



RAMPING UP RICE PROCESSING: MAMBOLEO FARMS BUSINESS CASE

Strengthening Small Business Value Chains
Learning Series



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SSBVC Project Overview

MEDA's Strengthening Small Business Value Chains (SSBVC) is working with over 25,000 men and women small entrepreneurs (SEs) and 30 lead firms in the manufacturing, agriculture, and construction sectors to grow their businesses and increase their contribution to rural economies in the Arusha, Morogoro, and Mtwara corridors of Tanzania.

SSBVC Learning Series

The SSBVC Project aligns with MEDA's organizational theory of change. The goal of the project is aligned with MEDA's mission to facilitate inclusive market systems where MEDA, with its partners, helps to provide farmers and small businesses with access to finance, business skills, and productive resources. In particular, the SSBVC project supports lead firms to provide decent work for small entrepreneurs in their supply chains, and adopt environmentally sustainable technologies and improved business practices while promoting human rights in the value chain.

The SSBVC Learning Series is an initiative to share lessons learned with project stakeholders and the wider global development sector. Topics include private sector engagement in Tanzania, client experiences with business performance and drivers of success, effective strategies for sustainable enterprise development and advancing and measuring women's economic empowerment.





Fast Facts on Mamboleo Farms

Founded: 2011

Sector: Agri-food

Business: Rice production and processing

Location: Ikwiriri District, Coastal Region, Tanzania

Mamboleo Farms Limited (Mamboleo) is a Tanzanian agribusiness that produces, purchases, and processes rice, as well as produces certified seed. The company also has holdings in cattle, fishing, and poultry. They are a family business with a leadership team that brings engineering, agricultural, and finance expertise together. The company mission is to use high-tech mechanized agricultural knowledge and methods, while using modern high-tech equipment, to produce, manufacture, and market rice, certified seed, and other agriculture products locally and into foreign markets.

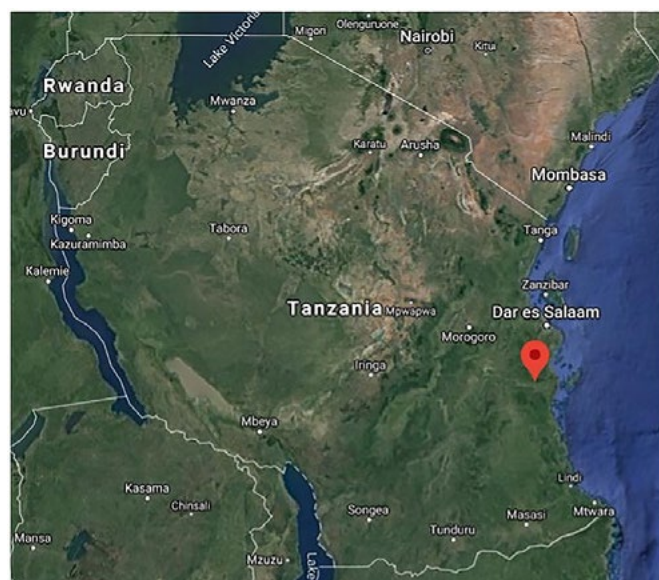


Figure 1: *Mamboleo Farms Ltd., located in Ikwiriri District, Coastal Region, Tanzania*

In March 2017, the business won an impact acceleration matching grant (herein referred to as 'grant') from MEDA's Strengthening Small Business Value Chains (SSBVC) Project. The grant, valuing \$382,003 CAD, wrapped up in December 2020.

The objectives of the matching grant included:

1. Extend contract rice farming scheme to reach 1,000 farmers, including a target of 80% women, and increase rice production of these farmers with extension support and productive assets (three tractors, including one plough and one rotavator, the latter used to level and aerate the soil).
2. Establish irrigation systems for over 100 hectares to allow 300 farmers, 240 of them female, to produce rice year-round (two seasons: one rain-fed, one irrigated).
3. Upgrade to a larger rice milling machine. The grant will increase the factory's capacity to allow for more and increased quality paddy rice to be processed and dried.

4. Promote environmental sustainability to manage rice husk waste, a by-product of processing. The grant included the purchase of a carbonizer and briquette-making machines to allow Mamboleo to protect the natural environment.

Context

Mamboleo's business problem was their inability to meet the market demands on time and with a high-quality product. Before the grant, they started a new farm of their own as they were not able to offtake enough paddy rice from farmers in their supply chain. At project outset, area rice farmers were only harvesting 0.5 MT / ha, of a very poor quality and varietal mixed, whereas top production of the region is 3 MT / ha. Getting their suppliers to produce six times as much rice was a goal.

The opportunity existed, but the supply chain was weak. Rice was not a prevalent crop in the area and cultivated only for subsistence. Located in remote locations without access to roads, farmers often lack market information. The rice farmers were not always interested to sell to Mamboleo, sometimes finding ready markets elsewhere, even after accepting inputs on credit from the enterprise. Side selling was commonplace because the local roads are very rough, it is difficult to aggregate and farmers will sell to a ready trader or agent nearby.



Figure 2: On the farm: The Kassim brothers, co-owners of Mamboleo Farms Ltd. and farmhands and agricultural experts. Including, Suwed Kassim, Kassim Kassim, Shwaib Kassim, the late Hashim Kassim, Alawi Kassim.

Another challenge was the production and processing capacity. Poor harvests meant not enough paddy rice to process. Load shedding (interruptions in electricity) in Tanzania meant that power supply was not stable. Mamboleo's rice milling capacity was small and not able to meet their customer demands. Further, the company struggled to manage rice husks, a by-product of processing and considered them waste.

Business Case

The MEDA matching grant allowed Mamboleo to meet market demands on time and with a higher quality product through four drivers of business growth. Two of these drivers target production, third is value addition, and lastly by promoting environmental sustainability.



Results

Operational Results

The firm has achieved operational results across their four business drivers of business growth.

1. Contract Farming: This involves production being carried out based on an agreement between Mamboleo and farm producers. Mamboleo specifies the quality required and the price, with the farmer agreeing to deliver at a future date. A contract with a group of farmers spells out the conditions to produce rice, including inputs and tractor access, and for the rice aggregation at certain sites.

- 500 (53% women) farmers have been connected with contract farming.
- Women, largely participating in paddy production, now can save time in farming activities by accessing machines like tractor, power tiller and harvesting machines.
- Mamboleo trained three extension officers that support farmers on agronomy. These officers make regular visits to farmers to provide expertise on good agricultural practices and crop troubleshooting.
- SEs assisted with input financing (seed, fertilizer, diesel, and herbicides) to help them on production planning for every season, as well as a ready market.
- Mamboleo will continue use their own and government extension officers to provide refresher course to SEs. Extension officers will continue operate as facilitators and communicators, helping farmers in their decision-making and ensuring appropriate knowledge is implemented to obtain the best results regarding sustainable quality production.
- 200 farmers (48% women) were able to purchase quality seeds from Mamboleo, at a discount. This will further increase productivity.

2. Irrigation System: A surface irrigation system, also known as flood irrigation, was applied on 100 ha of Mamboleo's rice paddy fields using water pumps into a pipe network to distribute water.

- Level basin irrigation system: Mamboleo purchased a leveler and a tractor that improved their farm and allowed them to use less water. Levelling of the rice paddy also improved establishment of rice, controlled weeds, and ensured a more uniform crop.
- 86 women and 49 men (135 SEs) were trained on irrigation and gender equality. Training raised awareness on equal access to mechanization and well irrigation schemes.
- These SEs have access to the irrigated land, which will lead to an increase in productivity. Recovered from the flood, the farmers hope for a good harvest in June 2021.



Figure 3: Mamboleo's levelled and irrigated paddy plantation allows for a more uniform and bigger harvest.

3. Rice Milling Machine: Rice from paddy fields is milled and processed hygienically in a modern machine and in a dust-free environment and cleaned through sorting machines and later graded. This allows for value addition and a higher quality product.

- Mamboleo improved their old machine with new one with a capacity of 3,000 MT per year for 8 hours shifts, working 6 days per week.
- This represents an increase of 49% for processed rice output production (see Table 1 below). The finished rice processed by the machine is uniform, fine, has a smooth surface, good colour, and less starch.
- The processing capacity upgrades mean it can mill and grade rice for its various market segments, included packaged in 100kg bags for wholesalers like public market traders, businesses like caterers, schools, and faith-based groups, as well as 5 and 10kg bags for retailers.

Table 1: Processing improvements by Mamboleo, from 2017 to 2019

Processing Figures	2017	2018	2019
Processed Paddy (Tons)	521	613	775
# Rice Customers	13	21	33
Saro Seed (Tons)	0	6	19
# Seed Customers	0	327	724

4. Environmental Sustainability: Rice husk management through a carbonizer and briquette making operation will save the company money and avoid polluting the natural environment with the burning of rice husks. Also, MEDA helped the company with certification by NEMC that will allow them to abide by national regulations.

- With the support of a MEDA environmental grant, Mamboleo installed an 86-kilowatt solar-powered irrigation pumping system capable of pumping 500 cubic meters per hour to irrigate 300 acres of rice paddy. The installed solar system allows Mamboleo to increase the growing season from one season to two seasons per year with the SARO-5 seeds, which SEs purchase at a discount to improve yield. This technology has

the potential to double Mamboleo's harvests, reduce water usage and air pollution, and improve rice harvests.

- Mamboleo provided sensitization to farmers around on the importance of mangrove protection. Farmers often use mangrove wood for fuel and use the additional land for paddy cultivation. By protecting the mangroves, Mamboleo ensures a sustainable and protect coastline and ecosystem for flora and fauna.
- The company has improved their health and workplace safety by establishing a policy. They store chemicals in a secure storeroom and installed a first aid kit, fire extinguishers, as well as trained staff on workplace safety. Warning signs were installed in hazardous areas in the factory and staff were provided with personal protective equipment to wear at work.
- Mamboleo registered for the Occupational Health and Safety Authority certificate, but so far have been stymied by government bureaucracy and have yet to be certified.



Figure 4: *Rice farm harvesting with tractor and implements, purchased with the support of MEDA.*

Financial Results

Mamboleo's results have been slow but there has been growth. Before the project, they had been showing increases in sales revenues and purchases. From 2015 to 2017, customer demand led to high productivity of paddy and provided a reliable market. Some of the equipment purchased with support of the project came online in the middle of 2017, as seen below in Figure 5 with the rise in sales and purchases in 2017.

In 2018 and again in 2020, severe floods disrupted rice production. Amid this, the Government of Tanzania banned rice exports, which created a glut in the local market and the price plummeted. Sales and purchasing figures are affected. In 2019, the business experienced a favourable growing season, increases in the capacity in productivity of rice seeds and improved economic incentives as well as improvement in production efficiency with the irrigation and piping equipment during the dry season.

In 2020, the company anticipates a negative margin due the COVID-19 pandemic, which negatively affected productivity leading to a decline in revenue that was used to cover the some of the expansion costs. To make the situation worse, the whole 2020 wet season crop as well as buildings, farm infrastructure and some equipment, were damaged by floods. Post-pandemic recovery, Mamboleo expects their revenue to grow.

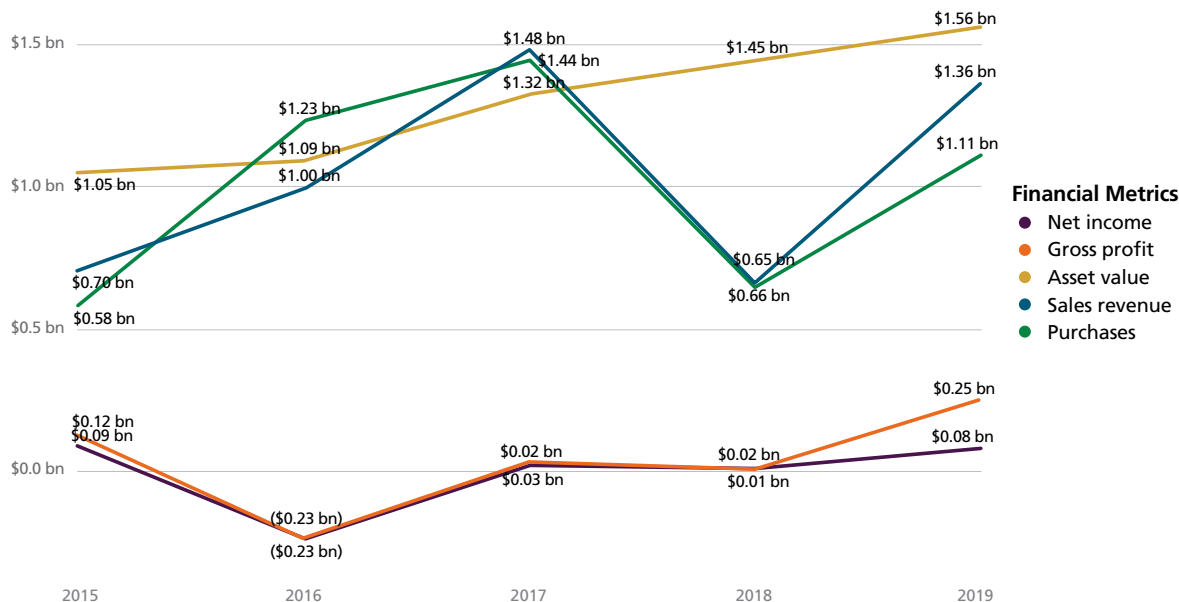


Figure 5: Mamboleo's financial performance on income, gross profit, asset value, sales, and purchases, from 2015 to 2019, derived from their audited financial statements. Figures are in Tanzania shillings (TSH).

Systems Change

Mamboleo has anecdotally observed some small systemic change in their sector. Some other farms and governments have noticed their innovations and call them to learn more. They have been called to other regions in Tanzania (including to Lindi by the regional government) to provide technical training to rice farmers, help farms construct their own irrigation schemes, and generally share experiences.



Figure 6: Sawed observed the flow of the solar-powered irrigation system. This was a trial before the pipes were buried.

Mamboleo is seen as a leader in rice and is gradually changing the way businesses and farmers work, moving away from what has traditionally been known as a subsistence crop to a commercial one, worth of investment. “The company has transformed the rice farmers, now they are entrepreneurs,” noted MEDA staff Mkali Mlanzi. In this way, they are promoting innovation in the rice sector.

Human Impact

Sharifa is part of the Heshima Kazi group of rice farmers that located in Ikwiriri-Rufiji District in coastal region of Tanzania. According to social norms in the area, men play a critical role in everything and women voices are often not heard. Farmers in Ikwiriri use traditional methods of rice farming; using mostly their hands, hand hoes and few other tools traditionally. The harvested crops were subject to rainfall and production were at best 0.8 metric tons (Mt) of minimal gains per hectare. Sharifa was familiar with rice farming, but she was held back by the traditional practices and lack of market.



Figure 7: *Sharifa applying fertilizer in the five-acre irrigated land allocated to her group. The field is well leveled and looks promising, thanks to the GAP training provided by MEDA and partners..*

Sharifa and her Heshima Kazi group work with Mamboleo, whose goal is to see farmers adopt modern rice farming, converting from unreliable rain-fed agriculture to controlled and sustainable irrigation. Mamboleo and MEDA partnered together to develop a 30-acre irrigation scheme and allocated land to six alliances, including Heshima Kazi.

In 2017, Sharifa connected with Mamboleo. With the construction of the irrigated field, business development services (BDS) to farmers were delivered through training by AMSHA BDS Providers. Training included good agricultural practices, gender equality, and entrepreneurship training, among others.

Thanks to this new scheme, productivity grew from 0.8MT per hectare to 4 MT/ha—five times greater! Sharifa played a key role in mobilizing her fellow farmers to participate and running the scheme, now she has become an expert in irrigated rice farming.

Sharifa has become a local rice farming guru. Besides assisting her own group, she now provides BDS training on modern rice farming to other individuals and groups, thus supplementing her income through fee obtaining from service provision.

“I live far away from where irrigation schemes located, but my colleagues always want my presence and they pay for transport and my services. Sometimes I choose to camp overnight

in irrigation field to assist my fellow farmers,” she said. These transformational changes have consolidated Sharifa’s position at her own group, home and in the community both as a lead rice farmer and trainer. It was easy for Sharifa to become the champion and be able stand in her community trainings and awareness of gender issues in the community. Now Sharifa can stand in front of men and train them on rice farming.

Her family has seen the results of her growth and a deep admiration by other rice farmers, both male and female in her community. She is an example of a female champion who proves that being a woman is no barrier to success.

Lessons Learned

Through its partnership with MEDA, the company has been able to identify constraints to their growth and sustainability, and that of their partners and supplies both up and down stream. The grant allowed them to be more innovative, but not without challenges along the way:

- **Flooding:** Major flooding negatively affected the 2019 and 2020 growing seasons. Mamboleo’s 400 acre farm, including 160 acres of cultivation and 240 acres of building, animal facilities and other service-related areas, were inundated. Beyond this, the surrounding farmer’s households and fields were flooded for 2 months in 2019. Mamboleo anticipates a silver lining of the floods—there will be more silt from the river that will fertilize the soil. This type of flood happens every thirty years, and in the future, they hope will be controlled by the dam. A spin off learning from the flooding: it would behoove Mamboleo to redouble their efforts after the flood on contract farming. The disruptions caused some disconnect, and farmers need additional support to continue producing.
- **Access to farmers:** The remoteness of the farmers and poor road infrastructure to farms is an ongoing challenge for Mamboleo. Not only does it make offering extension support difficult but providing inputs (which usually happens in the rainy season) and collecting harvest becomes a challenge. The extension officer goes to the farmers weekly, and sometimes must travel by canoe to visit farmers. The firm has learned to adequately budget time for extension travel, sometimes using tractor, and build trust and knowledge with farmers.
- **Environment:** Their National Environmental Management Council (NEMC) environment certificate of their rice milling factory took a long time. They had to find a solution for the rice husks, a by-product and considered waste. Eventually they installed a carbonizer that process the husks to fuel. All told, it will have taken over three years from start to finish, as they anticipate being approved for the certificate soon now that all of the barriers have been addressed. The company are contributing

to their business sustainability by complying with national regulations. Mamboleo learned to plan early for environmental sustainability.

- To champion environmental sustainability, viable options must be promoted and incentives created to replace destructive practices. This can be seen with the adoption of solar-powered irrigation and use of improved seed varieties, which provide a model for others to adopt. These options must be assessed, and the business case justified for companies to be willing to invest.
- **Electricity:** Mamboleo suffers from interrupted power, which limits their processing output. They hope that in a couple years that this will no longer be a problem when the hydroelectric dam is operational. Also, they hope that they can in future produce their own power.

Road Ahead


Mamboleo will continue pursuing its goals of seed production and strengthening its supply chain of paddy rice in the years to come. They want to ensure farmers have access to quality certified seed, thus securing their own access to greater volumes of rice for processing.

Building trust takes time: they will continue to work with their farmers through contract farming. A future milestone will be an operational hydroelectric dam controlling the river and thus minimizing the flooding risk. With the risk of inundations and pandemic behind them, success for Mamboleo means smooth business operations.



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