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"
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Agriculture in Africa under Climate Change

Challenges, Action and Opportunities

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CONTEXT
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

Challenges Are Substantial Even in the Absence of Climate Change

Yield Gaps for Major Cereals

Selected Impacts of Natural Disasters Across Africa 1971-2012

Yields remain significantly below potential.

Extreme events are already taking a heavy toll.

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
Climate Change Will Bring Increased Temperatures and Aridity

Extreme heat events are likely to increase dramatically

Aridity is likely to increase across large parts of the continent

Multi-model mean (thick line) and individual models (thin lines) of the percentage of Sub-Saharan 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)

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
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.

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 2°C.

Source: Popp et al. 2010
ACTION
A majority of African countries included agriculture both under Adaptation and Mitigation in the INDCs, covering both cropping and livestock systems.
Commitments Cover Diverse Agriculture Sub-Sectors Adding Up to a Self-Reported Cost Estimate of Almost $30 Billion

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
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

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount ($ million)</th>
<th>Outcomes by 2026</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic sources</td>
<td>240</td>
<td>25m farmers adopted CSA practices</td>
</tr>
<tr>
<td>IDA</td>
<td>1,300</td>
<td>3m hectare farmland with CSA infra and practices</td>
</tr>
<tr>
<td>Private sector</td>
<td>240</td>
<td>15 countries with improved pastoral systems</td>
</tr>
<tr>
<td>Climate finance (GCF, GEF, CIF, and so forth)</td>
<td>100</td>
<td>At least 5 countries adopted CSA policies</td>
</tr>
<tr>
<td>Other development finance (bilaterals, multilaterals)</td>
<td>320</td>
<td>20 countries with improved CSA evidence base</td>
</tr>
<tr>
<td>To be determined</td>
<td>800</td>
<td>20 countries with improved CSA implementation capacity</td>
</tr>
<tr>
<td>Total fast track (resources raised by 2020)</td>
<td>3,000</td>
<td></td>
</tr>
<tr>
<td>Longer term (additional resources raised by 2024)</td>
<td>2,000</td>
<td></td>
</tr>
</tbody>
</table>

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
OPPORTUNITIES
What if... Africa’s Agriculture Became Resilient Enough to Accelerate Agricultural Growth?

Africa...

- **50%**: holds almost 50% of the world’s uncultivated land
- **< 2%**: uses less than 2 percent of its renewable water sources
- **60-80%**: has cereal yields that are between 60-80 percent below the maximum
- **15-20%**: 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
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
What if... - we spread agroforestry across Africa?

**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

**Carbon Sequestration**

- 2 Gt CO₂e 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

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
Efficiency of Livestock Systems Varies Greatly Across and Within Regions

Emissions Intensity of Livestock Production
Across Regions
(Kg of CO₂e per edible unit of protein)

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

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

**In Livestock, Higher productivity ⇒ Lower Emission Intensity**

- 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 CO₂eq/yr in 2010
  - >3 Gt CO₂eq/yr in 2050

**Using only currently available technologies:**

- Feeding practices,
- Animal husbandry
- Health management

Based on results of the GLEAM Model, FAO 2013, Extrapolations
Climate-Smart Agriculture: Approach to Agriculture & Climate Change

\[ \text{CSA} = \text{SUSTAINABLE AGRICULTURE} + \text{RESILIENCE} - \text{EMISSIONS} \]
THANK YOU