

Rice in Sub-Saharan Africa

Present Status and Future Development Strategy

CARD 4th General Meeting

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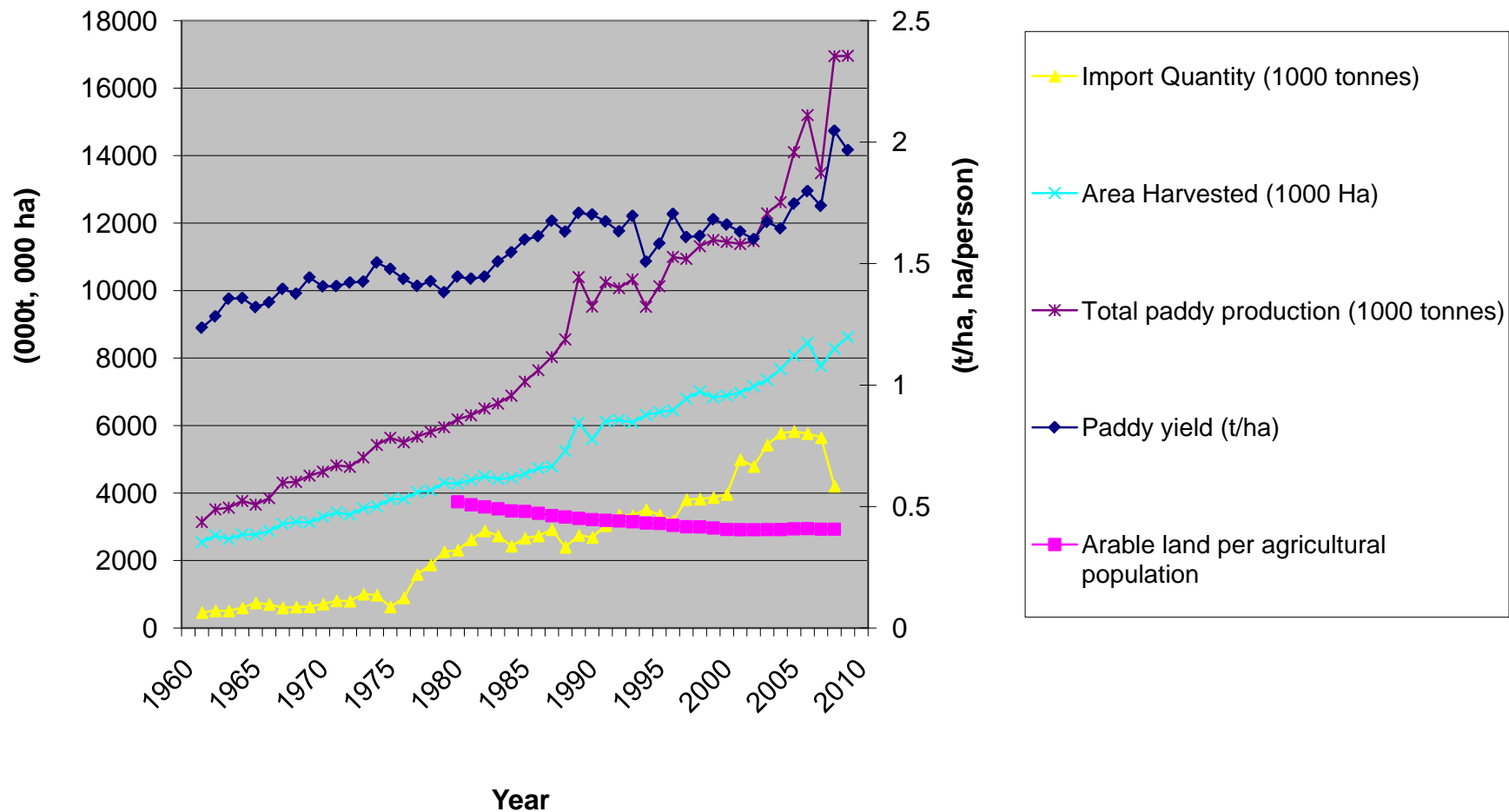
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Total paddy production, harvested area, paddy yield, import of milled rice, and arable land per agricultural population in SSA



Characteristics of Study Sites

Country/Region	Type of Survey	No. of Sample Households	Production Environment
Mozambique Chokwe Central Region	Intensive Extensive	176 279	Large Irrigation Rainfed
Tanzania 3 major regions	Extensive	634	Irrigated/Rainfed
Uganda Eastern JICA projects East, Central, & North	Intensive Extensive	300 600	Irrigated/Rainfed Mostly rainfed
Ghana Northern	Extensive	600	Rainfed
Kenya Mwea	Intensive	245	Large irrigation
Senegal Senegal River Basin	Planned in Dec. 2011 to Jan. 2012	--	Large Irrigation

Major Features of the Survey

- Wide coverage of rice production areas in SSA with diverse production performance.
- Coverage of both large-scale irrigation schemes (i.e., Chokwe, Mwea, and Senegal River Basin) and small ones.
- Focus on lowland rice, as upland NERICA was not popular yet in our study sites except in Uganda.
- Attempt to assess impacts of rice production training programs.
- Focus not only on “new seeds and fertilizer” but also on production practices, e.g., “bunding, leveling, and straight-row transplanting.”



Irrigation and Modern Variety in Tanzania



SARO5



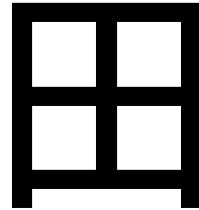
Rice farmers and a tall
local variety in
Mozambique



Low yield



What does this Chinese character
mean?



The importance of bund

No bund → lack of water → weeds



The importance of leveling and line planting to avoid uneven growth / facilitate weeding



High Performance of Irrigated Rice

Country/Region	Yield (ton/ha)	MVs or Improved Variety Adoption (%)	Chemical Fertilizer (Kg/ha)	Bunding/ Leveling (%)	Tractor use (%)
Mozambique Chokwe	2.0	83	38.0	100	83
Tanzania 3 major regions	3.6	33.5	31.9	85	n.a.
Uganda Eastern	4.1	79	0.57	84	0
Kenya Mwea	5.4-5.8 8-12	100 Basmati IRRI-type	420 442	100 100	100 100
Senegal Senegal River Basin	5-6	100 (IRRI-type)	400	100	100

Low Performance of Rainfed Rice

Country/Region	Yield (ton/ha)	MV Adoption (%)	Chemical Fertilizer (Kg/ha)	Bunding/ Leveling (%)	Tractor use (%)
Mozambique Central Region	1.0	0.7	0	46	2-4
Tanzania 3 major regions	1.8	7.0	5.8	50	Low
Uganda Eastern JICA project	1.7	49	0.12	72/58	0
Eastern and Northern	2.5	27	1.2	65/83	0
Ghana Northern	1.4-3.8	48	62.1%	94/60	90

Impacts of Training

- Significant impacts on yield, MV adoption, fertilizer use, and adoption of improved production practices (Tanzania, Ghana, Uganda).
 - In Ghana training increased yield by 1.0 to 1.5 tons per ha.
 - In Uganda “general” training in the past increased yield by 0.6 ton per ha, but recent JICA training increased it by 1.9 tons per ha.
- * These effects may be overestimated, because those who take training are likely to be more motivated, enthusiastic, and competent or the owner of suitable land.
- ** There are indications that improved production practices have larger yield effects when they were taught by training, not by neighbors and friends.

Lowland Rice Training in Eastern Uganda by JICA

- Participatory and simple field training:
 - Construction of bunds and irrigation channels, and land preparation (3 days).
 - Preparation of seedling at the nursery beds and leveling (0.5 day)
 - Transplanting and weeding (0.5 day)
 - Harvesting and threshing (0.5 day)

Impacts of Training

- Training participants increased adoption of bunding, leveling, and straight-row planting significantly.
- As a result, the yield per ha increased by 1.9 tons on average.
- This yield gain amounts to US\$328.
- * Crop diseases (RYMV, blast, and stem borer) are becoming serious. The quality of self-produced seeds is deteriorating. Both drought and flood are serious threats.

Diseases are becoming serious



Other major results of our analyses

- Generally we found significant effects of Asian-type MVs, irrigation, fertilizer use, and adoption of improved production practices on rice yields
 - è High transferability of Asian Green Revolution technology, which is unique to lowland rice.
- Significant yield effect of animal use for land preparation (Mozambique).
- Yield effect of access to credit is observed (Mozambique, Tanzania, Mwea).
- Small farmers are more active in improved technology adoption and achieved higher yields universally.

Policy Implications

1. *Importance of irrigation*

Even large-scale irrigation schemes seem to work (e.g., Mwea in Kenya, Senegal River Basin), where markets are working and improved technologies are adopted.

2. *Need for Capacity Building to Strengthen the Extension System*

Asian technology is directly transferable to SSA; but extensions system, particularly on rice, is still weak; and thus capacity building is crucial.

3. *Other Missing Factors*

“Mini-tractorization” to facilitate bunding and leveling and the provision of credit for the purchase of fertilizer (possibly micro-finance).

Good News!

- The first batch of 25 African rice extension specialists (from Mozambique, Rwanda, Uganda, Tanzania, and Kenya) has completed their season-long (17 weeks) training program from June to October 2011 in the Philippines (PhilRice and IRRI).
- The training program is designed to contribute to greater harvests of quality rice through the application of up-to-date rice farming practices, from seed selection to rice marketing.

They enjoyed the training program



Farmers and trainees interact during the farmers field school



One of the modules in the training course was rice disease identification and management.

Words from Trainees

Eugenio from Mozambique:

We have done a lot of practical things. I could plant rice.

Eunice from Uganda:

We are able to learn how to get the knowledge from research, package it well, and give it to the farmers.

Suzana from Tanzania:

So, confidence has increased. I am now confident about rice production.

Bernard from Kenya:

I think we have gained a lot of knowledge. A lot of knowledge!

Concluding Remarks

- In order to increase productivity, we need good technology, strong extension system, efficient marketing and credit systems, and, if possible, irrigation facilities.
- The question is from where to start.
- In the case of lowland rice, the first priority should be placed on capacity building for strong extension systems.

Thank you very much
for your attention