



Promoting Agricultural Mechanization in SSA

Seminar on Private sector development and roles of the public sector

CARD General Meeting IV
7th November, 2011
Kampala

TOKIDA, Kunihiro
Senior Advisor,
Japan International Cooperation Agency

FAO
Publications

A guide to preparing an
agricultural
mechanization strategy,
1997

Farm power and
mechanization for small
farms in sub-Saharan
Africa, 2006

Agricultural
mechanization in sub-
Saharan Africa: time for
a new look, 2008

Farm equipment supply
chain –Guidelines for
policy-maker and
service providers, 2009

CARD GM I
Tokyo, Japan

Mechanization in
NRDS

CARD GM III
Arusha, Tanzania

Questionnaire on
mechanization

JICA Training
for CARD focal points
in Japan
Survey on policy
Action plan

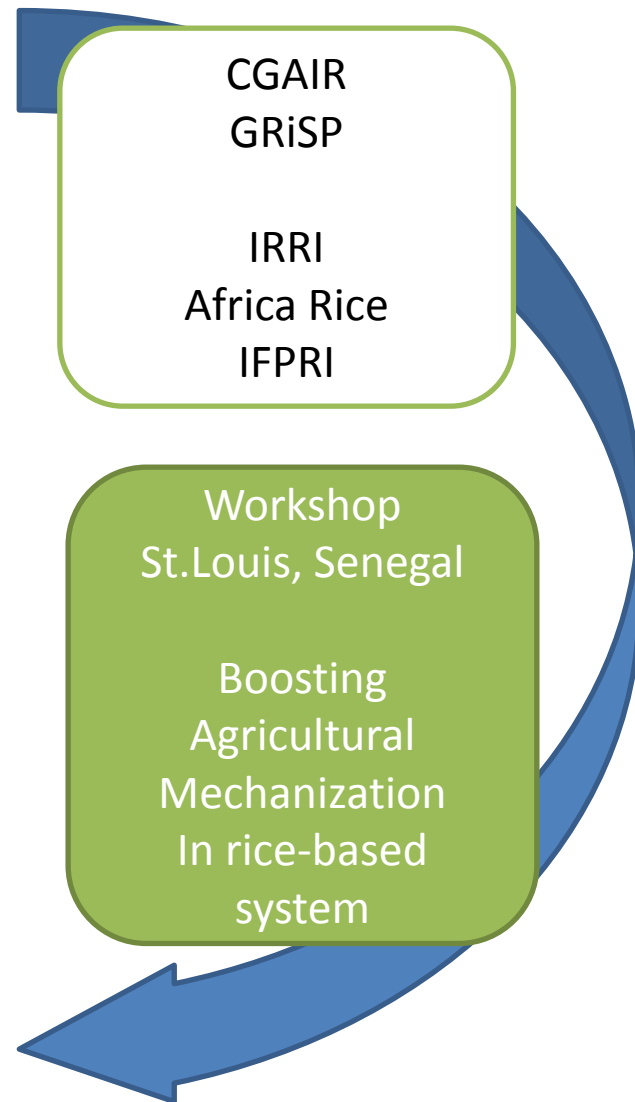
CARD GM IV
Kampala, Uganda
Seminar on Private
sector development
and role of the
government

CGAIR
GRiSP

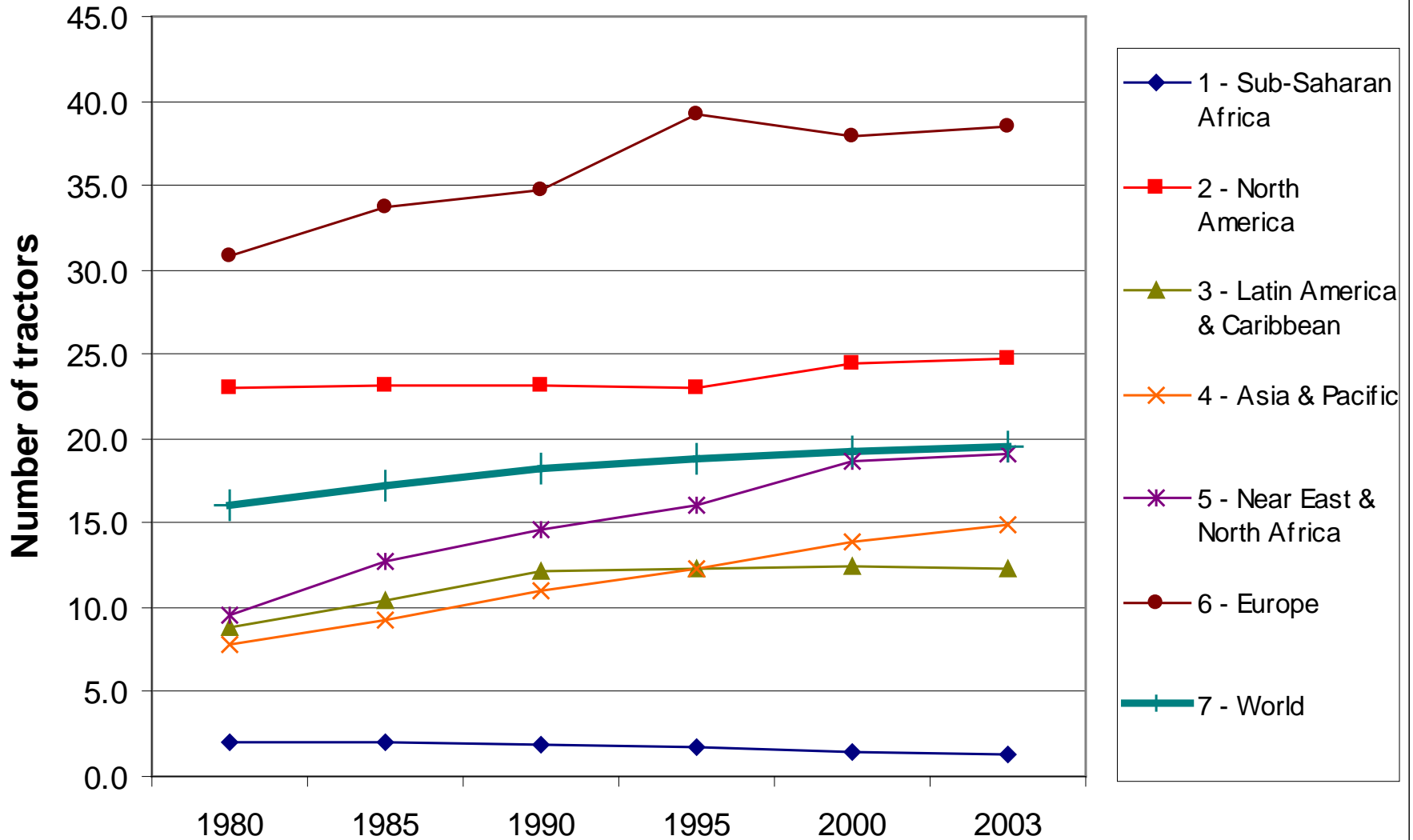
IRRI
Africa Rice
IFPRI

Workshop
St.Louis, Senegal

Boosting
Agricultural
Mechanization
In rice-based
system



Tractor use per 1000 ha arable land



Boosting agricultural mechanization in rice-based systems in sub-Saharan Africa

St. Louis, Senegal, 6-8 June 2011

Purpose: to develop a road map and clear implementation steps to boost mechanization in rice-based systems in SSA.

Organizer: AfricaRice, IRRI (GRiSP)

Participants: Ghana, Mali, Nigeria, Senegal, Sierra Leone, Tanzania, Uganda,

Briggs & Stratton, Local manufacturers, JICA, CIRAD, CARD



Observations by **Briggs & Stratton**

- Progression – Human Power, Animal & Mechanical Power
- Manual labour can be expensive

- Private sector makes too much money?
- Why can we not manufacture locally yet? (China & India)
- Premature breakages (product graveyard) – Local service !!!

- Success with product in Tanzania - “SOFT LOAN” Tanzania
- Business Plan instead of FREE equipment
- Government Taxes & Duties

- People use what they know – lets teach them
- Matforce (Senegal) receiving demo equipment – Pro- active!
- Training & Service costs money
- Training centres – together with existing network

Intermech Engineering Ltd

Challenges



- **Collaboration**
 - R&D/Industry/Farmer,
 - African Manufacturers
- **Financing and Commercial timeframes**
 - In-house product development,
 - R&D and commercialisation
 - Quality Testing of equipment
- **Manufacturing capacity**
 - Inputs, components, materials
 - Production capacity, marketing, field support
- **Technology dissemination**

Constraints

- Cost of equipment (double of that in Asia)
- Government taxes and duties on equipment
- Credit schemes for purchasing small equipment
- Equipment failure
- Supply of spareparts
- Quantity and quality of local production is low
- Local capacity for equipment maintenance
- Poor operator techniques
- Lack of knowledge and awareness



Output: Types of farm equipment which would have an immediate impact

- Small tractors - 2wheel 12-15hp and small 4 wheel tractors fitted with rubber and steel wheels
- Row seeders
- Mechanical threshers (1-2t/h capacity)
- Small combine harvesters (0.5ha/h)
- Two stage rice mills(250-500kg/h)



RECOMMENDATIONS FROM THE W/S

- **Need a survey of taxes and duties for equipment**
- **Review government policies and lobby if needed**
- **Develop or link up with credit providers**
- **Import or manufacture equipment and spareparts**
- **Encourage international equipment suppliers to develop direct linkage with local dealers**
- **Thoroughly test imported equipment**
- **Support local vocational training colleges for operators and technicians**
- **Support local manufacturers through business training and demonstrations**
- **Undertake south-south collaboration**



Questionnaire on Agricultural Mechanization during CARD GM III

Findings :

1. Agricultural mechanization Strategy
Some are not implemented
2. Privatization in progress
More private hiring services
3. Expectation to small mechanization
Seeking Asian models



Is Asian model replicated in SSA?

- Can African farmers own small tractors after one decade?

YES-13

NO-3

- Ghana: Initial investment is too high
- Zambia: Small tractors are not suited for large land
- Gambia : Average land area is too small to mechanize



Agricultural mechanization week in JICA training for NRDS focal persons

Tsukuba, Sept. 2011

- Overview of agricultural mechanization in SSA
- Survey results of “Government’s policy on agricultural mechanization”
- Viewpoints from a farm machinery maker
- Asian experience of farm mechanization
- Visit to an agricultural museum:
 - Farm tools to high technology
- Discussion
 - Action plan to promote mechanization



Enabling Environment for PPP in SSA

by Tokida

- **Government commitment**

Clear mechanization policy and strategy with concerned ministries

Direct public investment that does not disturb private investment

Available human resources

- **Reduction of business risks**

Business system for sustainable agricultural inputs

Protection of investors

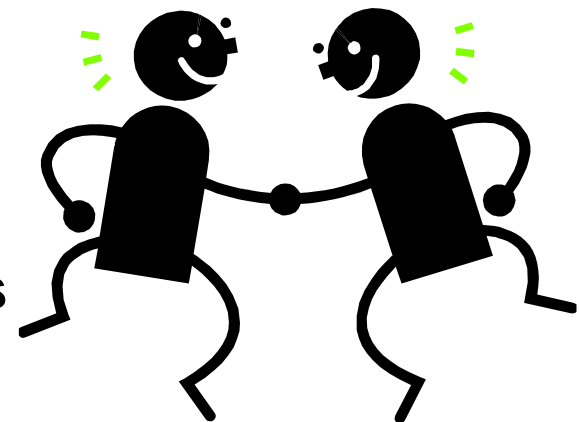
Tariff and tax reduction

Cost reduction

- **Creation of mechanization demand**

Protection of customers

Financial support and purchase subsidies



Promoting agricultural mechanization under NRDS implementation process

- Agricultural mechanization stakeholders
- Government role to promote PPP
- Checklist for agricultural mechanization
 - Policy/Institutional
 - Infrastructure
 - Human resource capacity
 - Provision/support
 - Information/knowledge



Agricultural Mechanization Stakeholders (Private Sectors)

| Actors on value chain | Check list (enabling environment, capacity etc.) |
|----------------------------|---|
| International manufactures | Warranty on exported machinery, Quality assurance, Assurance of supplying spare parts |
| Importing agents | Adequate stocks for immediate delivery, Local assembling |
| Domestic manufactures | Quality control and warranty of products, |
| Dealers | Repair and maintenance imported machines, stocks of standard spare parts, Operator instruction, In-house credit |
| Local workshops | Periodical and preventive maintenance, |
| Financiers | Low interest credit, Long repayment period, |
| Custom hiring providers | Information network, Access by farmers, High rate of operation, |
| Milling service providers | Accessible location, High rate of operation |
| Machine operators | Farming experience, Daily inspection |
| Small scale farmers | Farmer organization, saving & credit, collective shipment, |
| Animal draught power | Veterinary service, Skilled trainers, |

Private-Public-Partnership (PPP)

Role of Government

| Actors on supply chain | Check list - what they have to do (related to capacity needs) |
|--------------------------------------|--|
| Ministry of Trade (MOT) | Import tariff exemption for agricultural machinery, spare parts and raw materials, Tax reduction on importers, Distribution network for spare parts |
| Ministry of Industry (MOI) | Engineering standard, Quality control, Training on technicians, SME promotion on agricultural machinery, |
| Ministry of Commerce (MOC) | Rice quality standard, Rice miller association, SME promotion on agricultural machinery |
| Ministry of Agriculture (MOA) | Policy & strategy on agricultural mechanization, Agricultural mechanization promotion act, Statistical data on agricultural machinery, Agricultural credit, Farmer organization, Agricultural input subsidies, Extension services, Operator training |
| Agricultural machinery R&D institute | Safety Inspection, Test & evaluation, Certification, Training for local artisans |
| Universities | Qualified agricultural engineers |

Checklist (Example)

| Actors on supply chain | Check list - what they have to do | Check list –enabling environment needed | Check list – enabling environment that government can provide |
|-----------------------------|---|--|--|
| International makers | <ul style="list-style-type: none"> • Quality assurance, including warranty on exported machinery • Reliable supply of spare parts | <ul style="list-style-type: none"> • Large market scale • Reliable dealerships | <ul style="list-style-type: none"> • Policy & strategy on agricultural mechanization (MOA) • Test & evaluation, safety inspection and certification of quality of machinery (MOA) • Tax incentives such as reduced import tariffs for machinery and spare parts (MOT) |
| Importing agents | <ul style="list-style-type: none"> • Adequate stocks for immediate delivery • Local assembling | <ul style="list-style-type: none"> • Quick issue of L/C • Short entry | <ul style="list-style-type: none"> • Tax incentives (MOT) • Short entry (MOT) |
| Dealers | <ul style="list-style-type: none"> • Repair and maintenance of imported machines • Stocks of standard spare parts • Operator training • In-house credit | <ul style="list-style-type: none"> • Two step loans, Soft loans • Large scale market | <ul style="list-style-type: none"> • Soft loans (MOI, MOF) • Mechanization promotion (MOA) |

Conclusion

1. Contents of enabling environment to promote agricultural mechanization
2. Each country work on action plans to materialize enabling environment
3. Submission of the recommendations to GM4
 1. Each country starts actions on promotion of agricultural mechanization as PPP
 2. CARD secretariat assists action plan formation for agricultural mechanization as a part of NRDS implementation process

