

Maize Processing in Tanzania:

Prospects for SME
Participation

Project Brief, June
2020



ES/S0001352/1

Dr H.B.Lunogelo, Dr Hazel Gray and Professor Fortunata Makene

www.iiap.info



CCRED
CENTRE FOR COMPETITION,
REGULATION AND
ECONOMIC DEVELOPMENT



E·S·R·C
ECONOMIC
& SOCIAL
RESEARCH
COUNCIL

Project Overview

Innovation and Inclusion Industrialisation in Agro-Processing is a two-year collaboration between researchers from the University of Edinburgh, the University of Johannesburg, and the Economic and Social Research Foundation, Tanzania.

The project is a comparative study conducted across Tanzania and South Africa focusing on three value chains: maize meal, citrus and dairy. The three aims of the study are:

- First, to describe the factors that determine innovation and inclusion in agro-processing
- Second, explain the challenges to promoting SME participation in agro-processing value chains
- Third, to use these findings to support industrial policy formulation at the national and regional level

In this project brief, we set out the key issues arising from our scoping work on maize milling in Tanzania.

1: Summary

As an economic crop, maize accounts for 74.3% of cereals production and 66% of all crops harvested annually (NBS, 2017)¹. It contributes about 40% of calorific foods consumed (Bymolt *et.al.*, 2017²). Maize flour is used to make a meal popularly known as 'ugali'. SMEs play a major role in the midstream of the maize value chain. Micro and small-scale maize millers are particularly prominent in rural settings and small trading centres but they also operate in larger towns and cities. The maize milling business has also attracted medium and large-scale investors with national and regional market outreach for their milled and packaged products. These operators, dominated by firms such as Mohamed Enterprises Ltd (METL) (the "Mo Sembe" brand) coexist with small-scale millers (2-20 mt/day). The small-scale millers also produce maize flour of different grades and textures. Flour for human consumption includes dona - milled from whole grain, and sembe - made from de-hulled grain. Millers of all scales also supply by-products used to make livestock feeds, a sector that is growing rapidly in Tanzania with a projected demand of 500,000 MT per year in the near future.

There is some differentiated application of processing technologies. Whereas some of the medium and large-scale maize millers have adopted roller mills, all of the small-scale establishments use hammer mills. Hammer mills are considered less costly compared to roller mills. Preliminary findings have revealed small-scale millers had lower compliance levels to the required hygiene and safety conditions set by the Tanzania Bureau of Standards (TBS) and the Occupational Safety and Health Act (OSHA) of 2003. Scalability of their businesses is also constrained by limited access to credit, although the Small-scale Industrial Development Organisation (SIDO) has programmes to support such types of businesses in the form of technology demonstration and linkages with financial institutions³.

2: Overview of the Maize Value Chain

2.1 Historical context

Tanzania witnessed the dominance of state owned enterprises (SOEs), and specifically the National Milling Corporation (NMC) and the National Distributors Ltd (NDL), in the milling and distribution of maize flour in urban

¹ NBS (2017). 2016/17 Annual Agricultural Sample Survey. Crops and Livestock (Chapter 3). National Bureau of Statistics (NBS). Dar-es-salaam.

² Bymolt, Roger and Jesse d'Anjou (2017). Lessons on small and medium-scale maize flour fortification in Tanzania: Lessons learned from the Millers Pride – Lishe Bora project. June 2017.

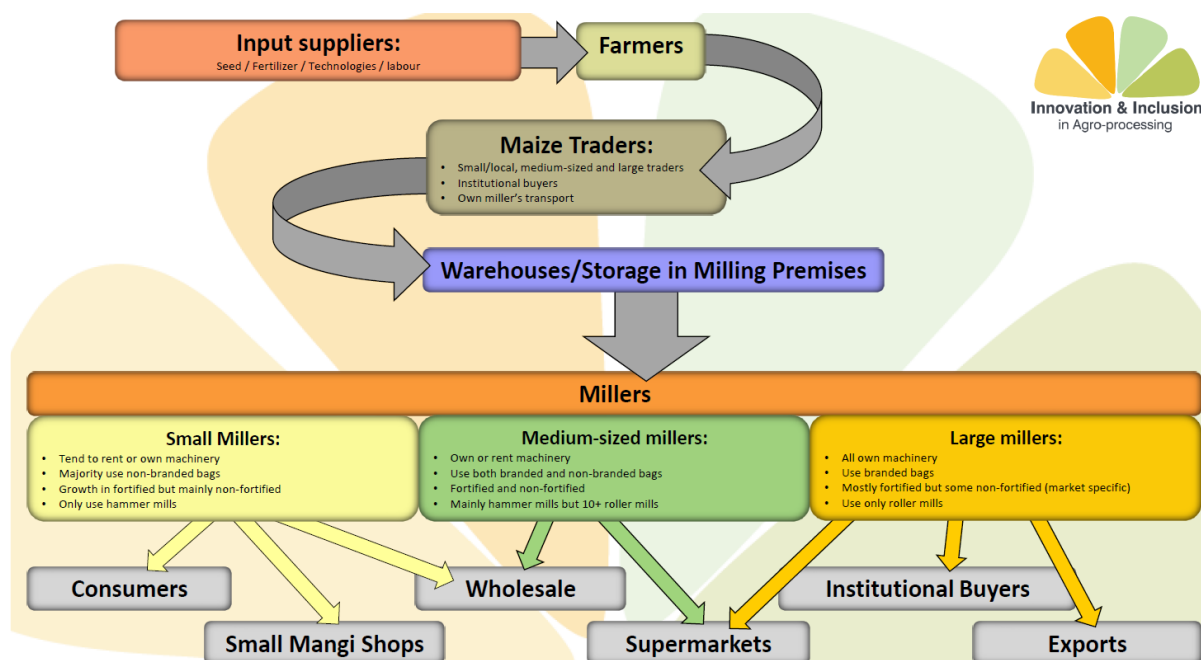
³ Key Informant Interviews with SIDO Dar-es-salaam Regional Manager and Factory Manager of Mo-Sembe, Kurasini, Dar-es-salaam

areas between 1967 and late 1980s (Bryceson, *et.al.*, 1999)⁴. The NMC's network of silos and milling machines across the country were later privatized and bought by companies, including the three private sector giants in grain marketing and milling: Salim Salim Bakhresa (SSB), Mohamed Enterprises Tanzania Ltd (METL) and Export Trading Group (ETG). In the recent past, the government decided to establish a new state-owned enterprise, the Cereals and other Produce Board (CPB), using former NMC facilities in Iringa, Dodoma, Mwanza and Arusha, with a combined capacity of 240 MT per 24hours-day.

2.2 Midstream Storage and Logistics

The four giants in cereals milling, namely SSB, METL, ETG and CPB (public) control most of the silo infrastructure in the grain industry. There are some additional silos managed by the National Food Reserve Agency (NFRA) with stowage capacity for 254,000 mt of cereals, and the World Food Programme (WFP) for refugees in the region. The Warehouse Receipt Regulatory Board (WRRB) could play an important role but currently warehouses under WRRB monitoring can hold only 26,000 mt of maize and paddy, constituting about 7% of total stocks. Additionally, there are more than 3,000 warehouses with capacity to hold up to 2.8 million cereals, which play a role in the storage of grains before milling (ESRF, 2019⁵). Although NFRA is regarded as a buyer and seller of last resort for food security purchases, its stowage capacity is less than 260,000 mt at any one time. This means a significant share of marketed maize surplus is handled by primary cooperative societies and private sector buyers and sellers scattered all over the country. A summary of maize value chain in Tanzania is depicted in Figure 2.

Figure 1 Mapping of Maize value chain in Tanzania



Source: Authors' own

Preliminary evidence suggest that although there were many suppliers of maize to the millers, medium and large-scale maize millers do have some influence on the local purchasing price of maize grain. One potential reason for this was the limited ability of the NFRA to stabilize the market given that its total purchases in recent years has been less than 100,000 mt per season. CPB purchases have also been relatively small, amounting

⁴Bryceson, Deborah Fahy, Leiden Pekka Seppälä and Marja-Liisa Tapio-Biström (1999). *Maize Marketing Policies in Tanzania, 1939-98: From Basic Needs to Market Basics (Chapter 2)* In: Agricultural Marketing in Tropical Africa. Leiden: African Studies Centre, Research Series 15, pp. 19-42. Institute of Development Studies, Helsinki

⁵ ESRF (2019). Report on Warehouses and Logistics Study. A report under RARIS Project for the Ministry of Agriculture, Tanzania

to between 3,300 mt and 3,500 mt during 2015/16 and 2017/18 seasons, respectively.

The concept of aggregators and millers entering into supply contracts with maize farmers has been pioneered by SOEs such as NFRA and CPB, and multinationals such as WFP who ensure that farmers are trained in appropriate storage and grading system of the cereals. In recent years the system has been emulated by other private millers such as Iringa Millers, who provide extension services to farmers to adopt good agricultural practices (GAP) in order to improve the quality of grain produced for their milling business. This model of relationship between millers and producers is also promoted by the Agriculture Marketing Development Trust (AMDT), which is working to develop maize value chain in Tanzania using the “Making Markets Work for Poor Approach” (Springfield Centre, 2015)⁶. Under the model, a service provider links the off-takers with producers over a given period of mentorship. Once the trust has been built the processor stops supporting farmers through the third party who is replaced.

Actors at both national and local level play an important role in the functioning of maize marketing and value addition. At the national level, the network of farmer groups, in Kiswahili “Mtandao wa Vikundi vya Wakulima Tanzania (MVIWATA)” is the largest farmers association supporting maize marketing, among other commodities. Food safety matters are taken care by the Tanzania Bureau of Standards (TBS)⁷ in offering advice on compliance to food safety requirements, including prevention of aflatoxin contamination of cereals. The Tanzania chapter of Global Alliance for Improved Nutrition (GAIN) is also supporting a micro-nutrient fortification programme involving large millers to improve maize meal nutritional value the Fortification Regulations of 2011. There are also fortification programmes organized by NGOs such as SANKU that target smaller millers.

2.3 Milling

In addition to the big five millers: SSB, METL, ETG and CPB, there have been new entrants in the maize milling industry, but most of the new entrants have medium and small-scale milling facilities. There are also many micro-milling machines located in almost every village with ability to process less than one metric ton a day. The rural electrification programme encouraged the establishment of electric-powered mills, replacing diesel-powered facilities. It is now possible to establish milling machines of slightly higher capacity than the traditional hammer mills. The government has introduced a programme for micronutrient fortification in maize flour. While medium and large-scale millers have adopted fortification, it is not yet widespread amongst small and micro scale millers. While the number of small millers that have adopted fortification is growing, some millers believe that fortified flour is less popular with customers compared to the unfortified flour.

2.4 Downstream retail

Distribution system: Medium and large-scale millers have invested in logistics for distribution of their milled products to wholesale and retail points, usually through their merchandize depots strategically located across the country. However, SME milling distribution networks remain resilient in the face of growing competition. Small-scale millers depend on traders to collect goods from the factories to retail outlets. The millers sometimes supply goods to retailers on interest free credit repaid when they replenish the sold stocks. The same arrangement prevails with wholesales supplying goods to established super-markets who make payments for the received goods after 30-60 days. This is an indirect credit extension by millers to supermarket and large shop owners. Established brands like Azam Sembe and Mo-Sembe dominate shelves of large super-markets in the four cities of Dar-es-salaam, Mbeya, Mwanza and Dodoma, while medium and small-scale millers share among themselves outlets in ordinary street shops and markets.

⁶The Springfield Centre (2015) The Operational Guide for the Making Markets Work for the Poor (M4P) Approach, 2nd edition funded by SDC & DFID.

⁷Previously handled by Tanzania Food and Drugs Authority (TFDA), in 2019 renamed Tanzania Medical and Drugs Authority (TMDA) after transferring mandates on food safety to TBS.

Small-scale millers on the other hand seem to face relatively tougher conditions in getting financial credit and distributing their finished products. They therefore have a smaller catchment area from their mills, relying mostly on small retail shops and supplying to some institutions such as boarding schools on credit. Over the last ten years, there has been a significant growth in branded maize packaging from SME millers. The millers also sell directly to animal feeds processors who buy bran as a by-product from dehulled maize. There is a significant growth in demand for bran for animal feed processing and it is in particularly high demand in Dar-es-salaam, Kilimanjaro and Arusha regions.

Financial institutions are involved with extending credit to millers, however it is mainly the medium sized millers who have been able to access loans from commercial banks. A significant challenge for SME millers is that these loans are provided at commercial interest rates rather than at lower rates from the development banks. An absence of well-capitalized development banks in Tanzania appears to be a constraint on SME milling development. A survey of commercial banks in Iringa, for example, indicated that maize milling and sunflower processing made the largest portfolio of agricultural loans.

3: Key challenges for SMEs in Processing

Some of the challenges that affect the ability of SMEs to attain profits, survive competition from large-scale ventures and influence their growth trajectory include:

3.1 Upstream

Consistency of type of grains produced by smallholder farmers, which tend to differ in terms of flour contents (proportion of hulls and protein per grain) and colour, thereby affecting the quality of products by SMEs. Low farm level productivity affects the selling price dictated by farmers for them to make profits. Uncertainty in stable supplies of grains at predictable prices poses some challenge for small-scale millers whose capital base cannot cope when prices surge. Lack of a comprehensive capacity to forecast food production (market intelligence) in the country impairs ability to make well informed decisions. Lack of a marketing strategy to supply maize (both whole grain and flour) to neighbouring countries have limited the potential of Tanzanian millers to take advantage of these markets.

3.2 Midstream

The fluctuating price of maize is a significant challenge for SME millers. Technological upgrading is constrained by limited access to adequate and affordable credit. SME millers often have limited safe storage facilities for maize and meeting health and safety standards is challenging. Fortification technologies are expensive and uncertainties about the impact on market demand is a cause of concern for SME millers. High electricity costs is also an impediment to the growth of SME millers

3.2 Downstream

SME millers depend on distribution networks provided by wholesalers and retailers. Informal credit relationships between millers and wholesalers and small retailers make the system quite resilient. Nevertheless, the expansion of maize milling by large scale millers may change these relationships given the lower cost of flour produced by large scale millers and their extensive distribution networks.



ES/S0001352/1

www.iiap.info

