

**TANZANIA: FILLED IN QUESTIONNAIRE FOR THE PARTICIPANTS – TECHNICAL TRACK**

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**1. Rice related machineries which:**

- (i) Can be manufactured for the wide public in Tanzania in 3 years;
  - Irrigation pumps – Foot pumps are locally made by private companies.
  - Tractor – 22 Hp (Prototype already developed by the Center for Agricultural Mechanization and rural Technology – CAMARTEC).
  - Power tiller & accessories – Sahara Company has taken initial steps in developing a power tiller. Trials for a power tiller called VICTORIA are under way in the Lake Zone in Tanzania.
  - Inter row weeders – manual (Made at small scale by the Kilimanjaro Agricultural Training Center (KATC) and Uyole Agricultural Research Institute
  - Rice milling machines.
  
- (ii) Can be manufactured for the wide public in Tanzania in 10 years;
  - Power tiller accessories like plows, planters, puddlers, iron/cage wheels
  - Reapers
  - Threshing machines
  
- (iii) Cannot be manufactured in Tanzania for more than 10 years
  - Combine harvesters

**2. Do you think that rice cultivation becomes more profitable with the introduction of the machineries? YES - Rice cultivation becomes more profitable with the introduction of the machines**

Due to:	Leading to:
<ul style="list-style-type: none"> <li>- Increased area under cultivation</li> <li>- Maintenance of optimum plant density</li> <li>- Timely carrying out of farm operations</li> <li>- Efficient control of weeds and pests</li> </ul>	<ul style="list-style-type: none"> <li>- Increased production and productivity</li> <li>- Reduced losses caused by weeds and pests.</li> <li>- Efficient harvesting, threshing, milling and handling</li> </ul>

- Increased quality	
- Reduced production costs	

**3. Most important enabling factor for sustainable use of machinery for rice production, without the financial assistance from the Tanzanian government:**

- **Availability of spare parts and well trained operators**

**4. Specifications of machineries appropriate for each of the following rice growers:**

- a) Small-scale farmers that produce rice as subsistence crop using a low-risk, low-input, low-yield strategy;

<b>Machine</b>	<b>Specification</b>
Animal drawn plow, harrow, puddler and leveler	Equipment to be pulled by a pair of oxen
Manual rice transplanter	To be hand pulled by one person, 6 row, spaced at 30cm with 40 cm intra row spacing, weigh around 20 kg
Manual leveller	To be pulled by one person
Manual inter row weeder	To be pulled by one person

- b) Small-scale farmers that are increasingly producing rice as a cash crop

<b>Machine</b>	<b>Specification</b>
Power tiller with accessories for rice cultivation (plow, puddler or rotavator, cage wheels, water pump, power spayer and trailer, cutter bar)	12 – 16 Hp, diesel engine, water cooled
Walking rice transplanter	3 – 5 Hp, 4 row, spaced at 30cm with 20 cm intra row spacing, air cooled, rcoil starting
Inter row weeder - manual	To be pulled by one person

Rice reaper	Self propelled
Rice milling machine	Power tiller driven, 7 – 10Hp

c) Large-scale commercial farmers

Machine	Specification
Tractor with accessories for rice cultivation (plow, puddler or rotavator, cage wheels, water pump and trailer)	80 – 120 Hp, 4WD, diesel engine, water cooled
Seed drill	
Rice transplanter	6 row, riding type, recoil starting, 2 to 4 Hp
Boom sprayer	Tractor mounted (3-point hitch), 24 nozzles
Combine harvester	Around 110-180HP, standard for rice and other cereals. Self Propelled Combine Harvester which can harvest, thresh and winnow

5. Specifications of the machineries are different from one to another because:

- Small scale farmers require small machines due to the small size of their farms and affordability
- Large scale farmers require bigger machines with higher work out put

6. What is the process of finalizing the list of recommended specification of machineries? Who should you involve in each step of the process?

The following is considered when recommending specifications of machinery:

- Type and size of farm work to be done.
- Number of days available to carry out the farm operation.
- Work output of the machine (per hour or per day).

- **Size of the equipment and accessories.**
- **Appropriateness compared to the nature of work to be done.**
- **Affordability.**

**Farmers/machinery buyer should be involved in each step**

7. **How can we ensure that recommended types of machineries are used in the field? Or how can we prevent introduction of inappropriate machines?**
- Train engineers and technicians to supervise.
  - Train farmers/machinery buyers.
  - Formulate appropriate policy and strategy.

#### **Questionnaire for the participants – policy track**

**Name as many players as possible who are on the value chain of agricultural machineries and fill each of them in the matrices as attached as Annex 1.**

**1. Using the above matrices, describe the follows for each player:**

- a. Human capacities required to perform his/her roles
- b. Enabling environment (external factors) to facilitate efficient performance
- c. Enabling environment factors which can be generated by policy tools and institutional arrangements by the government

### Annex 1: Checklist for Agricultural Engineering Sector

Actors on supply chain	What <b>human capacity</b> is needed?	What <b>enabling environment</b> they need to be able to do business?	What enabling environment in the left can the <b>government deal with</b> ?
Institutions (Agricultural Training, Financial, Research and Development, Quality control)	<ul style="list-style-type: none"> <li>• Training - both formal and non-formal,</li> <li>• competent staff,</li> <li>• improved health,</li> <li>• Rising income &amp;</li> <li>• improved security</li> </ul>	More funds, availability working equipment, coordinated activities to avoid duplication, trained personnel, enforcement of regulations and rules, involve the private sector	Funds, coordination of activities, training of personnel
Manufacturers (Design developers, Private companies, factories, artisans, blacksmiths),		capital, increase in sales volume, removal of tax on all agricultural machinery and spare parts, Quality products, involve the private sector	Provision of loans, removal of taxes, stimulate market development
Commerce – raw material providers, machine parts & Components.		Removal of tax on raw materials, Fair competition, involve the private sector	Removal of tax on raw materials, enforcement of fair competition, stimulate market development
Importers & Distributors (local and foreign markets, dealers, stockists, service workshops)		capital, increase in sales volume, removal of tax on all agricultural machinery and spare parts, Fair competition, quality control, involve the private sector	Removal of tax on all agricultural machinery and spare parts, Quality control,
Market/buyers (Small, medium and large scale farmers, big farms/plantations, Cooperatives, SACCOS)		Removal of tax on all agricultural machinery and spare parts, linkages between stakeholders, purchasing power, Low producer prices, Trained operators and mechanics to operate and maintain and repair agricultural machinery, involve the private sector	Removal of tax on all agricultural machinery and spare parts, Training, stimulate market development
		Capital, linkages between technology	Capital, stimulate market

Agro-industry (Food processors)		development agencies, manufacturers, distributors and farmers, involve the private sector	development
Transport and communications		Financing, involve the private sector	Financing
Policy framework (rural development, industrial, agricultural, fiscal and labour)		Financing, enforcement of policy, strategies and laws	Financing, enforcement

**2. List all the policy tools and institutional arrangements as identified above. Using, the format attached as Annex 2, describe the following factors for each of them**

- a. Those who will benefit from the tool / arrangement
- b. Those who will lose from the tool / arrangement
- c. Any measures to alleviate the loss in b.
- d. etc..

<b>What enabling environment in the left can the government deal with?</b>	<b>Beneficiaries</b> from the tool / arrangement	Losers from the tool / arrangement	Proposed measures to alleviate the loss in (c)
(a)	(b)	(c)	(d)
Provision of Funds/loans,	Institutions, manufacturers, Importers & Distributors, Buyers and sellers,	None	
Coordination of activities	ALL	None	
Training of personnel	ALL	None	
Removal of taxes	Institutions, Agro-industry, raw material providers , Importers & Distributors, buyers & sellers	Government (Less tax to be collected)	<ul style="list-style-type: none"> <li>• Increase taxes on luxury goods like tobacco, alcoholic beverages</li> <li>• Widen the tax base</li> </ul>
Stimulate market development	Sellers and buyers, Agro-industry (Food processors)	None	
Enforcement of fair competition	Sellers and buyers, Agro-industry (Food processors)	None	
Quality control	Sellers and buyers, Agro-industry (Food processors)	None	
Enforcement of policy, strategies and laws	ALL	None	

**All these interventions (above) will increase the government expenditure, calling for the government to look for other sources of funds (expand tax base, borrowing from banks, for assistance from development partners).**

Policy Tool Analysis Sheet

<b>Subject matter (item of reform)</b>	
Tax on farm machinery spare parts	
<b>Current status of the subject matter</b>	
Farm machinery spare parts a taxed 20% VAT	
<b>What changes do you suggest to this subject matter?</b>	
Removal of tax	
<b>Who do you think will benefit as a result of this change and how?</b>	
Who?	How?
Machinery owners & Farmers	They will pay less for spare parts, hence reduced input costs
	Spare parts becomes more affordable
<b>As side effects, who do you think will be negatively affected by this change and how? In other words, who may oppose to this change and why?</b>	
Who?	How? / Why?
The Government	Reduced government income
	Importers of other kinds of machines (like vehicles) will use it as pretext to cheat on tax
<b>Is there any measure to mitigate the above negative effects? If yes, what?</b>	
Expand government tax base	
Stringent control to curb cheating	
<b>Which ministries / organizations / companies are in charge of this matter? Who are the key persons to consult?</b>	
Institution	Key persons



Ministry of Finance	Tanzania Revenue Authority - TRA
Ministry of Agriculture	Mechanization Department
Ministry of Industries and Trade	
Farmer organizations	
NGO related to agriculture	

3. Who do you think should be included in the dialogue concerning **policy tools** and **institutional arrangements** for the better enabling environment for the private sector players on the machinery value chain? Note that the result shall be robust enough to convince the high-level government and donor people.

Include the following in the dialogue:

- a) Government (National and Local)/Ministries of agriculture, finance, industry, PMORALG trade and Livestock and fisheries
- b) Private sector/ Institutions, Agro-industry, raw material providers , Importers & Distributors, buyers & sellers/ financial institutions
- c) NGOs & Civil society/civic organizations/Cooperatives and SACCOS
- d) research and development institutions
- e) Development partners
- f) Farmer organizations

The group will advise the Government on mechanization matters. It will carry out a careful assessment of mechanization current situation in the country, needs, available technologies and propose policy measures and strategies, putting in place an enabling environment for the private sector, which would encourage the development and selection of an appropriate mechanization technologies, to support overall agricultural development objectives.