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Analysis of the Value Chain for Root and Tuber Crops in Malawi: The Case of Cassava

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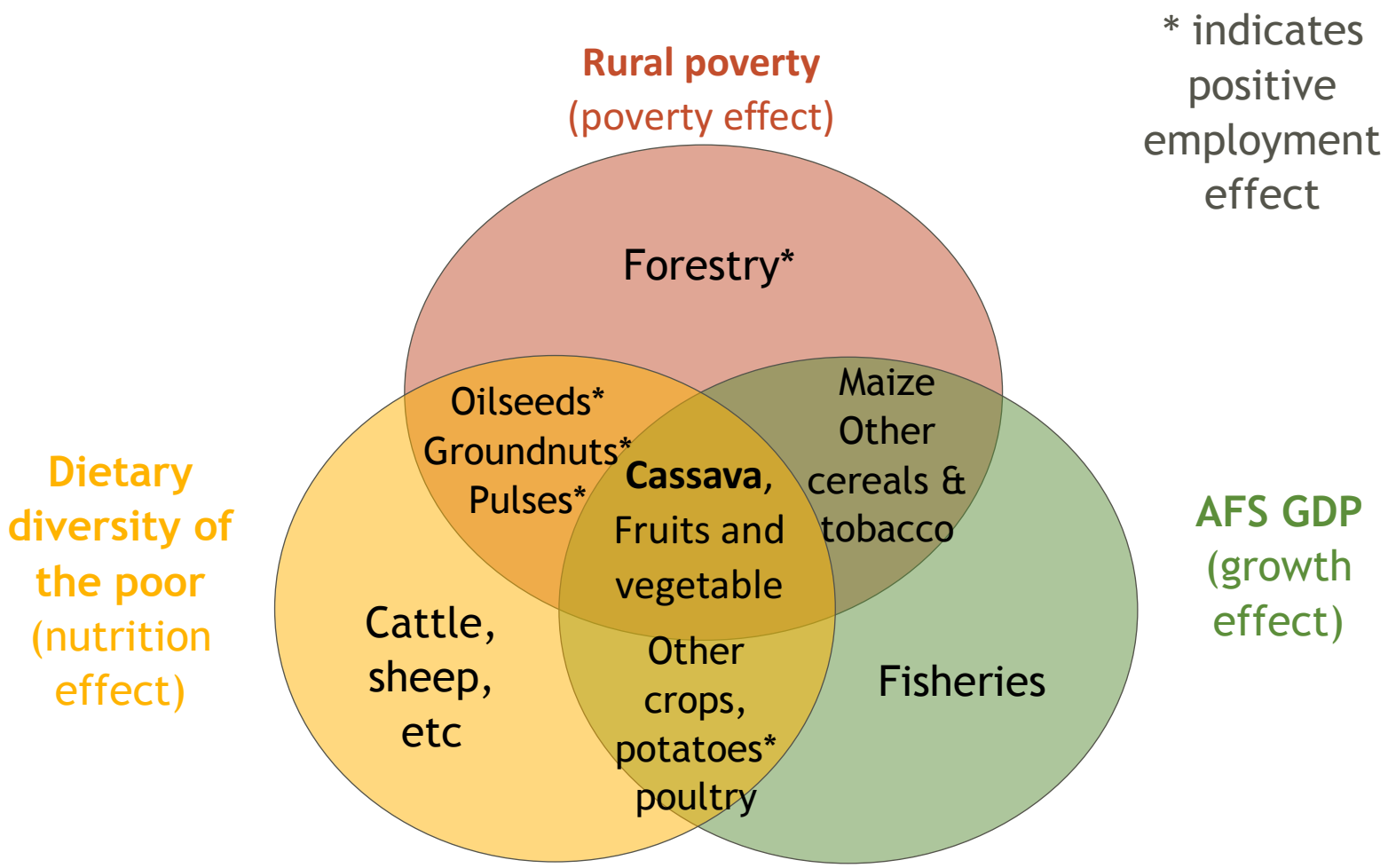
INTRODUCTION

- Second most important staple food crop after maize in Malawi
  - Accounts for over 30% of population (Alene et., 2013) & 41% of area under roots and tubers & over 43% of total production of roots & tubers (Ministry of Agriculture Production Estimates Survey, 2017)
  - Drought tolerant, high-yielding and low production costs (Sandifolo, 2016)
  - Effective at promoting dietary diversity, creating jobs, reducing rural poverty & promoting AFS GDP growth (Benfica & Thurlow, 2017)

Top-Ranked Value-Chains in Malawi



***Source**: Benfica & Thurlow, 2017: Identifying Priority Value Chains in Malawi*

Rationale of the Study

- The Government of Malawi approved the National Agriculture Policy (NAP) in 2016
- To operationalise the NAP, the Government embarked on the developing National Agriculture Investment Plan (NAIP)
- To generate some of the evidence needed to design and implement the NAIP, the Ministry of Agriculture commissioned several value chain studies, including one on roots and tubers
- The results of the study were to inform the identification of priority investment areas for development of commodity value chains under Malawi's NAIP.
- The key objective of the study was to carry out comprehensive mapping and value chain analysis of the cassava subsector in Malawi

METHODOLOGY

- Literature Review

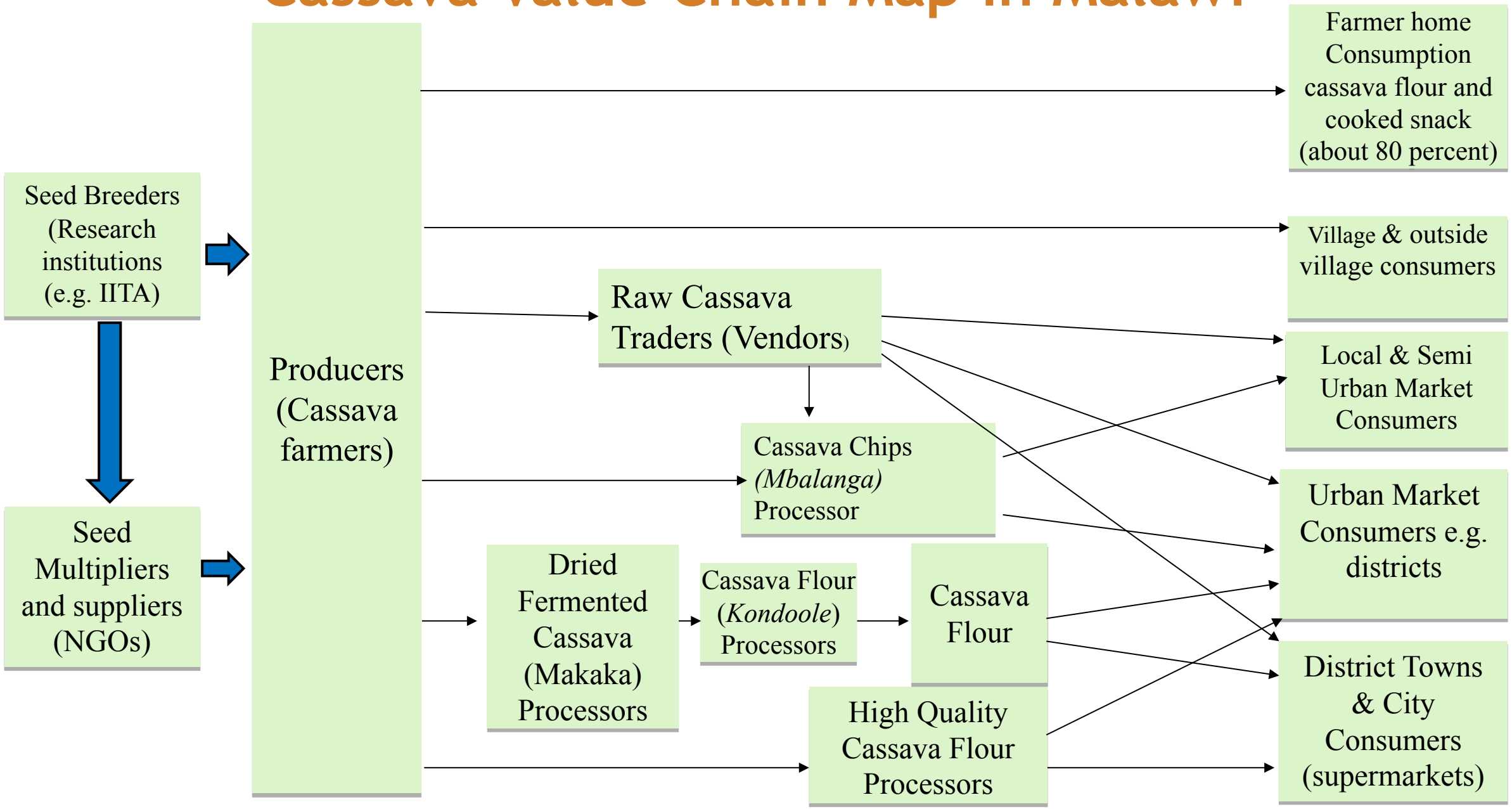
- Field Work
  - Quantitative and qualitative data collection
  - FGDs and KIIs
  - Mapping of value chain actors
  - Study areas: three regions covering 9 districts
  - 250 farmers (21 farmer groups), 19 traders, 21 processors and 16 other key informants

METHODOLOGY Cont'd

- **Analytical Approach**
  - Value chain approach
  - Profitability Analysis
  - Cassava Early Generation Seed (EGS) Demand Analysis
  - SWOT Analysis

STUDY FINDINGS

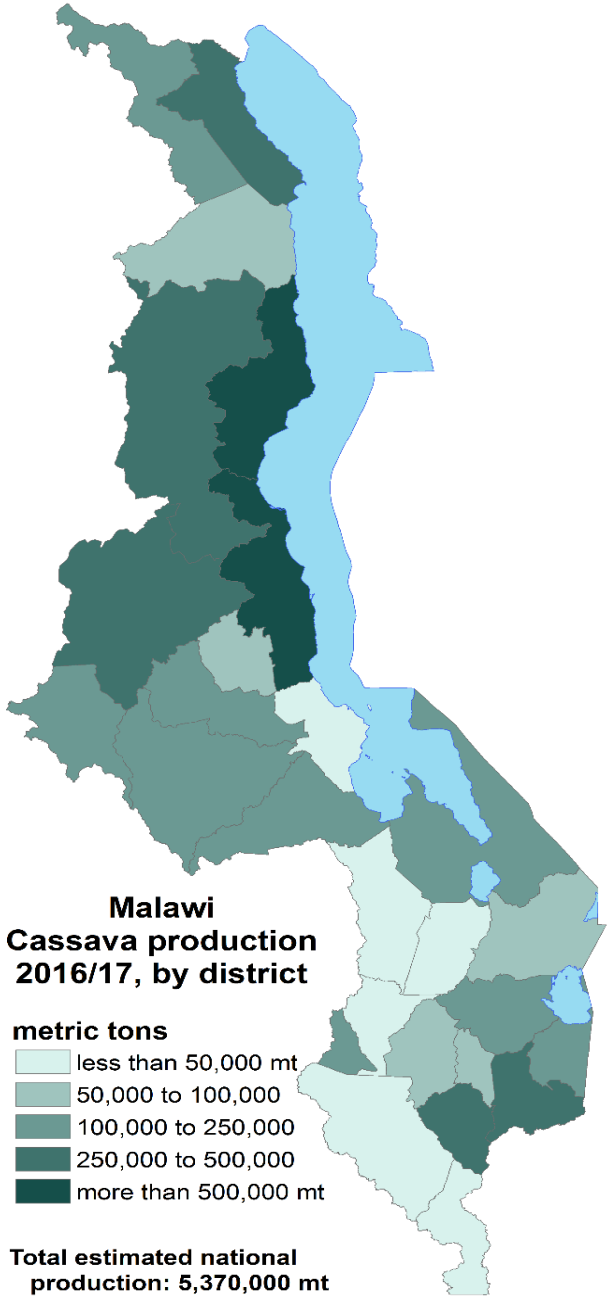
Cassava Value Chain Map in Malawi



Production and Productivity

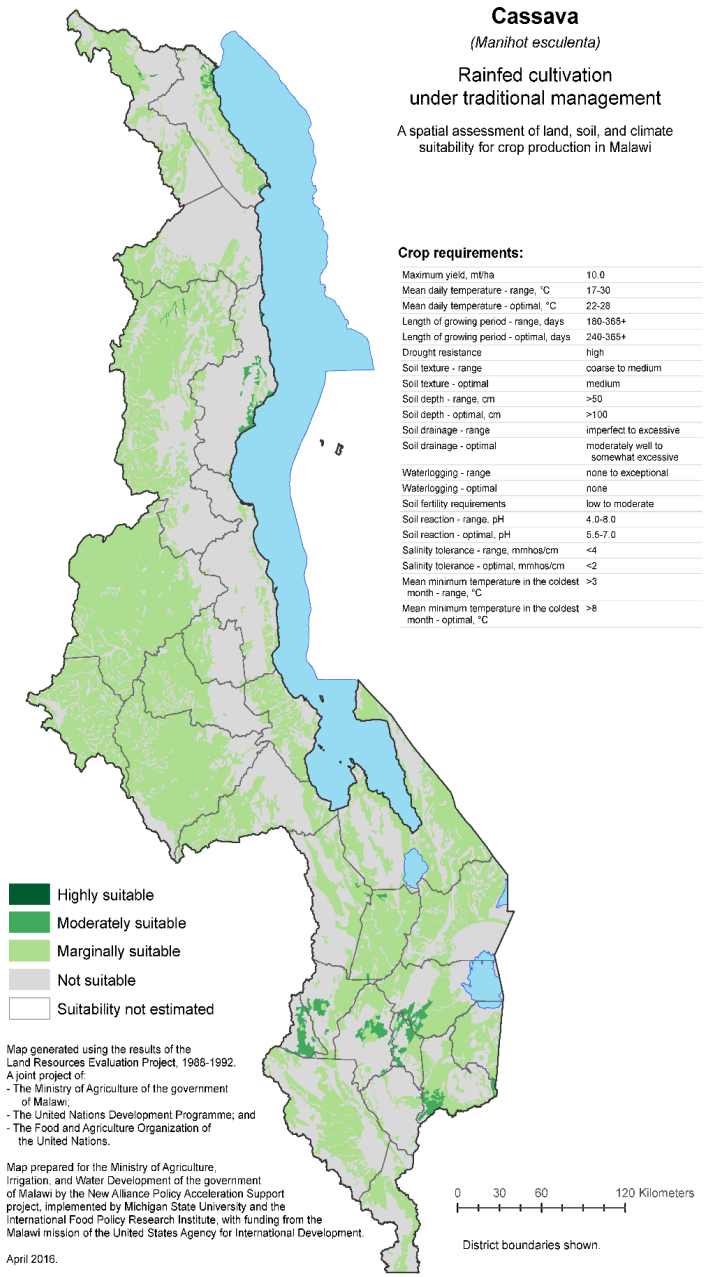
- Cassava production in Malawi is dominated by smallholder farmers and is rain-fed dependent
- It has traditionally been viewed as a food crop that is increasing its importance due to Maize's vulnerability to climate change impacts
- There is high potential for cassava to become commercialized due to high (but unrealised) demand from the confectionary, packaging (starch) and livestock feed industries
- The main cassava growing areas in Malawi are the Northern belt along the lakeshore with bitter varieties and the southern cassava and Central belt where sweet varieties are predominant

Figure 1: Estimated cassava production in Malawi by district, 2016/17 cropping season, metric tons

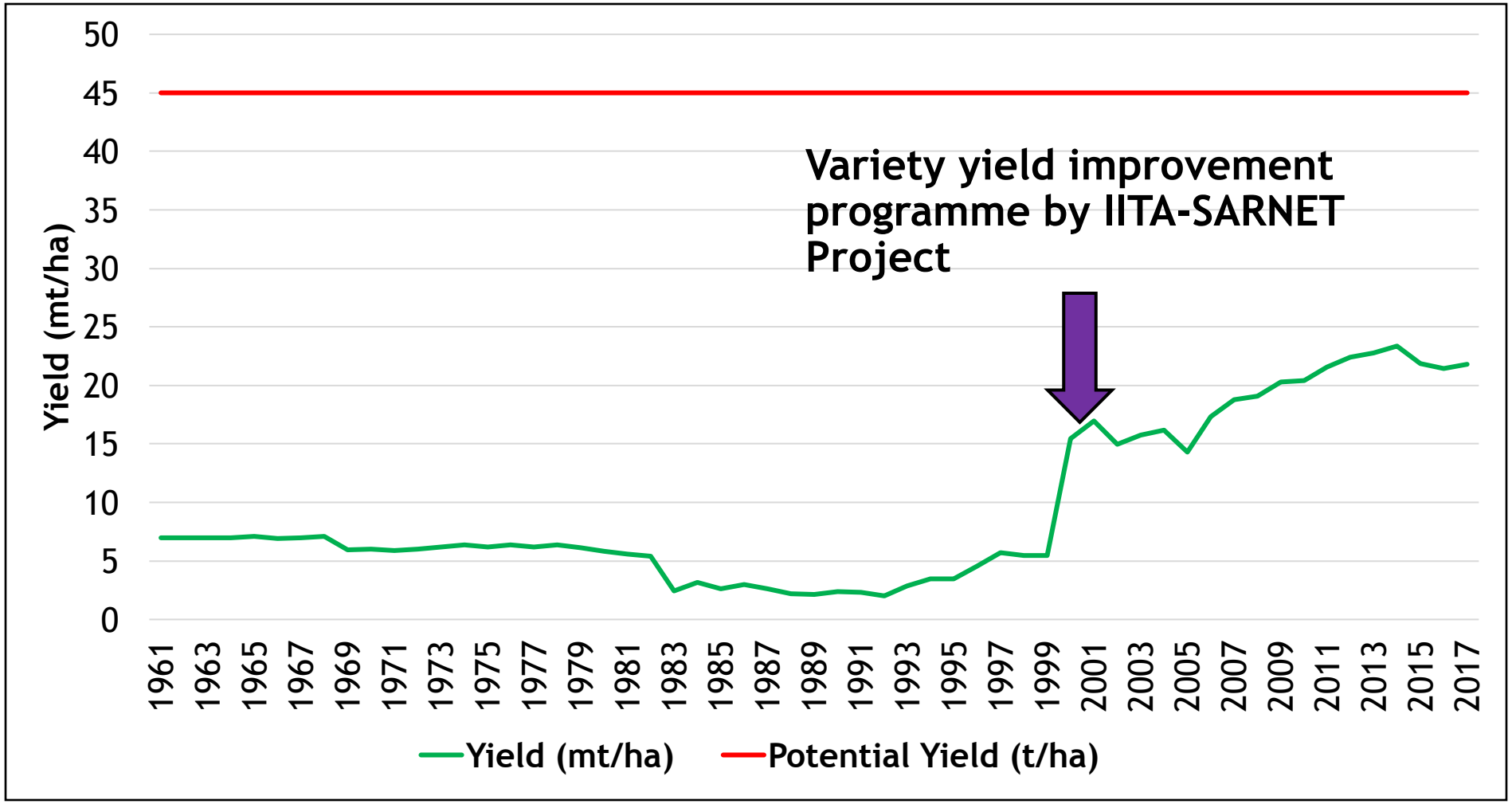


Source: Maps produced by Todd Benson (IFPRI) using APES and DLRC data

Figure 2: Suitability map for cassava grown under traditional management in Malawi



Productivity of Cassava in Malawi



Marketing of Cassava and cassava products

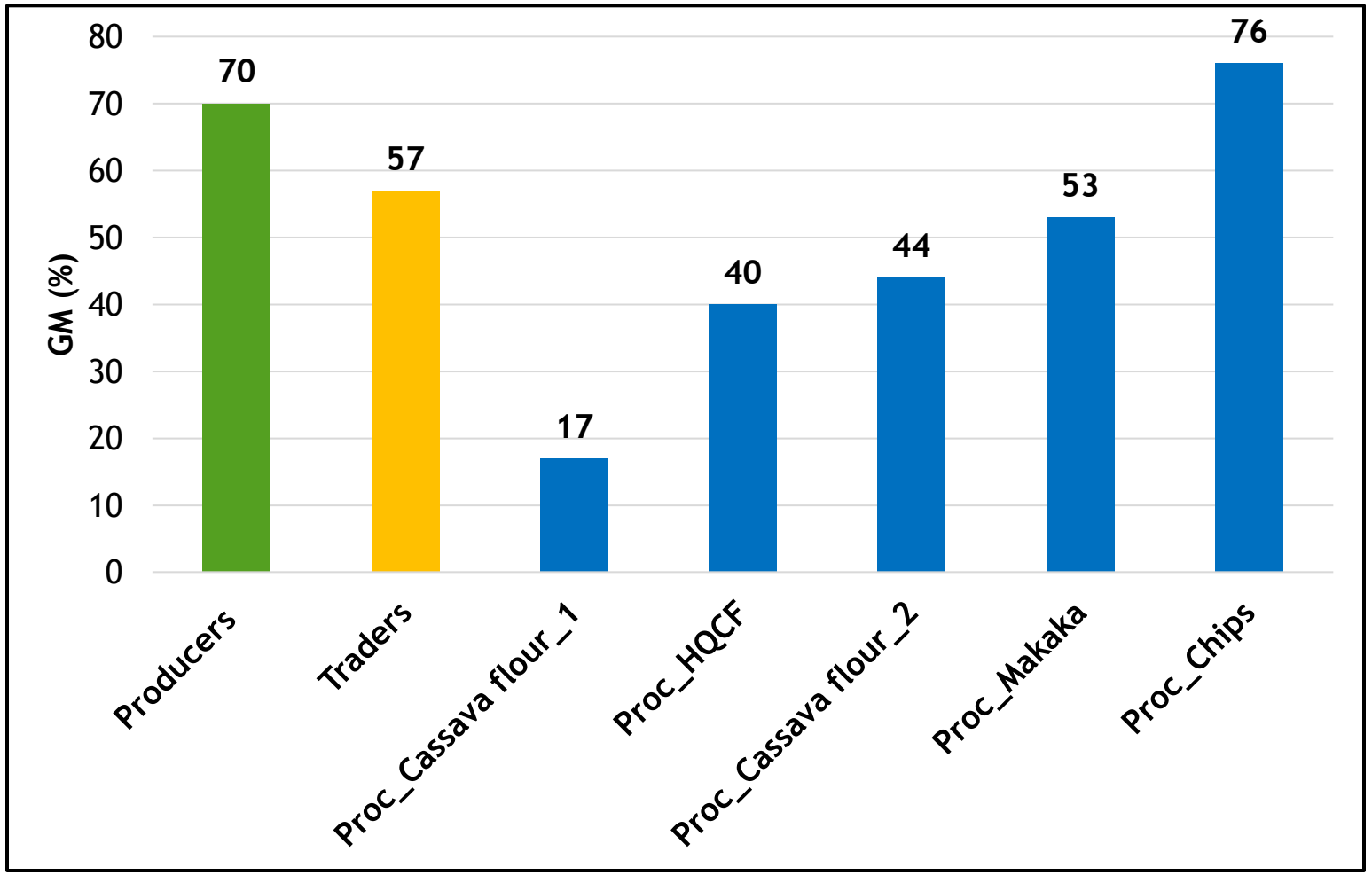
- Smallholders sell 25-50 % of produced cassava (Scramp, 2013)
- Fresh market takes up about 80% of marketed cassava; remainder in processing, manufacturing & confectionary industries (Alene et al. 2013)
- Other products: unmilled dried cassava roots*(makaka)*, fermented cassava flour (*kondoole)*, cassava chips, High Quality Cassava Flour (HQCF), livestock feed (Ndatani Premier Feeds)
- Potential demand for HQCF is estimated at about 16,000 mt/year (Sandifolo, 2011) but very little of this is exploited. The unexploited potential market for HQCF is in confectionary, packaging, and brewery industries (FAO 2017).
- The market for HQCF is Universal Industries, small-scale bakeries, *mandazi* (deep fried dough) producers, and staple food for Indian, Nigerian, Burundian & DRC populations.

Price Value Changes along Cassava Value Chain

	Farmer	Trader	Processor		
Cassava Prices (MK/kg)	115.8	192.54	275.9 (Cassava flour_1)	303 (HQCF)	600 (Cassava flour_2)
Price value change	Base	66 %	43 %	57 %	212 %
Farmer-to processor			138 %	161 %	418%

1 US$=725 MK

Gross Margin Analysis along the Cassava Value Chain



Proc = Processor; GM = Gross margins

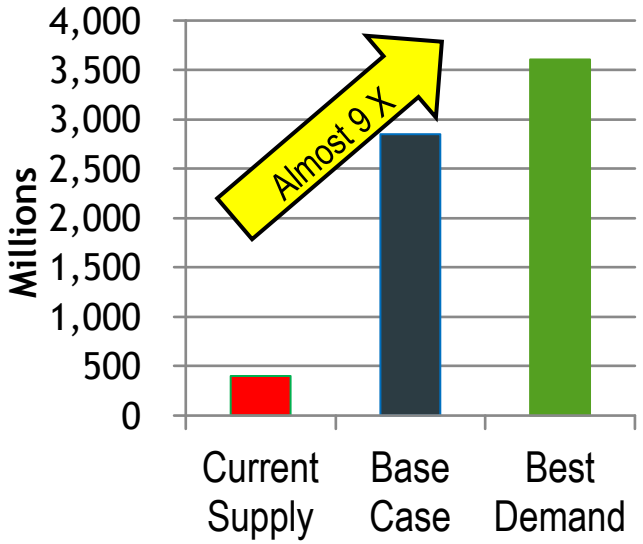
Cassava EGS Demand Analysis

- Key model variables:
  - Adoption rates of improved varieties, seed rate, replacement rates, seed yield.

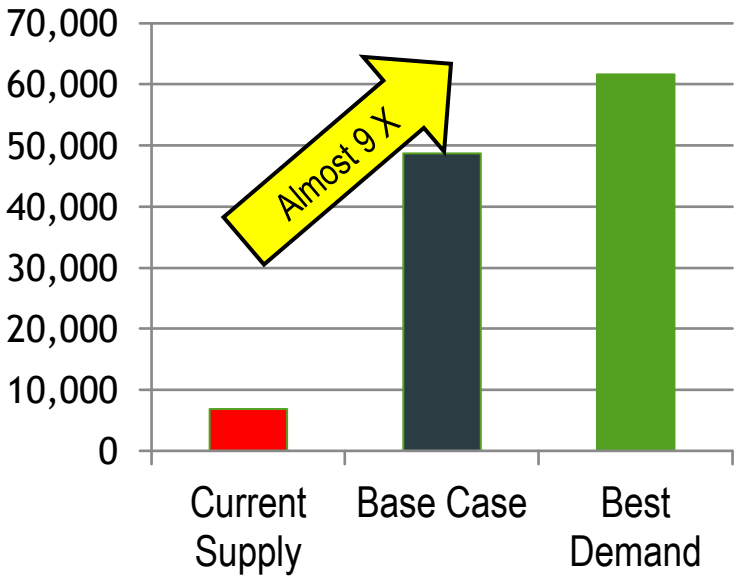
- Three cases developed:
  - **Current EGS supply:** Current level of supply in market, based on current adoption rate of improved varieties of 60% and current market conditions.
  - **Potential EGS demand - base case:** Assumed that adoption rate of improved varieties is 80% and all EGS specific recommendations are implemented, with other market impediments assumed to remain in place.
  - **Potential EGS demand - best case:** Assumed 90% adoption rate for improved varieties, all EGS specific recommendations are implemented, and other value chain and policy constraints are addressed (e.g., downstream value chain improvements, and best agronomic practices followed).

Cassava EGS Analysis Results

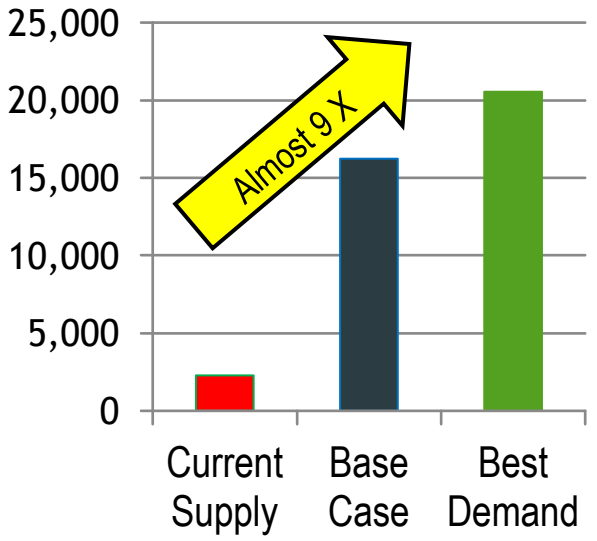
Commercial Seed (Cuttings)



Basic Seed (Cuttings)



Breeder Seed (Cuttings)



- 60% of 228,000 ha of land allocated to cassava (2016) with improved varieties
- Current demand-commercial seed estimated at **400 million cuttings** nationwide
- When assessed at 80% and 90%, potential demand increases by over **600%** and **800%,** respectively, representing 9 fold increase

Challenges & Constraints in the Cassava Value Chain

Production level (producers)	Traders (marketing)	Processors	Policy level
• Limited availability & accessibility to (clean) planting materials • Pests and diseases contributing to low production and productivity: ➢ E.g. Cassava Mosaic Diseases and Cassava Brown Streak (CBS) and termites • Lack of reliable and established markets ➢ Non-establishment of contract farming • Limited extension & research ➢ Poor agronomic practices ➢ Post-harvest losses • Poor organized functional farming associations	• Limited capital for business expansion • Perishability that leads to spoilage • Limited access to financial services • Lack of storage facilities such as cold storage facilities. • Low and seasonal production which is affecting supply on the market • Limited market structures	• Limited investment in value addition technologies • Poor quality equipment/machinery • Unreliable and intermittent power & water supply • Low & inconsistent supply of raw materials • Lack of quality standards for roots and tubers products	• Weak regulation and enforcement product quality standards ➢ Limited capacity • Lack of emphasis in some policy documents e.g. in the NES • Limited government support ➢ Adhoc programs and interventions • No commodity specific development strategies/policies

Sun drying of cassava in production of HQCF in Nkhotakota (Central Malawi)

Non-functional Cassava-starch processing factory-Nkhatabay (Northern Malawi)

Strategic Recommendations

- Significant investments in the seed system to increase availability and access to quality planting materials.
- Investments in research and extension on appropriate varieties and best agronomic practices to improve productivity.
- Investments in irrigation technologies to support and promote winter production.
  - To increase productivity and maintain consistent supply on the market
- Investments in value-addition and agro-processing technologies to stimulate demand for various products, particularly HQCF.
- Farmer organisation development (e.g. contract farming) and training for market access.
- Capacity building for various players along the value chain in quality management of planting material, primary product and processed products.


5Kg
Cassava Flour
Fermented
5Kg


CMRTE
Quality Cassava Flour (HQCF)
(Best Baking Flour)
Net Weight: 5kgs
CMRTE
High Quality Cassava Flour (HQCF)
(Best Baking Flour)
Net Weight: 5kgs
CMRTE
High Quality Cassava Flour
(Best Baking Flour)
Net Weight: 5kgs
Processed and packed by:
P.O. Box 66
Domasi
Zomba

THANK YOU