

# Country presentation on Agricultural Mechanization in Tanzania

Presentation to Workshop on “Boosting  
agricultural mechanization in rice-based  
systems in sub-Saharan Africa”

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# 1. Introduction

- Tanzania has an area of 945,239 sq. km (94 million) ha
- 44 million ha are classified as suitable for agriculture.
- About 10.1 million ha or 23 % is under cultivation.
- Agriculture is the leading sector of the economy.
- It accounts for about 26% GDP
- Over 80% of its 40 million people live and earn their living in the rural areas with agriculture as the mainstay of their living.
- Smallholder farmers cultivate between 0.2 and 2.0 ha.
- The level of mechanization is low with the hand hoe dominating in the farming systems.
- The use of animal traction is estimated at 24% while mechanical power is estimated at 13%.



**KENYA**

**Mount  
Kilimanjaro** 

**Dar es  
Salaam** 

**DR  
CONGO**

**TANZANIA**

*Indian  
Ocean*

**ZAMBIA**

## 2. Obstacles

Main constraints to the development of mechanization:

- Low purchasing power of most small scale farmers
- Low producer prices
- High cost of agricultural machinery
- Lack of agricultural credit
- Lack of well trained operators and mechanics for farm machinery
- Lack of suitable machinery packages for main agricultural operations
- Importation of tools, equipment and machinery of poor quality.
- General poor technical know how

# Obstacles cont'd

Service providers comprising of manufacturers, importers, dealers etc. are constrained by:

- Inadequate business knowledge and poor technical knowledge in agricultural machinery.
- Inadequate capital due to lack of trade financing.
- Low volume of business resulting to poor cash flow due to the seasonality of demand of agricultural machinery and implements.
- Poor working tools, equipment and capacity under utilization.

# 3. Opportunities

- Mechanisation of agriculture has the potential to turn idle land into productive land for national economic growth
- Importation trends show a steady increase in number of imported mechanical power machines.
- Demand for two axle tractors and implements is 1500 – 1800 p.a.
- Demand for single axle tractors is 1500 – 2000 p.a.
- Use of secondary tillage implements is limited (there is room to introduce and promote their use)
- The private sector is being encouraged to acquire machinery and provide hiring services to farmers for primary and secondary agricultural operations.



TAFE TRACTORS



FARMTRAC TRACTORS



SWARAJ TRACTORS



MF TRACTORS





## 4. Research and Development

R&D is handled by:

- The Sokoine University of Agriculture
- The University of Dar es Salaam
- Ministry of Agriculture Research Institutes and
- Research and Development Organizations of the Ministry of Industries, Trade and Marketing (MITM).

# R&D cont'd

- Mechanization research under the MAFC is mainly undertaken at the Uyole Agricultural Research Institute.
- Research has been carried out in diverse themes such as:
  - development and evaluation of improved soil and water conservation techniques based on animal drawn equipment;
  - development of labour saving weeding technologies;
  - conservation agriculture including no tillage production systems and use of cover crops;
  - improvement of storage structures for grain and assessment of plant materials with insecticidal properties for grain storage.

# R&D cont'd

Institutions under MITM involved with R & D include:

- Small Industries Development Organization (SIDO) that is charged with developing and promoting indigenous entrepreneurial base in the small scale industries and micro businesses
- Centre for Agricultural Mechanisation and Rural Technology (CAMARTEC) charged with development and dissemination of improved technologies for agricultural and rural development and testing agricultural machinery
- Tanzania Engineering and Manufacturing Design Organisation (TEMDO) promotes engineering design, technology development and enhancement of the competitiveness of local manufacturing enterprises
- Tanzania Industrial Research and Development Organization (TIRDO) which is responsible for carrying out applied research and provision of technical services to industries
- The Tanzania Commission for Science and Technology (COSTECH) is responsible for co-coordinating and promoting research and technology development activities in the country

# 5. Government strategy

The government has devised some strategies to cope with the prevailing constraints:

- Provision of affordable loans through the Agricultural Inputs Trust Fund (AGITF). By December 2010 loans for 569 two axle tractors and 193 single axle tractors were provided to farmers.
- Empowering farmers to acquire farm machinery through DADPs. In 2009/2010 a total of 2,154 power tillers and 53 two axle tractors were provided to farmer groups through 20% contribution
- Empowering farmers to acquire farm machinery through DASIP where 300 single axle tractors were provided to farmers in the Lake Zone on above arrangement
- The government negotiated a soft loan through a line of credit from the Government of India to enable procurement of 1860 tractors and implements, irrigation pumps and parts from India.
- The Government has established an agricultural window at the Tanzania Investment Bank (TIB)

# Rotavating using power tiller



# Strategy to increase production in irrigation schemes



**Transplanting by hand**



**Transplanting is easier and efficient**



**Hand transplanting is labour intensive**  
L



**Push weeder for weeding**

# Government strategy cont'd

- The government is in the process of establishing an agricultural bank to offer long term credit
- The government is promoting contract farming
- Promotion of Warehouse Receipt System operated by Cooperative Unions

## 6. Concluding Remarks

- In order to increase agricultural production and returns from agricultural there is a need to increase the number of farm machinery working in agriculture
- A more consolidated program is needed
- An analysis on the participation of the private sector should be done and modalities of implementation worked out
- Short and long term plans should be drawn indicating specific actions and outputs to raise the level of mechanization



# Concluding Remarks cont'd

- For paddy cultivation, power tillers have worked quite successfully under small scale irrigated schemes.
- It is proposed that transplanters both walking and riding types should be introduced and promoted in irrigated schemes.
- Weed control equipment are essential to alleviate drudgery.
- Small combine harvesters are needed to enable farmers harvest on time with minimum losses.
- Promotion of value addition processing, grading and packaging at farm/community level to secure reliable markets for farmers



END

THANK YOU FOR YOUR ATTENTION

