Mechanization: Good Practice in Ghana
Private Led Agric. Mechanization Service Centre (AMSEC)

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Mechanization in Ghana

- Little Mechanized farming practiced, although potential is around 8.0 million hectares (Mahama, A. A., 2007). Demand is however rising due to increasing labour constraints and drudgery

- Farming characterized by the use of mainly rudimentary tools such as hoes and cutlasses

- About less than 20% of land which can be mechanized is under some form of mechanized cultivation e.g. ploughing as well as carting and more recently shelling

- Small holder farmers majority with land sizes less than 2 hectares & fragmented and not very favourable for mechanization

- Production generally under rain-fed conditions

Mechanization in Ghana cont'd

- Tractor population in Ghana stands at about 6,200 of which 50% are over ten (10) years old

- To improve the current mechanization level at land preparation stage from 20% (1,600,000 ha) to about 50% (4,000,000 ha), about 16,667 tractors are required

- Accounting for the current 6,200 tractors in existence leaves a deficit of 10,467

- A yearly requirement of about 2,090 tractors for a period of five (5) years is needed to improve the current low level of mechanization in the country

Challenges accounting for low levels of mechanization

- Limited access to appropriate agricultural machinery/equipment for farm operations along the value chain
- Untimely access to land preparation machinery
- High cost of agricultural machinery/equipment and access to spare parts
- Frequent breakdown of machinery/equipment as result of limited skill level of operators/mechanics

Challenges accounting for low levels of mechanization cont'd

- Weak local fabrication and product development capabilities
- Lack of machinery/equipment assembly plants
- Weak extension delivery
- Limited credit for acquisition of machinery

Policy framework

- Government through its Ghana Shared Growth and Development Agenda (GSGDA II) recognises importance of mechanization to agriculture modernisation and its transformation agenda

- MOFA's policy (Food and Agriculture Sector Development Policy II – FASDEP II) and investment plan (Medium Term Agriculture Sector Investment Plan – METASIP, 2014-2017) also recognises mechanization development as an important driver for agriculture modernisation

- MOFA aims at modernising agriculture to increase agricultural production by making available appropriate agricultural engineering technologies that will ensure adequate supply of food and raw materials for all Ghanaians, local industries, and for export consistent with environmental conservation practices and safety measures

Mechanization Plan
(Short term strategies)

- Facilitate/support acquisition of required machinery/equipment (quantity & quality) via subsidy & concessional terms

- Facilitate the establishment of private led Agricultural Mechanization Services Enterprise Centres (AMSECs)

- Develop capable human resources base for mechanization services delivery

- Promote efficient after-sales services system

Mechanization Plan
(Short term strategies)

- Provide tax relief/exemptions on import duties of agricultural machinery/equipment, spare parts and raw materials for fabrication of agricultural implements

- Promote postharvest management technologies

- Promote Animal Traction & other IMTs as mechanization options for ecological areas with fragile soils

Mechanization Plan
(Medium term strategies)

- Build local capacity for agricultural machinery fabrication and prototype development
- Encourage local assembling of agricultural machinery
- Promote renewable energy technologies in agriculture
- Promote mechanization extension via rural technology information systems (short term)

Mechanization Plan

- Build local capacity for agricultural machinery fabrication and prototype development
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Agricultural Mechanization Services Enterprise Centres (AMSEC) Model

➢General Concept

- As part of Government's mechanization strategy to improve the low levels of mechanization development in the country, it has initiated the establishment of private sector led companies (AMSECs) to provide mechanized services to small holder farmers for agricultural production

- Public Private Partnership (PPP) involving MoFA, Farmers, Leasing Companies, Machinery Dealers etc

- Provide a one-stop shop mechanization services point for agricultural production and primary processing along the value chain at strategic locations

Agricultural Mechanization Services Enterprise Centres (AMSEC) Model cont'd

➢ Role of AMSEC's

- Acquire machinery /equipment with government support through concessionary arrangement with MOFA

- Operate machinery/equipment and provide mechanized services to farmers who cannot afford their own machinery

- Repair and maintain the machinery /equipment

- Provide infrastructure (Workshop), for machinery safety and security

Agricultural Mechanization Services Enterprise Centres (AMSEC) Model cont'd

- **Role of Government**
  - Source for and make required machinery /equipment available for purchase by potential AMSEC operators
  - Provide technical advisory services on machinery /equipment selection, operation and maintenance
  - Play liaison role between the machinery dealers and AMSEC's
  - Play a liaison role between AMSEC's and the farmers
  - Organize training for operators
  - Organize periodic meetings for all stakeholders to ensure that the role of each party is played effectively

Agricultural Mechanization Services Enterprise Centres (AMSEC) Model cont'd

➢ Role of the Farmers

- Patronize and pay for the service at agreed price
- Form FBOs and avail themselves for training

➢ Role of the University and Agricultural Colleges

- Training in collaboration with MOFA and Farmer Groups
- Research

Agricultural Mechanization Services Enterprise Centres (AMSEC) Model cont'd

➢ Role of Dealers of Machinery /Equipment

- Supply machinery / equipment
- Provide After-sales services (spares and repairs)
- Train mechanics and operators in collaboration with MOFA and other stakeholders

➢ Role of Financial Institutions

- Provide Loans to farmers for acquisition of machinery
- Provide guarantees for purchasers of agricultural machinery
- Take over credit and loans recovery in the future

Impact of AMSECs

- Presently, there are 89 AMSECs in 62 districts and it is envisaged that, government will expand the coverage to cover at least one AMSEC in each of 216 existing districts in the long term

- Each AMSEC currently serves between 2 to 500 farmers

- Main activities carried out: Ploughing, shelling and carting of farm produce

- Each AMSEC is able to cover about 900Ha of land per cropping season

Challenges faced by AMSECs

- Some AMSEC's do not have the full complement of machinery that are needed
- Poor record keeping, poor business/management skills
- Poor access and High cost of spare parts
- Fragmented land of farmers
- Low skill levels of machinery operators

Narratives on specific AMSECs

➢ Case 1: (Successful)

- Location: Afram Plains (Eastern Region of Ghana)
- Landscape: mainly flat lands
- Initial set of machinery : 5 tractors
- Current machinery base: 8 tractors, boom sprayer, water tank, maize Sheller, planter
- Transport infrastructure:
- Prevailing crops: Maize ,yam
- Market: There is high demand especially for tractor services. Service providers sometimes unable to satisfy farmers
- Well managed, good record keeping
- Well trained operators
- Average Earnings/season: GHC28,800/USD6800

Narratives on specific AMSECs

➢ Case 2 (Unsuccessful)

- Location: Eastern Region
- Initial set of machinery : 5 tractors
- Current machinery base: None, all tractors broken down
- Landscape: mainly flat lands
- Prevailing crops: Maize ,Yam
- Market: High demand especially for tractor services
- Poor management practices, poor record keeping
- Low skill of operators

Follow up Actions

- Study commissioned by MOFA under the auspices of Gov't of Japan through JICA to ascertain the prevailing status of AMSEC and determine causes of poor performance and to provide lasting solutions

- Findings indicated that capacity of AMSEC Managers and Machinery operators was lacking

- Capacity building was initiated to ensure that managers could effectively run AMSECs while operators were capable of running machinery efficiently

Follow up Actions cont'd

- Establishment of Agric. Mechanisation Training Centres (EAMTC Project) at Adidome and Wenchi under Japanese Government assistance; Centres have been equipped with range of machinery for operations along value chain to provide trainings on modern mechanisation skills to train tractor operators and students specializing in mechanization management

- In the medium term, Government is expected to take delivery of agricultural machinery including about (3,000) tractors to establish more AMSECs to cover all MMDAs under the Ghana - Brazilian, Chinese and Turkey Government credit facilities

- Under Brazil More Food International Programme, deployment of 549 tractors as well as multi crop threshers, shellers, planters, harvesters, boom sprayers, mobile workshops etc. have been received and are being distributed for individual use as well as for AMSEC's

Tractors obtained under Japanese 2KR Grant Assistance/Brazilian Facility for establishment of AMSECs

Machine implements

Conclusion: lessons learned from AMSEC Experience in Ghana

- AMSEC's can be a very viable venture if necessary steps are taken
- MoFA/Managers must have adequate information about proposed operational area (soil conditions, landscape, climate, major crops, farming style, market accessibility etc.)
- Managers of the AMSEC's must be trained in good management practices
- Managers must be trained in bookkeeping etc.

Conclusion: lessons learned from AMSEC Experience in Ghana cont'd

- Operators must be carefully selected and trained (for the various machinery/equipment)
- Concessionary arrangements for payment of machinery must be appropriately guaranteed to ensure timely full payment
- MoFA must ensure that local agents make sufficient quantities of spare parts (especially fast moving parts) available