



# Challenges and interventions on the high rice prices in Africa

Shellemiah O. Keya  
Africa Rice Center (WARDA)

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# Outline

- Current food crisis undermines a strategic commodity like rice
- Crisis presents an opportunity to boost rice production in Africa
- Strategic interventions by WARDA and partners seeks Canadian support
- Optimism for African green revolution



# Africa Rice Center (WARDA)

- Association established 1971
- CGIAR membership 1987
- One of the 15 CGIAR Centers
- 22 African Member States
- Stations:
  - Benin
  - Côte d'Ivoire
  - Senegal
  - Nigeria
  - Tanzania



# Importance of Rice in SSA

- Employs more than 20 million farmers
- Sustain the livelihood for 100 million people



Processors



Producers

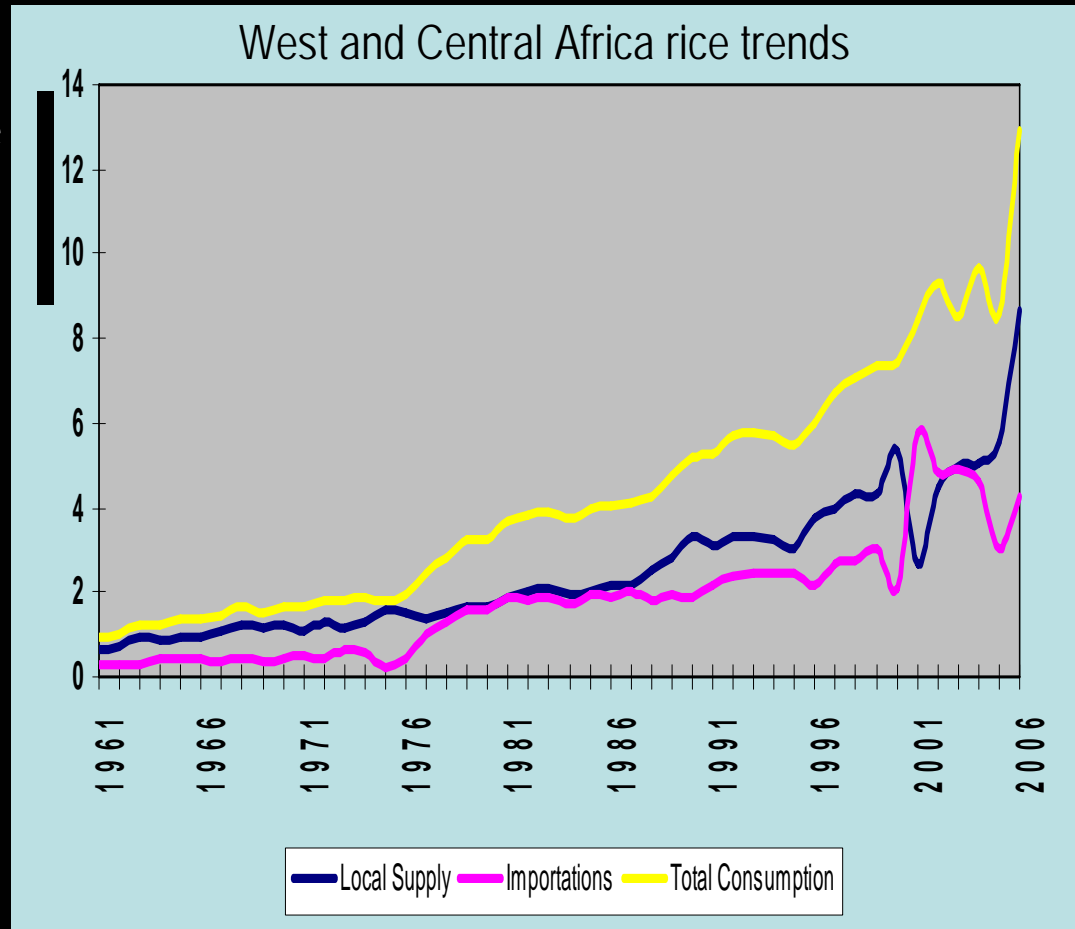


Traders

# Growing Rice Consumption in SSA

## Consequences:

- Production not keeping pace with consumption
- Widening domestic deficit met by importation
- Accounts for more than 30% of world rice imports
- Import bill of more than US\$ 2 billion/year



Source: FAO-STAT



# Rice Crisis in SSA: Threats and Opportunities

- Nearly 40% of the volume of rice consumed in sub-Saharan Africa (SSA) is imported from the international market.
- With such import-dependence, SSA is the most vulnerable region to surging rice prices because of high food insecurity prevalence
- Rice has long been a dominant staple particularly in West Africa
- increasing rice price to an opportunity to raise production





# Africa Rice Center R4D priorities

## SHORT TERM

- Raising productivity in farmers' fields: bridging the yield gaps ('extension agronomy', access to inputs, including seed of best-bet varieties)
- Re-working existing stocks of rice knowledge into formats ready for dissemination

## MEDIUM TERM

- Producing the next generation of NERICA varieties: varieties for upland and lowland conditions, resistant to major (a) biotic stresses
- Expanding rice cultivation: tap Africa's vastly under-utilized rainfed lowlands
- Adopting and adapting agricultural machinery for land preparation, harvest and post-harvest: adding more 'energy to rice farming
- Building rice value chains: adding value to rice produce (grain quality)
- Harmonizing rice policies (varietal release, seed legislation, input subsidies, import tariffs...)
- Diversifying rice-based systems

## LONG TERM

- Invest in research and extension capacity building in Africa
- Adapt to and mitigate effects of climate change



# WARDA's new R4D structure

## Research programs:

- Genetic diversity and breeding
  - Productivity enhancement
  - Learning and innovation systems
  - Policy and impact
- 
- SWEF: Inland Valley Consortium
  - Networks: ARI, ROCARIZ/ECARRN, INGER
  - Rice research alignment with IRRI (especially for ESA)
  - RiceTime Unit (Rice Training, Information Management and Extension) to lead contribution to Emergency Rice Initiative and rice information management and capacity building efforts (by January 1, 2009)





# Genetic diversity and breeding

- Enhanced genetic diversity
  - Improved and stable rice lines with good grain quality
  - Knowledge of G x E interactions for (a)biotic stresses
  - Enhanced involvement of farmers
- > Collaboration with farmer organizations, NGOs, NARES, IRRI, CIAT, JIRCAS, IRD, Cornell Univ., CIRAD, Nihon Univ., John Innes Centre
- > Benin, Burkina Faso, Ethiopia, Gambia, Ghana, Guinea, Madagascar, Mali, Nigeria, Rwanda, Senegal, Tanzania, Uganda



# NERICA development

- Development of lowland NERICA (strong collaboration with NARS: 60 varieties in total)
- Molecular profile of upland and lowland NERICAs: about 10% from *glaberrima* parent
- Use of MAS to speed up breeding process (e.g. introgression of RYMV gene)
- Drought screening and phenotype x genotype analysis of importance of rooting depth (Ibadan)
- Exploring *O. barthii*



# Crisis a reminder of Major Challenges

- Seed issue
  - Seed System - Breeder Seed- Quality Control
- Technology transfer
  - Scaling out/up of successful technology
  - Better/faster technology transfer
- Educating the policy makers, Politicians
- Marketing our technologies
- Exploiting the network base



# Research Challenges

- **Low Level of productivity**
- **Poor quality of the market product**
- **Unfavorable market and policy environment**
- **Sustainability of natural resource base**



# Strategic Opportunities

- **Raise productivity from 1.2/1.5 to 5t/ha, reduced yield gap**
- **Addressing Post harvest**
- **Improving policies and market access**
- **Greater focus on natural resource Management**



# Partnership with national programs through WARDA's research network

- Screening and evaluation of the first progenies
- Selected material sent to three countries (Burkina Faso, Togo and Mali)
- Shuttle Breeding: WAS122-IDSA1-FKR-2-TGR-8



# Productivity enhancement

- Integrated management options for weeds, pests and diseases
- Sustainable intensification options for rice-based systems
- Profitable opportunities for diversification
- Use of environmental services optimized and safeguarded

-> Farmer organizations, NGOs, NARES, Univ. of Hannover, IRD, NRI, Univ. of California, WorldFish, CIRAD, Univ. of Hohenheim, Wageningen University, IWMI

-> WARDA member countries, Madagascar, Tanzania





# Intensification / diversification of lowland – Opportunity for better water management

## Project sites in Nigeria, Burkina Faso and Ivory Coast



# The Rice Crisis in sub-Saharan Africa: Threats and Opportunities

- The potential for enhancing rice production in Africa includes:
  - Availability of modern rice technologies,
  - Availability of large and diversified ecologies
  - Availability of underutilized water resources
  - Accessibility of competitive domestic rice production systems.



# Potential for Production Expansion

Agro-Ecology	Actual harvested Areas (Ha)	Potential cultivable Areas (Ha)
Rainfed Upland	1.8 million	-
Rainfed Lowland	630,000	19 million
Irrigated lowland Humid/semi humid areas	160,000	-
Irrigated lowland Sahel	200,000	3 million
Mangrove Swamp	190,000	1 million
Deep Water Floating	187,000	630,000

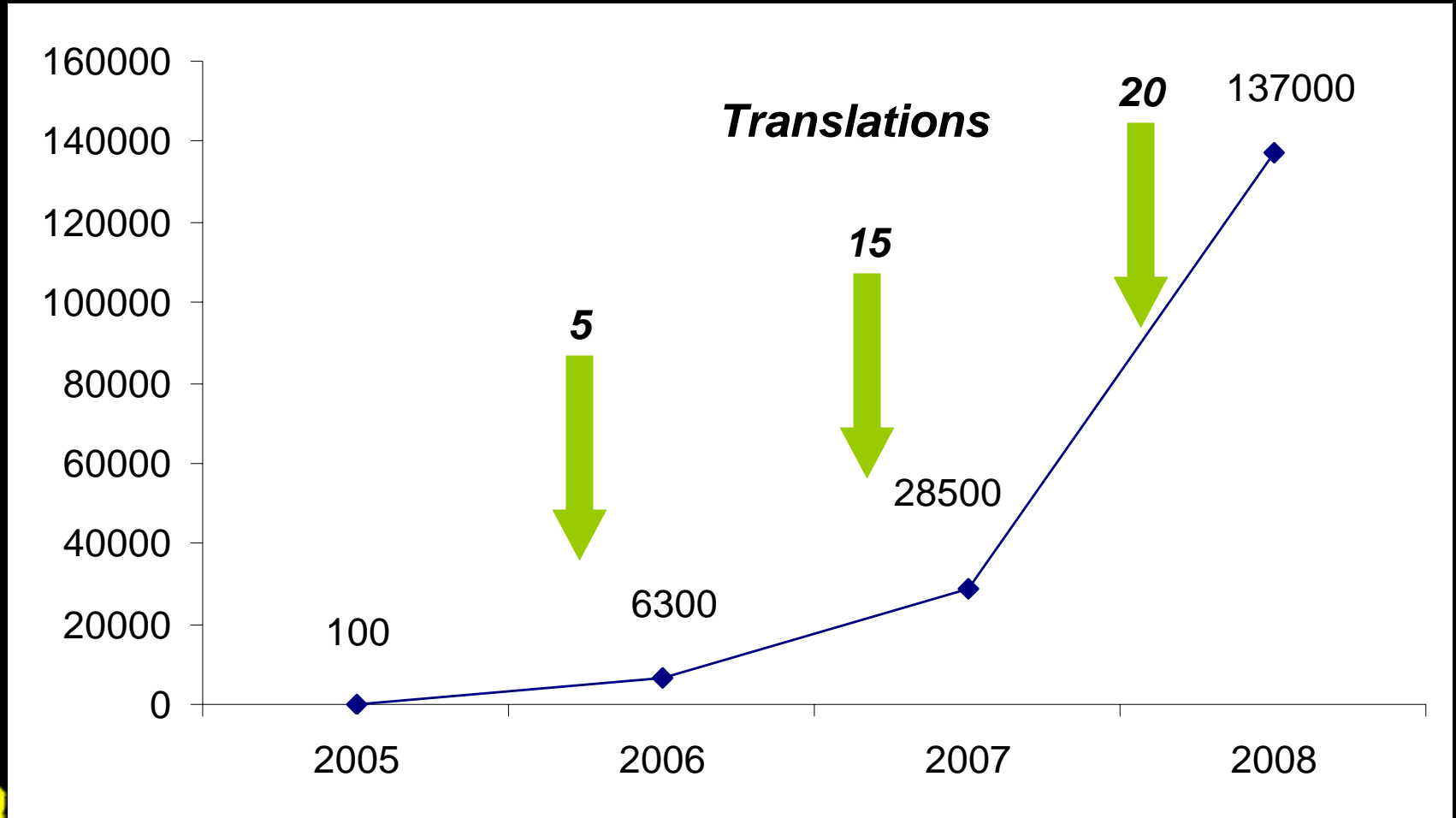


# Learning and innovation systems

- Partnerships and networks to promote rice sector development
  - Mechanisms for pro-poor seed system development
  - Agricultural education tools and learning pathways
  - Strategies and tools to strengthen the rice value chain
- > Collaboration with farmer organizations, NGOs, NARES, IRRI, CIAT, CABI, COL, FARA, CORAF, ASARECA
- > WARDA member countries, Ethiopia, Kenya, Madagascar, Sudan, Tanzania



# Distribution of rice videos in Africa



# Collaboration with Farm Radio International - Canada



SHAPING IDEAS, GROWING SOLUTIONS

The newsletter for  
partners of Farm Radio  
International



September 2008, NO. 85

Rice farmer in Benin.



**The cultivation of rice  
IN AFRICA**

**Rice  
scripts  
for  
broadcasters**

Getting information about improved technologies to farmers is one of the mandates of the **Africa Rice Center (WARDA)**. As part of its Rice Rural Learning Campaign, WARDA has collaborated with Farm Radio International to produce ten scripts about important rice production and seed management methods.

The first three of these

Photo: Africa Rice Center (WARDA)





# Role of Policy and impact

- Tools, methods and enhanced capacity for impact assessment, policy analysis and priority setting
  - Rice policy options and institutions for competitive domestic rice production
  - Improved post-harvest systems for competitive domestic rice production
- > Collaboration with farmer organizations, NGOs, NARES, Univ. of Florence, Univ. of Wisconsin, IFPRI, IITA, ICRISAT, IRRI, CORAF, UEMOA, ECOWAS, CIRAD, McGill University (*new project 'Improving rice processing strategies for food security in Africa'*), Wageningen University, FAO, Oxfam, ROPPA
- > WARDA member countries, Ethiopia, Kenya, Madagascar, Sudan, Tanzania



# Contribution of integrated rice management in the Senegal River valley

## ❑ Significant improvement in resource use efficiency in the last 4 years

- % farmers with less than 4t/ha decreased from 23 to 10%
- % farmers with more than 6t/ha increased from 31 to 44%
- Mean yield in the high yield group is 7.14 t/ha
- Cost of production in the high yield group is 48 FCFA/kg paddy

## ❑ No significant difference in input levels between farmers in the high and low yield categories



# Adoption of NERICA in Benin

- **Impact on rice productivity:**
  - Impact on rice income: \$28 per capita
- **Impact on child schooling:**
  - 6% increase in school attendance rate
  - About \$20 increase per child in school expenditure
- **Impact on child health:**
  - 5% increase in the hospital attendance frequency when sick
  - About \$12 increase in health expenses per sick child



# Interventions for boosting domestic rice supply

- Short term measures
  - Seed relief and seed multiplication programs
  - Support to NARS and producer groups
  - Access to critical inputs such as mineral fertilizers
  - Access to improved post-harvest technologies
  - The need for regional coordination of rice sector development



# Interventions for boosting domestic rice supply

## Short term

- FAO-WARDA-IFDC-CRS Emergency Rice Initiative launched in 11 countries in West Africa
- In May 2005 at Yokohama WARDA – FARA JICA, AGRA, IRRI launched the coalition for rice Research and Development in Africa (CARD) whose objective is to double rice production in Africa over the next 10 years.
- The first CARD technical meeting hosted by WARDA is scheduled for 25-26 September 2008



# Interventions for boosting domestic rice supply

- Medium term investment measures
  - Diffuse improved crop management practices
  - Reduce structural constraints to the availability of rice seed
  - Rehabilitate existing irrigation facilities
  - Invest in rice research and capacity building
  - Sensitize consumers, trade unions and importers' lobby groups





# Interventions for boosting domestic rice supply

- Long term measures
  - Investment in new irrigation facilities
  - Investment in rural infrastructure to facilitate access to market



# WARDA's Long Term Strategic interventions m

- Over the last five years WARDA and its NARS partners have developed close to 100 improved rice varieties for major rice growing ecologies in Africa
- Characteristic of these improved varieties are:
  - Early maturity:
    - Upland takes 90 – 100 - vs. 120 – 150 days
    - Lowland takes 115 – 120 vs. 135 – 170 days
    - Irrigated takes 115 – 120 vs. 135 – 170 days
  - High yields:
    - Upland: from 900 kg to more than 2 tons/ha
    - Lowland from 1000 kg to more than 4 tons/ha
    - Irrigated from 4 tons to more than 6 tons/ha
  - Resistant to major pest and diseases such as Rice Yellow Mottle (RYMV) and Blast.
  - Taste and grain quality acceptable to consumers.
  - Adapted to upland rainfed conditions of Africa e.g. NERICA



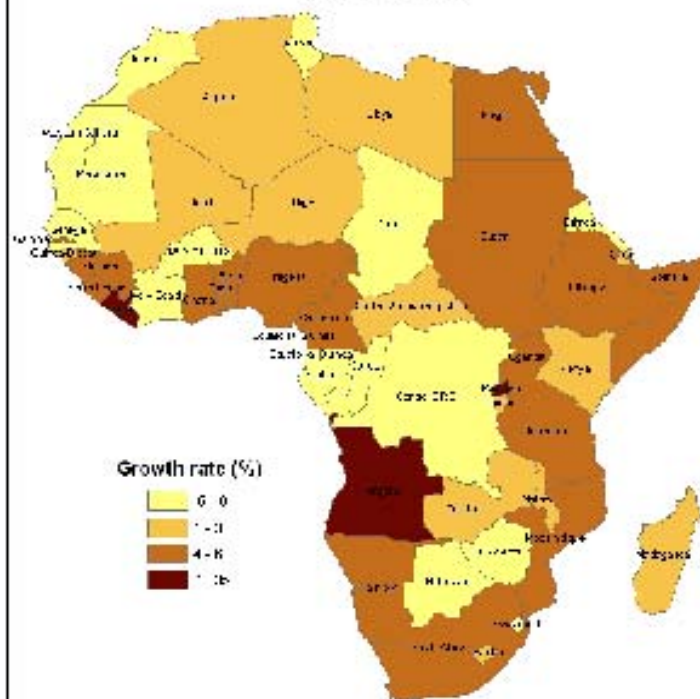
# Optimism on African self sufficiency in rice

- Increased rice production in several West African countries cited by FAO Rice Monitor.
- Rice production is increasing in East Africa (Uganda, Rwanda, Ethiopia)
- Recent food self sufficiency in Malawi includes rice
- Madagascar plans to double its rice production
- Several countries in Africa have established strategic plans for rice



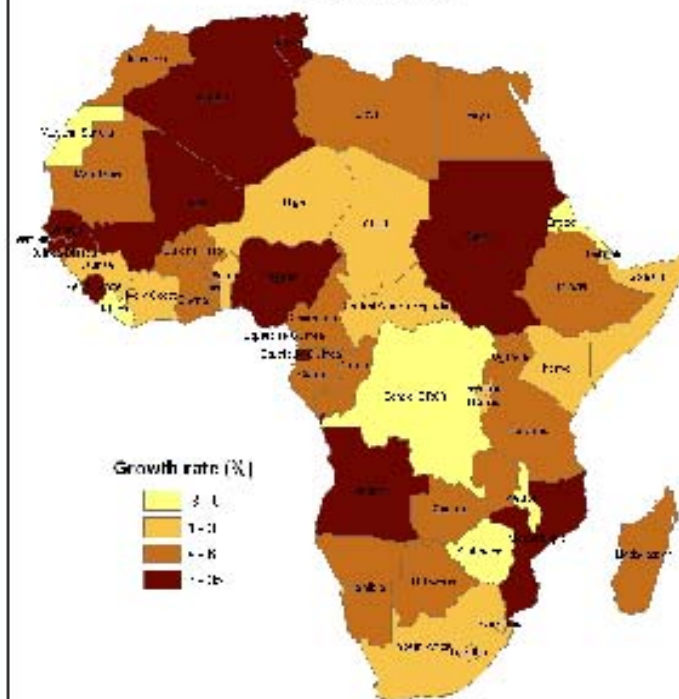
# GROWTH IN AGRICULTURE IS SPREADING

Agricultural growth in Africa  
(1999-2002)



Note: Data are based on the African Development Bank's annual report, 2004. Data are for the period 1999-2002.

Agricultural growth in Africa  
(2003-2005)



Note: Data are based on the African Development Bank's annual report, 2006. Data are for the period 2003-2005.

SOURCE: IFPRI/ Badiane and Ulimwengu

# Roles of Canadian institutions

- IDRC
- CIDA Can
- Canada fund for Africa
- CGIAR Canada Link Project
- Core support to CGIAR Centers and WARDA
- Working with Canadian Universities e.g. McGill



# Conclusions

- Africa is determined to overcome the current food crisis - the case of rice
- Emergency initiatives launched by WARDA and partners designed to boost rice production
- WARDA is ready to work with Canadian institutions to realize African green revolution
- Success stories in Africa show it can be done provided support is mobilized to address constraints
- The unique partnerships of CGIAR/NARS/WARDA present an opportunity to address the crisis





Thank you

Merci

