmers adopted CSA practices
3m hectare farmland with CSA infra and practices
15 countries with improved pastoral systems
At least 5 countries adopted CSA policies
20 countries with improved CSA evidence base
20 countries with improved CSA implementation capacity



Principal ABCP Activities on Climate-Smart Agriculture:

1. Engage in advocacy, awareness raising, and resource mobilization in support of key initiatives in the region
2. Support adoption of evidence-based policies and institutional strengthening for CSA
3. Provide financial and technical support for national and regional investment programs to scale up adoption of CSA technologies and management options

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OPPORTUNITIES

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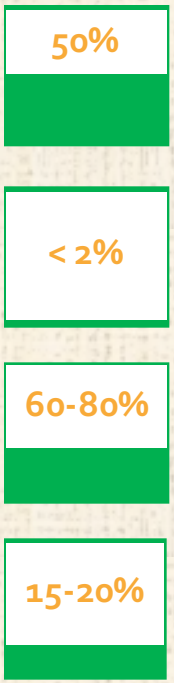
What if… Africa's Agriculture Became Resilient Enough to Accelerate Agricultural Growth?

Africa…



…holds almost 50% of the world's uncultivated land

…uses less than 2 percent of its renewable water sources

…has cereal yields that are between 60-80 percent below the maximum

…has post-harvest losses of between 15-20% of harvest

Africa's farmers and agribusinesses could create a trillion-dollar food market by 2030.

Source: World Bank 2013

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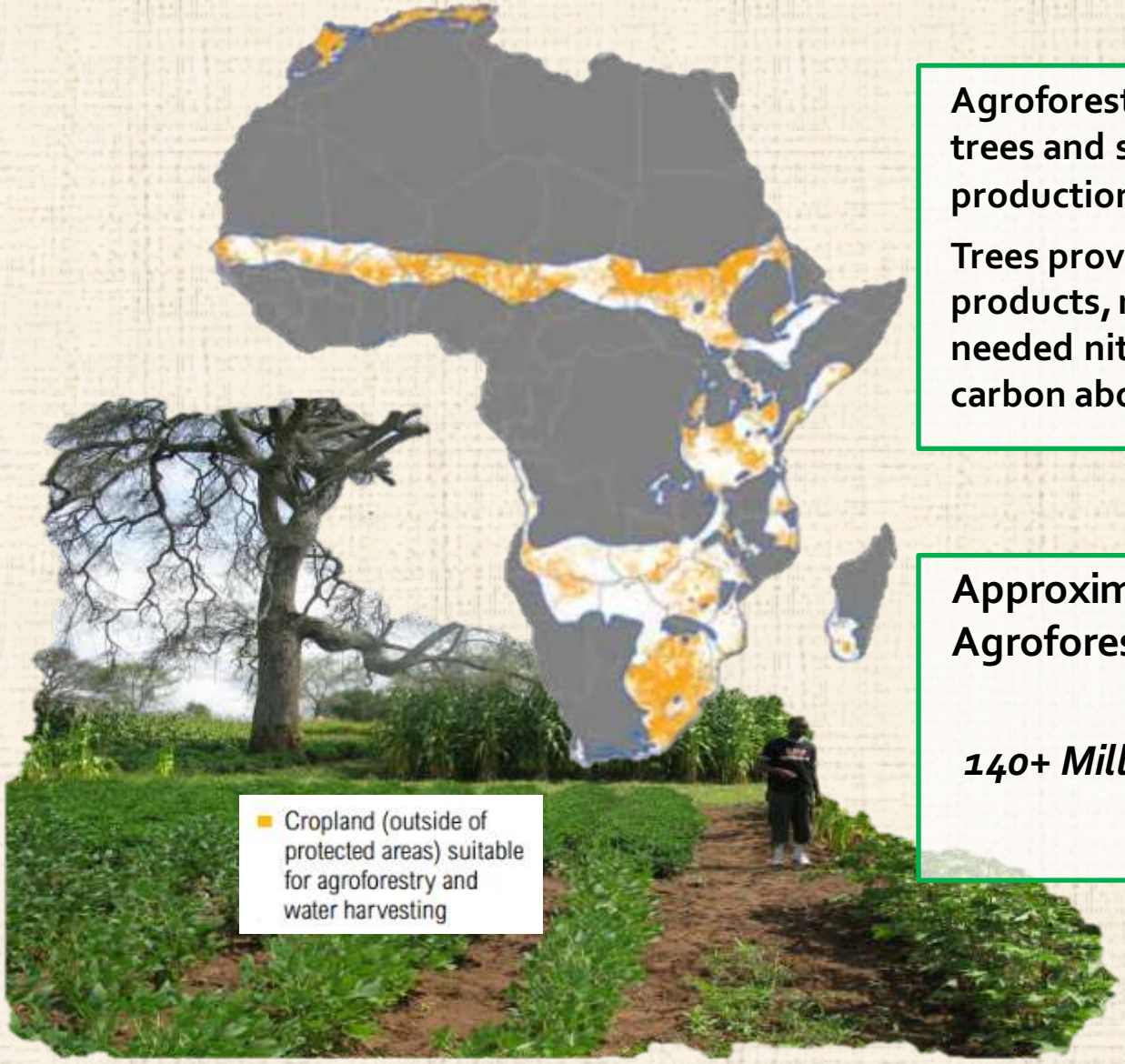
What if… - we spread agroforestry across Africa?



Agroforestry involves the integration of trees and shrubs with crop or livestock production.

Trees provide beneficial shade and wood products, many naturally add much needed nitrogen to the soil and store carbon above and below the soil.

Approximate area suitable for Agroforestry in Africa:

~ 300 Million Ha

140+ Million People below $1.25 per day

Analysis based on WRI 2013

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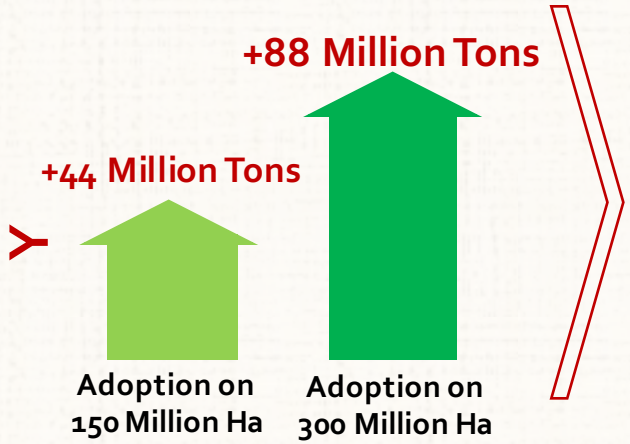
What if… - we spread agroforestry across Africa?

PRODUCTIVITY

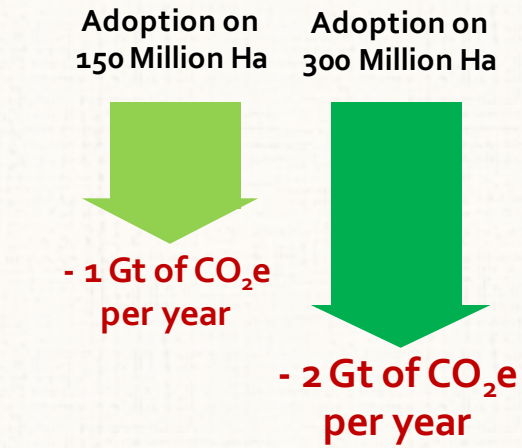
Food Production



- **+615 Calories per person/day for 140+ Million poor people**
- Average yield increase 50%
- Savings of over 6 Million tons of synthetic fertilizer

EMISSIONS

Carbon Sequestration



- 2 Gt Co_2e storage per year corresponds to **~1/3 of Global Direct Ag Emissions**
- Significantly higher mitigation potential by further increasing tree density and in humid systems

RESILIENCE

Multiple benefits include:

- Additional diversified income from wood products
- Reduced soil erosion
- Strengthened draught resistance from increased water storage

Agroforestry can be combined with other practices such as water harvesting for additional impact.

Analysis based on WRI 2013

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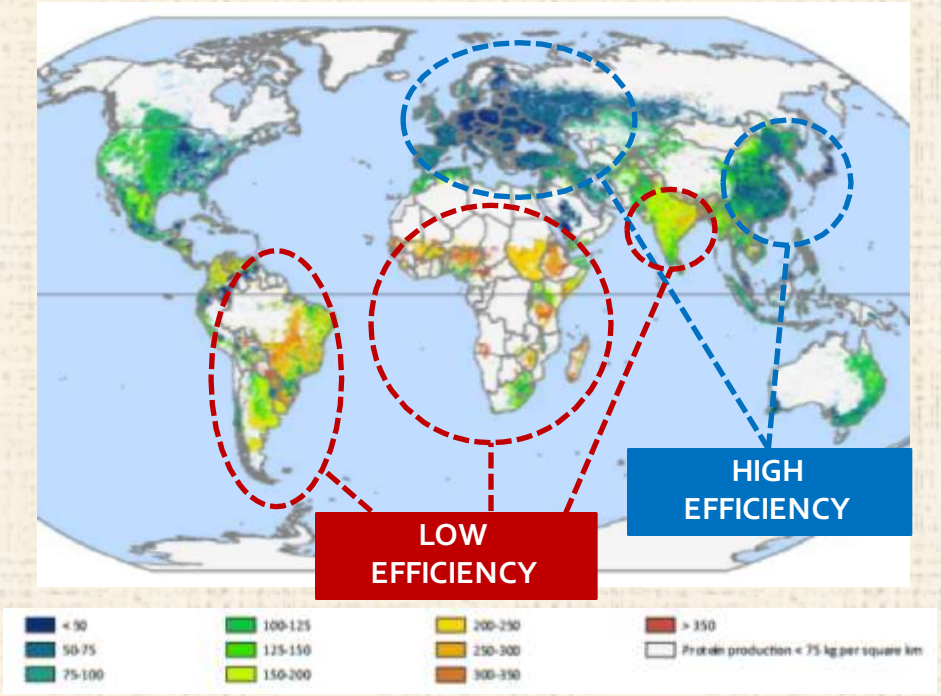
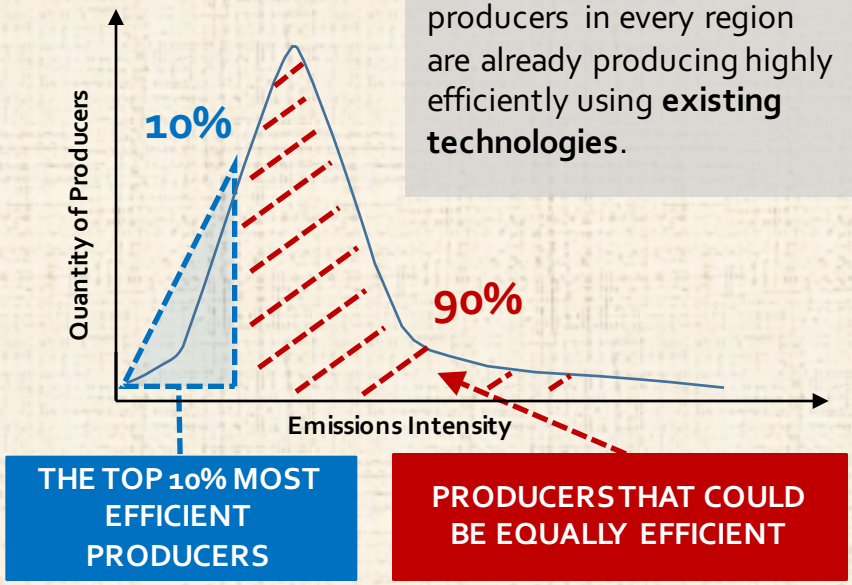
Efficiency of Livestock Systems Varies Greatly Across and Within Regions

Emissions Intensity of Livestock Production *Across* Regions
(Kg of CO_2e per edible unit of protein)



Distribution of Producers along Emission Intensity *Within* a Given Region
(Emission intensity per unit of production)



The Top 10% most efficient producers in every region are already producing highly efficiently using **existing technologies**.

There is ample potential to increase the efficiency and emissions intensity of livestock systems both across and within regions.

Based on results of the GLEAM Model, FAO 2013

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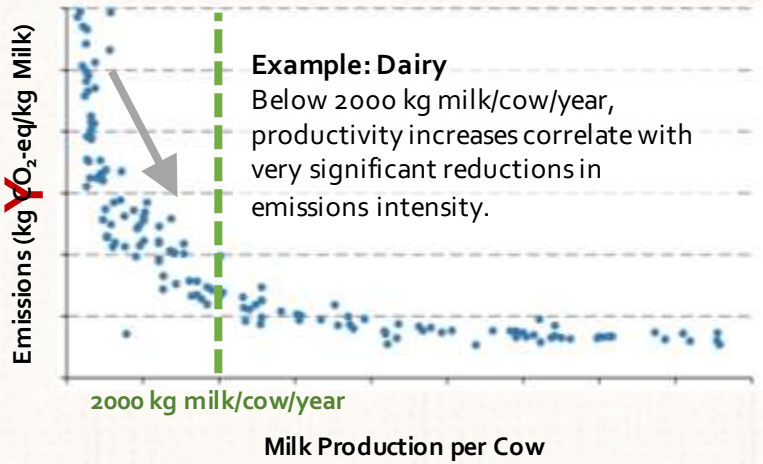
What if… - We Made all Livestock Farmers as Efficient as the Top 10%?

In Livestock, Higher productivity ⇒ Lower Emission Intensity

PRODUCTIVITY

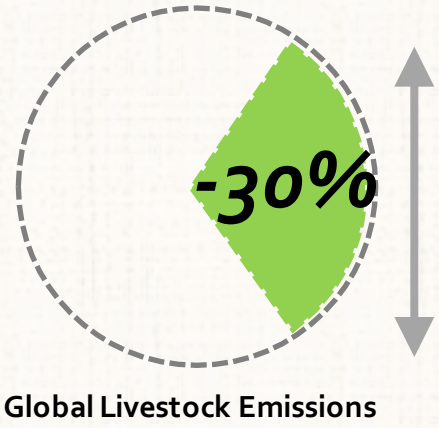


- Lowering emissions intensity **also** contributes to food security.
- In Africa higher productivity would have **major impact on poverty**.

RESILIENCE

- **Higher incomes for farmers**
- Healthier animals
- Biodiversity conservation due to reduced land pressure

EMISSIONS



Potential for reduction of livestock emissions if all producers became as efficient as the Top 10%:

- **- 1.8 Gt** CO_2e/yr in **2010**
- **> 3 Gt** CO_2e/yr in **2050**

Using only currently available technologies:

- Feeding practices,
- Animal husbandry
- Health management

Based on results of the GLEAM Model, FAO 2013, Extrapolations

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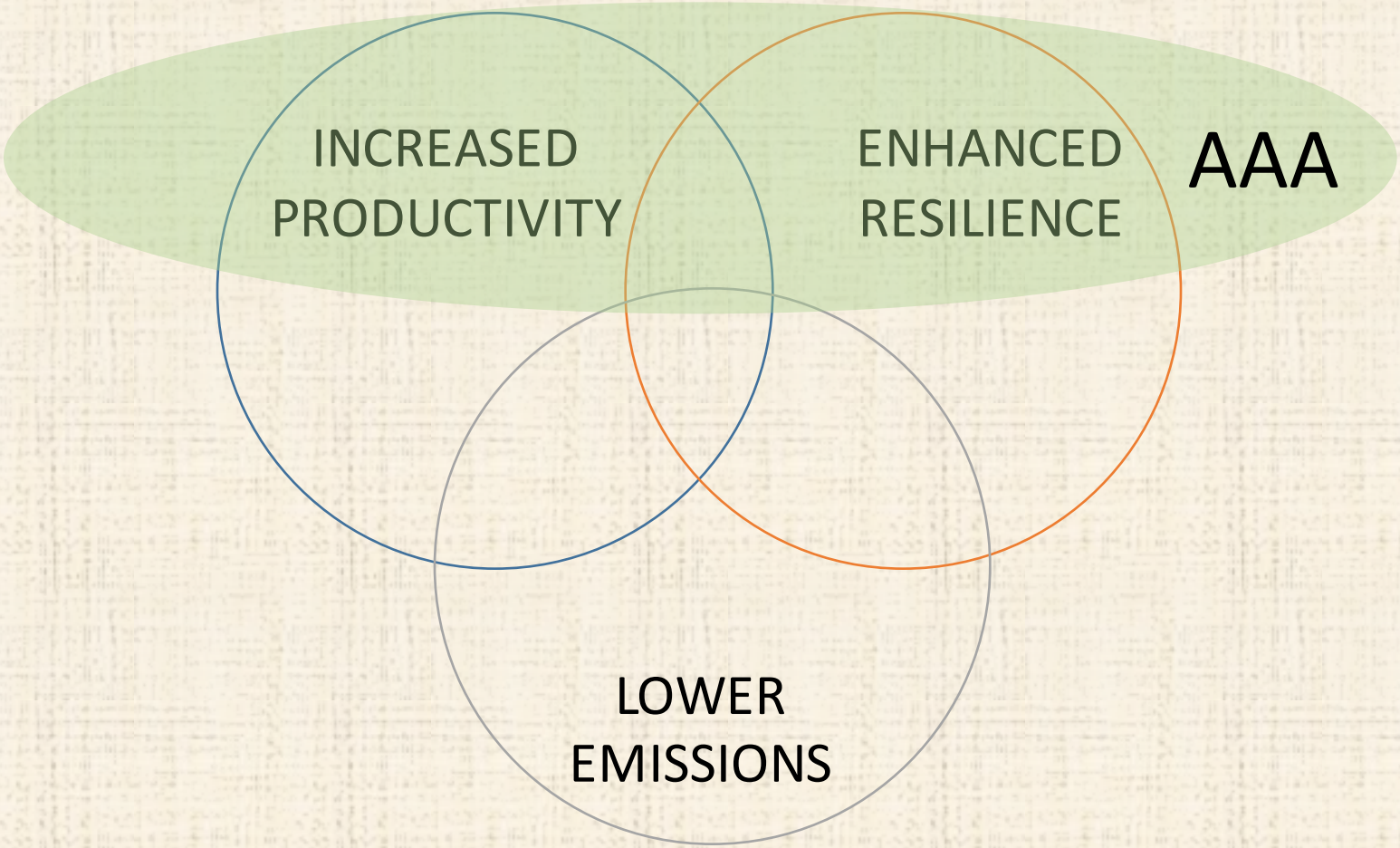
Climate-Smart Agriculture: Approach to Agriculture & Climate Change



CSA = SUSTAINABLE AGRICULTURE + RESILIENCE - EMISSIONS

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THANK YOU

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