

FARM POWER AND CONSERVATION AGRICULTURE FOR SUSTAINABLE INTENSIFICATION (FACASI)

Internal Programme Review (IPR) Meeting
SARI library 10 – 14th November 2014

4 years project USD total budget 371,143

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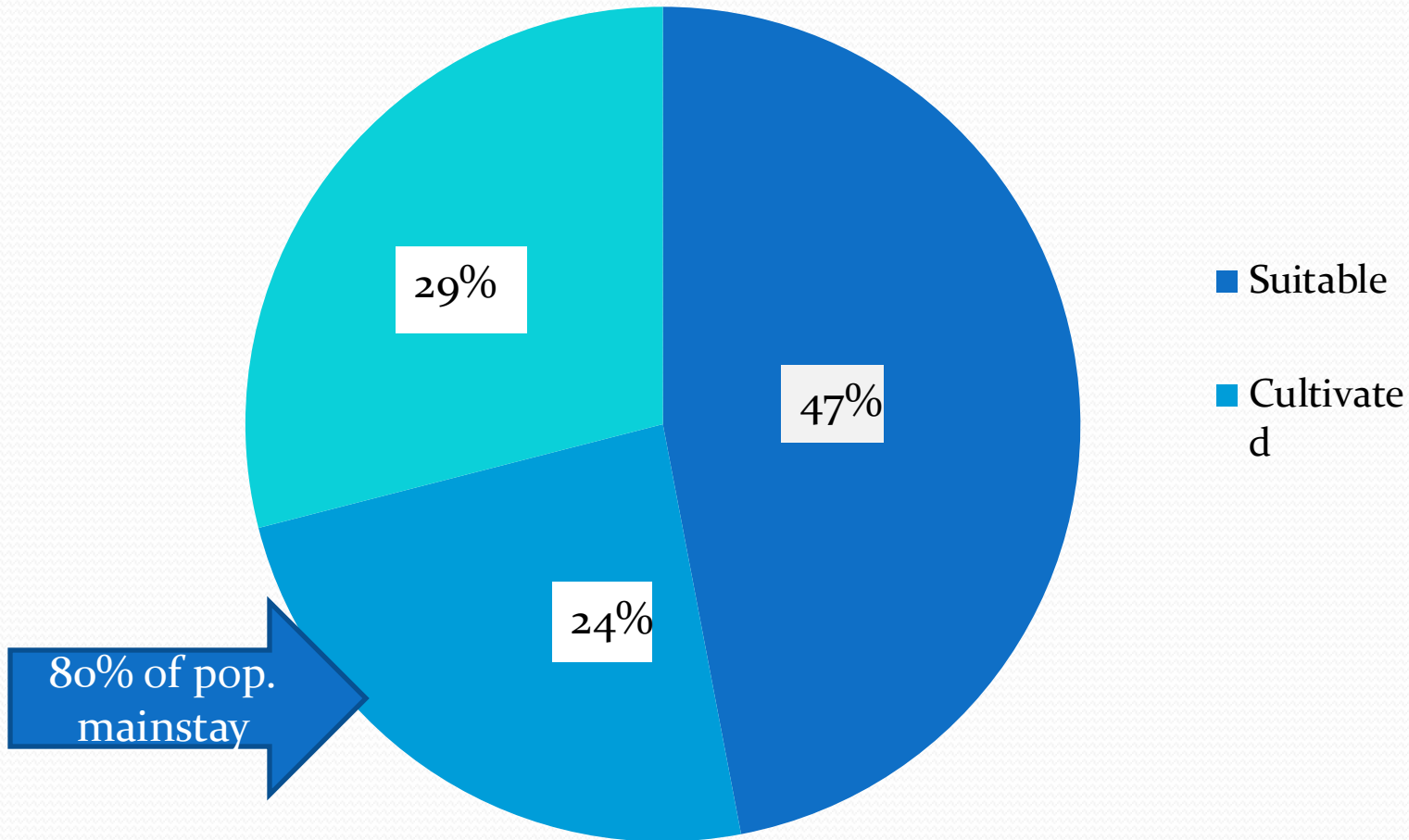
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INTRODUCTION

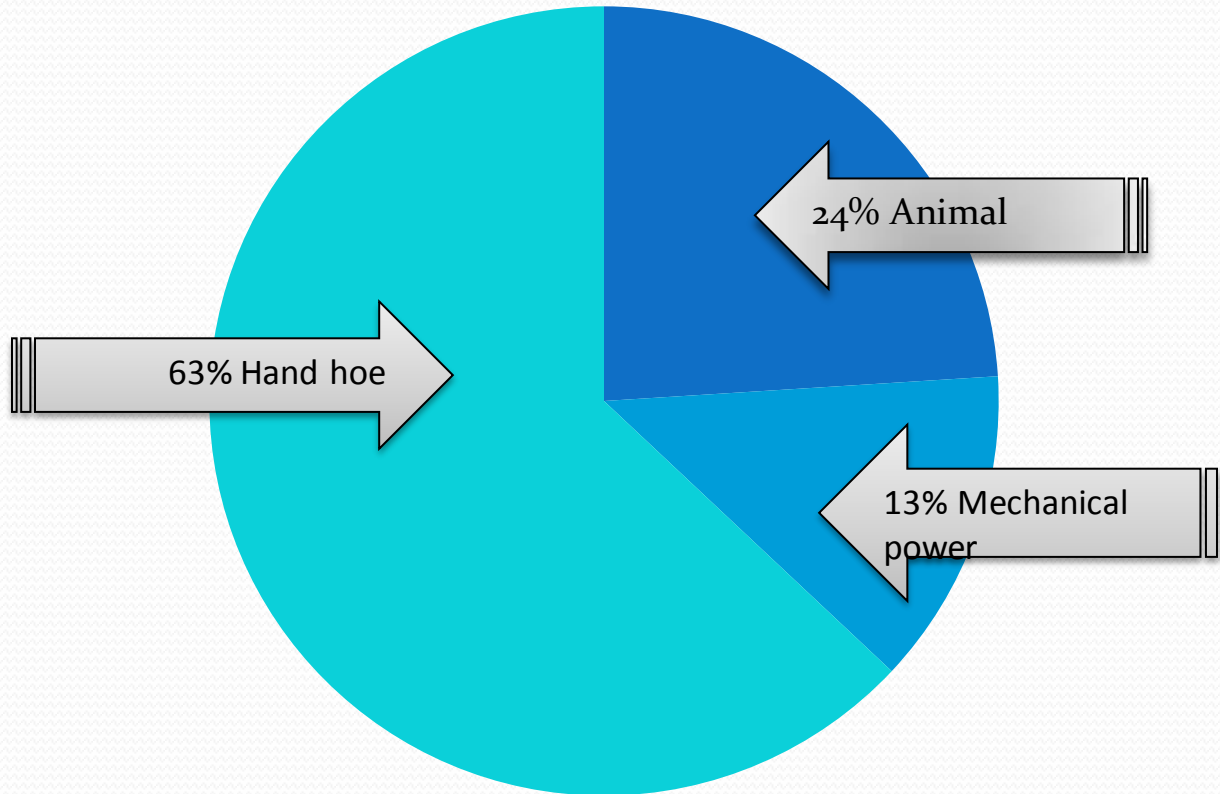
- Tanzania has an area of 945,239 sq. km (94 million) ha
- Over 80% of its 45 million people live and earn their living in the rural areas with agriculture as the mainstay of their living.
- Smallholder farmers cultivate between 0.2 and 2.0 ha.
- The level of mechanization is low with the hand hoe being a dominating practice
- The use of animal traction is estimated at 24% and mechanical power is estimated at 13%.

WHY FACASI

❖ Despite of having 47% of the total land area suitable for farming.



MECHANIZATION LEVEL



STAMBLING BLOCK TO SMALL SCALE FARMERS MECHANIZATION

- Low purchasing power of most small scale farmers.
- Low producer prices.
- High cost of agricultural machinery.
- Lack of agricultural credit.
- Lack of suitable machinery packages for main agricultural operations.
- Importation of tools, equipment and machinery of poor quality.

STAMBLING BLOCK TO RURAL MACHINERY SERVICE PROVIDERS

- 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.

Opportunities

- Mechanization 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 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.
- Government involving private sector in machinery entrepreneurship.

On realization of the mechanization challenges and the existing opportunities.

- FACASI project is looking on the use of small machinery (2WT) as a source of power to mechanize the small scale farmers.
- FACASI is mainly involved in testing different 2WTs attachments, business model development and policy for the sustainability of the project.

This brings together the government and private sector to work together.

On one side the government is expected to provide the conducive environment and support for the private sector to do profitable business.

And...

The private sector is expected to deliver affordable services to their clients.



FACASI Trial sites in in Tanzania

DIFFERENT DIRECT SEEDERS AND MULTICROP SHELLER



Gongli africa



Fitarelli 2 rows



Fitarelli 1 row



VMP Bangladesh



National India




Multi crop thresher
cum straw chopper
TANZANIA

Trial design: (Researcher managed)

➤ Completely Randomized Design (CRD) with 3 replications

 = Fitarelli 1 row



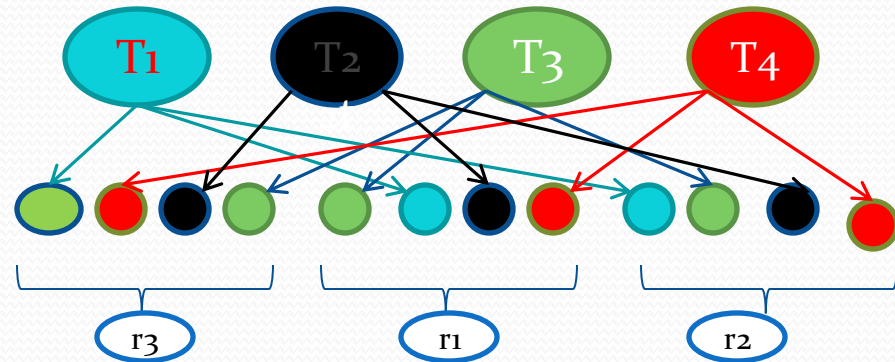
 = Fitarelli 2 rows



 = Gongli Africa



 = VMP



TRIALS SOWING AND FARMERS EVALUATION IN MBULU AND ARUMERU

A total of 2 mother and 7 babies trials were sown



Farmers evaluation of the seeders



FACASI MBULU 14 053.AVI



Farmers general comments and suggestions

➤ Gongi Africa

Seed metering very good
Planting depth and seed covering good
Easy movement from field to field **Does not need too much energy to operate even ladies can.**
Easy to clog.

➤ VMP

Seed metering good
Planting depth and seed covering very good.
Not easy to clog
Too much vibration
Transfields movement very difficult
Need energetic operator



FACASI MBULU 14 046.AVI

Evaluation.....

➤ **Fitarelli 2 rows**

Seed metering good

Perfect for sowing in tilled land

Comfortable operation

Shallow seeding and poor seed covering

Suggestions

Discs furrow opener does not work very well in zero tilled land (replace discs with Inverted T furrow opener like in single row)



➤ **Fitarelli 1 row**

Good seed metering

Sowing depth and seed coverage good

Work well in untilled land

Difficult to control and maintain interrow spacing



Field visual performance for each seeder



Visual cont.....



MULTICROP SHELLER ANALYSIS



Out put (kg/hr)	labour	Fuel (L)
3000	2	1.2

Average 2 locations Analysis of time, seed and fertilizer rate, fuel, Planting depth, and plant population for 3 seeders.

Seeders	Average time ha/hr	Average seed kg/ha	Average fert (kg)/ha	Average fuel (L)/ha	Plant population ha	Plant depth	Average % moisture during sowing	Soil type Arumeru	Soil type Mbulu
Gongli	3	22	36	3.6	41,201	2.50	28	Clay loam	Sandy loam
First row	4	20	59.1	3.5	31,488	3.33			
Second row	2	18	125.7	3.4	26,699	2.67			
VMP*	?	?	?	?	34,562	3.33			

Note:

- Recommended DAP fert: 125kg DAP/ha
- Average time for sowing by animal power single Fitarelli planter approx 6hrs
- Optimum plant density per ha approx: 45,000

Field days

Farmer exposed to different machineries during field day
About 500 farmers and government officials participated



SEEDERS AND MULTISHELLER DEMONSTRATION AT NATIONAL FARMERS DAY DURING NANENANE AT ARUSHA 2014

- About **700** farmers visited FACASI site for the period of 7 days of show.



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Acknowledgement

We appreciate Australian government through AIFSC for financial support, The DRD on behalf of Government of Tanzania for the support in terms for human resources (Research and Extension) and Farmers in Mbulu and Arumeru for hosting and owning the PROJECT.

THANK YOU

ASANTE SANA

