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"
Fertilizer Use in Africa

presented
by
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At the
‘High-Level Advisory Panel’ meeting of the *Adaptation of Africa’s Agriculture to Climate Change Initiative*

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The Africa Fertilizer Summit
Abuja, Nigeria—June 9-13, 2006

Guiding Principles

• Holistic approach for improving:
  • **Access**: Increase volume, range and quality of inputs using commercial channels
  • **Affordability**: Make inputs affordable, particularly for smallholder farmers
  • **Incentives**: Improve productivity and functioning of the output markets through public-private partnerships

Abuja Declaration: 12 Resolutions
What is the progress since the Fertilizer Summit?
Strong demand growth since 2008, driven by SSA

- Boosted by GDP growth, policy support, private investments

Baseline scenario:
- +70% between 2008 and 2019 for Africa
- +130% for SSA without South Africa
- Regional demand seen reaching 7 Mt by 2019
- In 2019, SSA would account for 2.2% of world demand

Anticipated Market Share in 2019

- North Africa: 51%
- South Africa: 38%
- Rest of SSA: 11%

Evolution of Africa’s fertilizer demand (Mt nutrients)

Source: IFA Agriculture
SSA fertilizer demand
2014 estimates (kt nutrients)

Source: IFA Agriculture
amitavahroy@gmail.com
Evolution of SSA’s average fertilizer application rate (kg nutrients/ha)

Application rates increase steadily but remain well below the Abuja target (50 kg/ha)

- Close to 15 kg/ha in 2013
- Expected to reach 17 kg/ha by 2019
- At that pace, 50 kg/ha will be reached in... 50 years from now!

Source: IFA Agriculture

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Access

*Increase volume, range and quality of inputs using commercial channels*
Africa’s Resources

Africa has over 60 % of world’s phosphate reserves/resources

- In West Africa:
  - 11 major production facilities in operation and 7 more planned/under construction
  - 22 bulk blending facilities in operation and 2 more planned/under construction

- In North Africa:
  - New dedicated production facility for Africa in Morocco
Affordability
Make inputs affordable, particularly for smallholder farmers
Farm Gate Fertilizer Price and Road Density

Fertilizer Price Formation

- Thailand: 81% at X, 3% at X+50%, 3% at X+80%
- Tanzania: 65% at X, 22% at X+50%, 8% at X+80%
- Mali: 49% at X, 62% at X+50%, 8% at X+80%

Retail Price:
- X

Transport Cost:
- X+50%
- X+80%

$0.00 $100.00 $200.00 $300.00 $400.00 $500.00 $600.00

Km of Paved Roads/ Million Capita

Infrastructure Investment; A Priority for African Countries and Development Partners

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Fertile Soil is Essential to Increasing Fertilizer Efficiency and Crop Yields

Integrated Soil Fertility Management
Cereal yields in Sahel

<table>
<thead>
<tr>
<th>Rainfall (mm/year)</th>
<th>Cereal yield (t/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>200</td>
<td>0.5</td>
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</tr>
<tr>
<td>1000</td>
<td>2.5</td>
</tr>
<tr>
<td>1200</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Henk Breman
Micro Dosing on Millet and Sorghum: Point placing 1 bottle cap (4.5g) of compound fertilizers for every plant stand to enhance fertilizer use efficiency and reduce crop failures in semi-arid areas.

Fertilizer Deep Placement on Irrigated Rice: Point placement of urea briquettes between rice plants 7-10 cm below the soil surface and 7 days after transplanting rice.
N Balance for UDP and Split Applied Urea in Wetland Rice.

**Split Application**
- In Soil: 33%
- In Straw: 9%
- In Grain: 23%
- Unaccounted: 35%

**UDP**
- In Grain: 42%
- In Soil: 31%
- In Straw: 23%
- Unaccounted: 4%
UDP Reduces N losses to the Environment

Nitrogen in Floodwater

Ammonia volatilization

Source: IFDC
Economically Attractive

Average Yield Increase (mt/ha) Compared to Urea Broadcasting / Conventional Farmer Practice

- Rice (fields under UDP): 2.67
- Millet (in fields under MD): 0.29
- Sorghum (in fields under MD): 0.88

Gross Margin Per Hectare ($)

- Irrigated rice under UDP: $573
- Millet under MD: $122
- Sorghum under MD: $137

* MD-Microdosing
UDP-Urea Deep Placement

Source: IFDC
Incentives
Improve productivity and functioning of the output markets through public-private partnerships
Output market drives fertilizer demand
Agribusiness Cluster
Cassava Revolution through PPP*

Commercial cassava farming

Harvested cassava transported to processing unit

Mobile unit to process cassava in village clusters

35-40 t/ha using new cassava variety and balanced fertilization

Cassava Flour

Cassava Beer

* Public-Private Partnership
In Conclusion

Eco-intensification way forward for Africa

Creating new farmland is a major contributor to GHG

Sources of Greenhouse Gas Emissions (GHG)
- Energy sector: 74%
- Agriculture: 13%
- Waste: 7%
- Industrial Processes: 6%
Thank You