Developing the rice industry in Africa

Tanzania assessment

July 2012

BILL & MELINDA GATES foundation

Agenda

A. Executive summary
B. Tanzanian rice market
C. Investment case for Mbeya region
D. Mbeya partner analysis: Mtenda Kyela Rice Supply Limited
    1. Mtenda Kyela Rice Supply Limited’s smallholder initiative
    2. Mtenda Kyela Rice Supply Limited's commercial model
    3. Recommendations
E. Mbeya partner analysis: Kapunga Rice Plantation Limited
    1. Kapunga Rice Plantation Limited’s tenant farming model
    2. Kapunga Rice Plantation Limited's commercial model
    3. Recommendations
F. Investment case for Morogoro region (Kilombero district)
G. Morogoro partner analysis: Kilombero Plantation Limited
    1. Kilombero Plantation Limited's smallholder initiative
    2. Kilombero Plantation Limited's commercial model
    3. Recommendations
H. Next steps

A. Executive summary

Executive summary (1/3)

- **The Tanzanian rice industry, supported by government policies, has grown rapidly over the last decade and is largely self sufficient**
  - Rice production has doubled in the last decade, supported by import tariffs and supportive policies
  - Good quality rice (aromatic, ~20% broken) captures 70% of national rice consumption
  - Local production meets 92% of consumption despite a 21% price premium over imported rice given its competitiveness in meeting consumer demand (aromatic, fresh, clean, ~20% broken)
  - The price premium is driven by higher domestic production and transport costs and protection from a 75% import tariff
  - Local demand is expected to triple by 2020 due to rising urbanization, incomes and population

- **The Mbeya Region is a major rice producer with various large to medium scale producers, processors and traders which primarily serve the country's largest rice market - Dar es Salaam**
  - The Mbeya region is the third largest producer of rice in Tanzania (12% of total production) and rice is the 2nd most important crop in the region after maize, with over 100k smallholders currently producing rice
  - The region largely serves Dar es Salaam market (Tanzania's largest rice consuming market) which will see growing rice consumption due to rising urbanisation, incomes and population growth

- **Mtenda Kyela Rice Supply Limited, offers a good opportunity to quickly start working with a large number of smallholders (>10k) and has a proven track record in improving smallholder production and incomes**
  - Mtenda has been running its smallholder production model profitably for two years and is currently working with 10.5k smallholders in the Kyela and Mbozi districts of Mbeya Region
  - They offer a comprehensive package of inputs, training, and access to markets to increase smallholder yields and rice quality and are currently increasing smallholder income by 210% to USD 643 per year with yields of 6.8MT per Ha
  - Mtenda plans to expand its smallholder scheme to other regions in Tanzania as well as to invest ina processing mill and trucks to reduce costs and increase profit.
  - Mtenda is very experienced in working with smallholders and has successfully raised a USD 48k matching grant from the Tanzania Private Sector Foundation, USD 10.5k from Agricultural Council Tanzania, and USD 1.35m from Oikocredit

Source: Team analysis

Executive summary (2/3)

- **Kapunga Rice Plantation Limited (KRPL) offers a good opportunity to work with smallholders to improve production and incomes**
  - KRPL currently uses a tenant farming model with local farmers renting land on KRPL's block farm; KRPL provides infrastructure (including irrigation), inputs, training and mechanization to the farmers; farmers pay a fee up front and repay the cost of the inputs with paddy at harvest.
  - KRPL is keen to launch a smallholder model that builds upon on their experience with similar programs in other parts of Africa such as Uganda
  - There are some tensions with the surrounding community that will need resolution prior to scale-up.

- **KRPL's strong management team and experience with smallholders suggest that their commercial and smallholder model will be successful**
  - KRPL is already producing on 3k Ha of land (of which 1.2 Ha is farmed by tenant farmers), achieving average yields of 3.5MT per Ha from its own production and 6MT per Ha from its tenant farmers
  - It also conducts seed research to improve yields and quality and sources fertilizer tailored to rice
  - KRPL currently operates a commercial farm and processing facility and aims to become the lowest cost producer in Tanzania with a rice brand for the domestic and export markets
  - It has deep financial strength from its parent company, Export Trading Group, which invested significant capital into the refurbishment and operation of the farm

- **The Morogoro Region is a major rice producer, driven by Kilombero Plantation Limited (KPL), and primarily serves the country's largest rice market - Dar es Salaam.**
  - The Morogoro region is the second largest producer of rice in Tanzania (12% of total production), and rice is the 2^{nd} most important crop in the region after maize, with over 250k smallholders currently producing rice
  - The region largely serves the Dar es Salaam market (Tanzania's largest rice consuming market) which will see growing rice consumption due to rising urbanisation, incomes and population growth
  - The region contains the largest commercial rice player in the country, KPL

Source: Team analysis

Executive summary (3/3)

- **KPL offers a good opportunity to quickly start working with smallholders to improve production and incomes**
  - KPL has already launched its innovative smallholder model (System of Rice Intensification or SRI) and will be working with 1,350 farmers in 2012
  - KPL plans to work with 5k smallholders to produce 20% of their total production by 2016
  - They offer a comprehensive package of inputs, training, processing and market access to increase smallholder yields and rice quality. They are also considering offering a share of the revenue from the final product to increase farmer price.
  - They expect to increase rainfed smallholder income by 1129% to USD 394 per year

- **KPL's strong management team and innovative smallholder model give market experts confidence that their commercial and smallholder model will be successful**
  - KPL is already producing on 4.7k Ha of land, achieving average yields of 3.2MT per Ha
  - It also conducts seed research to improve yields and quality and obtains fertilizer tailored to their needs from Yara
  - KPL currently operates a commercial farm and processing facility and, in time, wants to become the lowest cost producer in Tanzania
  - It has a very experienced leadership and management team, having successfully raised USD 31m for its commercial operation and additional support from USAID for its smallholder initiative

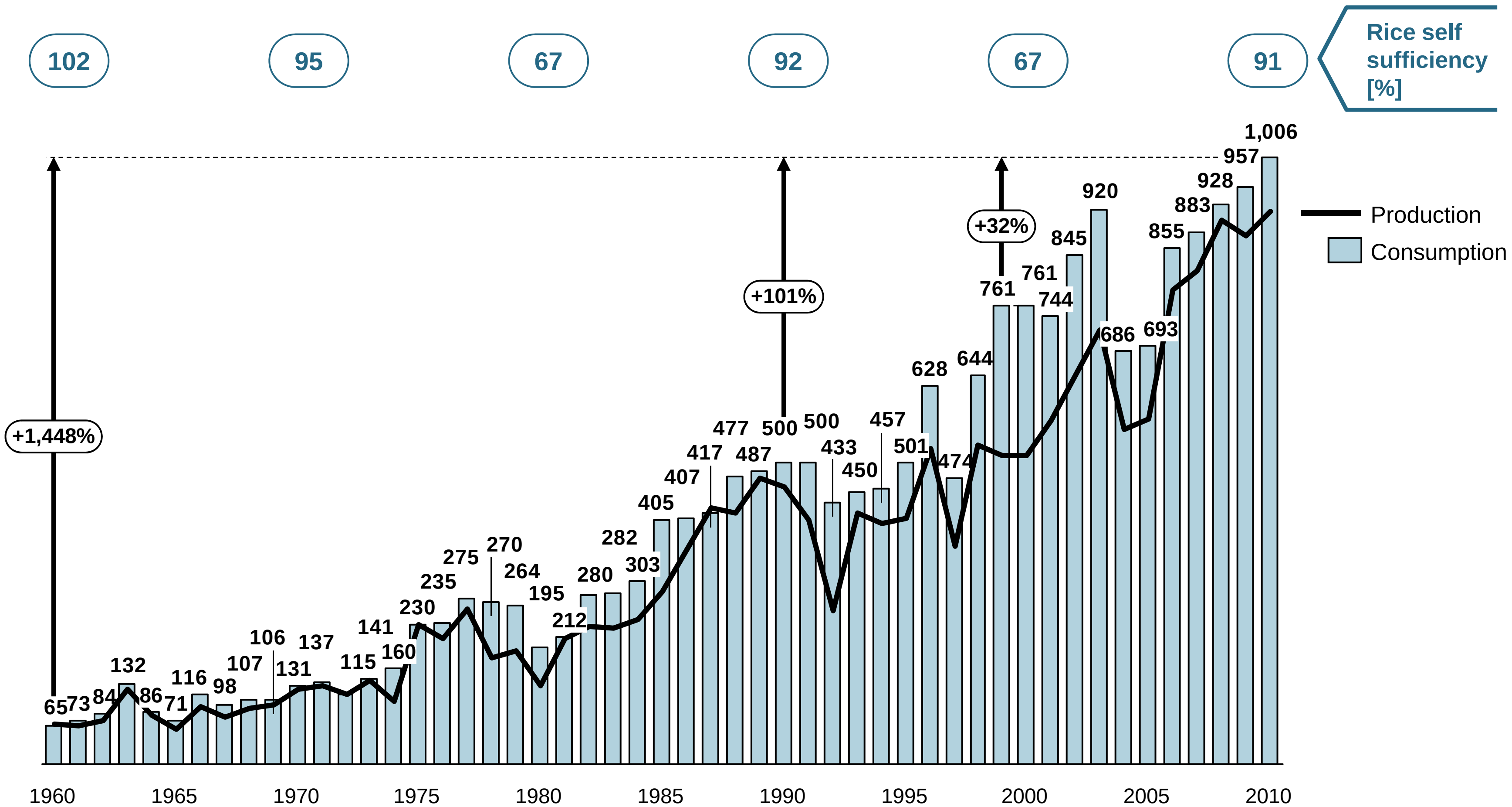
- **Donors can support the development and expansion of successful smallholder models, building of capacity within the government, organizing an industry association, and funding R&D for small-scale farm mechanization**
  - Donors can help Mtenda and KPL expand their smallholder models to other locations and help KRPL design, test and roll out its new smallholder mode.
  - With all three partners, donors can underwrite the credit risk required for the implementation and training business service providers who would train smallholders
  - A challenge fund to develop low cost, high quality mechanization suitable for smallholder farmers' needs
  - Establishment of an industry association can strengthen the private sectors' voice on policy issues, R&D, and marketing as well as to document and share good practices on smallholder engagement models
  - Donors can work with the government and other rural development initiatives such as SAGCOT to improve the support systems for smallholders and to improve the business environment for investors.

Source: Team analysis

B. Tanzanian rice market

The Tanzanian rice industry has seen rapid and substantial growth over the last 50 years and is largely self sufficient

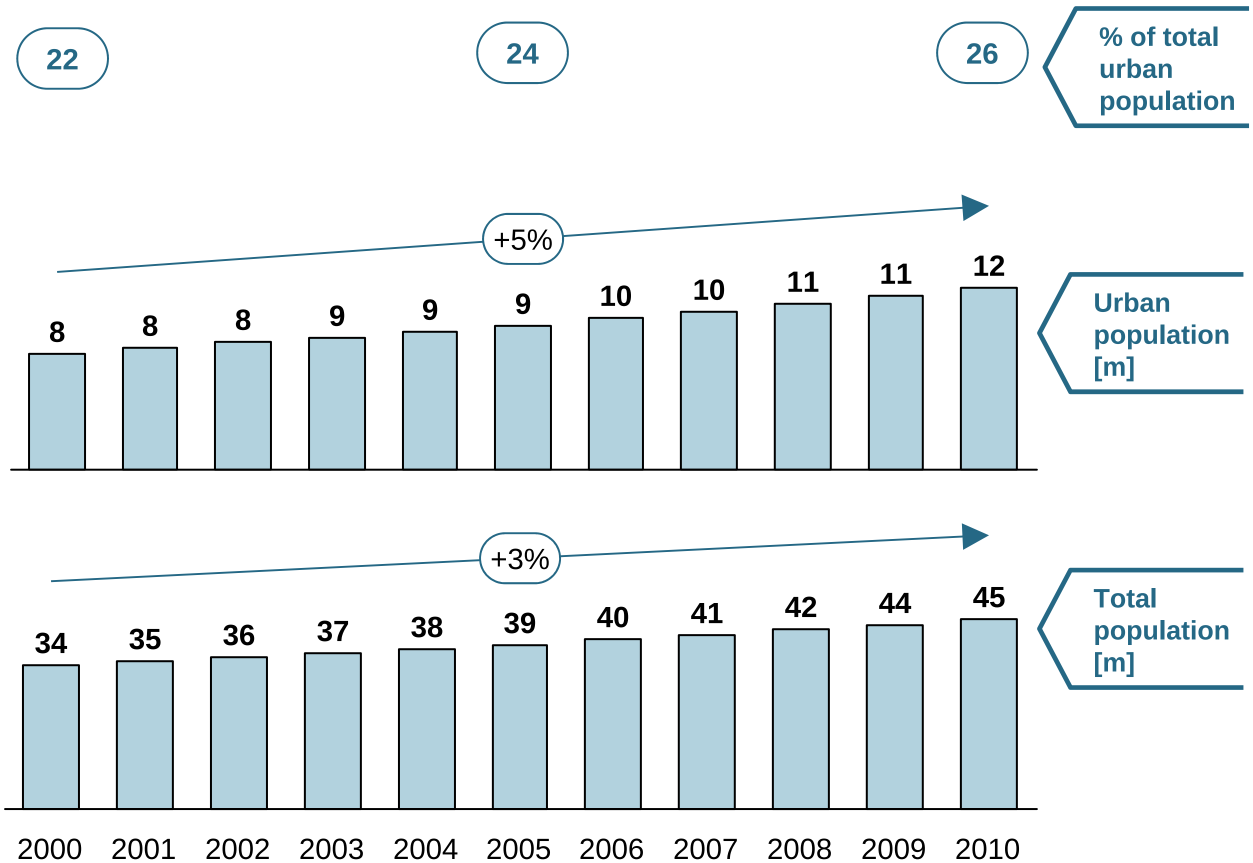
National milled rice production and consumption 1960 – 2010 ['000, MT]



Source: USDA

This growth has been driven in part by increasing urbanisation and population

National population and urban population, 2000-2010

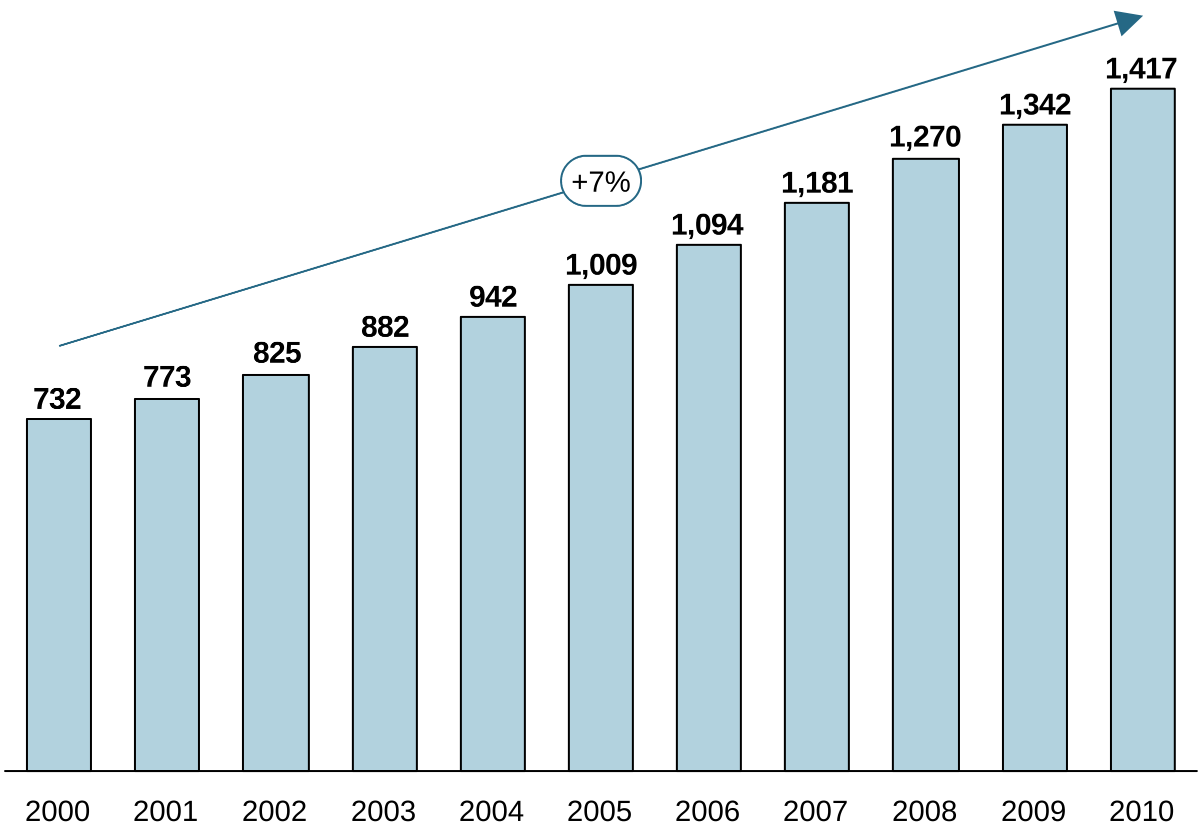


- **Rice is popular in urban areas as it** symbolizes increased status, and is easy and quick to prepare
- In addition, a steady increase in the total population has led to a steady increase in demand for all cereal crops, including rice

Source: National Bureau of Statistics Tanzania; World Bank

In addition, incomes have risen rapidly over the last decade…

GDP per capita (PPP), 2000-2010 [USD]

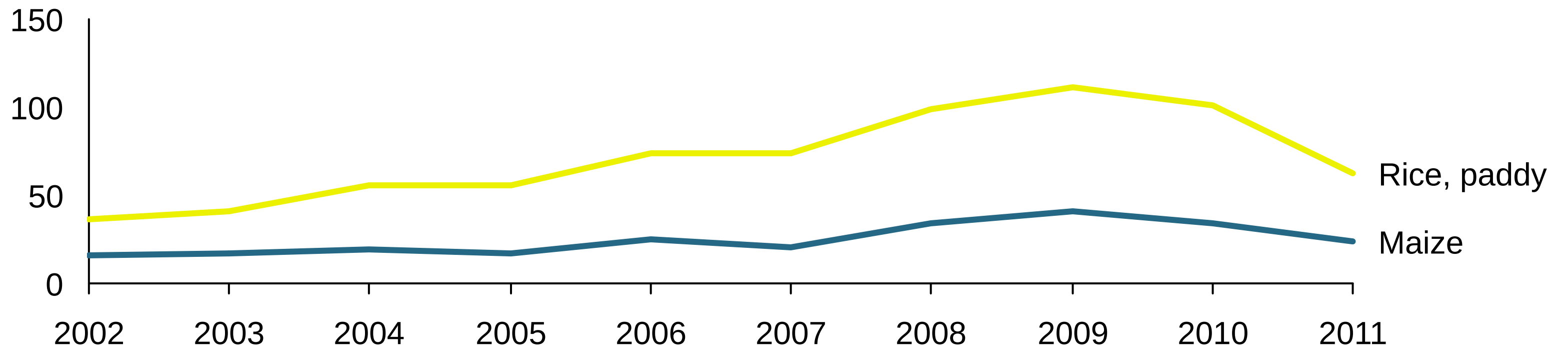


- Rising income has made rice more affordable and is preferred over maize
- Maize is Tanzania's main staple and is the staple of for the country's working class
- Rice is considered a "premium" staple that consumers aspire to move to as their incomes rise
- Price of rice is higher than other crops such as maize, thus, consumer preference for rice has grown in line with disposable income and urbanization, and is preferred among Tanzania's middle class

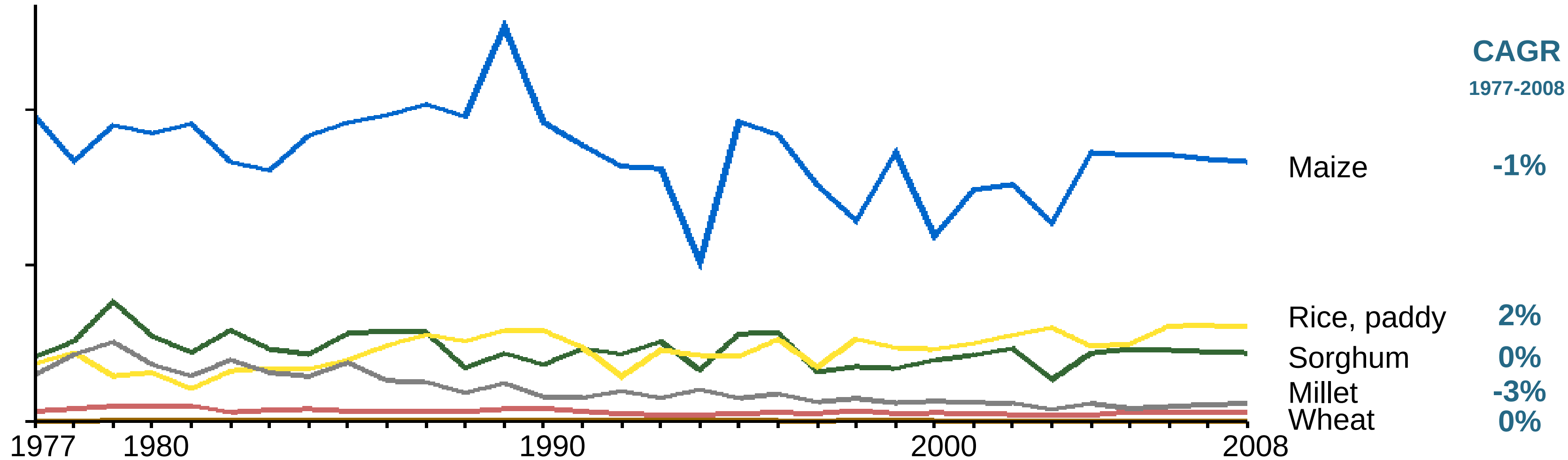
Source: IMF; National Bureau of Statistics Tanzania; NAFAKA

…resulting in a shift in consumption towards more expensive rice and away from cheaper cereals

National crops prices 2002-2011, [‘000 Tsh per 100 kg]



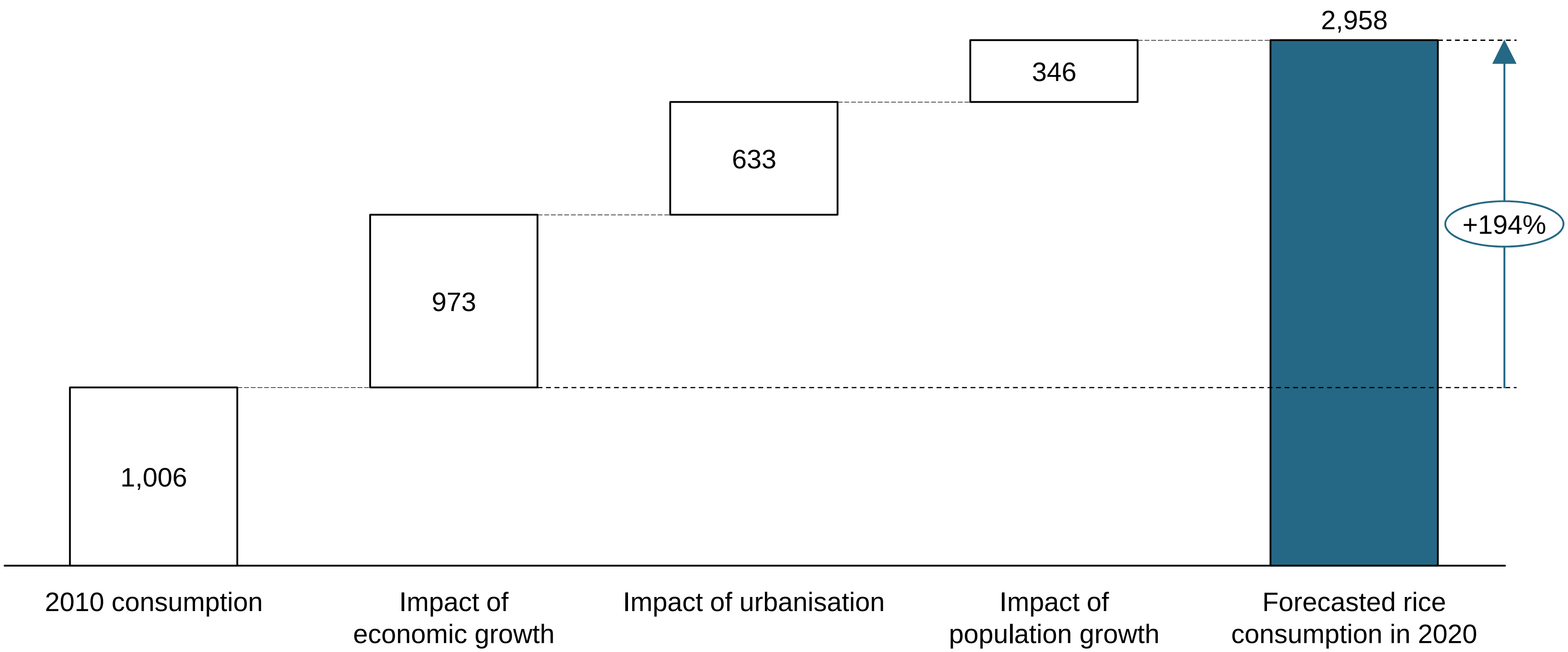
National cereal consumption, 1977-2008 [Kg per capita]



Source: FAO; EIU

Rice demand is expected to triple over the next decade as the population grows and becomes richer and more urbanized

Forecasted rice consumption ['000 MT][1)]



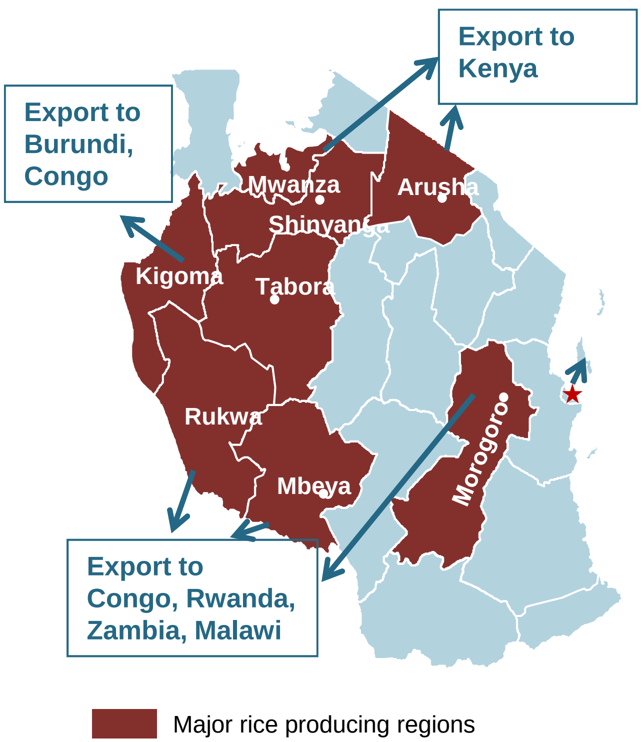
1) Assumes economic growth continues at 7% p.a, urbanisation at 5%, and population growth at 3%

Source: USDA; National Bureau of Statistics Tanzania

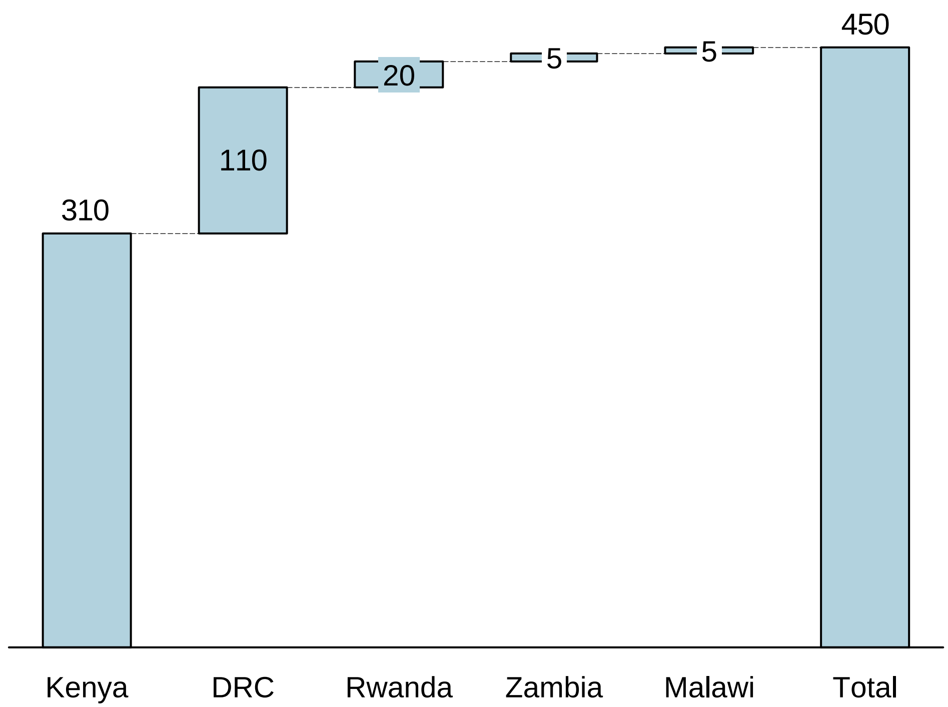
In addition, Tanzania could export rice to neighbouring countries which imported a total of 450k MT in 2011

Tanzania's potential rice export markets

When exports are permitted, there is significant export to neighbouring countries who are net importers of rice. However, this is not consistent due to export bans



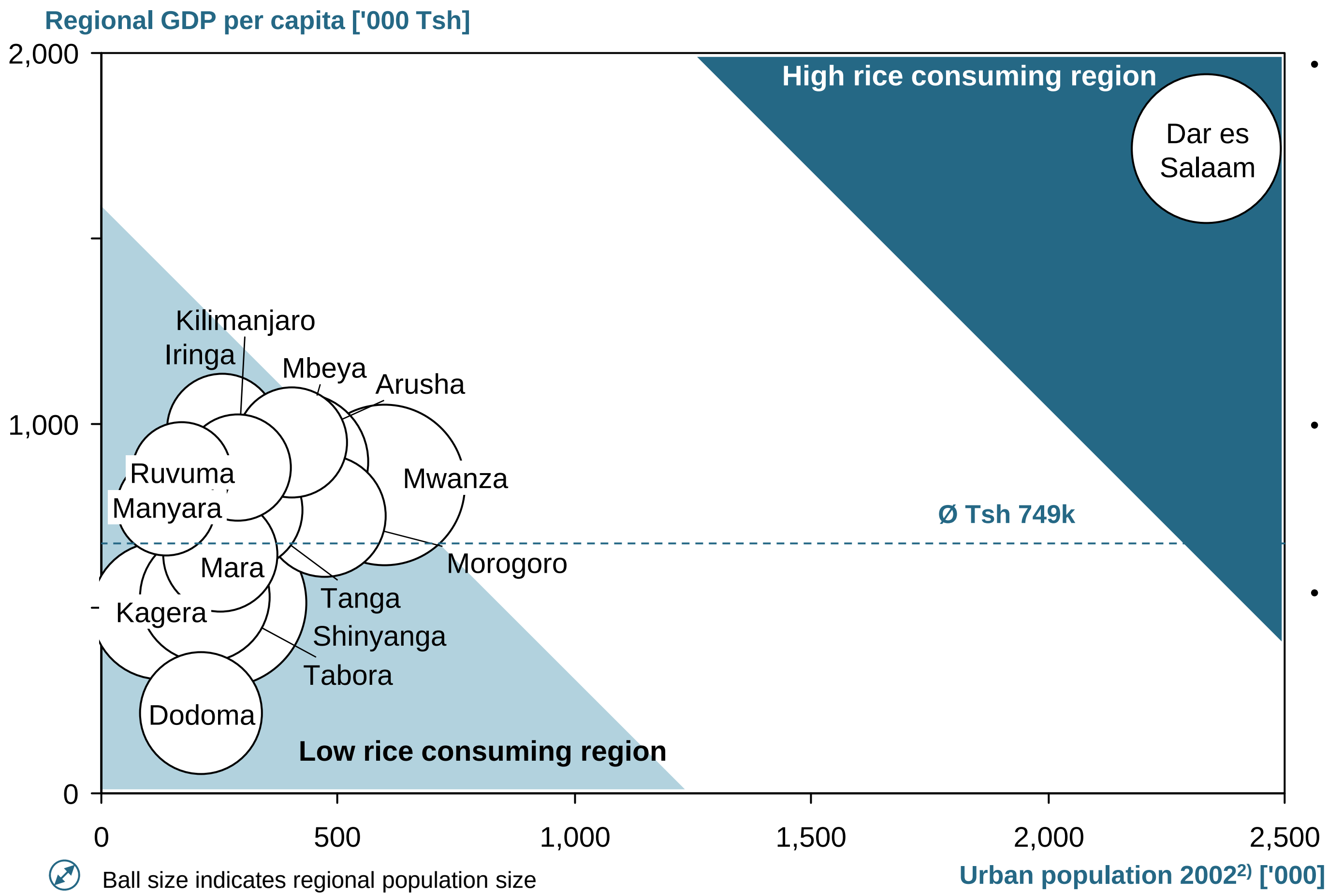
Import of milled rice by country, 2011 [‘000 MT]



Source: FAO – TradeMatrix data; USDA

Dar es Salaam is Tanzania's largest rice market making up ~60% of national rice consumption

Regional GDP per capita, population and urban population, 2010[1)]

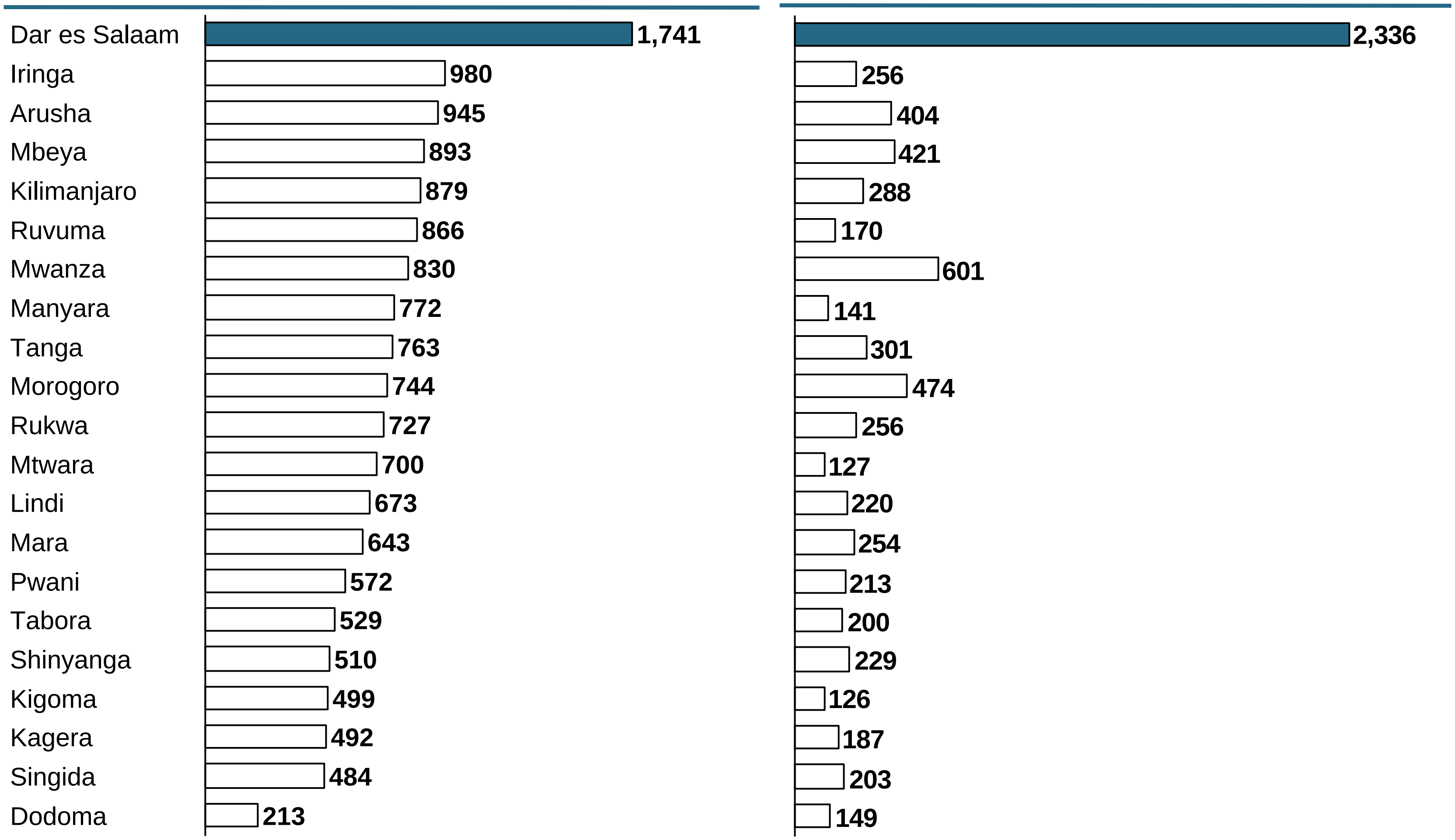


- Dar es Salam is the largest rice market region, with 40% of rice consumption, due to:
  - Highest GDP per capita (Tsh 1.7m in 2010)
  - Highest urban population (2.3m in 2002) - 30% of national urban population
  - Third largest population (3.1m, in 2010)
- Other large consuming regions are Mwanza, Arusha, Mbeya, Morogoro, Kilimanjaro, Iringa, Tanga; these have relatively high urbanisation and GDP per capita
- High rice producing regions also consume a high percentage of rice due to availability and cost effectiveness (producers consume their own rice, making it more cost-effective versus crops brought in from other regions)

1) Includes top 15 highest regions by regional population size; 2) Latest data available
Source: National Bureau of Statistics Tanzania; World Bank; Interviews

Dar es Salaam has Tanzania's highest GDP per capita and urban population

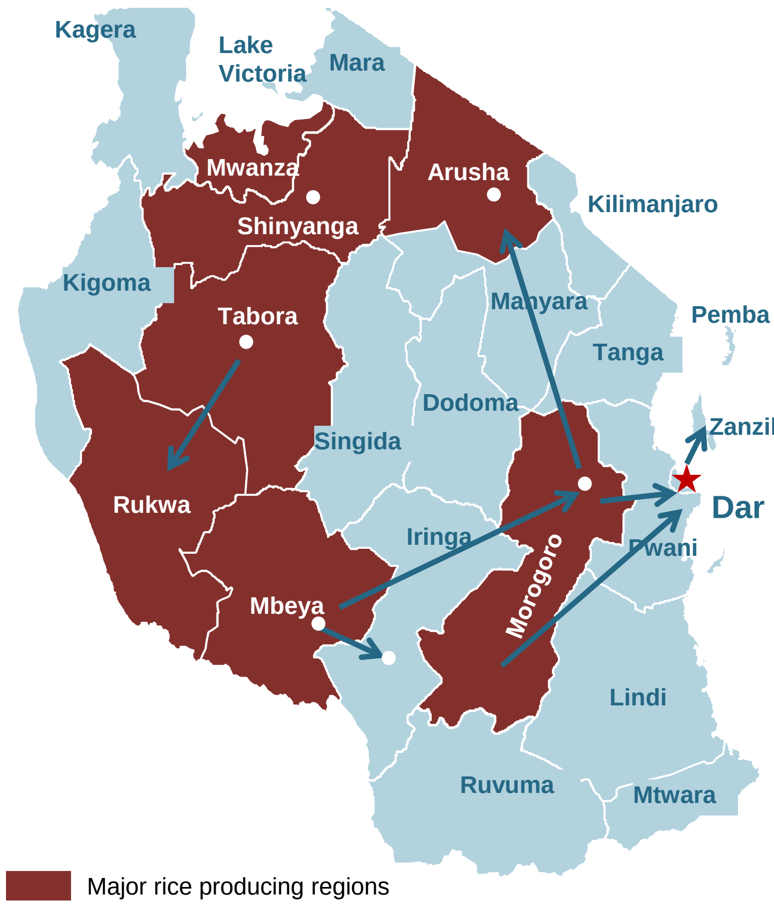
Regional GDP per capita, 2010[1] [000' Tsh] | **Regional urban population 2002[2] ['000]**



1) 21 Regions in Mainland Tanzania; 2) Latest data available
Source: National Bureau of Statistics Tanzania; World Bank; Interviews

Dar es Salaam market is mostly served by the rice production from Morogoro and Mbeya

Domestic flow of rice from key rice producing regions to key consumption markets, 2012

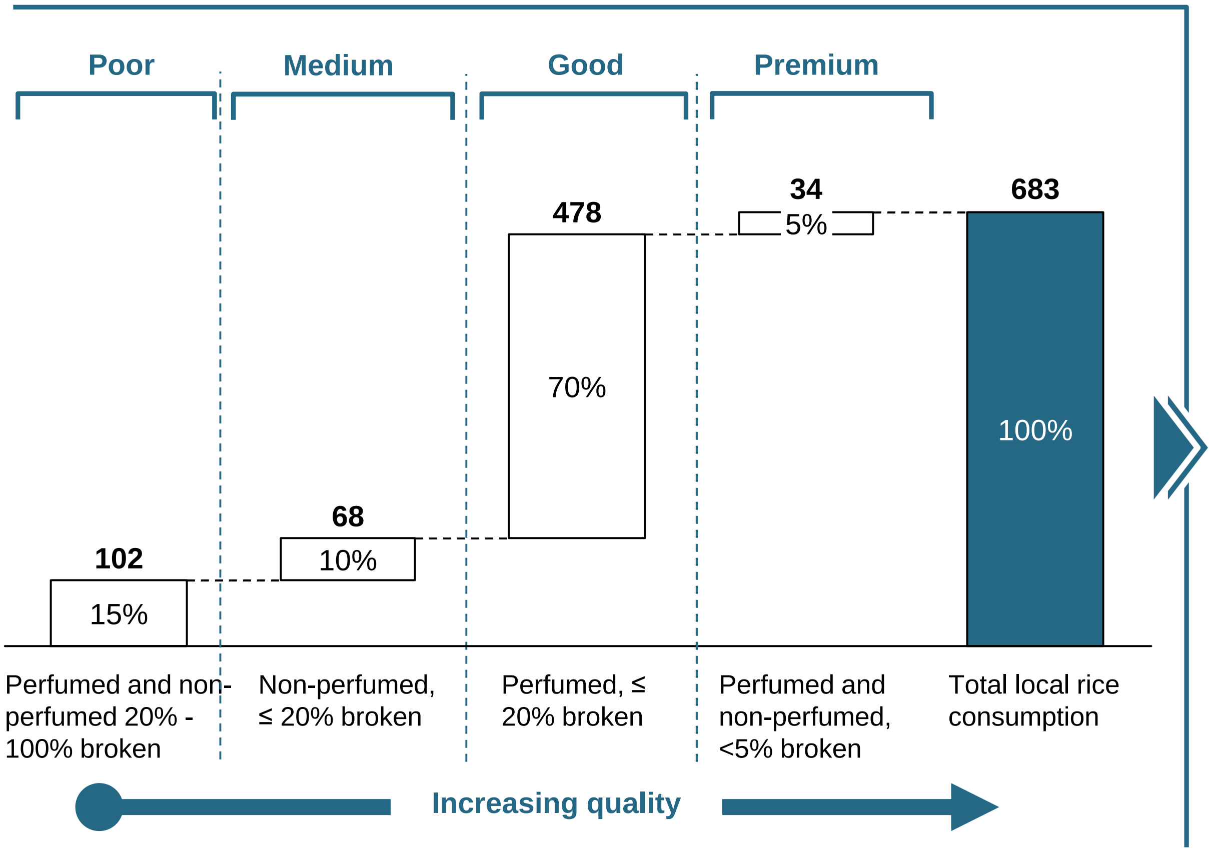


Source: NAKAFKA; interviews

- Dar es Salaam has the highest rice consumption due to high urbanisation, income per capita and population
- Rice produced in Morogoro and Mbeya is mainly absorbed by Dar es Salaam markets (Tandala and Tandika)

Tanzanian consumers have a preference for perfumed, aromatic rice, though there is little demand for <5% broken rice

Rice consumption of local milled rice in Tanzania[1)2)] ['000 MT (%), 2011]



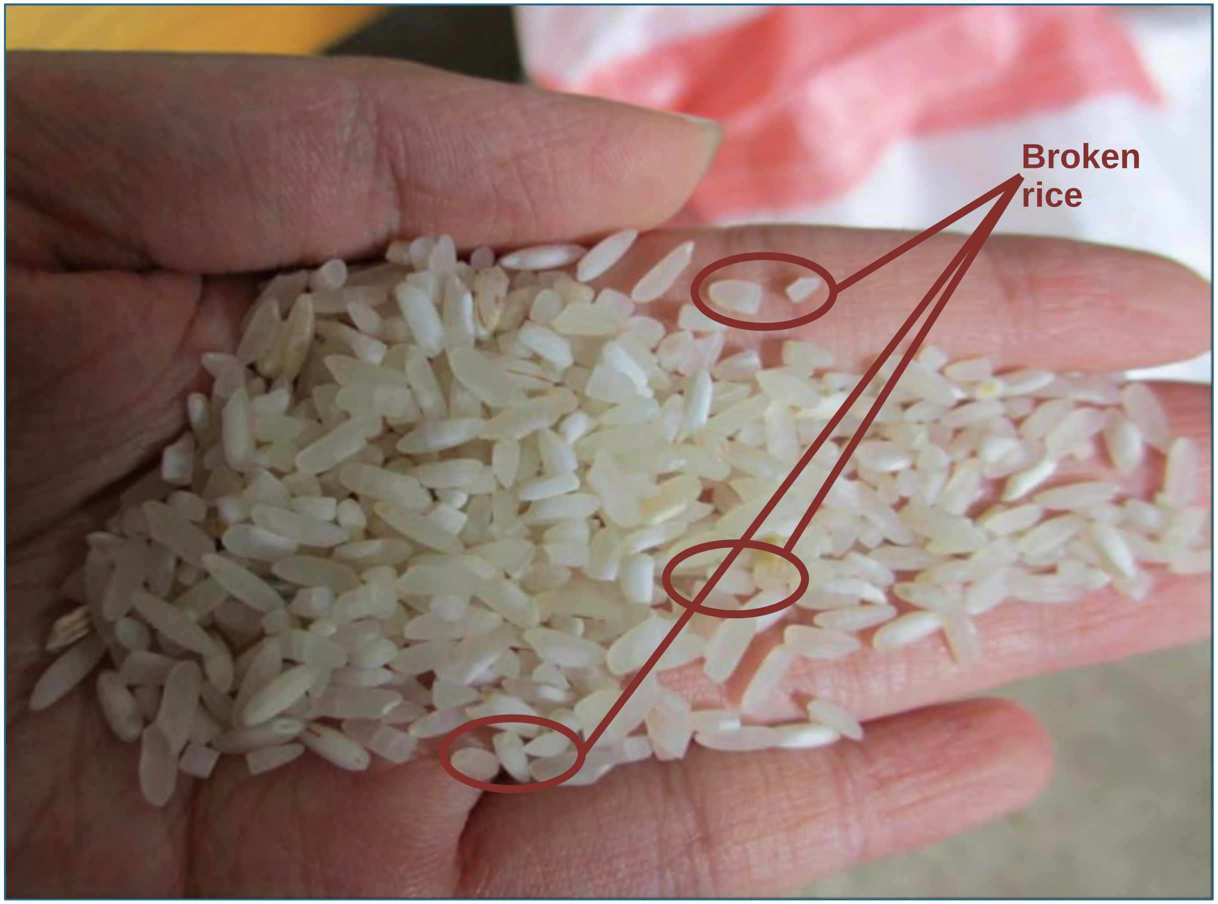
- Urban consumers prefer local rice due to its
  - Aromatic qualities
  - Freshness (which impacts texture and taste), preferring consumption ~1 year after harvest
  - Appearance: translucent (and not chalky), long grain
- In addition, consumers demand that their rice is:
  - Clean (no stones)
  - No more than 20-30% broken
- Rice with no or little aromatic qualities is mixed into rice with aroma, as there is little market for it otherwise
- Traders and processors have tried to develop a market for premium (<5% broken, aromatic) rice, but were unable to attract the premium required to make it profitable

1) Consumption estimation based on interviews; 2) Assumes 40% paddy loss from processing of local paddy production

Source: Interviews

Tanzanian consumers tend to prefer 20% broken rice for the right combination of quality, taste, and value for money

20% broken rice from Kilombero Plantation Limited's mill

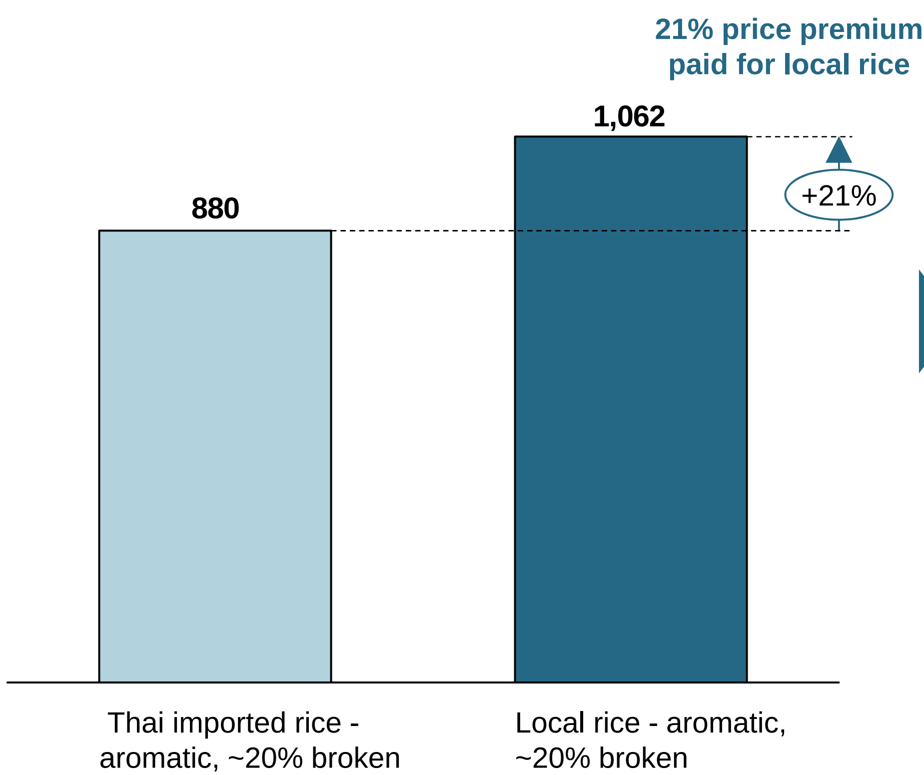


- There is no significant margin premium for <5% broken rice – demand for rice is largely at ≤20% broken
- Processors therefore mix broken and non-broken rice to achieve 20% broken
- Large trading companies (e.g., Mohammed Enterprises, Bakhresa) attempted to differentiate and offer <5% rice, but had limited success and have ceased operations (in some cases, putting their mills up for sale for buyers outside of Tanzania)

Source: Field visit

Tanzanian consumers prefer are willing to pay a 21% premium for local rice as they prefer its flavour, aroma and freshness

Average market price of milled rice in Tanzania, 2012 [USD/MT]

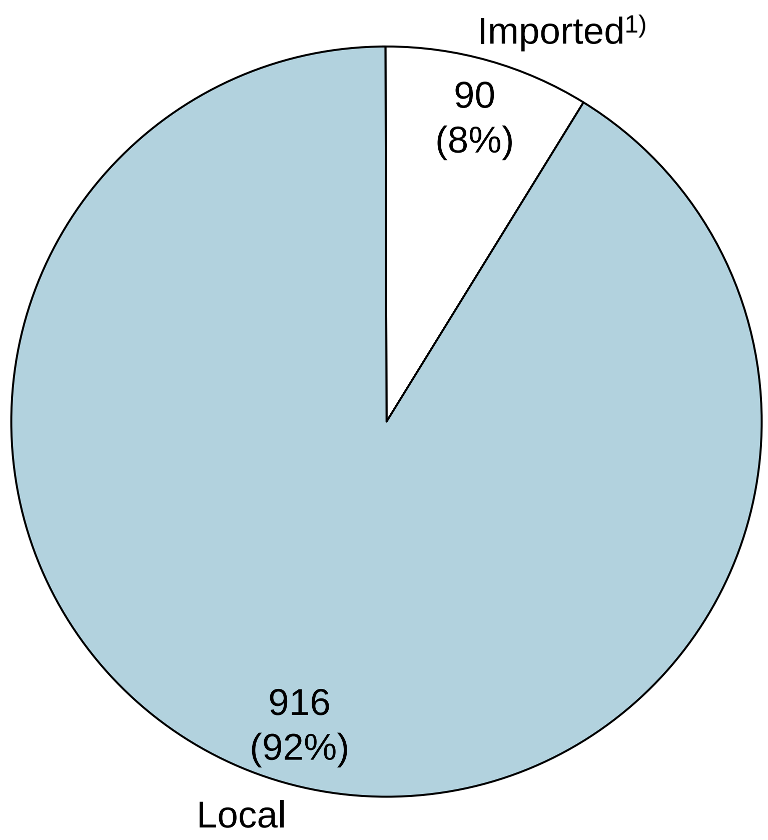


- **Tanzanian consumers prefer local** aromatic rice that is 20% broken as it **is associated with high quality**
- Consumers are **brand conscious – the region of origin** of the rice **is a major factor** in consumer purchasing decisions rice; rice in Tanzania is branded by the region they are from:
  - **Kyela rice** is viewed as best quality rice followed by **Mbeya rice**
  - **Morogoro** rice is viewed as good quality but inferior to Kyela and Mbeya
  - **Shinyanga rice** is viewed as low quality, as it is not aromatic and historically had significant foreign matter in it
- Industry experts suggest that the price of Tanzanian rice would not fall even if import tariff are removed due to the preference for aromatic Tanzanian rice, which is not available on the world market and which cannot keep up with growing local demand

Source: Interviews

Thus, rice consumption is mainly served by local production

National rice consumption of milled rice ['000 MT, 2010]

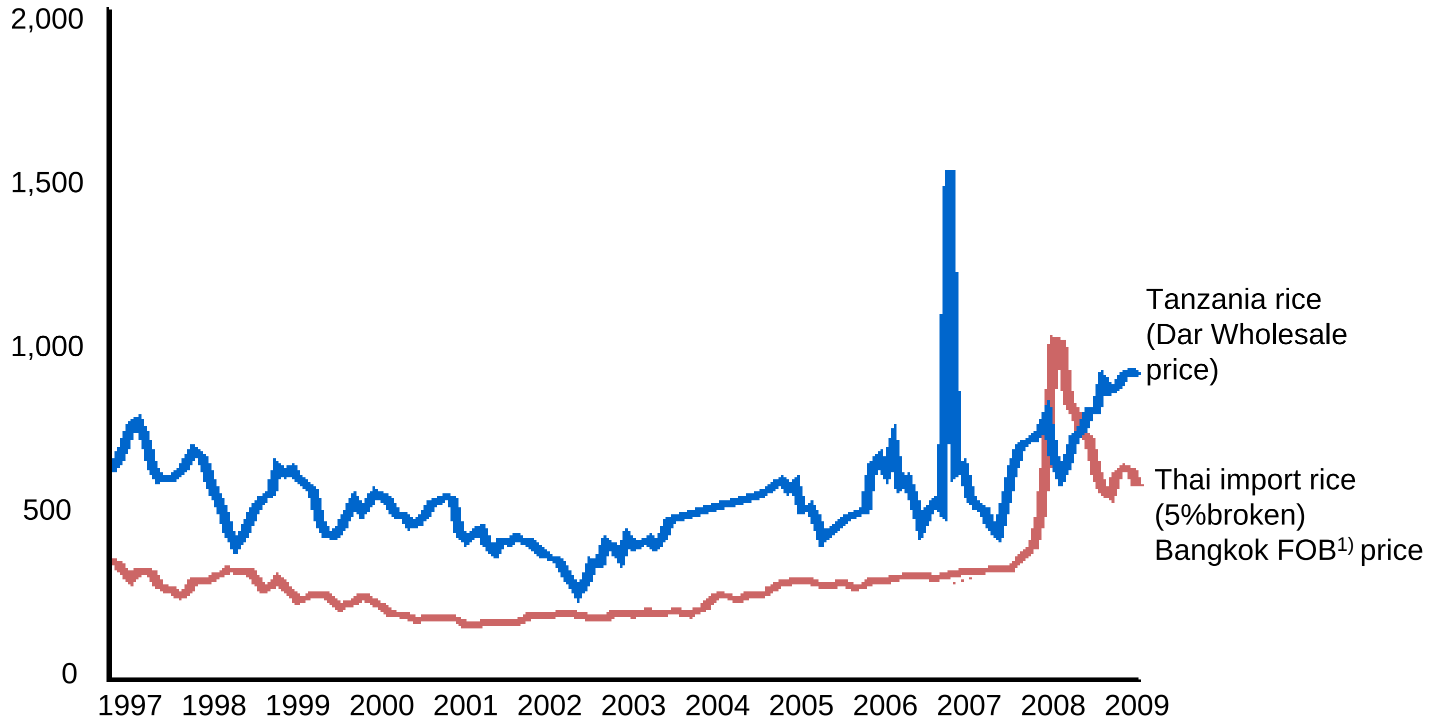


1) Industry experts suggest that import volume may be higher than stated figures, however, consumption of domestic rice still dominates

Source: USDA

Rice prices in Tanzania are higher than in international markets

Price comparison of Tanzania and Thai milled rice [USD / MT]



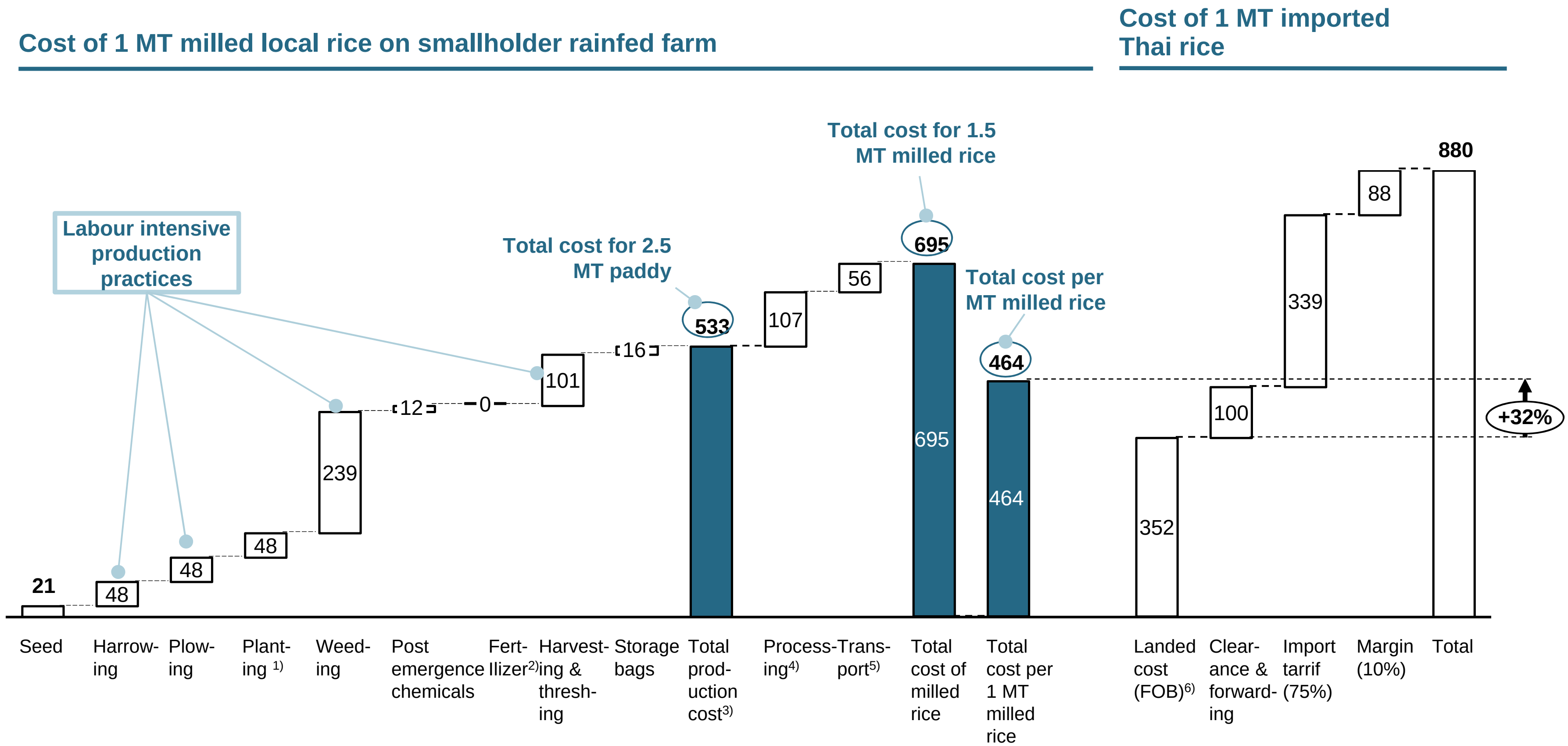
- The Tanzanian Government protects local rice production through a **75% import tariff** (in line with East African Community Tariffs)
- As a result, Tanzanian rice market prices do not follow **international market price**

1) FOB: Freight on Board

Source: IMF (Thailand rice price), RATIN (Tanzania rice price)

Local rice is more expensive than imported rice due to labour intensive production practices and high transport costs

Cost comparison of import and local milled rice, 2012 [USD]



1) Broadcasting is typically conducted by smallholders – which is not considered labour intensive, 2) Assumes fertilizers are not used; 3) Production cost for 1 harvest; assumes yield of 2.5 MT /Ha for rainfed fields; 4) Assumes paddy loss of 40% from milling; 5) Transportation cost of milled rice to main markets; 6) FOB: Freight on Board

Source: Interviews

Production has benefited from government support, which is expected to continue

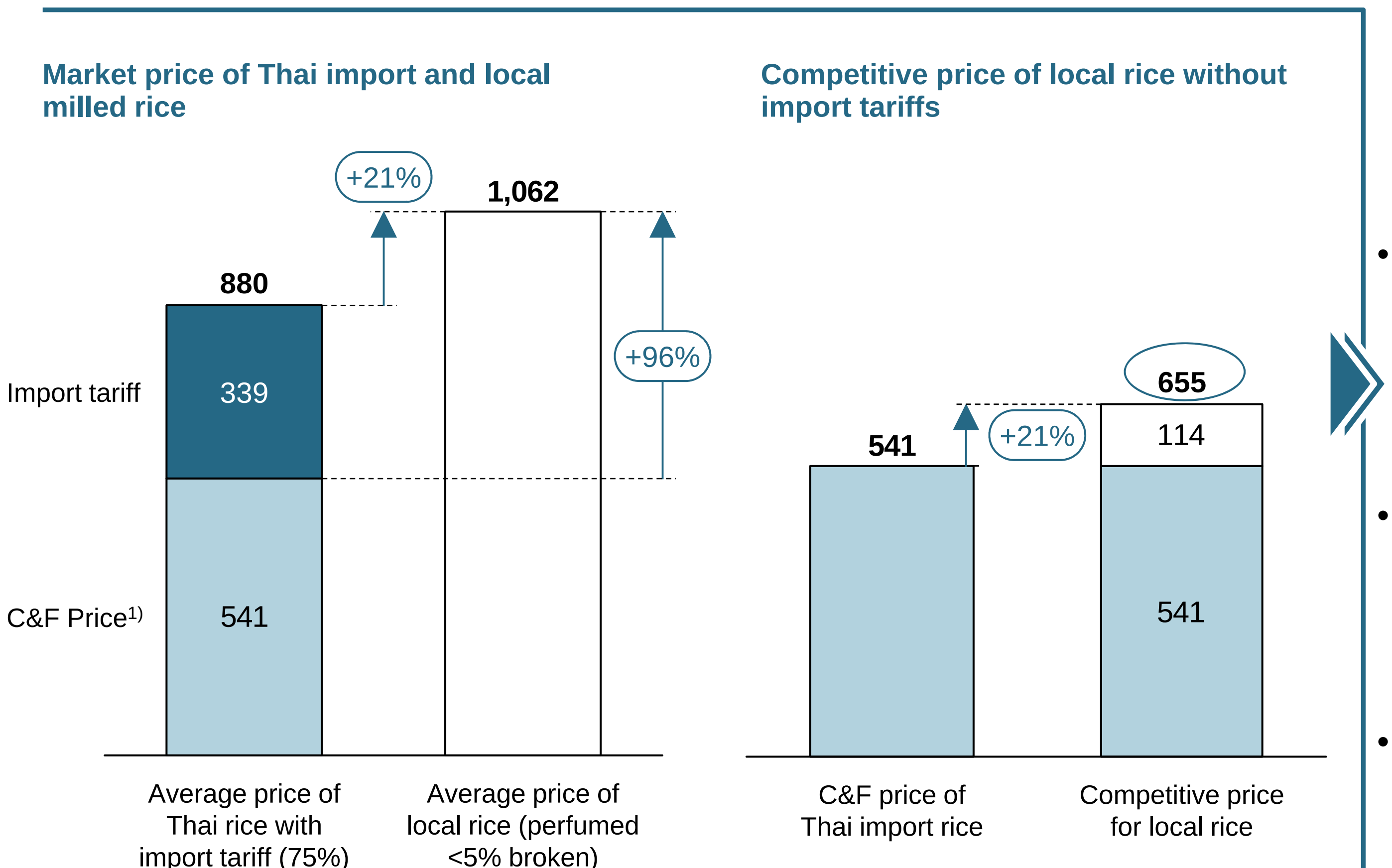
National Rice Development Strategy	• GoT prioritizes rice through its National Rice Development Strategy which aims to double rice production by 2018 to provide self-sufficiency for food security and export to neighbouring countries • The National Rice Development Strategy aims to improve seed variety, input supply, irrigation availability, marketing, R&D and agricultural credit through: - Framework for coordinating interventions - Increased government budget allocation from 2.9% in 2000 to 7.4% in 2011 - Increased interest and commitment by development partners and private sector to develop the rice sector
Key policies	• GoT protects the domestic rice producers (~90% are smallholders) through import duty of 75%[1)] on milled rice (in line with EAC tariffs); this can be waived if the country's food security situation warrants it • Kilimo Kwanza (*Agriculture First*) entails active participation of Development Partners and Private sectors to enhance Tanzania's agricultural economy. In crop production the aim is to increase the use of modern methods (e.g., tractors and power tillers, improved seeds, irrigation, agro-chemicals), improve farming knowledge and support large scale farming investments • GoT views rice as a cash crop due to its export opportunity, so the export ban on rice was lifted in 2012 (though exporters still require export licenses)
SAGCOT	• SAGCOT is a Public-Private Partnership that promotes private investment in rice (amongst various other crops) across the key agricultural regions (with support from donor and private organisations) • SAGCOT's objective is to foster commercial agribusinesses to benefit small-scale farmers through boosting agricultural productivity to improve food security and poverty, as well as environmental sustainability
Key programs	• Key programs for agriculture include - Fertilizer subsidies for smallholders - Seed research and development - Infrastructure: Irrigation and road development - Encouraging private investment through the Tanzania Investment Centre (TIC), the land bank (which sets aside parcels of land investors can buy), a revision of tax system and infrastructure development (both roads and irrigation)

1) Tanzania mainland only; Zanzibar's import tariff is 25%

Source: SAGCOT; World Bank; USAID; Ministry of Agriculture

The local industry is largely dependent on the import tariffs, which are expected to continue into the future

Price comparison of imported and local aromatic rice, 2012 [USD per MT]



- If import tariffs were removed, local rice prices would have to fall from USD 1,062 to USD 655 per MT (assuming 21% premium for local rice remains)
- It is unlikely that import tariffs will be removed as the rice industry represents a major source of income and employment for a large number of citizens
- Further, removal of import tariff must be agreed by other East African countries, increasing the difficulty of removal
- As local production improves, production cost will fall, and allowing prices to fall as well

1) C&F: Price after clearing and forwarding, includes margins
Source: Interviews

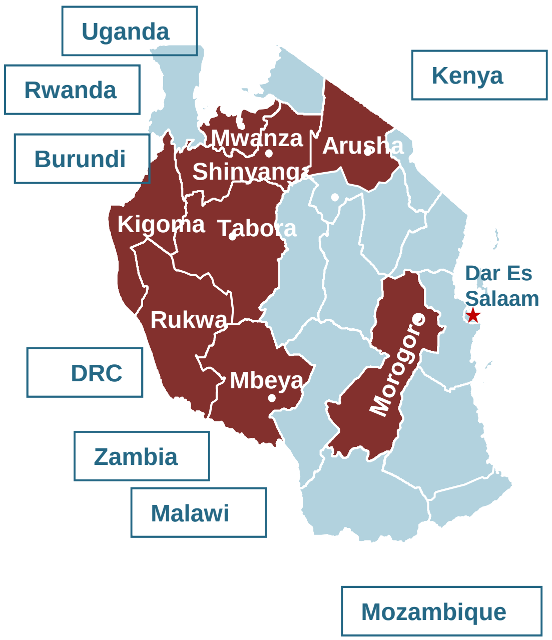
Despite government focus on rice, industry experts are skeptical that government initiatives will go through

National Rice Development Strategy	• *"Highly unlikely that government will be able to double rice production by 2018"* Private rice investor, 2012 • *"This will be like Kilimo Kwanza – just another political slogan"* Rice trader, 2012
Key policies	• *"Even if the policy is announced by the Government, it does not mean that it will occur. For example, even though the government has removed export bans, it is difficult to get export licenses"* Trader, 2012
SAGCOT	• *"SAGCOT is yet to prove its achievements"* Industry expert, 2012 • *"I don't know what they have done, or what they plan to do – even though that have been around for years"* Rice trader, 2012
Key programs	• *"I am skeptical that government initiatives will amount to much"* Industry expert, 2012 • *"Fertilizers are not available on-time – they arrive after they are needed because of bureaucracy"* Industry expert, 2012 • *"They promised us a new road years ago – we are still waiting and it may arrive next year"* Private investor, 2012

Source: Interviews

Morogoro and Mbeya present the strong business case for rice investment due to presence of commercial players

Tanzania



★ Capital

Major rice producing regions

Neighbouring countries suitable for rice export

Strong Medium Low

Region	Paddy production, 2011 ['000 MT]	Considerations for donor participation	Attractive-ness
Tabora	158	• Very fragmented market dominated by smallholders, small scale processors and local traders • No major commercial players • Export potential to Rwanda, Uganda, Kenya, Burundi and Congo	Low
Morogoro	138	• One **major commercial player**, Kilombero Plantation Limited (Tanzania's largest rice producer actively scaling smallholder model) • Caters to Tanzania's largest rice consuming market, **Dar es Salaam**	Strong
Mbeya	138	• Three **major commercial players**: two rice producers (Kapunga Rice Plantation Limited and Mbarali rice farm) and one large trader (Mtenda Kyela Rice, currently working with over 10k smallholders) • Caters to Tanzania's largest rice consuming market, Dar es Salaam • **Very strong export potential** to DRC, Zambia and Malawi	Strong
Mwanza	119	• Very fragmented market dominated by smallholders, small scale processors and local traders • **Very strong export potential** to Kenya, Uganda, Rwanda and Burundi	Low
Arusha	111	• Very fragmented market dominated by smallholders, small scale processors and local traders • **Very strong export potential** to Kenya, Uganda, Rwanda and Burundi	Medium
Shinyanga	96	• Very fragment market dominated by smallholders, small scale processors and local traders • Strong export potential to Burundi, Rwanda, Uganda, Kenya	Low
Kigoma	65	• Very fragmented market dominated by smallholders, small scale processors and local traders • No major commercial players • **Very strong export potential** to Burundi, Rwanda, Congo, Uganda, Zambia and Malawi	Medium
Rukwa	62		

Source: Ministry of Agriculture, interviews

Tanzania offers a satisfactory business environment but leaves significant room for improvement

Ease of doing business country ranking, 2011

Global country ranking[1)]

RANK	COUNTRY
1	Singapore
5	US
8	UK
20	Germany
36	South Africa
64	Ghana
88	Italy
121	Russia Federation
127	Tanzania
130	Indonesia
132	India
152	Ukraine
184	Chad

Sub-Saharan African country ranking[2)]

RANK	COUNTRY
1	Mauritius
5	Ghana
7	Zambia
10	Ethiopia
12	Uganda
14	Tanzania
15	Nigeria
22	Mali
24	Burkina Faso
26	Senegal
34	Côte d'Ivoire
38	Niger
46	Chad

1) Ranked out of 184 countries; 2) Ranked out of 46 countries
Source: World Bank

There is growing investment interest in rice in Tanzania, though few have been completed (1/2)

Recent rice investment announcements in Tanzania, 2012 (1/2)

Company	Base	Sector	Ha	Projected investment (USD, m)	Status of deal	Description
Bhati Bangla Agrotec	Bang-ladesh	Maize, pulses, rice	30,000	5.5	In process	• Bhati Bangla Agrotec is owned by the Al Falah Group in Bangladesh • It intends to bring 4k Bangladeshi farmers to Tanzania to work on the 30k Ha farm
Chongqing Seed Corp	China	Rice seed	300	n/a	Done	• In 2008, China Daily reported that the Chongqing Seed Company had acquired 300 Ha in Tanzania for the production of its imported rice-seed varieties as part of an agreement between China and Tanzania and for the construction of an agricultural research centre
Karuturi	India	n/a	311,700	500	In process	• Bangalore-based Karuturi Global Ltd started to invest in farm land and agricultural production in Africa through it's Dubai holding company, Karuturi Overseas • Karuturi has announced intentions to acquire additional farmland in Tanzania • In August 2011, Karuturi said it had applied for 1k Ha in the Rufiji Basin in Tanzania and that it expects eventually to acquire 311.7 Ha
Nirmal Seeds	India	Various seeds (includi ng rice)	30,000	n/a	In process	• In August 2011, Nirmal Seed, an Indian seed company, announced that it had requested up to 30k Ha from the Tanzanian government to establish a seed-farm region that would supply the eastern and southern African seeds market • The company intends the project to be part of the Government's Kilimo Kwanza program
Yes Bank	India	Finance – Rice, Wheat	50,000	n/a	In process	• In June 2009, Reuters reported that India's Yes Bank was teaming up with large Indian rice, wheat and edible-oil processing companies to produce crops in Africa • Reuters reported that the bank was pursuing the acquisition of 30k-50k Ha for rice and wheat production in Tanzania, and the construction of a processing plant near the farm

Source: GRAIN

There is growing investment interest in rice in Tanzania, though few have been completed (2/2)

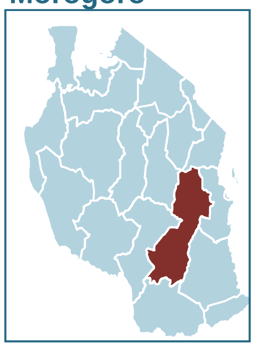
Recent rice investment announcements in Tanzania, 2012 (2/2)

Company	Base	Sector	Ha	Projected investment (USD, m)	Status of deal	Description
Intrasia	Sing-apore	Finance – Rice	30,000	n/a	Done – in trial	• Vita Grain is a Singaporean company owned by portfolio investor Intrasia Capital, which has been investing in hybrid rice development and production in Asia, Africa and Australia • The company's African investments in Mauritius, Mozambique and Tanzania are undertaken through a Mauritian holding company • In Tanzania, its subsidiary Tanza Grain Ltd has a 98-year lease on 30k Ha in the Rufiji Basin • It has completed trial planting on 2 Ha of farmland 15 km west of Bagamoyo bordering the Ruvu River
Korea Rural Community Corporations	South Korea	Govern ment – Rice	100,000	50	Done	• In August 2010, the Korea Rural Community Corporation signed an MoU with the Rufiji Basin Development Authority to develop a 15k Ha commercial rice farm in the Rufiji Basin • The USD 50 m project was part of a larger bilateral assistance package, which included a USD 121 m loan for infrastructure works
Pharos Financial Group	UAE	Finance - Rice	50,000	n/a	In process	• In October 2009, Dubai-based Pharos and London-based Miro Holdings International launched the USD 350m Pharos Miros Agricultural Fund to focus on rice farming in Africa and cereal cultivation in eastern Europe • The Fund has a minimum subscription of USD1 m and is actively seeking joint ventures with Gulf family-owned conglomerates and sovereign wealth funds • In January 2010, Pharos said that the fund was in the process of securing a 98-year lease on 50k Ha of land in Tanzania to grow rice in order to secure food supplies for the Gulf countries

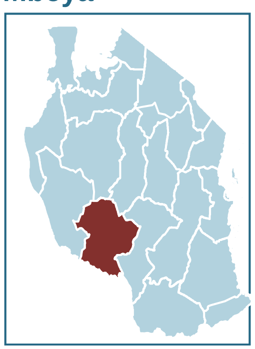
Source: GRAIN

The 3 largest commercial players in Tanzania are located in Morogoro and Mbeya

Morogoro



Mbeya



Region	Scale	Producer	Processor	Market
Morogoro	Large scale	• **Kilombero Plantation Limited (KPL)**	• **Kilombero Plantation Limited (KPL)**	• Zackie (trader with 3k outlets within Tanzania)
	Medium scale			
	Small scale	• Smallholders	• Small scale mills	• Local traders
Mbeya	Large scale	• **Kapunga Rice Plantation Limited** • **Mbarali Rice Farm**	• **Kapunga Rice Plantation Limited** • **Mbarali Rice Farm**	• **Mtenda Kyela Rice Supply Limited**
	Medium scale		• **Rafa mill** • **Wela mill**	
	Small scale	• Smallholders	• Small village mills	• Local traders

- Rice production is very fragmented with ~90% rice production by smallholders
- Processing is very fragmented and dominated by small village mills
- Rice market is very fragmented and dominated by local traders; large trading companies have ~10% of the market
- **In Morogoro, Kilombero Plantation Limited (KPL)** (owned by Agrica) is the largest commercial rice producer in Tanzania producing rice on 4.7k Ha
- **In Mbeya, Kapunga rice farm** (owned by Export Trading Group) is the largest rice farm in the region, followed by **Mbarali rice farm** (owned by Southern Highland Estates)
- **Mtenda Kyela Rice** is a large trading company, working with over 10k smallholders and transporting milled rice to Dar es Salaam (using Wela mill, with capacity of ~1.8MT per hour, for processing)

Large to medium scale commercial player

Source: Interviews; NAFAKA

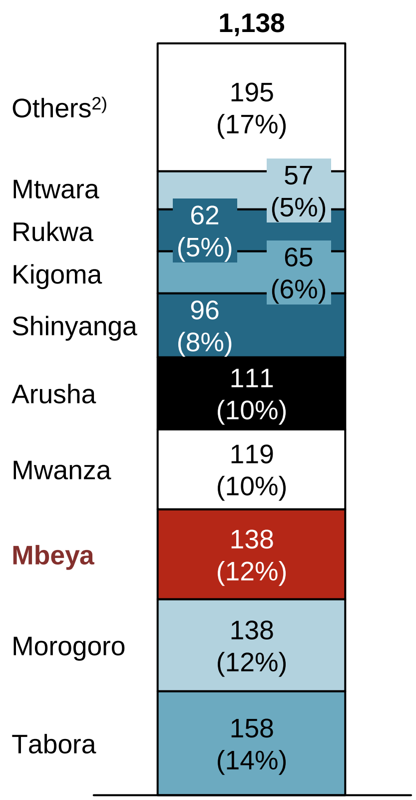
C. Investment case for Mbeya region

Mbeya is Tanzania's third largest rice producing region and GoT has identified Mbeya rice as a priority crop/region

Tanzania

★ Capital

Regional paddy[1] production, 2011 [%, '000 MT]



Government national policy: rice production

- GoT prioritizes rice through its National Rice Development Strategy which aims to double rice production by 2018 to provide food security and potential to export to neighbouring countries[3)]
- The National Rice Development Strategy aims to improve seed variety & input supply, irrigation availability, marketing, R&D and agricultural credit
- GoT protects domestic rice producers (~90% are smallholders) through import duty of 75% (in line with EAC tariffs; can be waived for food security reasons)
- Mbeya is a priority region for SAGCOT[4)] which promotes private investment in rice
- Key **programs and policies** for agriculture include
  - Fertilizer subsidy, seed R&D
  - Infrastructure development (irrigation & road)
  - Removal of export ban (2012)
  - Import tax of 75% on milled rice in Tanzania mainland[6)]

1) Paddy: Rice from field after harvest, threshed and each grain is separated but still has outer husk and bran; 2) Includes Coast, Ruvuma, Tanga, Lindi, Kilimanjaro, Iringa, Dodoma, Kagera, Singida, Dar es Salaam, Manyara and Mara; 3) There is a recurring rice export ban (lifted early 2012) depending on Tanzania's food security; 4) Southern Agricultural Growth Corridor of Tanzania; 5) 25% in Zanzibar

Source: Ministry of Agriculture, interviews

Mbeya is one of SAGCOT's priority regions for rice

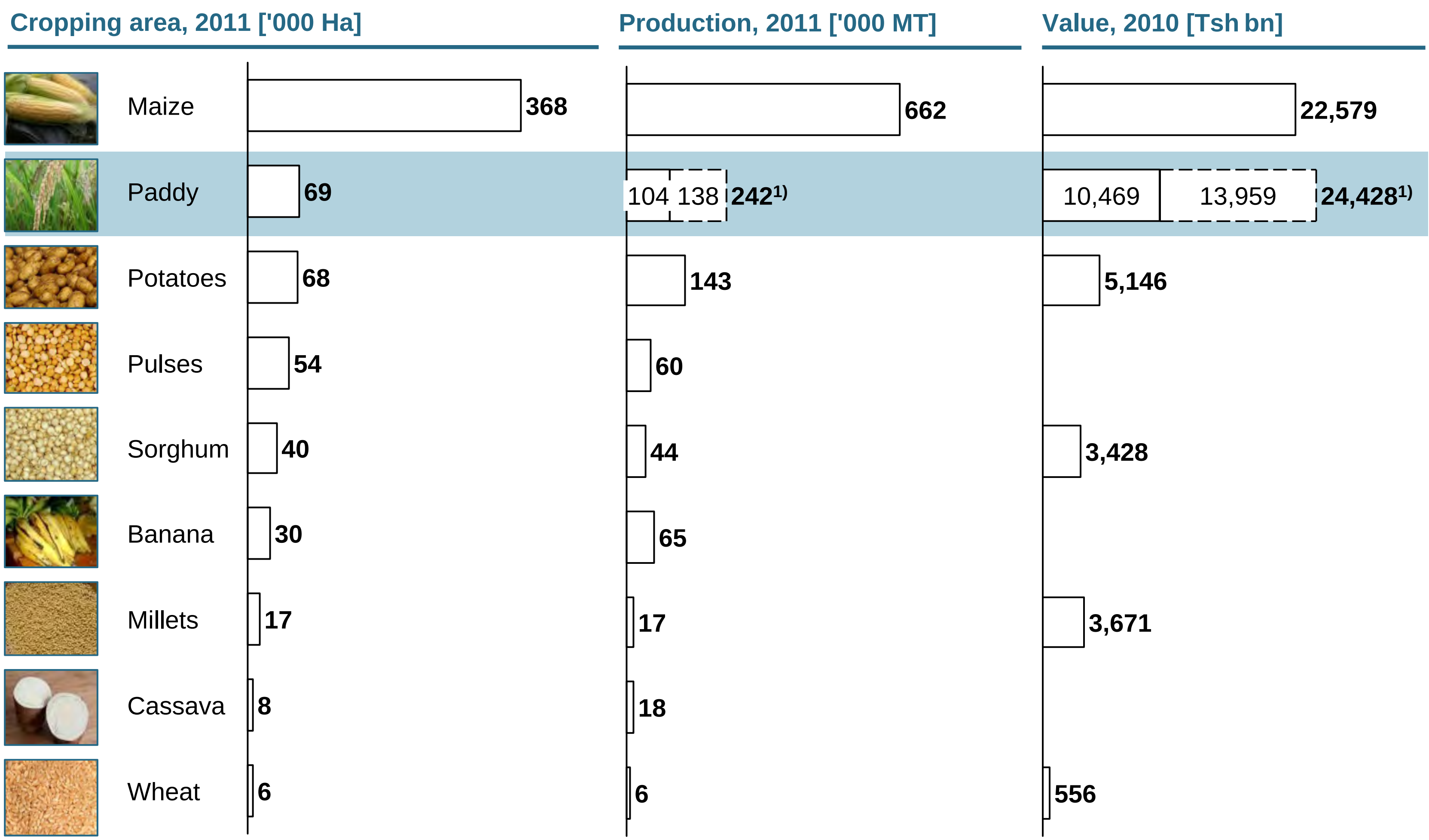
SAGCOT priority regions

- SAGCOT is a Public-Private Partnership that was initiated at the World Economic Forum (WEF) Africa summit 2010 with the support of founding partners including farmers, agri-business, the GoT, donors[1)] and private sector companies[2)]
- SAGCOT's objective is to foster commercial agribusinesses to benefit small-scale farmers and boost agricultural productivity , improve food security, reduce poverty and ensure environmental sustainability
- The program's priority regions include:
  - Morogoro
  - Mbeya
  - Dar es Salaam
  - Pwani
  - Iringa
  - Rukwa
- SAGCOT works with donors to promote private investment in rice
- USAID is part of its steering committee and aims to attract private investment and promote more attractive policies for rice production

1) USAID and Norway; 2) General Mills, Yara International, Unilever, Syngenta, DuPont, Land 'O Lakes, Monsanto and SAB Miller
Source: SAGCOT, Interviews

Rice is the second most important crop in Mbeya and has the potential to become the most important if yields are improved

Major crops in Mbeya region, 2011

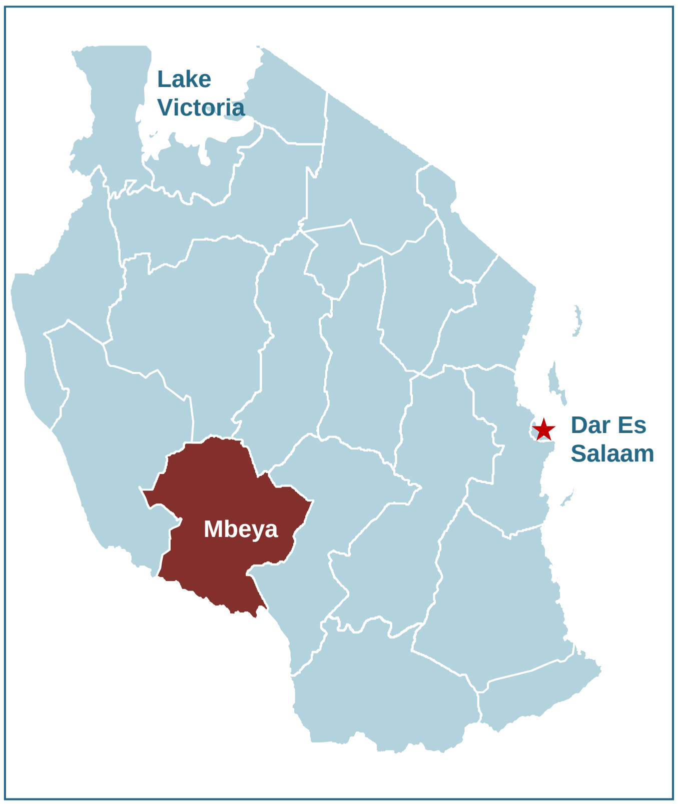


1) Assuming yield rises to 3.5 MT / Ha from current average of 1.3 MT / Ha – according to Ministry of Agriculture data
Source: Ministry of Agriculture

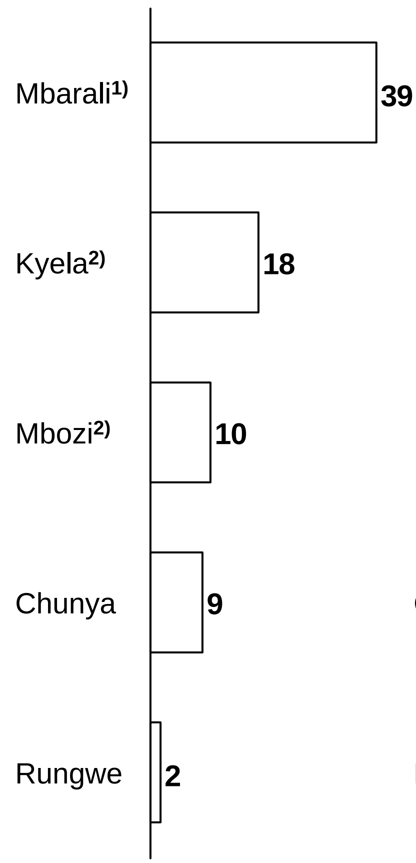
Within Mbeya Region, Mbarali, Kyela and Mbozi are the highest rice producing districts

Rice production in Mbeya districts, 2009

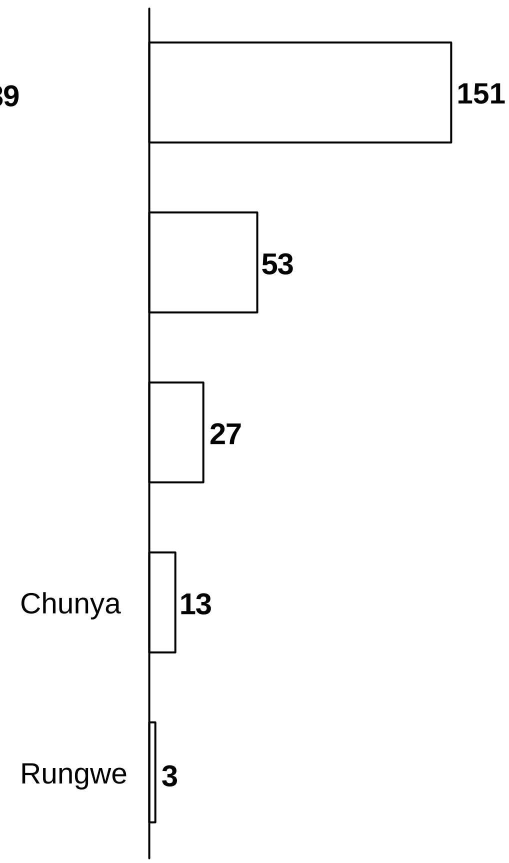
Mbeya [Districts]



Cropping area ['000 Ha]



Production [000' MT]



1) District location of Kapunga Rice Plantation Limited; 2) District location of Mtenda Kyela Rice Supply Limited smallholder schemes
Source: Ministry of Agriculture

As of 2008, there are >84k active rice farmers in the Mbarali district and ~32k in Kyela district

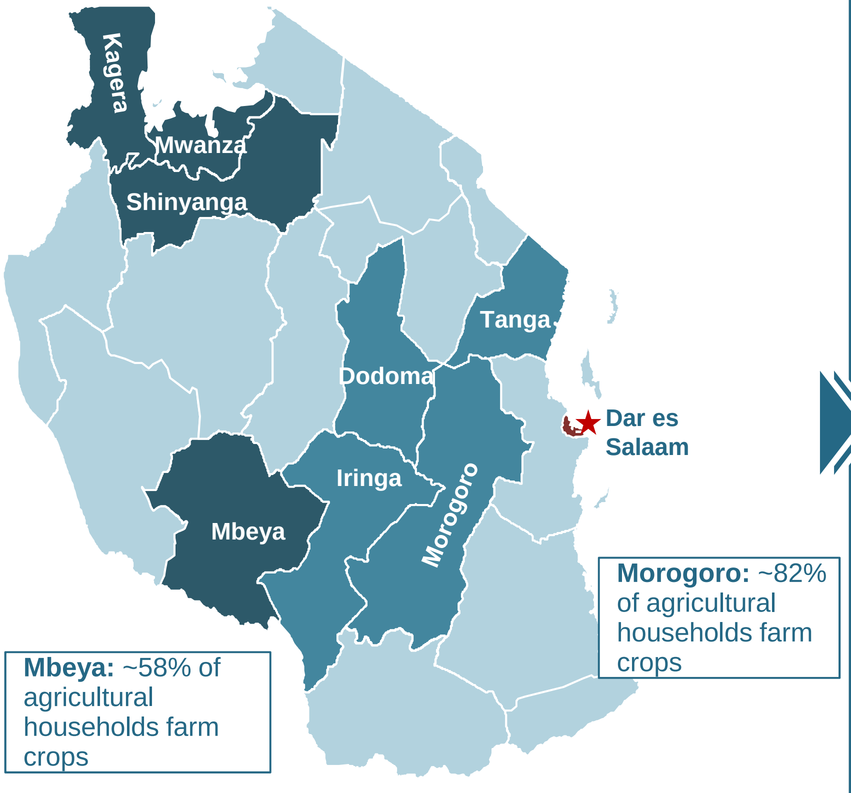
Mbarali district, smallholder rice production, 2012

Piles of paddy after harvesting on smallholder fields in Mbeya region, July, 2012

Source: Field visit

As a result, knowledge of rice production is long standing

Agricultural households by regions[1] 2008 ['000]



390k – 400k agricultural households

300k – 390k agricultural households

Rice smallholders[2] in Mbarali district

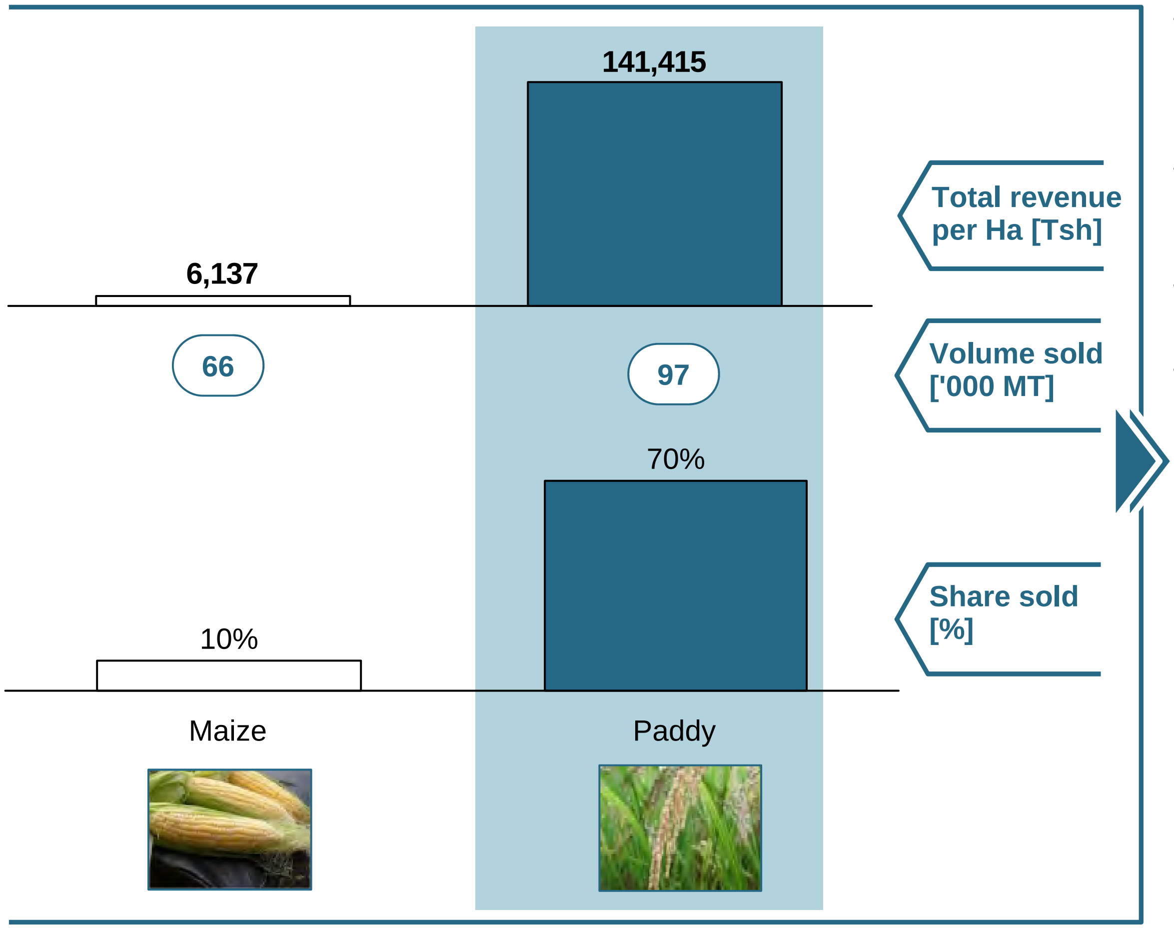
- Farmers typically produce rice in parallel with other crops, and maize is often grown as an alternative staple
- Paddy yields in Mbeya are ~2.7MT per Ha
- Majority of farmers sell paddy at harvest to local traders

1) Average household size for rural agricultural households (households that earn income from crop farming, forestry, etc.) ~5 members; 2) Rice smallholders are defined by farmers that produce rice on an area ≤ 2.5 Ha

Source: Interviews; Minsitry of Agriculture; Field visit

Although most rice is consumed, higher volumes and prices make rice a key contributor of smallholder income in Mbeya

Smallholder income generation by major crops in Mbeya, 2011

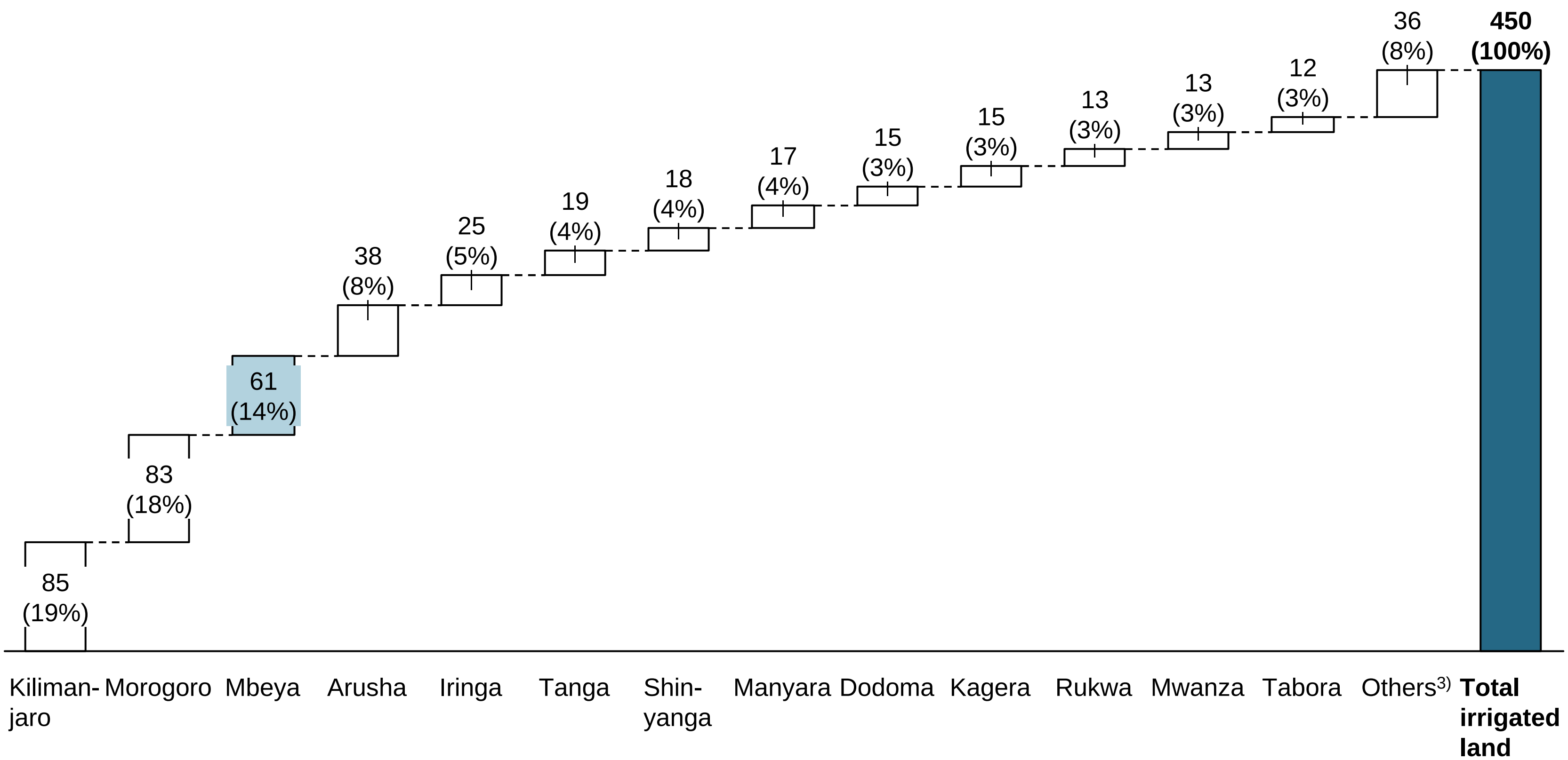


- In Tanzania, rice is farmed for income generation and to a lesser extend food security; maize is the main staple and is cheaper than rice
- In a high rice producing region such as Mbeya, rice tends to contribute 80% of total income
- Rice farmers keep ~370kg of rice for a family size of 5 members p.a.
- **Key determinants of rice consumption are** market price, yield, and income
  - **Higher market prices** deter farmers from keeping rice for consumption
  - **Farmers with low yields ~1MT** will keep rice for self consumption and food security
  - **As farmers income rises and yield rises** (to above 3 MT per Ha) they will consume ~10% more rice for self consumption and food security

Source: Interviews; Field visit; Ministry of Agriculture

Rice production is supported by the fact that Mbeya has 14% of Tanzania's irrigated land

Regional smallholder[1)] irrigation schemes, 2012[2)] ['000 Ha (%)]



1) Majority of irrigation schemes owned and operated by smallholder farmers under Water User Organization; 2) Rice is the major irrigated crop , using 75% of irrigated land, other small holder irrigated scheme crops are rice, maize, beans, onions, horticulture, banana; 3) Other regions include Lindi, Kigoma, Singida, Mara, Mtwara, Ruvuma, Coast and Dar es Salaam

Source: Tanzania Ministry of Water and Irrigation

Irrigated land in Tanzania is limited but USAID has plans to invest USD 150 m for irrigation which should increase yields substantially

Production system	Land availability [m Ha, %]	Yield per harvest [MT/Ha]	Yield per year [MT/Ha]	Comments
Irrigated	5(6%)	4.0	8.0	• **Large scale irrigation schemes**: 3 in Mbarali (Madibira 3k Ha, Kapunga 3k Ha and Mbarali 3.2k Ha); others in Kilombero and Mtibwa • **Yield:** Irrigated production systems can achieve yield of 7-10 MT/Ha if farmers use the correct production techniques • **Quality:** Paddy quality is higher due to access to water management
Rainfed lowland	65 (74%)	2.5	2.5	• **Rainfed lowland:** Mostly in Lake Victoria, Tabora, Mwanza, Shinyanga, Dodoma and Kigoma • **Rainfed upland:** Mostly in Usambaras, Udzungwas and Mahenge • **Yield:** Rainfed fields are vulnerable to weather pattern and climate change, putting yield at risk annually; the impact is accentuated as rainfed farmers only achieve 1 harvest per year • **Quality:** Paddy quality is poor due to: - poor water management - delays in harvesting (which leads to paddy that is too dry) as farmers wait until the fields are dry
Rainfed upland	17 (20%)	0.4	0.4	

USAID has committed USD 150m to upgrade and expand smallholder irrigation schemes throughout SAGCOT

Source: Interviews; Ministry of Agriculture

Higher altitude and temperature in Mbeya promotes the growth of better quality rice

Kapunga Rice Plantation Limited, 2012

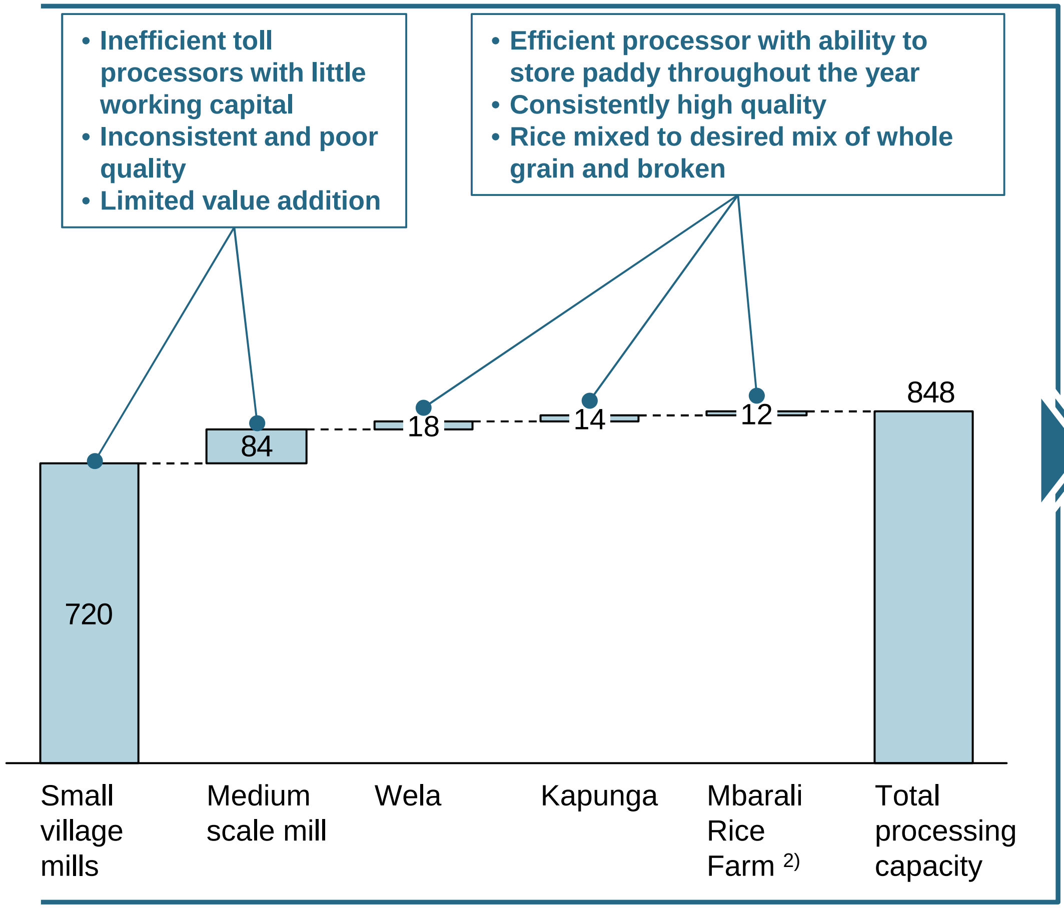
- Colder weather supports slower growing grain formation which makes rice more
  - Aromatic
  - Translucent and less likely to be chalky
  - Fully developed (long grain not short)
- Soil is fertile

Kapunga Rice Plantation Limited, 2012

Source: Field visit

Although the large number of small mills in the region create excess milling capacity, large mills with stable paddy volumes provide better quality and consistency

Rice mills in Mbarali, 2012 ['000 MT/p.a.[1)]]



1) Assuming mill runs for a maximum of ~12 hours a day and 250 days per year; 2) Estimation

Source: Interviews, Field visit

- While small mills dominate capacity, they are poorly managed and produce low quality rice
- Most rice paddy is currently processed in **small and medium scale mills** (average processing capacity 0.8MT/hr) in villages and town centres (~300 small and 14 medium in Mbarali alone)
- Utilization of these mills peak during harvest time and are relatively idle during the rest of the year as they lack capacity to store paddy through the year (overall utilisation ~10% - 15%)
- The small scale mills produce low quality rice with high levels of broken grains and foreign matter
- Larger mills produce better quality rice more consistently, but have struggled to compete with the small mills unless they have their own secure source of paddy
- The 3 largest mills in Mbarali district have **good quality milling facilities,** that can remove impurities, polish and grade rice
- Large processors operated by large trading companies (e.g. SS Bakhresa, Mohammed Enterprises) in Dar es Salaam ceased operation as they could not compete with low cost small mills and did not have a steady supply of paddy from their own production

Branch roads near Mbeya are poor, but the main road from Mbeya to Dar es Salaam is reasonable

Infrastructure

Mbeya

Mbeya

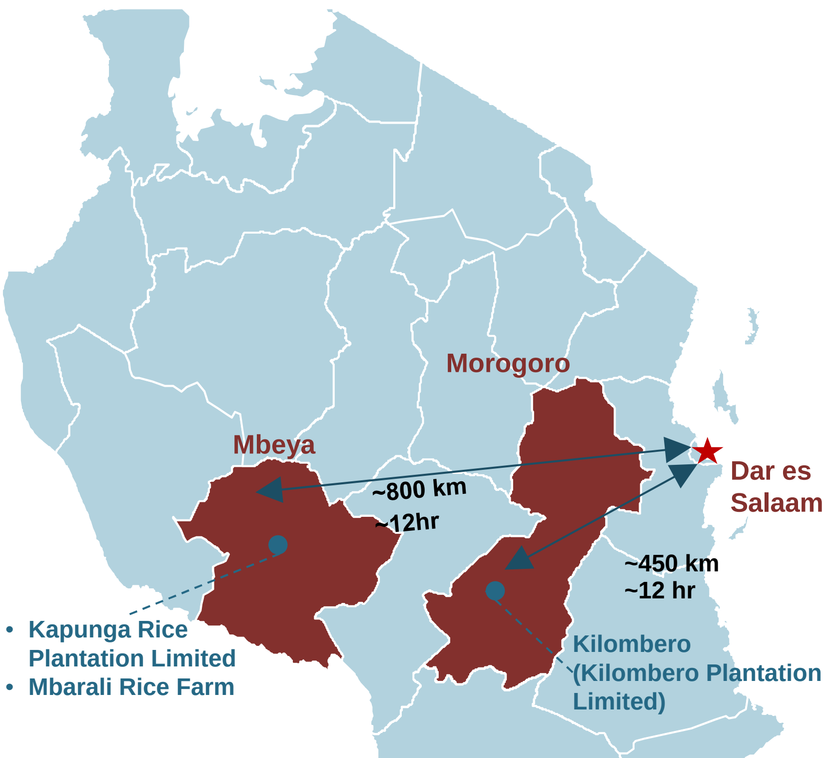
Comments

- Main roads are well developed; however, branch road leading to rice farms are very poor condition
- During the rainy season, flooding occurs leading to road blockages
- Most rice from Mbeya is transported to the Dar es Salaam market (~95%), Tanzania's main rice consuming rice market
- Smaller quantities of rice is sold in Mbeya itself, Arusha, Kilimanjaro and Zanzibar

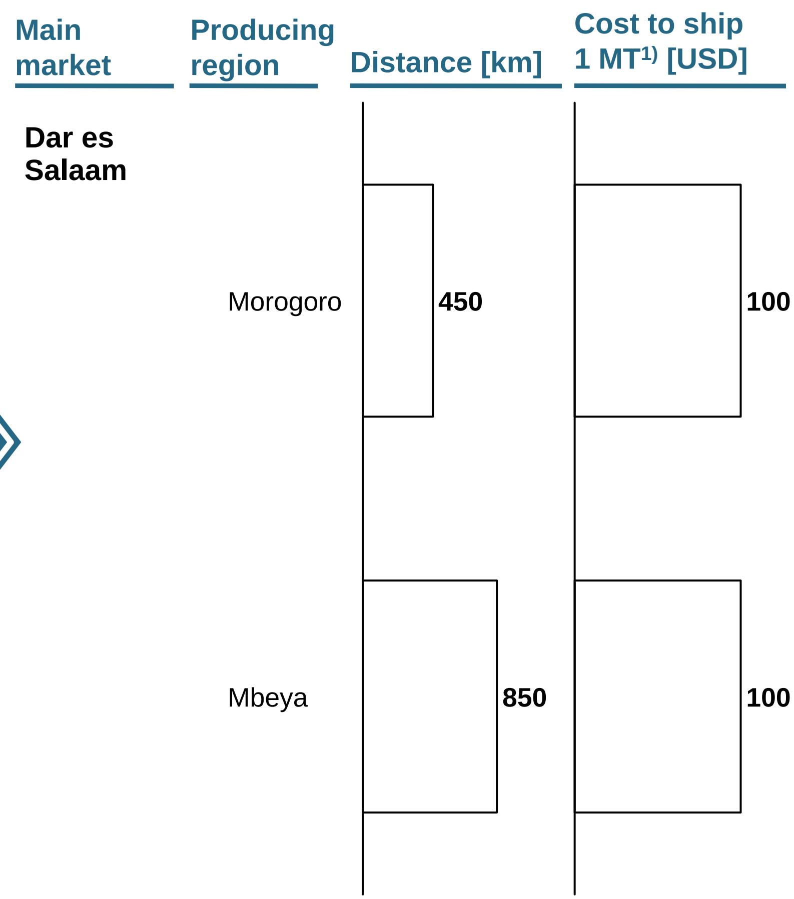
Source: Mtenda

Poor roads from Kilombero makes rice from Mbeya competitive despite a much longer distance to Dar es Salaam

Distance and time from key producing rice regions and markets, 2012



Road investment by USAID aims improve road network from Morogoro to Dar es Salaam and is expected to begin in 2013



1) Trucking providers charge by weight and road condition and not per km

Source: Interviews, OLAM

In Mbeya region, donors could partner with Kapunga Rice Plantation Limited and Mtenda Kyela Rice Supply Limited

Company	Role	Ownership	Fit with smallholder goal	Key strengths / challenges	Attractive-ness
Kapunga Rice Plantation Limited (KRPL) Model can be applied to other regions and partners	Production and processing	• 100% private • Majority owned by Export Trading Group	• Plan to launch outgrower scheme • Using smallholder production in other African countries • Currently works with local farmers as contract farmers on their block farm	• Parent company (Export Trading Group) has experience working with outgrower model in other parts of Africa e.g. Uganda • Deep financial strength and ability to move large rice volume through its parent company Export Trading Group and export rice to neighboring countries • Committed leadership team to drive business forward • Faces local community tension • Smallholder model is still in development	
Mtenda Kyela Rice Supply Limited Model can be applied to other regions and partners	Trading	• 100% private company • Majority owned by Mtenda family members	Mtenda provides training and input to smallholders	• Currently working with over 10k smallholders in Mbeya to obtain paddy for the Dar es Salaam rice market • Improving yield of smallholders by over 150% • Lack of support needed for scale up of operation to other regions (Morogoro, Iringa, Rukwa, Ruvuma)	
Mbarali Rice Farm	Production and processing	• 100% private • Majority owned by Southern Highland Estates	Currently mostly operating via contract farming on their block farm	• Did not respond/agree to request for meeting with BMGF	n/a

Strong Medium Low

Source: Kapunga, Mtenda, interviews

Commercial producers and smallholders must overcome a number of challenges along the value chain

Inputs

- **Seed: Insufficient supply of good quality seed,** seeds used are recycled and give low yields
- **Fertilizer:** Fertilizer is not adapted to soil needs
- **Land:** Risky to lease land due to tiered land tenure system and unclear titles
- **Mechanization:**
  - Spare parts and qualified workshops are not available
  - Insufficient small scale machinery

Production

- **Farming as a business:** Farmers do not consider rice production as a business and do not invest in it
- **Low yields:** Yields are 1.6-2 MT/Ha vs. best practice of 6 MT/Ha (10 MT/Ha in Brazil)
- **Agrochemicals:** Inappropriate and insufficient use of fertilizers, herbicides and pesticides
- **Agronomic practices:** Manual production practices (planting, protection, harvesting) and poor knowledge of best practices (broadcasting, lack of weeding) reduce paddy yield and quality
- **Weather:** Unreliable rains and droughts make water control difficult for rainfed farmers

Processing

- **Manual post-harvest practices** reduce yield, lead to broken rice and increase foreign matter
- **Small village mills** lack de-stoning facilities to ensure clean rice and grading facilities are very basic
- Over supply of small scale mills providing fierce competition

Market

- **Consumer preference** is for high quality rice (aromatic, ~20% broken, fresh and clean) which current smallholder producers cannot deliver in large quantities
- **Farmgate price**: farmers are often forced to sell paddy at low farmgate price due to lack of market access and access to storage facilities
- **Export:** difficult to export rice out of Tanzania despite the removal of export bans (2012). Further, export packaging material is expensive

Enabling Environment and Infrastructure

Infrastructure

- **Roads** are in bad condition making transport cost very high so there is no cost advantages of being close to Dar es Salaam market
- **Irrigation:** infrastructure is limited, under utilized and poorly managed
- **Storage:** Paddy is improperly stored (e.g., in house rooms), warehouses are not available
- Water rights maybe hard to acquire in regions as most electricity is generated through hydro-power dams

Business & finance environment

- **Financial institutions**
  - Require farmers to have collateral
  - Interest rates vary and can reach (up to 100%)
- No crop insurance products available

Industry bodies & sector policies

- **Industry bodies:** Lack of industry associations means there is no collective voice on gov't policy and R&D agenda.
- Unclear role of newly formed Cereals and Others Produce Board
- Uncertain commercial policy environment: occasional export bans and waiving of import tariffs and high taxes

Research & extension services

- **R&D:** Lack of dissemination of research seed variety
- **Technical research:** Not effectively disseminated

Source: Interviews

Majority of rice farmers grow the local Supa seed varieties due to aromatic quality, but it has low yields

Seed usage in Tanzania, 2012

	SUPA	New varieties developed in Tanzania	NERICA (New Rice For Africa)
Description	• Local variety adopted by majority of Tanzanian farmers	• Local research institutions, KATRIN and DAKAWA, research, develop and produce new variety seeds with higher yield	• Hybrid between African rice and high yield Asia species, developed by WARDA
Advantage	• Aromatic, widely preferred by local Tanzanians • Traders prefer local varieties to new varieties with uncertain markets • Lowest cost as most farmers **recycle seed (**few purchase certified seeds)	• High yield - TXD 85, TXD88: 6.5-7.5 MT / Ha but low quality - TXD 306 (Saro 5): 4.5-5 MT / Ha but more aromatic	• Higher yield than local varieties: ~3.5MT – 4MT per Ha • ~25% higher protein content • More pest resistant • Earlier maturity (~90-100 days)
Disadvantages	• Lower yield: full potential reaches 2.5MT– 3MT per Ha	• More expensive - ~Tsh 1,000 – 1,500 per kg - ~14-16 kg seeds per acre	• Limited supply in Tanzania • Tanzanians dislike taste

Source: Interviews

Improving seeds, fertilizer use and best farming methods will have the largest impact on yields

Key drivers for yield improvement

Seed		• Usage of higher yielding seeds, more resistance to weather changes, pests
Fertilizer		• Usage of appropriate amount and blend (fertilizer that is suited to soil chemistry) of fertilizer
Best farming methods		• Conduct best farming methods (e.g., transplanting, proper and thorough weed removal)
Water management		• Proper water management control of the field through irrigation
Pesticides & Herbicides		• Post & pre-emergence measures are taken
Mechanization (harvesting)		• Usage of combine harvesters limit harvesting paddy losses
Bird scaring		• Conduct scaring to limit paddy losses from birds eating paddy

- **Crop finance is important for helping smallholders access essential inputs needed to increase yield**
- **Further, finance breaks the cycle of selling crop at a low price when cash is needed urgently (e.g., due to emergences, medicine, school fees)**

Source: Interviews

Seed, processing and altitude have the biggest impact on rice quality

Key drivers for premium rice quality[1] [# technical experts citing driver as key quality driver]

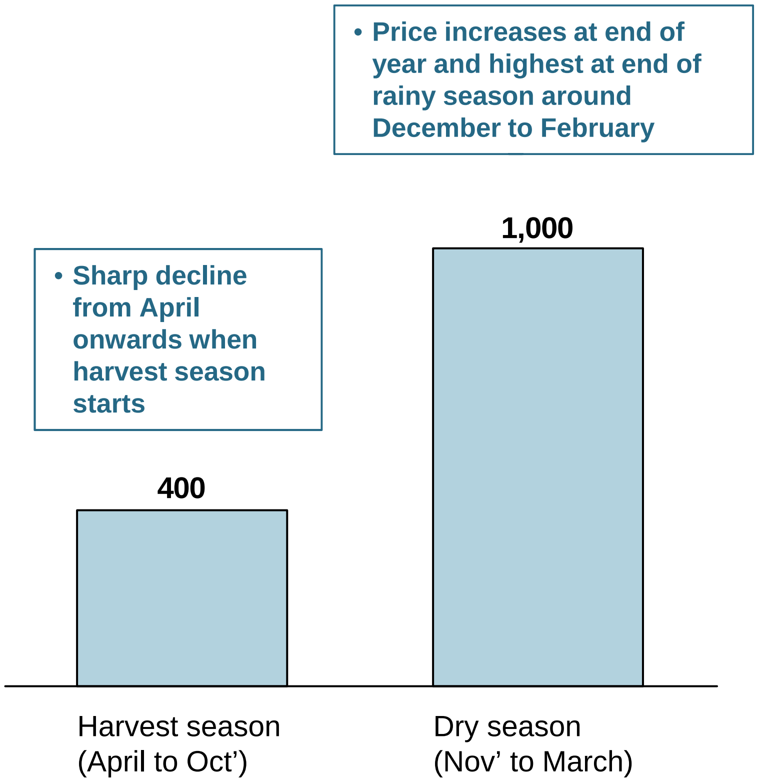
Seed type	9	Usage of seed that provides quality aromatic qualities, good taste and texture
Processing	9	Mills must have facilities to ensure: - Cleanliness (no stones or foreign matter) – De-stoner - <20% broken – Standard grader
Altitude	8	High altitude allows rice to grow more slowly, thus are translucent (less likely to be chalky), fully developed and aromatic
Water management	8	Proper water management ensures that rice forms fully (long grain) and has good texture
Harvesting	6	Usage of combine harvesters during harvest to eradicate manual threshing, ensuring minimal broken grains
Post harvest handling	6	Drying of rice at right moisture content and no delay between harvesting and milling to ensure no more than 20% broken grains

1) Rice quality (as defined by Tanzanian consumers) is measured by: aromatic qualities, freshness (taste and texture), cleanliness, less than 20% broken, appearance (translucent and not chalky)

Source: Interviews

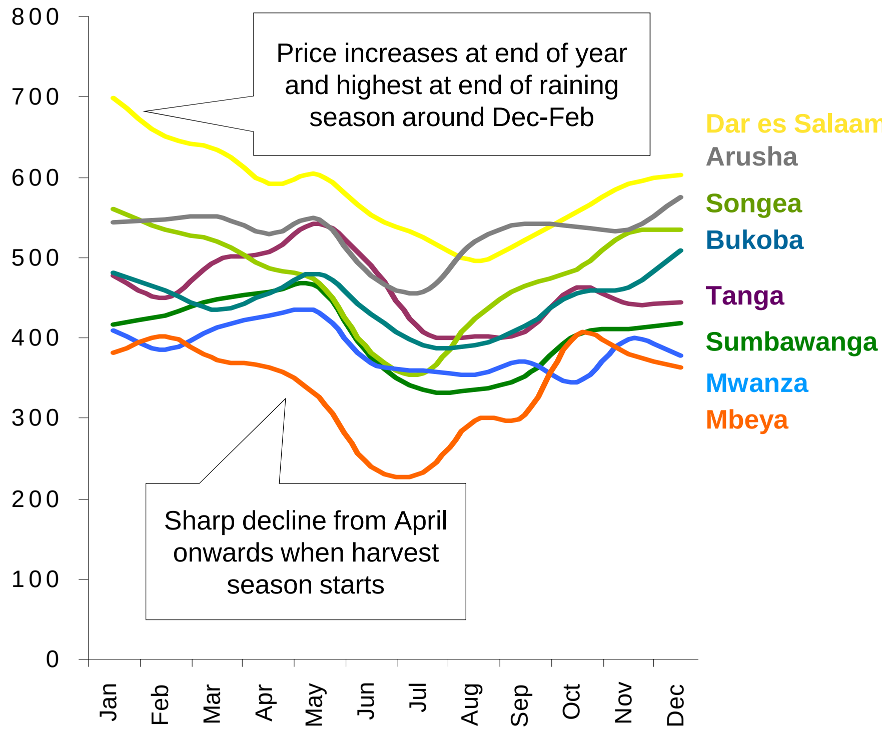
Although prices vary widely during the year and across regions, farmers lack the storage and credit to benefit

Monthly rice price fluctuation, 2012 [USD per MT]



Average monthly price of milled rice by selected regions, 1997-2010 [USD per MT]

- Price of rice is higher in urban centres (Dar es Salaam, Arusha) and lower in high rice producing regions (Mbeya, Mwanza)



- Farmers cannot benefit from this variation due to a lack of storage capacity and warehouse receipts systems
- In addition, farmers lack the business knowledge to understand how to maximise long term income by timing sales

Source: KPL; RATIN

D. Mbeya partner analysis

1. Mtenda Kyela Rice Supply Limited's smallholder initiative

Mtenda Kyela Rice's smallholder model provides support to smallholders particularly in training and inputs

Inputs

- Provide seeds, fertilizers, pesticides and herbicides

Better quality

Improved yield

Production

- Smallholders trained on best production practices to ensure availability of quality rice
- Smallholders visit other regions to share and learn from other smallholders' experiences

Better quality

Improved yield

Processing

- Mtenda does not own its own mill. Wela mill used as a toll processor

Market

- Guarantee a market paddy which will be bought at competitive prices.
- Smallholders must sign contract to sell paddy only to Mtenda
- Mtenda pays a better price for paddy that is higher quality

Increased price

Guaranteed market

Enabling Environment and Infrastructure

Infrastructure

- Plan to provide warehouse receipt system where smallholders can store paddy to access higher prices during non-harvest seasons[1)]
- Provide water pumps to outgrowers cultivating near dams and ponds to compensate for low rainfall

Better quality

Improved yield

Business & finance environment

- Inputs will be provided on credit by Mtenda, to be repaid in paddy equivalent
- Repayment is based on market price at the time of harvesting

Better quality

Improved yield

Industry bodies & sector policies

- n/a

Research & extension services

- Provides training and extension services

Better quality

Improved yield

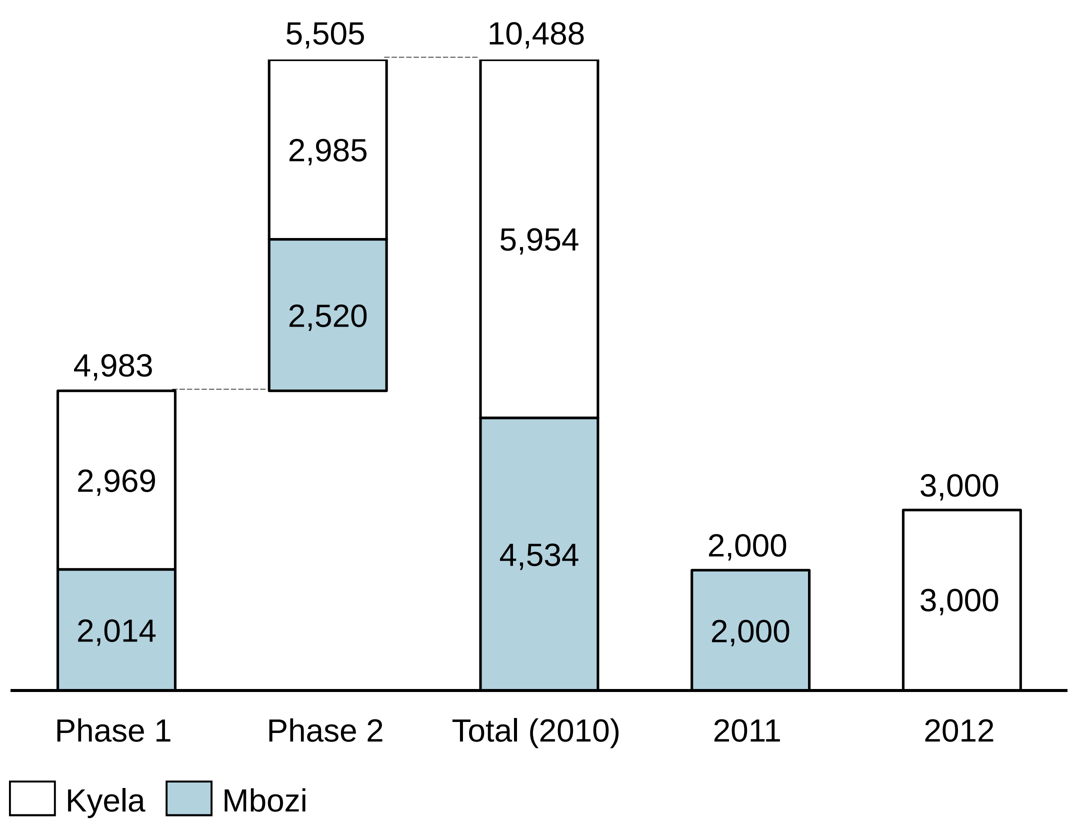
Mtenda smallholder model has scaled to >10.5k smallholders

1) Warehouse receipt system has not launched yet

Source: Mtenda, Interviews

By 2010, Mtenda Kyela Rice Supply has scaled its smallholder program to 10.5k smallholders and are currently training 5k new smallholders

Mtenda's smallholder program



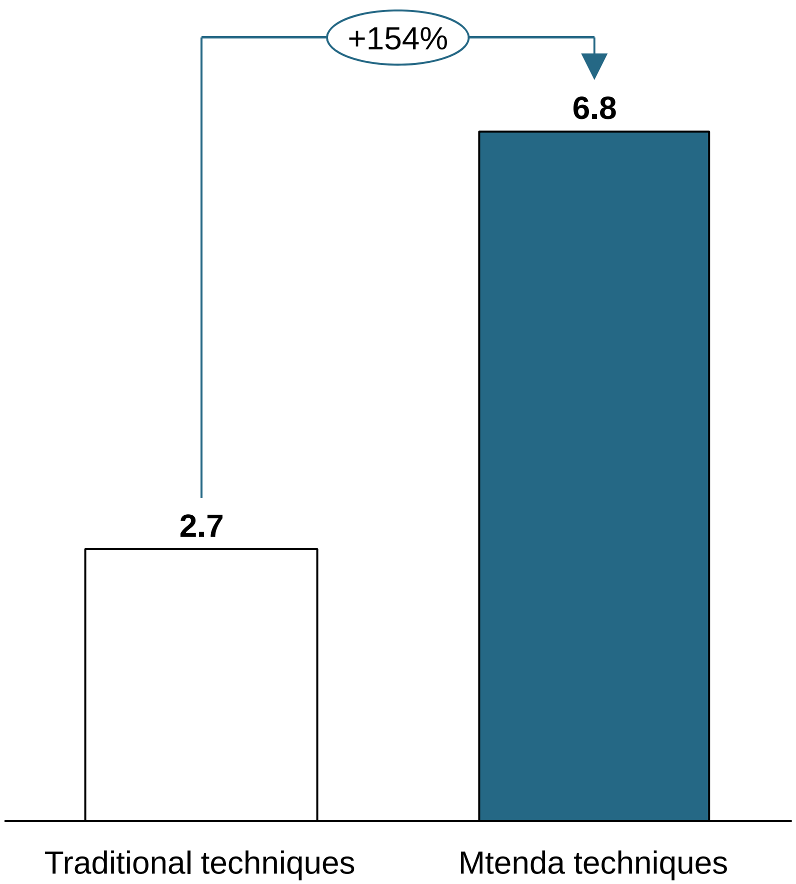
- Tanzania Private Sector Foundation (Matching grant program) provided USD 48k for the training of 5k smallholders in Phase 1. Phase 2 was funded by Mtenda
- In 2012, Mtenda received USD 10.5k from Agriculture Council of Tanzania (ACT) to co-finance Mtenda's development of 4.5k demonstration plots[1)] in Mbarali, Mbeya rural and Mbozi districts
- In addition, Mtenda has obtained a USD 1.35m loan from Oikocredit (with disbursement of USD 452k yearly from 2012 to 2014), to support Mtenda's training, input provision and working capital

1) Demonstration plots are where smallholders are taught best agronomy practices, experience the benefits of better yields seed, fertilizers, herbicides, and etc

Source: Mtenda

Mtenda's smallholder program has increased smallholder yields by 154% to 6.8MT per Ha

Yield increase from Mtenda smallholder program, 2012
[MT / Ha]



Source: Mtenda, Interviews

- Increase of yield from an average of 2.7MT per Ha under the traditional method to 6.8MT per Ha under Mtenda's smallholder training
- The program has had very good response from smallholder and there is strong interest from smallholders to enroll in Mtenda's smallholder scheme
- 47% of smallholders are women (mostly widows)
- Mtenda monitors field operations through 20 supervisors (on seasonal employment) who cover 27 villages in Kyela and Mbozi districts
- Extension officers are provided by district councils

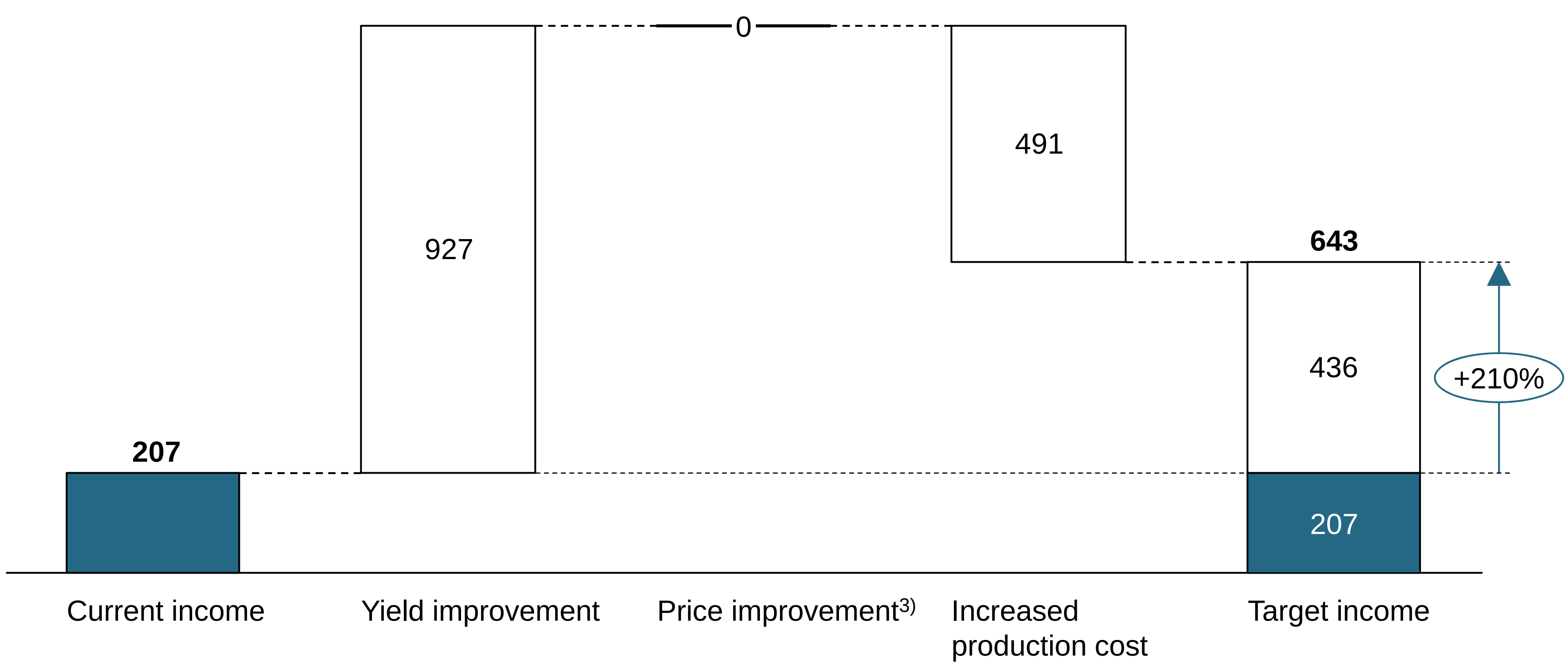
Mtenda is profitable, with smallholder paddy production driving its performance

Mtenda's smallholder paddy

Source: Mtenda, interviews

Mtenda's scheme aims to increase rainfed smallholder income by +210% to USD 643 per year

Impact of Mtenda's scheme on rainfed smallholder income[1)2)] [USD, p.a.]



1) Does not taken into account opportunity cost of producing a different crop; 2) Rainfed farmers only have 1 crop cycle per year; 3) Assumes market price for paddy USD 226 per MT

Source: Mtenda, Interviews

Key assumptions for Mtenda's rainfed smallholder income (1/2)

Assumptions for rainfed smallholder income under Mtenda's scheme[1)]

Area planted [Ha]	**1**
Harvests p.a.[1)]	**1**
Average paddy yield [MT/Ha]	**6.8**
Market price for paddy [USD/MT]	**226**
Smallholder income	
• Total MT of paddy [MT]	6.8
• Total revenue for paddy [USD]	1,537
• Total cost for paddy [USD]	894
• **Net income for paddy [USD]**	**643**

Assumptions for rainfed smallholder income without Mtenda's scheme[1)]

Area planted [Ha]	**1**
Harvests p.a.[1)]	**1**
Average paddy yield [MT/Ha]	**2.7**
Market price for paddy [USD/MT]	**226**
Smallholder income	
• Total MT of paddy [MT]	2.7
• Total revenue for paddy [USD]	610
• Total cost for paddy [USD]	403
Smallholder income for paddy [USD]	**207**

1) Opportunity cost of producing a different crop is not included;

Source: Mtenda, Interviews

Key assumptions for Mtenda's rainfed smallholder income (2/2)

Cost assumptions for rainfed smallholder income under Mtenda's scheme[1)]

Seed (seed type: Saro 5)	52
Harrowing	90
Plowing	90
Planting	90
Weeding	129
Herbicides	52
Fertilizer	258
Harvesting & threshing	90
Storage bags	43
Total cost for paddy	**894**

Cost assumptions for rainfed smallholder income without Mtenda's scheme[1)]

Seed (Supa)	26
Harrowing	32
Plowing	32
Planting (broadcasting)	32
Hand weeding (3 times)	45
Post emergence (Herbicide)	32
Fertilizer	129
Harvesting & threshing	65
Storage	10
Total cost for paddy	**403**

1) Area planted: 1 hectare

Source: Mtenda, Interviews

D. Mbeya partner analysis

2. Mtenda Kyela Rice Supply Limited's commercial model

Currently, Mtenda is working with farmers in Mbeya and is looking to expand to other regions within Tanzania

2010

- Market research on rice in Kenya, Zambia, Malawi, Seychelles and Comoros
- Trained 10.5k outgrowers in Mbozi and Kyela district and facilitated outgrower exchange field visits in Mbarali and Iringa rural districts
- Provided inputs (seeds, herbicides, pesticides and fertilizers) to outgrowers
- Embarked on promotional activities e.g., radio/television programs, newspaper adverts, company t-shirts, calendars and flyers

2011

- Conducted soil survey (topography and analysis) in new areas of Mbeya Rural and Mbozi districts.
- Trained 2k rice outgrowers in Msangano village (Mbozi district) in the best agronomy practices and entrepreneurship skills
- Trialed production on demonstration farms on plots surveyed.
- Enhanced capacity building to train own extension officers in the wake of transfers of Government extension officers and shortage of same
- Application for loans to improve capital base in line with increased productivity and expansion of firm activities

2012

- Providing water pumps to outgrowers cultivating near dams and ponds to supplement low rainfall
- Supporting outgrowers' initiatives to construct warehouses
- Training 3k new outgrowers from new irrigation scheme of Ngana in Kyela district
- Soliciting partnership with international accredited agencies/rice producers on rice development
- Extending catchment area by focusing other rice production districts e.g., Mbarali district (Mbeya), Mvomero and Kilombero districts (Morogoro), Sumbawanga rural (Rukwa) and Iringa rural (Iringa)
- Acquiring land for warehouse and processing machinery
- Training 500 successful outgrowers to become trainers themselves
- Improving packaging of rice for export and domestic market

Current stage

2013- 15

- Train 14.5K outgrowers in new catchment areas
- Purchase hard top vehicles, seven tons lorries and 30 tons semi-trailers
- Introduced warehouse receipt system to assist outgrowers in fetching good price for their produce
- Procure own rice processing machines with grading and sorting facilities
- Continue with program expansion on rice production catchment in Mbeya, Iringa, Morogoro and Rukwa regions
- Continue improvements on packaging of rice for export and domestic market
- Register with TBS, ISO, TFDA and barcodes and register own brand to enhance export marketing
- Continue with efforts on market research through visits, trade fairs and media to increase rice sales
- Help rice outgrowers to form a Community Bank to cater for their savings (deduction from sales) to ensure sustainability

Mtenda is profitable, with revenue growing at 29% p.a.

Source: Mtenda

Mtenda plans to reach 7.9k MT of paddy by 2016 to reach revenue of Tsh XX bn

Source: Mtenda

Mtenda is currently looking to expand to other regions, acquire own trucks and a processing mill

Expand	• Mtenda is looking to expand to other districts within Mbeya, such as Mbarali and to other regions such as Morogoro (Kilombero and Mvomero district), Rukwas (Sumbawanga rural district) and Iringa (Iringa rural district)
Trucks	• Acquisition of own lorries will help reduce cost as trucking services currently charge high rates and sometimes result in theft of goods
Processing mill	• Ownership of own processing plant will allow Mtenda to reduce the cost of processing and improve quality

Source: Mtenda

Mtenda addresses these challenges by working with others in the value chain

Inputs	Production	Processing	Market
• Purchases higher yielding and quality seeds (SARO 5) from certified see multipliers • Purchases all other inputs from agro-dealers	• Works with government extension officers to train producers	• Uses Wela mill as a toll processor	• Distributes the rice directly to market

Enabling Environment and Infrastructure

Infrastructure	Business & finance environment	Industry bodies & sector policies	Research & extension services
• Uses storage facilities at Wela mill • Uses specialist transporters, taking advantage of the cheap back-haul leg into Dar es Salaam	• Tanzania Private Sector Foundation (Matching grant program) provided USD 48k for the training of 5k smallholders in Phase 1 • Demonstration plots and working capital is co-financed between Mtenda and Agriculture Council of Tanzania (ACT) with USD 10.5k obtained in 2012 • Oikocredit have provided Mtenda with a loan of USD 1.35m for training and working capital to be disbursed yearly from 2012 to 2014	n/a	n/a

1) Warehouse receipt system has not been launched yet

Source: Mtenda, Interviews

Mtenda Distribution Company is a family owned business, with a management team that is committed to the business

Source: Mtenda

Mtenda Kyela Rice Supply Limited is run by qualified management team

George Mtenda	Emile Malinza	Abdul Pagali	Mwantumu Omari Makumba	Josiah Nyato[1)]	David Mwasumbi
Managing Director	*Consultant - Administration & Finance*	*Production and Operations Manager*	*Monitoring & Evaluation Specialist*	*Field Officer*	*Accountant*
▪ 15 years experience in rice production, marketing and agro-mechanization	▪ Previously Administrator and Accountant for Dutch Relief and Rehabilitation, Africare and Prime Minister's Office	▪ 25 years of working in development projects as well as articulating strategies and designs for their management, monitoring and evaluation systems	▪ Previously agricultural commodities Research Assistant for Kilimo Trust and Project co-odinator for Women and Poverty Alleviation in Tanzania	▪ Previously Ward Agriculture Extension Officer, Agro-mechanic, and District Mechanization Officer	▪ Previously Accountant at EDC/IFAD, JBM Consult and Credit Officer at AKIBA Commercial Bank, DSM ▪ Obtained Advanced Diploma in Accountancy, and PhD Accountancy

1) Other field officers includes Jesko Linga and Hosea Mwaisaka

Source: Mtenda

Mtenda Distribution Limited, established in 2006, is the parent company of Mtenda Kyela Rice Supply Co. Ltd

MTENDA DISTRIBUTION LIMITED

- **Agriculture**
  - Mtenda Kyela Rice Supply Co. Ltd
- **Hospitality**
  - Mtenda Sunset Hotel (3-Star) and Conference Centre

Msangano farmer visit

Mtenda Sunset Hotel

Source: Mtenda

D. Mbeya partner analysis

3. Recommendations for Mtenda Kyela Rice Supply Limited

Items in BOLD are suitable for donor support

Donors can support Mtenda in addressing key smallholder issues (1/2)

	Inputs	Production	Processing	Market
Design	• Review performance of existing outgrowers • Select new locations and refine model for new locations • **Specify small scale mechanization requirements**	• **Review and revise training program** • **Identify and select pilot farmers** • Recruit team	• **Develop model for paddy collection** • **Identify partner processor** and agree terms • Develop own processing capacity	• Develop own brand rice and smaller packages • Purchase trucks
Pilot	• Deliver inputs to pilot farmers in new locations • **Identify potential partners for small scale mechanization**	• **Implement training for staff /business service providers** • **Implement training for pilot farmers** • **Identify and select partners for implementation** • Refine model	• Collect paddy • **Refine model** • Complete own processing mill	• Execute • Refine model • Update prices
Implementation	• Obtain and deliver inputs • **Run Challenge for development of small scale mechanization**	• **Roll out/implement by NGO partners** • **Train business service providers** • **Identify and select farmers**	Collect paddy	• Sell, bag rice, pay, review • Develop new product • Review marketing campaign
Scale	• Obtain and deliver inputs • **Test and roll out small scale mechanization**	• Implement (business service provider) • Identify and select smallholder farmers	Collect paddy	• Sell, bag rice, pay, review • Develop new product • Review marketing campaign

Source: Team analysis

Items in BOLD are suitable for donor support

Donors can support Mtenda in addressing key smallholder issues (2/2)

Enabling Environment and Infrastructure

	Infrastructure	Business & finance environment	Industry bodies & sector policies	Research & extension services
Design	• **Develop land preparation model** • **Refine warehouse receipts system**	• **Develop financing model** • **Develop insurance model**	• **Design central Ministry Agricultural Improvement Team (AIT)**	• **Select and identify candidates** • **Design trainer program and business model** • **Identify technical R&D**
Pilot	• Execute land preparation • **Refine land preparation model** • **Build and test initial warehouses**	• Provide finance and monitor repayments • **Refine finance model** • **Test insurance model** • **Underwrite loss (share risk of default)**	• **Identify association members** • **Recruit and train members of AIT**	• **Share technical R&D** • **Train the trainers** • **Update**
Impleme ntation	• Execute land preparation • **Refine warehouse receipts model**	• Provide finance • Refine and provide insurance	• **Develop association and underwrite start up costs** • **Support AIT activities**	• Execute • Update
Scale	• Execute land preparation • **Scale warehouse receipts model**	• Provide finance and insurance	• Run association • AIT addresses issues in Tanzanian agriculture	Execute

Source: Team analysis

E. Mbeya Partner analysis

1. Kapunga Rice Plantation Limited 's tenant farming model

Kapunga works with local farmers through a tenant farming model on their block farm

Inputs

- Kapunga provides :
  - Land: 1 plot is 6 Ha, farmers can have access to more than 1 plot
  - Saro 5 seeds
  - Fertilizer
  - Mechanization for harvesting (crop collection)

Better quality

Improved yield

Production

- Smallholders trained on production techniques
- Smallholders have seen a 500% increase in yields from when the farm was previously government owned

Better quality

Improved yield

Processing

- Provide access to highest quality processor in the region

Market

- Guarantee a market for paddy, buying at a competitive price
- There is no restriction on who the tenant can sell its surplus production too

Increased price

Guaranteed market

Enabling Environment and Infrastructure

Infrastructure

- Tenant farmers benefit from irrigation and road infrastructure on block farm

Better quality

Improved yield

Business & finance environment

- Inputs provided on credit with repayment in paddy

Better quality

Improved yield

Industry bodies & sector policies

- n/a

Research & extension services

- Carries out R&D on best seed variety and production practices, and will share knowledge with farmers
- Provides training and extension services

Better quality

Improved yield

Tenants must pay a USD 175 joining fee

Source: KPL; Interviews

E. Mbeya partner analysis

2. Kapunga Rice Plantation Limited's commercial model

Kapunga is currently producing on 3k Ha of land, of which 1.7k Ha is being used by tenant farmers

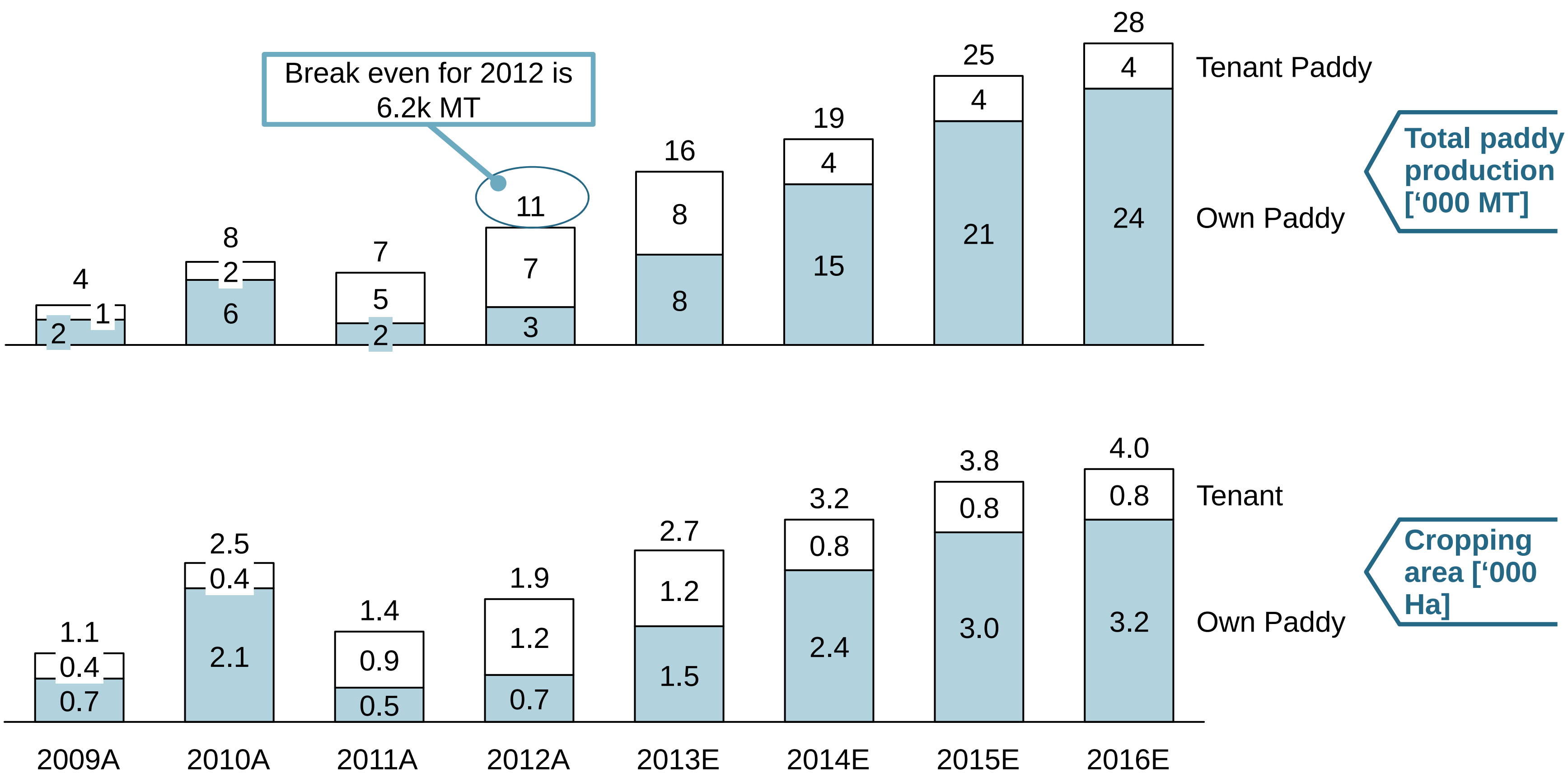
2007	2007 - 2011	2012	2012-2015
• Kapunga Rice Plantation Limited (KRPL) was established in 2007 as a stand alone business • KRPL acquired a government rice farm with 7.8k Ha total land, of which 4.2k is irrigated	• Rehabilitation of farm: refurbishment of the mill, seed unit, electricity and supporting infrastructure, and drinking water supply • Repair of workshops, stores and admin block	• KRPL is currently producing rice on 3k Ha of irrigated fields – (this totals to 500 plots in which 1 plot is 6 Ha in size) • 1.7k Ha of 3k Ha of total land is under tenant farmers operations who are contracted to KRPL • Water is supplied by 18km feeder canal • 1.5k Ha has been laser leveled with bunds and infield canals restored **Current stage**	• Launch smallholder model to increase the volume of paddy to boost mill utilisation • In the next 3 years Kapunga aims to - Brand rice for premium sales to domestic market and exports to Zambia and DRC - Breed rice seed of superior taste quality and yield - Use rice husk as fuel source and wind and solar power to drive the administrative power needs

Kapunga vision is to be the premier commercial rice grower in the region by using the latest agronomy and technology, and the continuous improvement of varieties

Source: Kapunga; Interviews

For rice alone, Kapunga expects to reach 28k MT of paddy by 2016

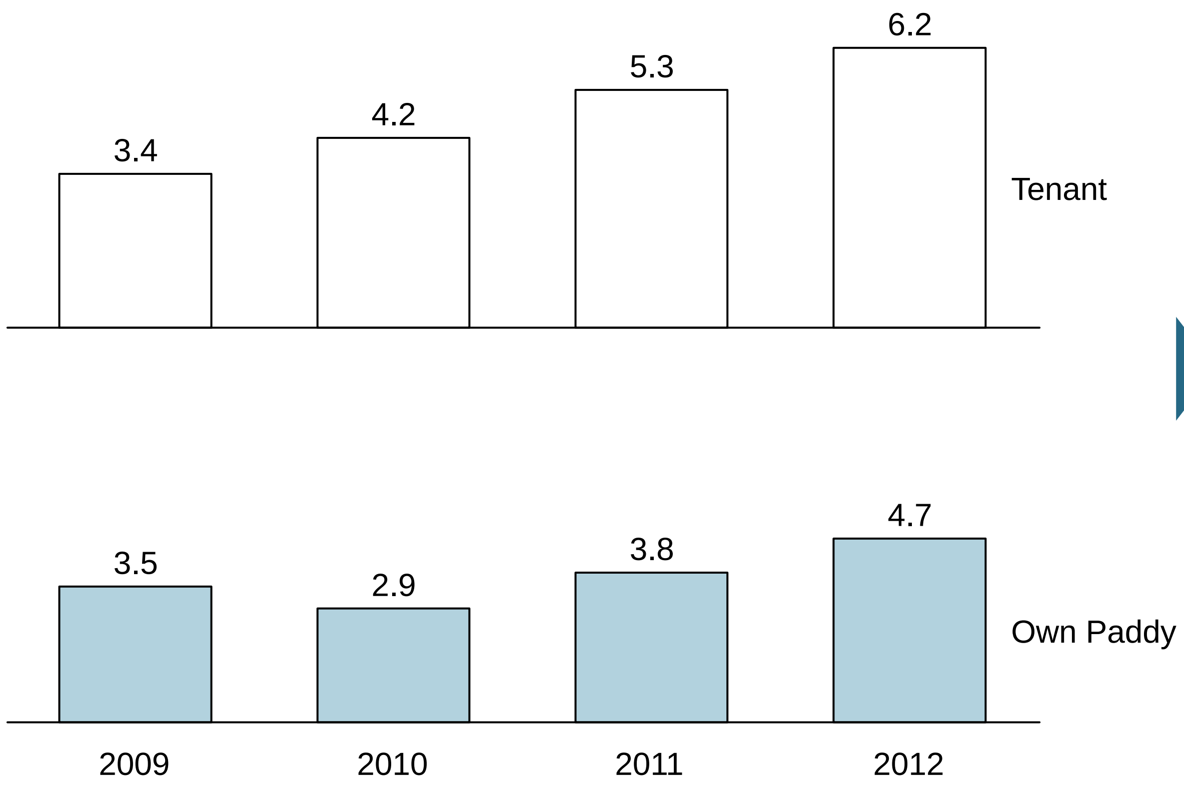
Paddy projection 2009 - 2016



Source: Kapunga, Interviews

Tenant farmer yields at 6 MT / Ha, higher than Kapunga's commercial production yield of 4.7 MT / Ha

Paddy yield of tenant farmers and Kapunga's commercial farm, 2009 – 2012, [MT / Ha]



- Rice now contributes more than 90% of tenant farmer income
- Tenant farmers have seen their production increase over 500% from when the farm was previously government owned
- There is high demand from future tenants for additional block as they become available

Source: Kapunga; Interviews

Kapunga faces tension with the community and local government authority

- There are reports of tension with the local community due to the displacement of smallholders since Kapunga's taken over
- It is not clear what the cause of this is, but reports suggest that a disagreement over whether the land should have been leased to Kapunga could be one of the problems
- Kapunga leadership state that the issues have been resolved and that the problem was caused by a handful of troublemakers
- However, there is still scepticism in the market as to whether the problem has been resolved and that the use of foreign farm management meant that communities were not sufficiently involved

- It is critical that donors understand the root causes of the issues and what their status is currently before committing any support to Kapunga

Source: Interviews

In order to achieve this goal, Kapunga must overcome a number of challenges along the value chain

Inputs

- **Seed: Insufficient supply of good quality seed,** seeds used are recycled and give low yields
- **Fertilizer:** Fertilizer is not adapted to soil needs
- **Land:** Risky to lease land due to tiered land tenure system and unclear titles
- **Mechanization:**
  - Spare parts and qualified workshops are not available
  - Insufficient small scale machinery

Production

- **Farming as a business:** Farmers do not consider rice production as a business and do not invest in it
- **Low yields:** Yields are 1.6-2 MT/Ha vs. best practice of 6 MT/Ha (10 MT/Ha in Brazil)
- **Agrochemicals:** Inappropriate and insufficient use of fertilizers, herbicides and pesticides
- **Agronomic practices:** Manual production practices (planting, protection, harvesting) and poor knowledge of best practices (broadcasting, lack of weeding) reduce paddy yield and quality
- **Weather:** Unreliable rains and droughts make water control difficult for rainfed farmers

Processing

- **Manual post-harvest practices** reduce yield, lead to broken rice and increase foreign matter
- **Small village mills** lack in de-stoning facilities to ensure clean rice , grading facilities are very basic
- Over supply of small scale mills providing fierce competition

Market

- **Consumer preference** is for high quality rice (aromatic, ~20% broken, fresh and clean) which current smallholder producers cannot deliver in largely quantities
- **Farmgate price**: farmers are often forced to sell paddy at low farmgate price due to lack of market access and access to storage facilities
- **Export:** difficult to export rice out of Tanzania despite the removal of export bans (2012). Further, export packaging material is expensive

Enabling Environment and Infrastructure

Infrastructure

- **Roads** are in bad condition making transport cost very high so there is no cost advantages of being close to Dar es Salaam market
- **Irrigation:** infrastructure is limited, under utilized and poorly managed
- **Storage:** Paddy is improperly stored (e.g., in house rooms), warehouses are not available
- Water rights maybe hard to acquire in regions as most electricity is generated through hydro-power dams

Business & finance environment

- **Financial institutions**
  - Require farmers to have collateral
  - interest rates vary and can reach (up to 100%)
- No crop insurance products available

Industry bodies & sector policies

- **Industry bodies:** Lack of industry associations, means there is no collective voice industry for rice
- Unclear role of newly formed Cereals and Others Produce Board
- Uncertain commercial policy environment: occasional export bans and waiving of import tariffs and high taxes

Research & extension services

- **R&D:** Lack of dissemination of research seed variety
- **Technical research:** Not effectively disseminated

Source: Interviews

Kapunga addresses these challenges through its integrated model and key partnerships along the value chain

Inputs	Production	Processing	Market
• Multiply seed on commercial farm • Uses higher yielding and quality seeds (SARO 5) • Uses fertilizer blended for their soil type • Commercial farm is completely mechanised	• Hired experienced rice farming expert to run production and maintain target yield levels	• Hired experienced processing expert to run processing operations • Kapunga's mill is equipped with good de-stoner and sorter to ensure clean milled rice which is less than 20% broken	• Sells rice through Export Trading Group's strong trading network • Kapunga's rice satisfies the local demand for perfumed and less than ~20% broken • Kapunga is looking at develop a brand for sale ot the domestic and export market • Kapunga stores rice and mills it when prices peak, protecting them form lower prices (~50% lower) during harvesting season

Enabling Environment and Infrastructure

Infrastructure	Business & finance environment	Industry bodies & sector policies	Research & extension services
• Invested heavily in irrigation and road infrastructure on the farm • Farm has an airstrip which is used for crop spraying	• Using tenant farmers reduces the working capital required to operate the farm	n/a	• Kapunga conducts research on seed variety with the best yields and aromatic qualities

Source: Kapunga; Interviews

E. Mbeya partner analysis

3. Recommendations for Kapunga Rice Plantation Limited

Items in BOLD are suitable for donor support

Donors can support Kapunga address key smallholder issues (1/2)

	Inputs	Production	Processing	Market
Design	• Identify source • Select partners • Sign MoU • Agree specifications • **Develop distribution model** • **Develop selection guidelines**	• **Design training program** • **Design model farms** • **Identify model farmers** • **Select pilot farmers** • Recruit team	• **Develop model for paddy collect** • **Develop business model** • **Help with technical assistance**	• Set pricing to be paid • Understand smallholder cash needs • Design model for rice grading • Develop harvesting model
Pilot	• **Test inputs** • Refine specifications	• **Implement training for staff /business service providers** • **Implement training for pilot farmers only** • Identify technology if any • **Identify and select partners for implementation** • Refine model	• Collect paddy • **Refine model**	• Execute • Refine model • Update prices
Implem-entation	• Obtain input • Deliver to smallholders	• **Roll out/implement by NGO partners** • **Train business service providers** • **Identify and select farmers**	Collect paddy	• Sell, bag rice, pay, review • Develop new product • Review marketing campaign
Scale	• Obtain inputs • Deliver to smallholders	• Implement (business service provider) • Identify select smallholder farmers	Collect paddy	• Sell, bag rice, pay, review • Develop new product • Review marketing campaign

Source: NRV Consulting

Items in BOLD are suitable for donor support

Donors can support Kapunga address key smallholder issues (2/2)

	Enabling Environment and Infrastructure			
	Infrastructure	**Business & finance environment**	**Industry bodies & sector policies**	**Research & extension services**
Design	• **Develop land preparation model**	• **Develop financing model** • **Develop insurance model**	• n/a	• **Select and identify candidates** • **Design trainer program and business model** • **Identify technical R&D** • **Design market R&D and disseminate into pilot**
Pilot	• Execute land preparation • **Refine land preparation model**	• Provide finance and monitor repayments • **Refine finance model** • **Refine insurance model**	• **Identify association members**	• **Execute market R&D** • **Share technical R&D** • **Train the trainers** • **Update**
Implem-entation	• Execute land preparation	• Provide finance • **Underwrite loss (share risk of default)** • Provide insurance	• **Develop association** • Run association • **Underwrite start up cost**	• Execute • Update
Scale	• Execute	• Provide finance and insurance	Run association	Execute

Source: NRV Consulting

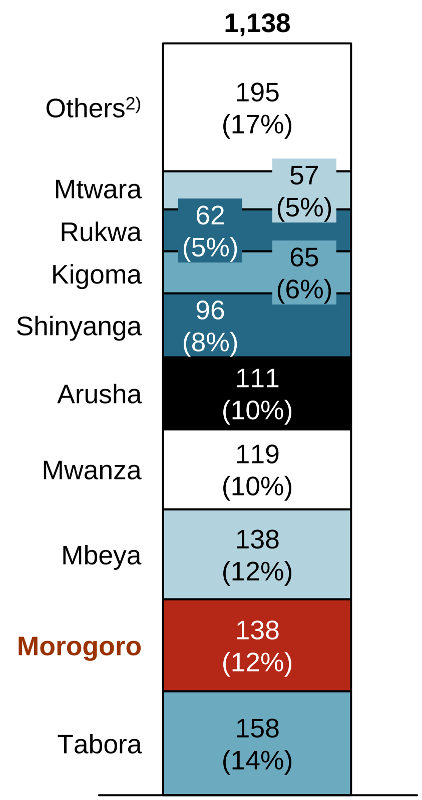
F. Investment case for Morogoro region (Kilombero district)

Morogoro is Tanzania's second largest rice producing region and GoT has indentified Morogoro rice as a priority crop/region

Tanzania

★ Capital

Regional paddy[1] production, 2011 [%, '000 MT]



Government national policy: rice production

- GoT prioritizes rice through its National Rice Development Strategy which aims to double rice production by 2018 to provide food security and potential to export to neighbouring countries[3)]
- The National Rice Development Strategy aims to improve: seed variety & input supply, irrigation availability, marketing, R&D and agricultural credit
- GoT protects domestic rice producers (~90% are smallholders) through import duty of 75% (in line with EAC tariffs; can be waived for food security reasons)
- Morogoro (Kilombero district) is a priority for SAGCOT[4)] which promotes private investment of rice
- Key **programs and policies** for agriculture include
  - Fertilizer subsidy, seed R&D
  - Infrastructure development (irrigation & road)
  - Removal of export ban (2012)
  - Import tax of 75% on milled rice in Tanzania mainland[6)]

1) Paddy: Rice from field after harvest, threshed and each grain is separated but still has outer husk and bran; 2) Includes Coast, Ruvuma, Tanga, Lindi, Kilimanjaro, Iringa, Dodoma, Kagera, Singida, Dar es Salaam, Manyara and Mara; 3) There is a recurring rice export ban (lifted early 2012) depending on Tanzania's food security; 4) Southern Agricultural Growth Corridor of Tanzania; 5) 25% in Zanzibar

Source: Ministry of Agriculture, interviews

Morogoro is SAGCOT's priority region for rice

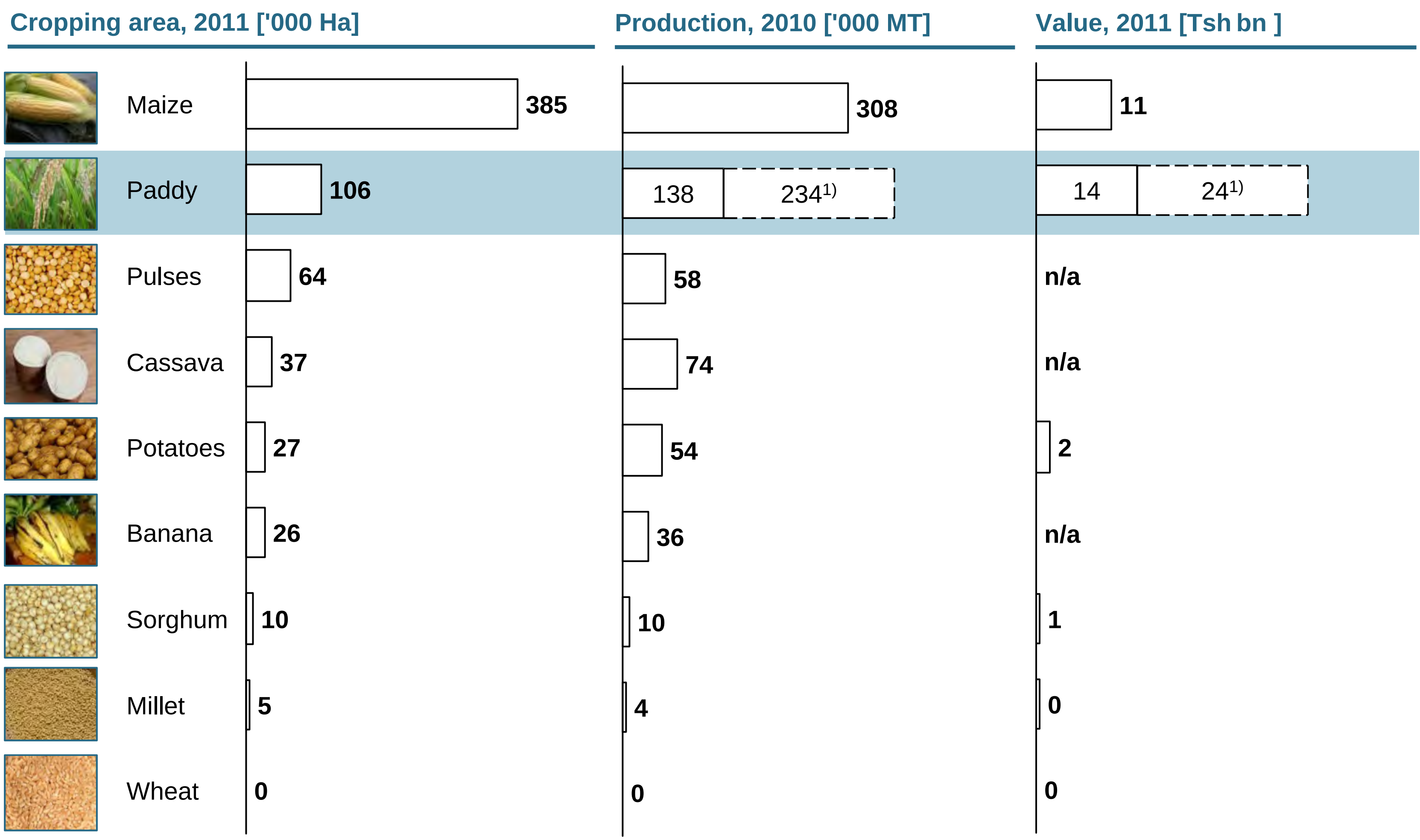
SAGCOT priority regions

- SAGCOT is a Public-Private Partnership that was initiated at the World Economic Forum (WEF) Africa summit 2010 with the support of founding partners including farmers, agri-business, the GoT, donors[1)] and private sector companies[2)]
- SAGCOT's objective is to foster commercial agribusinesses to benefit small-scale farmers and boost agricultural productivity , improve food security, reduce poverty and ensure environmental sustainability
- The program's priority regions include:
  - Morogoro - Kilombero district is one of the top 3 priority clusters
  - Mbeya
  - Dar es Salaam
  - Pwani
  - Iringa
  - Rukwa
- Morogoro is an important cluster for SAGCOT with potential partnerships in rice, horticulture and agro-processing; within Morogoro, SAGCOT targeted districts are Kilombero and Mvomero
- SAGCOT works with donors to promote private investment of rice
- USAID is part of its steering committee and aims to attract private investment and promote more attractive policies for rice production

1) USAID and Norway; 2) General Mills, Yara International, Unilever, Syngenta, DuPont, Land 'O Lakes, Monsanto and SAB Miller
Source: SAGCOT, Interviews

Rice is the second most important crop in Morogoro and has the potential to become the most important if yields are improved

Major crops in Morogoro Region, 2011



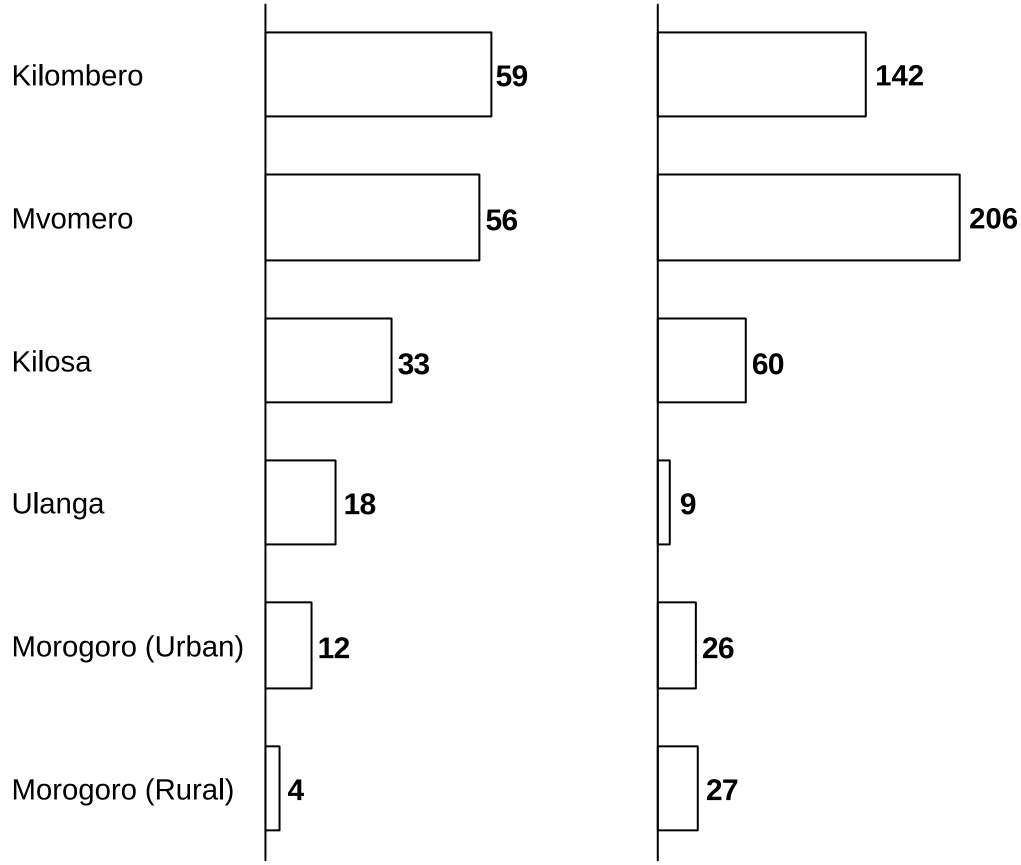
1) Assuming yield rises to 3.5 MT / Ha from current average of 1.3 MT / Ha – according to Ministry of Agriculure
Source: Ministry of Agriculture

Within Morogoro, Kilombero district is the second highest rice producing district

Rice production in Morogoro by district, 2009

Morogoro [Districts]

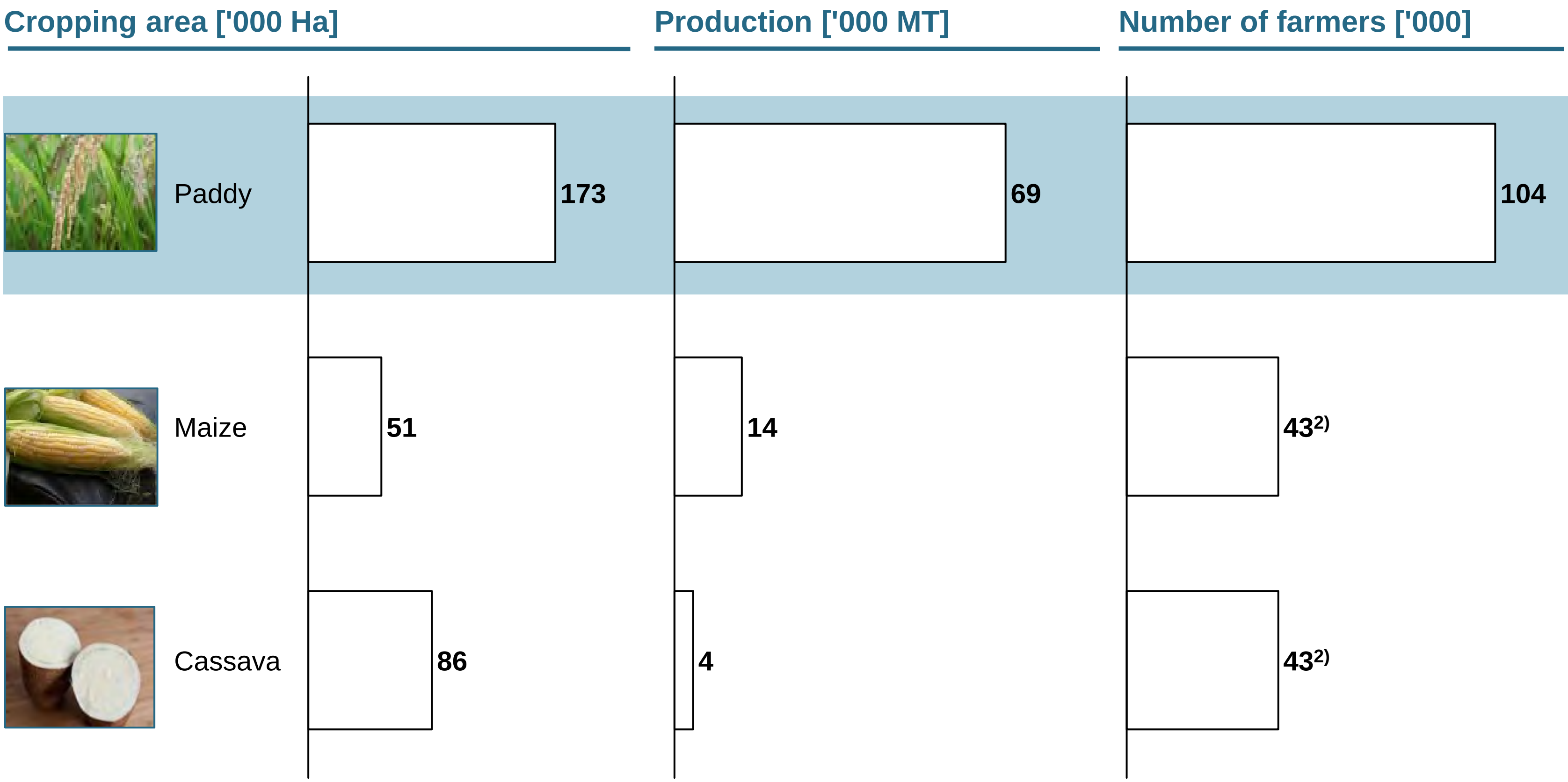
Cropping area ['000 Ha] | **Production [000' MT]**



Source: Ministry of Agriculture

Rice is the most important crop in Kilombero district

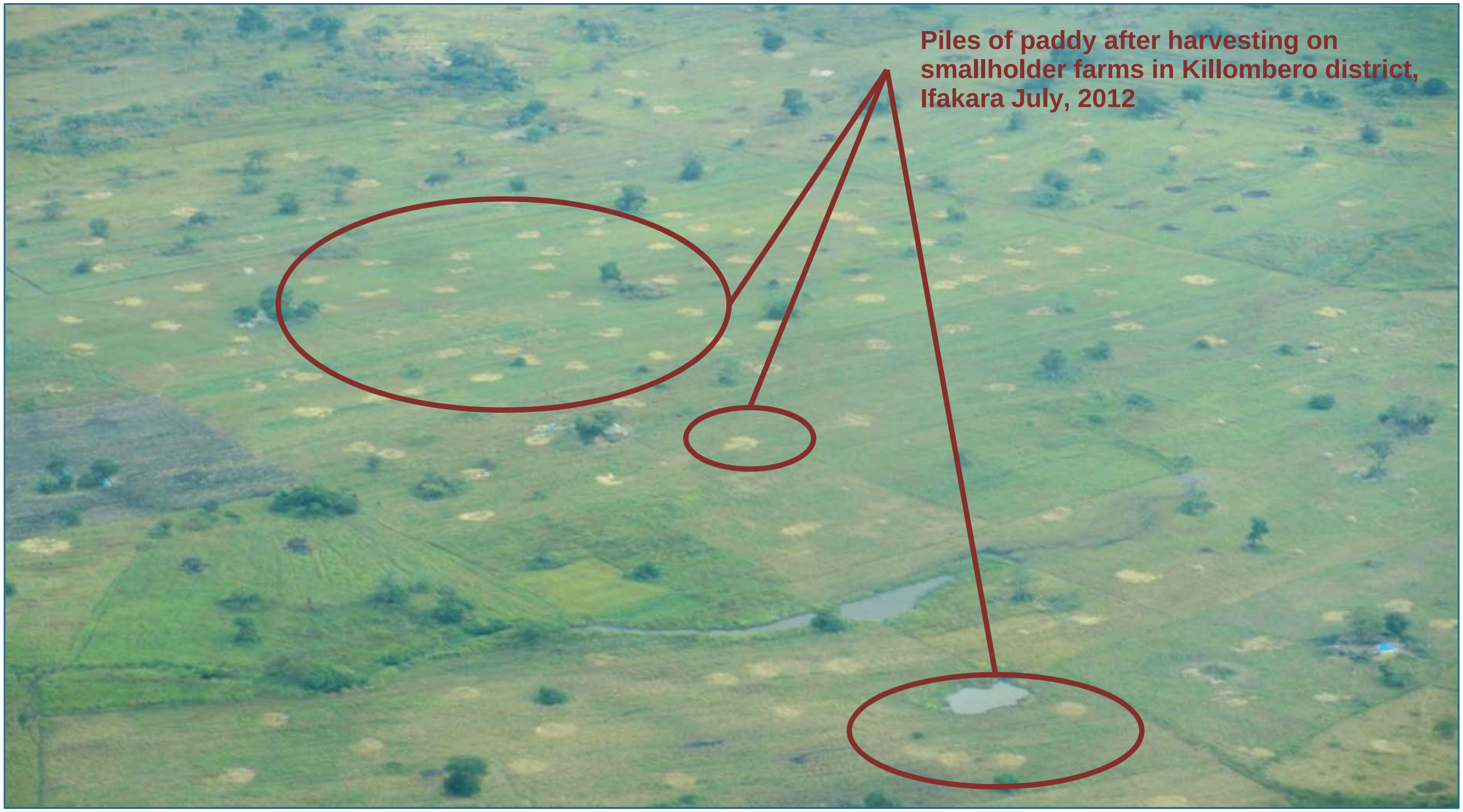
Kilombero rice production, 2008



Source: Kilombero District Government

There are >100k active rice farmers in the Kilombero district and over 250k in Morogoro region

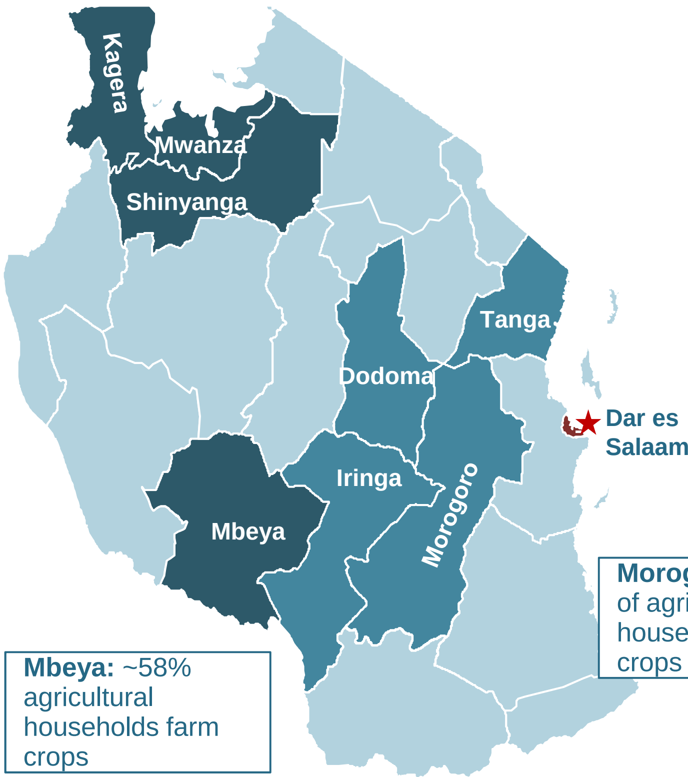
Kilombero district, Ifakara smallholder rice production, 2012



Source: Field visit

As a result, knowledge of rice production is long standing

Agricultural households by regions[1)] 2008 ['000]



Morogoro: ~82% of agricultureal households farm crops

Mbeya: ~58% agricultural households farm crops

390k – 400k agricultural households

300k – 390k agricultural households

Rice smallholders[2)] in Kilombero district

- Farmers typically produce rice in parallel with other crops; maize is often grown as an alternative staple
- Current yields are low at an average of ~1.5MT per Ha
- Some farmers are members of the apex Association of Kilombero High Quality Rice Growers, which has 36 associations and 5,200 members
- Majority farmers sell paddy at harvest to local traders

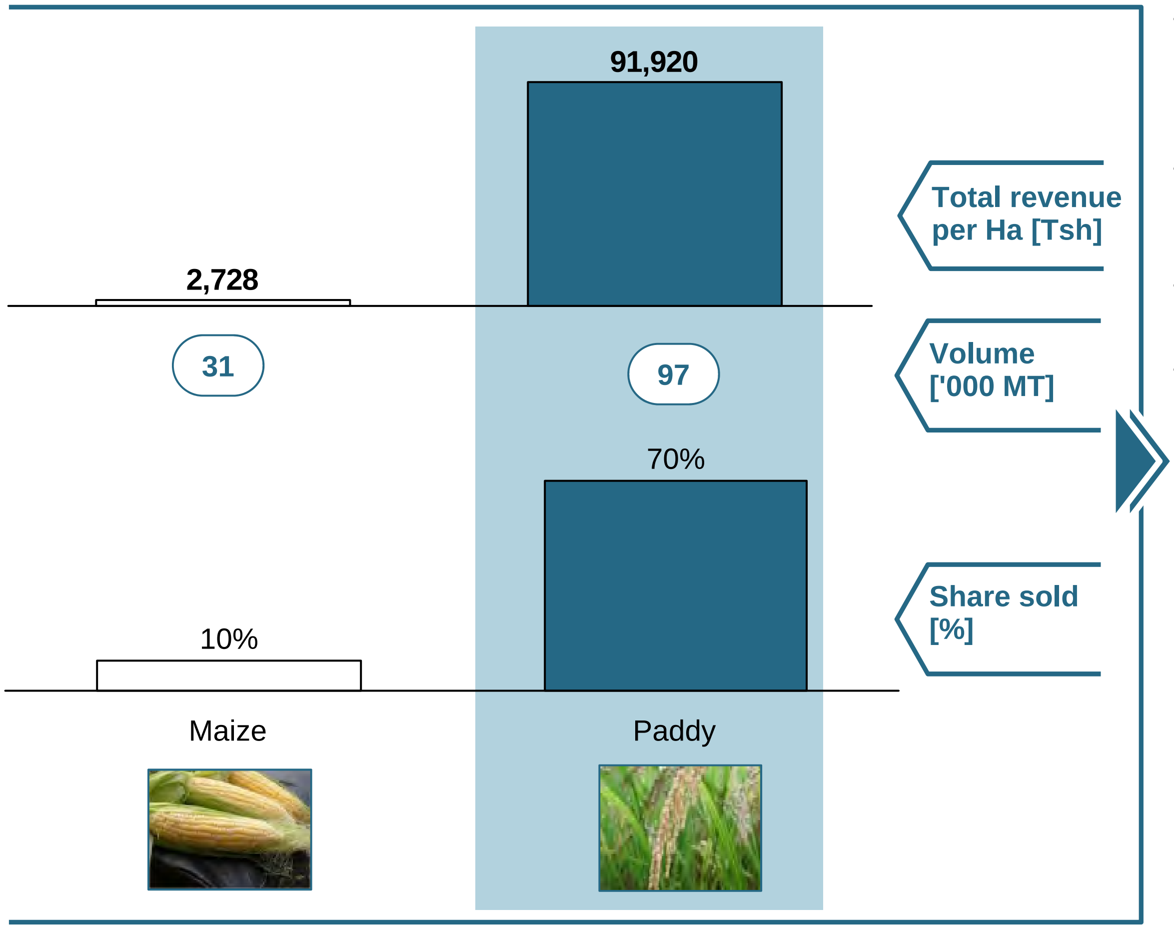
Rice smallholders, Kilombero district, 2012

1) Average household size for rural agricultural households (households that earn income from crop farming, forestry and etc) ~5 members; 2) Rice smallholders are defined by farmers that produce rice on an area ≤ 2.5 Ha

Source: Interviews; Minsitry of Agriculture; Field visit

Therefore, rice is a key contributor of smallholder income in Kilombero

Smallholder income generation by major crops in Morogoro, 2011

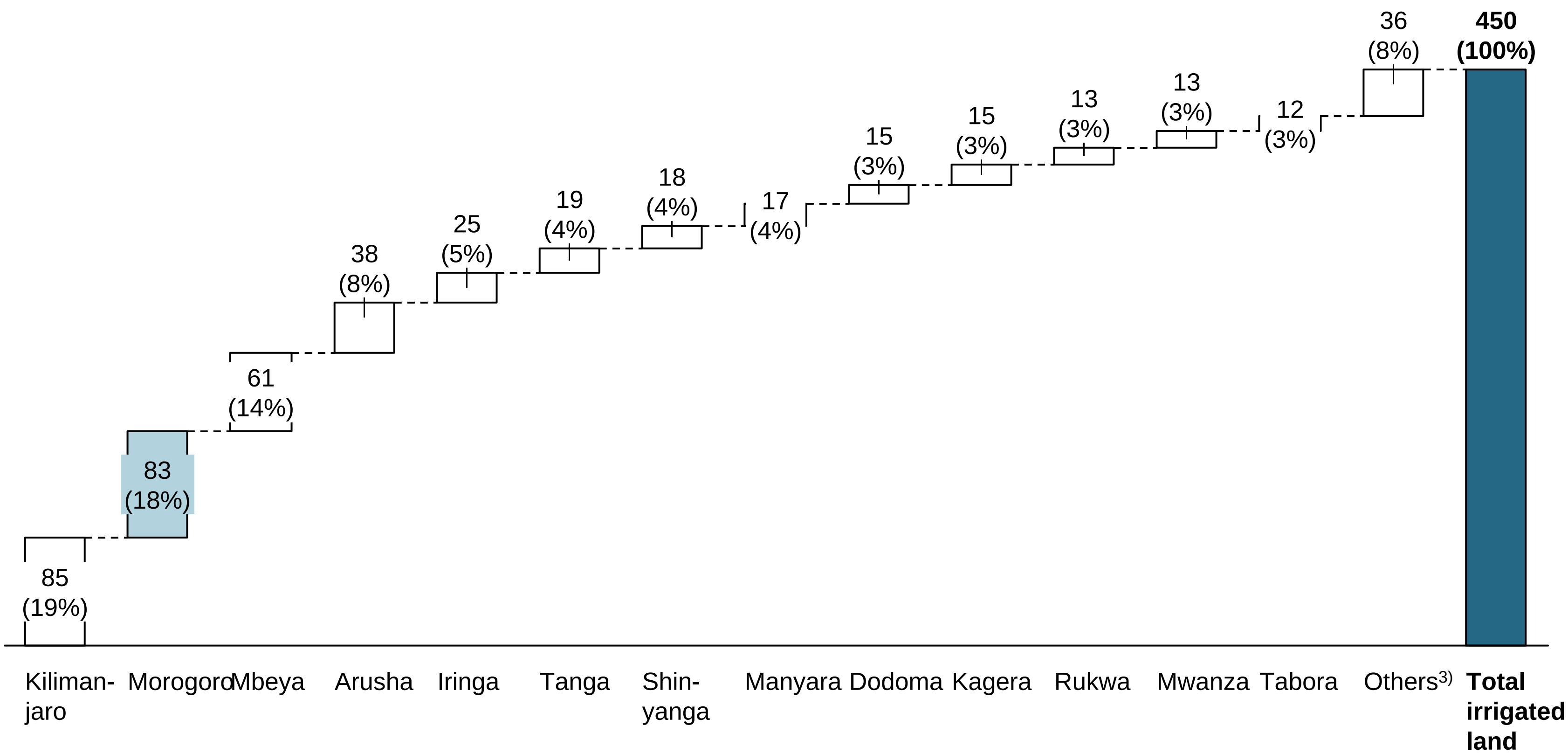


- In Tanzania, rice is farmed for income generation and, to a lesser extent, food security; maize is the main staple and is cheaper than rice
- In a high rice producing region such as Morogoro, rice contributes ~80% of total income
- Rice farmers keep ~370kg of rice for an family size of 5 members p.a.
- **Key determinants of rice consumption are** market price, yield, and income
  - **Higher market prices** deter farmers for keeping rice for consumption
  - **Farmers with low yields (~1MT)** will keep rice for self consumption and food security
  - **As farmers income rises and yield rises** (to >3 MT per Ha) they will consume ~10% more rice for self consumption and food security

Source: Interviews; Field visit; Ministry of Agriculture

Rice production is supported by the fact that Morogoro has 18% of Tanzania's irrigated land

Regional smallholder[1)] irrigation schemes, 2012[2)] ['000 Ha (%)]



1) Majority of irrigation schemes owned and operated by smallholder farmers under Water User Organization; 2) Rice is the major irrigated crop , using 75% of irrigated land, other small holder irrigated scheme crops are rice, maize, beans, onions, horticulture, banana; 3) Other regions include Lindi, Kigoma, Singida, Mara, Mtwara, Ruvuma, Coast and Dar es Salaam

Source: Tanzania Ministry of Water and Irrigation

The region has good agronomic conditions for rice farming and fertile soil, allowing 2 crops per year with irrigation

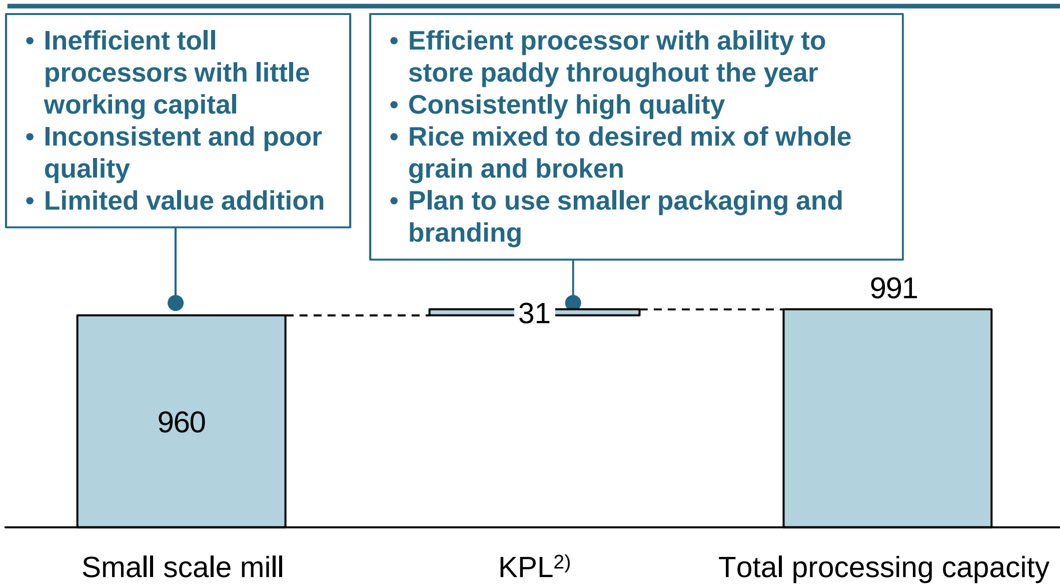
In Kilombero district weather and temperature allows shorter growing season to support 2 crops per year

Soil in Kilombero district is fertile, requiring less fertilizer to achieve the right soil chemistry for rice production – this benefit will slowly decrease in line with the duration of rice production

Source: Field visit

Although the large number of small mills in the region create excess milling capacity, large mills with stable paddy volumes provide better quality, consistency and value addition

Rice mills in Morogoro, 2012 ['000 MT/p.a.[1)]]



Small scale mill in Kilombero district

Kilombero Plantation Limited Mill

- While small mills dominate capacity, they are poorly managed and produce low quality rice
  - Most rice paddy is currently processed in **small scale mills** (average processing capacity 0.8MT/hr) in villages and town centres (~400 in Kilombero alone)
  - Utilization of these mills peak during harvest time and are relatively idle during the rest of the year as they lack capacity to store paddy through the year (overall utilisation ~10% - 15%)
  - The small scale mills produce low quality milled rice with high levels of broken rice and foreign matter
- Larger mills produce better quality rice more consistently, but have struggled to compete with the small mills unless they have their own secure source of paddy
  - The only large mill in Kilombero district is operated by Kilombero Plantation Limited with **good quality milling facilities** currently has 2 lines[2)] with a third planned)[3)]**,** that can remove impurities, polish and grade rice
  - Large processors operated by large trading companies (e.g. SS Bakhresa, Mohammed Enterprises) in Dar es Salaam ceased operation as they could not compete with low cost small mills and did not have a steady supply of paddy from their own production

1) Assuming mill runs for a maximum of ~12 hours a day and 250 days per year; 2) KPL second mill will be operational end of 2012; 3) KPL is planning to construct a third mill once it has completed 3k Ha of irrigated land
Source: Interviews, Field visit

Despite being close to Dar es Salaam, the road infrastructure between Kilombero and Dar es Salaam is poor

Infrastructure

Kilombero – near KPL

Kilombero – near KPL

Kilombero – near KPL

Kilombero – Muddy road

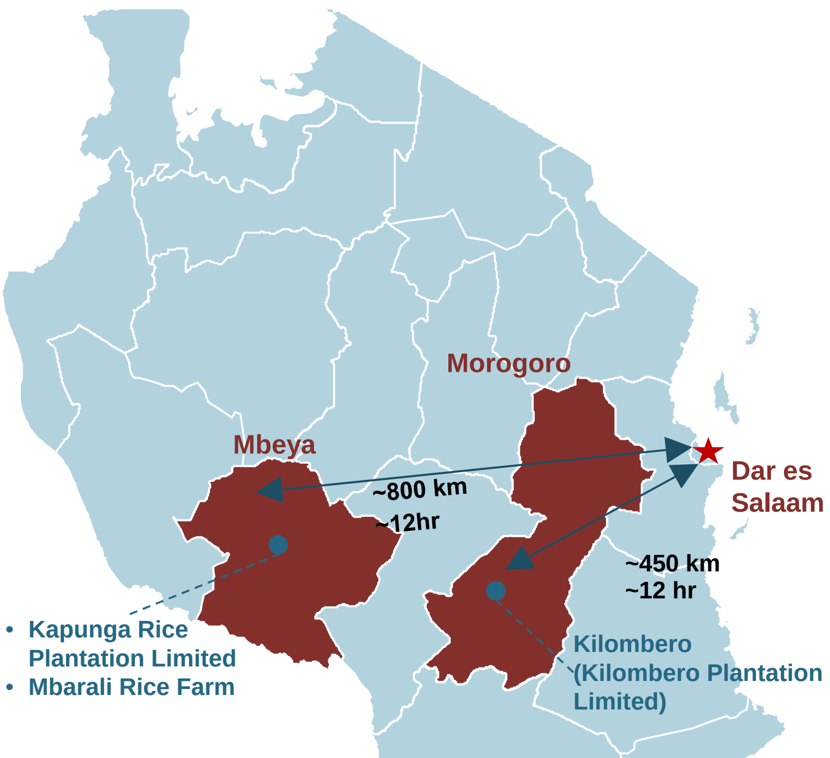
Source: KPL, Field visits

Comments

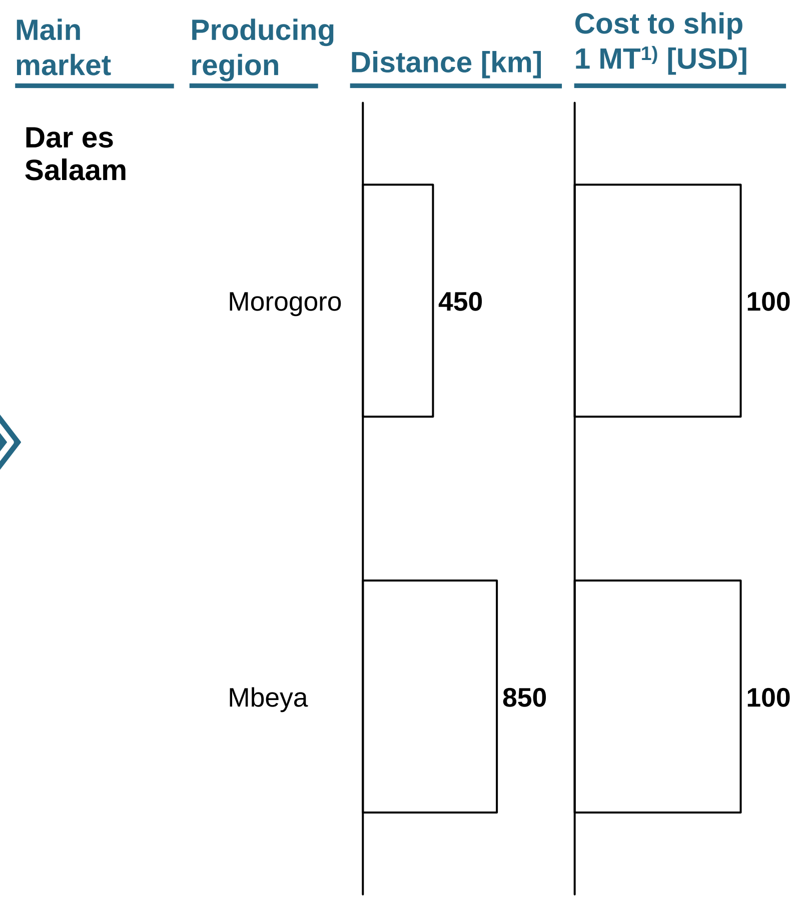
- Main roads are well developed; however, branch roads are in very poor condition
- During the rainy season, flooding occurs leading to road blockages (e.g., recently the roads were blocked for 2 months due to flooding)
- SAGCOT aims to invest in the region's infrastructure, but construction is yet to begin and is expected to start in 2013
- Railway is unreliable and there are high levels of theft
- Most rice from Morogoro is transported to the Dar es Salaam market, Tanzania's main rice consuming rice market

Therefore, the transport cost from Morogoro to Dar es Salaam is not competitive

Distance and time from key producing rice regions and markets, 2012



Road investment by USAID aims improve road network from Morogoro to Dar es Salaam and is expected to begin in 2013



1) Trucking providers charge by weight and road condition and not per km

Source: Interviews, OLAM

Further, commercial players can leverage the numerous donor activities in the region to increase productivity

Selected examples of major donor funded rice projects in Morogoro, 2012

Rice project	Main funder
• World Bank funding Regional Center of Excellence for rice in Ikafara • Infrastructure development in Kilombero	THE WORLD BANK
• Providing intensive technical assistance to farmers • Building regional center of excellence in rice research in Morogoro • Building an irrigation scheme in Morogoro • Establishing training center for irrigation technicians • Supporting engineering designs for schemes	JICA
• Credit co-guarantees • Considering development of Ifakara-Mlimba road to connect irrigation schemes to markets	ADB
• Providing capacity building to farmers in irrigation schemes	FAO FIAT PANIS
• Committed USD 150m for irrigation throughout Tanzania	USAID FROM THE AMERICAN PEOPLE

Source: World Bank, JICA, FAO, ADB; Interviews

In Morogoro region (Kilombero district), KPL can benefit from support of its second smallholder program

Morogoro region partner selection[1)]

Company	Role	Ownership	Fit with smallholder goal	Key strengths / challenges	Attractive-ness
Kilombero Plantation Limited (KPL)	Production and processing	• Majority owned by Agrica • 5% dilutable government ownership through Rufiji Basin Develop-ment Authority (RUBADA)	• Launched innovative smallholder model (System of Rice Intensification or SRI) • Currently working with 1.5k smallholders; plan to reach 4.2k by 2013 and 5k by 2016 • Smallholders are needed to increase rice volumes and boost profitability • In the long term, KPL plans to launch a second SRI program in the Kihansi Valley which has 3k Ha Model can be applied to other regions and partners	• Producing commercially on 4.7k Ha of land (215 Ha with pivot irrigation) • Strong networks to distribute large volume of rice (trader come to farm to buy rice from KPL, KPL also distributes through wholesale outlet in Dar es Salaam) • Has built good relationships with local community • Good management team with proven track record • Commercial production yield is ~3.2 MT per Ha , lower than targeted • Already working with USAID for its smallholder program (SRI); USAID have expressed interest to support scale up of its SRI program to 5k smallholders • Potential for donors to support KPL's second smallholder program (SRI) in the Kihansi Valley	

Strong Medium Low

1) Lack of large and medium scale commercial players in the region

Source: KPL; Interviews

G. Morogoro partner analysis

1. Kilombero Plantation Limited's smallholder initiative

KPL plans to support smallholders through its smallholder model, System for Rice Intensification (SRI)

Inputs

- Provide treated seeds (3kg) which must be multiplied by the farmers
- Provide consistent supply of good quality seeds with higher yields
- Provide weeder and rake

Better quality

Improved yield

Production

- Smallholders trained on SRI production techniques
- Smallholders trained on managing budget/cash of rice farming
- In Year 1 smallholders will start quarter acre of land, 1 acre (Year 2) and 1 Ha (Year 3)

Better quality

Improved yield

Processing

- Provide access to highest quality processor in the region

Market

- Guarantee a market for paddy, buying at a competitive price
- Considering paying a slight premium for SRI rice – still to be determined by KPL

Increased price

Guaranteed market

Enabling Environment and Infrastructure

Infrastructure

- KPL transports the paddy from the smallholder's farm to the processing plant

Business & finance environment

- Crop finance is offered for land preparation and fertilizer
- Crop insurance to be provided
- Inputs provided on credit with repayment in paddy

Better quality

Improved yield

Industry bodies & sector policies

- n/a

Research & extension services

- Carries out R&D on best seed variety and production practices, and will share knowledge with farmers
- Provides training and extension services

Better quality

Improved yield

System for Rice Intensification model is in pilot phase

Source: KPL; Interviews

KPL's SRI has been applied successfully on 64 demonstration plots, giving significant yield improvements

Comparison smallholder rice field with and without SRI

SRI rice field

- Seed planting in straight line with large spacing allow easier weeding
- Careful seed selection and planting reduces seed wastage
- Higher paddy quality
- **Increased yield: average 4 MT per Ha**

Rice field under traditional cultivation

- Suffers weed infestation
- No seed selection and broadcasting increase seed wastage
- Lower paddy quality
- **Lower yield: 1.6MT - 2MT per Ha**

Source: Field visit

USAID, through NAFAKA, provides extension officers, supports the nascent Rice Grower Association and contributes to the cost of training smallholders

Extension officers with smallholders, Kilombero district, 2012

- USAID (NAFAKA) supports KPL by:
  - Training of 9 extension officers and financially supports the salary of 5 extension officers
  - Covering the cost of training smallholders in crop finance
- USAID intends to continue this support until 2016 to enable KPL to meet its target of 5k smallholders
- USAID is replicating SRI in other regions in Tanzania

Source: Interviews, USAID, NAFAKA, KPL

KPL is targeting USD XXm additional revenue from its SRI program by 2017, boosting profits to USD XXm

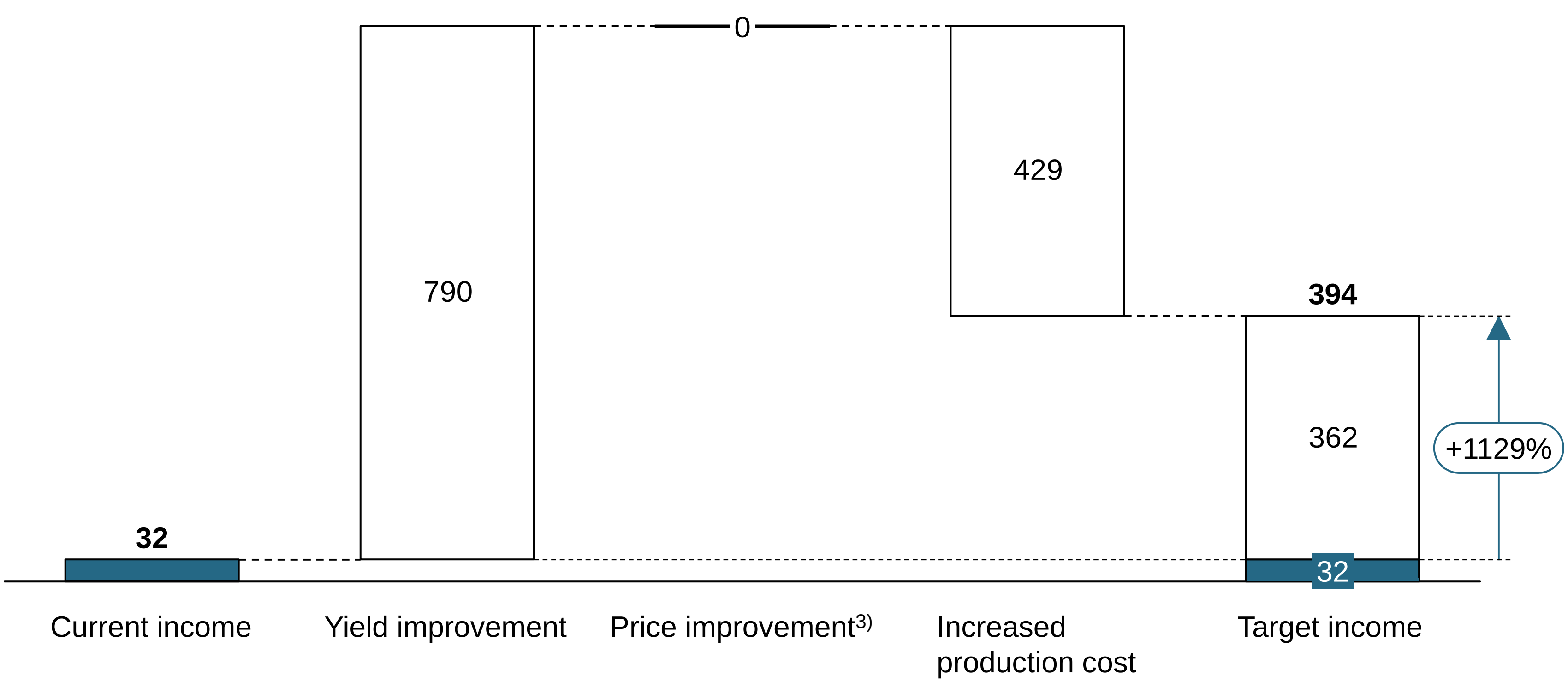
SRI paddy contribution to KPL financials 2010-2017

CONFIDENTIAL

Source: KPL; Interviews

SRI aims to increase rainfed smallholder income by 1129% to USD 394 per year

Impact of SRI on rainfed smallholder income[1)2)] [USD, p.a.]



1) Does not taken into account opportunity cost of producing a different crop; 2) Assumes yield of 6 MT per Ha and rainfed farmers only have 1 crop cycle per year; 3) Does not include price premium for paddy – still to be determined by KPL

Source: KPL, Interviews

Key assumptions for SRI rainfed smallholder income (1/2)

Assumptions for rainfed smallholder income with SRI[1)]

Area planted [Ha]	**1**
Harvests p.a.[1)]	**1**
Average paddy yield [MT/Ha]	**6**
Market price for paddy [USD/MT]	**226[2)]**

Smallholder income

• Total MT of paddy [MT]	6
• Total revenue for paddy [USD]	1,355
• Total cost for paddy [USD]	961
• **Net income for paddy [USD]**	**394**

Assumptions for rainfed smallholder income without SRI[1)]

Area planted [Ha]	**1**
Harvests p.a.[1)]	**1**
Average paddy yield [MT/Ha]	**2.5**
Market price for paddy [USD/MT]	**226**

Smallholder income

• Total MT of paddy [MT]	2.5
• Total revenue for paddy [USD]	565
• Total cost for paddy [USD]	532
Smallholder income for paddy [USD]	**32**

1) Opportunity cost of producing a different crop is not included; 2) Assumes no market price premium – still to be determined by KPL

Source: KPL; Interviews

Key assumptions for SRI rainfed smallholder income (2/2)

Cost assumptions for rainfed smallholder income with SRI[1)]

Seed (seed type: Saro 5) - 20 kg	19
Harrowing	48
Plowing	48
Planting on Grid (40 man days)	190
Hand weeding (3 times)	143
Post emergence (Herbicides)	12
Fertilizer	267
Harvesting & threshing	202
Storage bags	32
Total cost for paddy	**961**

Cost assumptions for rainfed smallholder income without SRI[1)]

Seed (seed type: Supa) - 64 kg	21
Harrowing	48
Plowing	48
Planting (broadcasting)	48
Hand weeding (3 times)	239
Post emergence (Herbicide)	12
Fertilizer[2)]	-
Harvesting & threshing	101
Storage	16
Total cost for paddy	**532**

1) Assumes area planted: 1 Ha; 2) Assumes fertilzers are not used by farmers in the Kilombero region

Source: KPL, Interviews

Industry experts and NGOs agree that KPL's smallholder model is attractive

“KPL is a major player in the Morogoro region” Sophia E. Kaduma, Deputy Permanent Secretary of Ministry of Agriculture

“KPL is a key partner for our priority district Kilombero in Morogoro“ Jennifer Baarn, Deputy CEO, Note: KPL is SAGCOT's showcase commercial player

"KPL is the best player we have found" Lee Rosner, NAFAKA, Chief of Party

“Courageous leaders in their field” Jeffrey Lewis, Co-founder of Tanzania Agriculture Partnerships

Note: USAID is currently replicating the SRI program in other regions in Tanzania

Source: Interviews

G. Morogoro partner analysis

2. Kilombero Plantation Limited's commercial model

Currently, KPL commercially produces rice on 4.7k Ha of land and is looking to develop 3k Ha for irrigated production by 2016

2006	2006-2008	2009	2010	2011	2012	2012-2016
• Agrica formed • Site Search in Tanzania	• Sign Sales Contract for Mngeta Farm • Develop Business Plan • 2 year obstruction to complete purchase	• Complete Farm purchase • Clear & plant 2k Ha • Construct Warehouse • Harvest 2k MT	• Build/ rehabilitate workshops, offices, housing • Plant 2.9k Ha • Pilot Smallholder project with 15 farmers • Install industrial rice mill • Harvest 3.9k MT	• Clear new 1.2k Ha • Add 250 new smallholders • Plant 4.2k Ha • Harvest 14 k • Sales shift from Dar brokers to farm gate as KPL becomes a large producer	• Install 215 Ha pivot irrigation • Partner with USAID, add new smallholders and introduce crop finance for Year 2 farmers • Plant 4.4k Ha • Harvest 13k MT **Current stage**	• Expand rainfed area to 5k Ha[1)] • Expand irrigation to 3k Ha • Expand smallholder programme to 5k families

KPL's vision is to become the lowest cost domestic producer in Tanzania and to be a sustainable irrigated farm commercially producing 50,000 tons of paddy p.a.

1) KPL has expressed interest to scale this to 10k smallholders beyond 2016

Source: KPL; Interviews

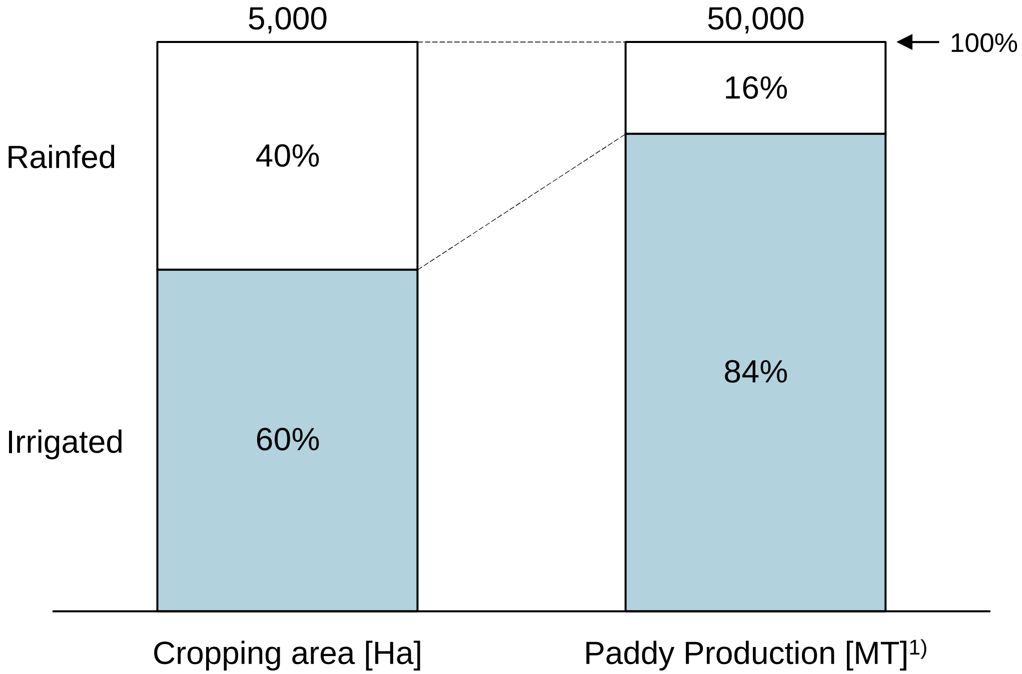
For rice alone, KPL revenue expects to reach USD XXm by 2016

Total revenue projection 2009 - 2016

Source: KPL, Interviews

Irrigation is crucial to produce returns for KPL's investors, contributing 84% of total paddy production in 2016

Commercial paddy production with irrigation in 2016



- Irrigation will allow an increase in yield and two crops a year
- KPL will borrow USD 25m for the expansion of overhead centre pivot irrigation to 3k Ha over 3 years to 2016
- The farm does not produce attractive returns for investors without irrigation
- KPL will also farm break crops (e.g., beans, mung beans, etc) to allow nitrogen back into the soil and to give it a break from rice farming
- Plan to use pivot irrigation as it allows careful monitoring of water use (pivot irrigation uses 50% of the water used by flood irrigation) and delivers high yields.

1) Assumes pivot irrigation yields 7 MT per Ha and 2 crops per year; rainfedto field yields 4 MT per Ha

Source: KPL, Interviews

In order to achieve this goal, KPL and smallholders must overcome a number of challenges along the value chain

Inputs

- **Seed: Insufficient supply of good quality seed,** seeds used are recycled and give low yields
- **Fertilizer:** Fertilizer is not adapted to soil needs
- **Land:** Risky to lease land due to tiered land tenure system and unclear titles
- **Mechanization:**
  - Spare parts and qualified workshops are not available
  - Insufficient small scale machinery

Production

- **Farming as a business:** Farmers do not consider rice production as a business and do not invest in it
- **Low yields:** Yields are 1.6-2 MT/Ha vs. best practice of 6 MT/Ha (10 MT/Ha in Brazil)
- **Agrochemicals:** Inappropriate and insufficient use of fertilizers, herbicides and pesticides
- **Agronomic practices:** Manual production practices (planting, protection, harvesting) and poor knowledge of best practices (broadcasting, lack of weeding) reduce paddy yield and quality
- **Weather:** Unreliable rains and droughts make water control difficult for rainfed farmers

Processing

- **Manual post-harvest practices** reduce yield, lead to broken rice and increase foreign matter
- **Small village mills** lack in de-stoning facilities to ensure clean rice , grading facilities are very basic
- Over supply of small scale mills providing fierce competition

Market

- **Consumer preference** is for high quality rice (aromatic, ~20% broken, fresh and clean) which current smallholder producers cannot deliver in largely quantities
- **Farmgate price**: farmers are often forced to sell paddy at low farmgate price due to lack of market access and access to storage facilities
- Export packaging material is expensive

Enabling Environment and Infrastructure

Infrastructure

- **Roads** are in bad condition making transport cost very high so there is no cost advantages of being close to Dar es Salaam market
- **Irrigation:** infrastructure is limited, under utilized and poorly managed
- **Storage:** Paddy is improperly stored (e.g., in house rooms), warehouses are not available
- Water rights maybe hard to acquire in regions as most electricity is generated through hydro-power dams

Business & finance environment

- **Financial institutions**
  - Require farmers to have collateral
  - interest rates vary and can reach (up to 100%)
- No crop insurance products available

Industry bodies & sector policies

- **Industry bodies:** Lack of industry associations, means there is no collective voice industry for rice
- Unclear role of newly formed Cereals and Others Produce Board
- Uncertain commercial policy environment: occasional export bans and waiving of import tariffs and high taxes

Research & extension services

- **R&D:** Lack of dissemination of research seed variety
- **Technical research:** Not effectively disseminated

Source: Interviews

Yield of rice is highly dependant on rainfall patterns

Dried Maize farm due to lack of rainfall, July, 2012

- Yield is highly dependant on rainfed farmers across the Kilombero Valley, including KPL commercial farm and its SRI smallholders:
  - Heavy rain in Jan (168% of Valley mean) delayed planting and drowned seedlings
  - Light rain in Feb (41% of Valley mean) retarded establishment
  - Light rain in April (65% of Valley mean) denied water in critical grain-filling stage
  - Long intra-month gaps in (19 days in Feb, 2012 and 15 days in April, 2012) with little rain are damaging to rice farming
- As a result yield of KPL's commercial farm in 2012 was under target
- SRI smallholder's were affected as well: yields on the 59 quarter-acre demo plots ranged from 0.5 to 9.3MT per Ha (but averaged at 5MT per Ha due to the resilience of SRI agronomy when faced with moisture deficit)

Source: Field visit

Smallholders dry rice next to roads with increase contamination of foreign matter

Paddy drying in Kilombero, 2012

- Paddy is dried outside mills alongside major roads, which increases contamination with stones and other impurities
- Improper drying leads to more broken grains and lower quality of milled rice

Paddy being dried on roadside near small village mill in Kilombero, 2012

Source: Field visits

KPL addresses these challenges through its integrated model and key partnerships along the value chain

Inputs	Production	Processing	Market
• Multiply seed on commercial farm • Uses higher yielding and quality seeds (SARO 5) • Uses fertilizer blended for their soil type • Commercial farm is completely mechanised	• Hired experienced rice farming expert to run production and maintain target yield levels	• Hired experienced processing expert to run processing operations • KPL mill is equipped with good de-stoner and sorter to ensure clean milled rice which is less than 20% broken • KPL is building its second mill to be operational by end of 2012; a third mill will be built when pivot irrigation is completed	• Built strong network with large traders to allow quick distribute of large volumes of rice • KPL's rice satisfies the local demand for perfumed and less than ~20% broken • KPL is actively developing its brand Mama Mchele (whole sale brand for 50kg bags ~20% broken) and looking to provide smaller packages of 1-5 kg bags • KPL stores rice and mills it when prices peak, protecting them form lower prices (~50% lower) during harvesting season

Enabling Environment and Infrastructure

Infrastructure	Business & finance environment	Industry bodies & sector policies	Research & extension services
• KPL has invested in pivot irrigation for its commercial rice farms • Using an innovative storage model using 150 MT bags	• KPL has been successful raising the funds needed for its commercial operation (USD 31 m) and has other donors interested to support its SRI initiative • KPL is looking for USD 25m to develop pivot irrigation	n/a	• KPL conducts research on seed variety with the best yields and aromatic qualities

Source: KPL; Interviews

KPL has successfully developed strong trusting relationships with the local community

School built from KPL smallholder fund

Mbasa school

Teacher house

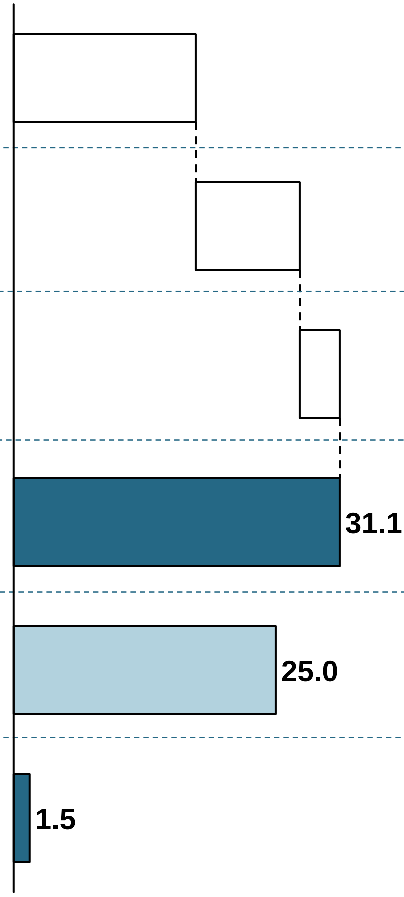
Source: KPL; Interviews

KPL has built a trusting and good relationship with its community:

- **KPL puts aside USD ~30k every year** into a **Community Development Fund** for smallholders to choose what it would like to use it for (e.g., school, water)
- When KPL purchased the farm, IFC rules were followed and over USD 600k was spent on the resettlement of existing farmers, that left resident and non-resident farmers better off than they were before:
  - Built 120 cement and tin-roof houses at a higher quality than previous mud/thatch standard for the resident farmers
  - Installed deep pump wells vs. shallow dirty wells for domestic water
  - Cleared and ploughed 3 acres for each resident or non-resident farmer regardless of the legality of their tenure
- Currently, paddy theft is present but limited and manageable
- **Constant engagement with the** community chief is maintained
- **KPL's SRI program is widely welcomed by the local community** in rice production who see its benefits (higher yield)

KPL has raised USD 31m for it commercial operation and USD 1.5m for its SRI program from a range of social investors

Investment size [USD, m]



	Investors	Comments
Commercial farming	CAPRICORN INVESTMENT GROUP	• Exclusive and independent investment manager of the assets of the Skoll Foundation and Jeff Skoll
	Norfund	• Norwegian Investment Fund invests in the establishment of profitable and sustainable enterprises in developing countries
	African Agricultural Capital and Private investors	• Agribusiness investment fund that delivers positive financial returns and high social impact invested USD 500k • Remaining funds were obtained from other investors
	Total capital raised	
	Capital required for irrigation	• USD 25m is needed to develop 3k Ha of overhead irrigation powered by biomass rice husk feedstock
SRI	**Total SRI capital raised**	• Raised grants from Norfund and AECF

Excludes capital required to expand SRI program to Kihansi Valley

Source: KPL; Interviews

Agrica, KPL's parent company has a very experienced Board

Carter Coleman,

- Founder and CEO
- Established Tanzania Forest Conservation Group, which pioneered local forest management in Tanzania, works in 140 villages and trained 10,000 villagers in agro-forestry
- Magna cum laude graduate of Vanderbilt University

John Paul Whyatt

- Founder and CFO, has a background is in strategy consulting and investment banking.
- Formerly a Director of Dresdner Kleinwort Benson and Bear Stearns
- Holds Masters from University of Pennsylvania

Nick Browne

- Founder & Non-Executive Director, has been an Agrica director since inception
- Joined Dexion Capital, a London and Guernsey based specialist consultant and investment manager in the hedge fund sector
- Holds a degree from Oxford University

Ion Yadigaroglu,

- Non-Executive Director, is responsible for direct investments at Capricorn Investment Group.
- Serves on the boards of directors of SeaChange Maritime, Zag.com, Agrica Limited, Automatiks, Targeted Growth and Falcon Waterfree
- Holds PhD from Stanford University

Alan Chang

- Managing Director at Capricorn Investment Group and serves on the Investment Committee
- Serves on the boards of Sunpreme, Suminter India Organics, Agrica and ReProduct,
- M.B.A. from Harvard Business School

Alan Boyce.

- Non-Executive Director, is co-founder, former president and board member of Adecoagro (integrated food and renewable energy company)
- Director of Special Situations at Soros Fund Management LLC
- Holds an MBA from Stanford University

Sven Arild Andersen

- Non-Executive Director, formerly the CEO of Oslo Stock Exchange
- On the board of several companies in the Nordic area and the USA
- Chairman of Casquip Starch, South Africa and three Norwegian companies
- Nominated to Agrica's board by Norfund

Source: Agrica

In Tanzania, KPL has a experienced management team

Graham Anderson

- General Manager, worked on land selection and feasibility studies for the Tanzania project since early 2005
- Previously worked for the Commonwealth Development Corporation in Malawi and Tanzania
- In 2001, started his own floriculture business in Tanzania
- Grew up in Kenya, holds an MSc in Soil and Water Engineering from Cranfield University

Murray Dempsey

- Crop Production Manager, has experience over a broad range of farming disciplines
- Previously held the position of Agronomist for MIA Rural Services, advising on the production of cereals, rice, maize, soybeans, soil analysis, fertilizer, pest control, budgeting and increasing yields
- Holds a Bachelor of Agriculture from the Charles Stuart University

Stanley Ngugi

- Rice Mill Manager, is East Africa's most experienced rice mill engineer
- Stanley joined KPL in November 2009 from Dominion Farms, an American rice operation in Kenya
- Previously worked for three other rice mills in Kenya.
- Holds a BSc. in Agricultural Engineering from Egerton University, Kenya and a certificate in rice processing from Japan

David Lukindo

- Human Resources Manager, spent his career in estate and personnel management for large tea estates in Tanzania from Unilever's Brooke Bond to Commonwealth Development Corporation's EUTEACO
- David is responsible for personnel, security, community outreach and advises on recruitment

Mark Lasco

- Financial Controller, joined KPL from KPMG, where he was a senior auditor
- A Chartered Accountant in the UK and Tanzania with a Bachelors degree in accounting from the University of Dar es Salaam
- Responsible for the overall financial control of KPL and Agrica Tanzania's operations

Thobias

- SRI Manager, previously worked in the Ministry of Agriculture as private assistance to ministry, in charge of environmental and curriculum development for extension officers
- District commissioner and representative of International Centre for Research and Agriculture in Mbeya
- Consultant in development projects
- Msc in Agro forestry, Bsc in Agriculture Journal, Diploma in Crop Production

Source: KPL

G. Morogoro partner analysis

3. Recommendations for Kilombero Plantation Limited

SRI will help smallholders address challenges all along the value chain

Inputs	Production	Processing	Market
• **The right good quality inputs will be provided** to smallholders which they currently have difficulties accessing • **Better seeds will be provided** which produce higher yields and quality, thus fetching a higher price; farmers currently recycle low quality seed which produce lowered yield and quality • **Agro chemicals will be provided** which improve paddy quality and reduce risk of paddy loss to outbreaks	• **Agronomic training will be provided to help** smallholder rice farmers achieve higher yields and quality paddy • **Cash flow management training** will be provided by microfinance institution to ensure good cash management and loan repayment • **Rakes and weeders will be provided** to ensure proper weeding, thus increasing the yield and quality of paddy	• n/a	• **Farmers are guaranteed a buyer** of paddy

Enabling Environment and Infrastructure

Infrastructure	Business & finance environment	Industry bodies & sector policies	Research & extension services
• n/a	• Loans from **microfinance** institution will be provided to be repaid on a fortnightly basis in cash	• As more smallholders are engaged in rice farming, community/associations should be strengthened and will have **a stronger collective voice**	• KPL **will conduct R&D** for inputs (e.g., seed, agro-chemicals) which will be **shared with the smallholders**

USAID assistance with the scale up of KPL's smallholder model (SRI) is still in development)

Source: KPL; Interviews

In the long term, KPL will need support in expanding its innovative smallholder farming (with processing facility) in the Kihansi Valley area

KPL's second smallholder program (SRI) in Kihansi Valley[1)]

1) Kihansi Valley area, is 25 to 50 km south of KPL's farm in Mngeta

Source: KPL, Interviews

Items in BOLD are suitable for donor support

Gates foundation is well placed to support SRI address key smallholder issues (1/2)

	Inputs	Production	Processing	Market
Design	• Review performance of existing SRI farmers • Refine SRI model for new location • **Specify requirements for small scale mechanization**	• **Review and revise training program** • **Design model farms** • **Identify model farmers** • **Select pilot farmers** • Recruit team	• **Develop model for paddy collect** • **Develop business model** • **Help with technical assistance**	• Develop own brand rice and smaller packages • Fix pricing and set price premium to be paid • Understand smallholder cash needs • Develop harvesting model
Pilot	• Deliver inputs to pilot farmers in new location • **Identify potential partners for small scale mechanization**	• **Implement training for staff /business service providers** • **Implement training for pilot farmers only** • **Identify and select partners for implementation** • Refine model	• Collect paddy • **Refine model**	• Execute • Refine model • Update prices
Impleme ntation	• Obtain and deliver inputs • **Run Challenge for development of small scale mechanization**	• **Roll out/implement by NGO partners** • **Train business service providers** • **Identify and select farmers**	Collect paddy	• Sell, bag rice, pay, review • Develop new product • Review marketing campaign
Scale	• Obtain and deliver inputs • **Test and roll out small scale mechanization**	• Implement (business service provider) • Identify and select smallholder farmers	Collect paddy	• Sell, bag rice, pay, review • Develop new product • Review marketing campaign

Source: Team analysis

Items in BOLD are suitable for donor support

Gates foundation is well placed to support SRI address key smallholder issues (2/2)

	Enabling Environment and Infrastructure			
	Infrastructure	**Business & finance environment**	**Industry bodies & sector policies**	**Research & extension services**
Design	• **Develop land preparation model** • **Develop warehouse receipts system**	• **Develop financing model** • **Develop insurance model**	• **Design central Ministry Agricultural Improvement Team (AIT)**	• **Select and identify candidates** • **Design trainer program and business model** • **Identify technical R&D**
Pilot	• Execute land preparation • **Refine land preparation model** • **Build and test initial warehouses**	• Provide finance and monitor repayments • **Refine finance model** • **Test insurance model** • **Underwrite loss (share risk of default)**	• **Identify association members** • **Recruit and train members of AIT**	• **Share technical R&D** • **Train the trainers** • **Update**
Implementation	• Execute land preparation • **Refine warehouse receipts model**	• Provide finance • Refine and provide insurance	• **Develop association and underwrite start up costs** • **Support AIT activities**	• Execute • Update
Scale	• Execute land preparation • **Scale warehouse receipts model**	• Provide finance and insurance	• Run association • AIT addresses issues in Tanzanian agriculture	Execute

Source: Team analysis

H. Next steps

Next steps

Activity	Timing
• Understand Kapunga's issues with the community and how they are to be resolved	• Aug – Sept 2012
• Test required activities with private sector partners and identify the ones that donors will support	• Aug – Sept 2012
• Select potential partners	• Sept – Nov 2012
• Request a detailed work outline and cost from potential partners for the support	• Nov 2012 – Jan 2013
• Identify donors willing to co-fund the support	• Nov 2012 – Jan 2013
• Select partner	• Feb – Mar 2013
• Launch support	• April 2013

Source: Team analysis

There are a range of potential partners for donors to work with to provide funding and assistance

Potential implementation partners

- RUDI (Rural Urban Development Initiative) has extensive experience training rice smallholders in Tanzania
- TechnoServe have extensive experience in implementing value chain programmes in Tanzania
- ACDI VOCA have extensive experience working with smallholder rice producers
- FAO- SHF have experience in outgrower scheme design in Tanzania
- GIZ are currently implementing smallholder rice projects in West Africa
- Experience working with smallholders training farming techniques and distributing seeds in Tanzania

Potential funding partners

- USAID is very active in smallholder development in Tanzania , such as KPL's SRI programme
- World Bank is very active in the infrastructure development in Tanzania and has committed USD 150 m for irrigation investment in the country
- JICA are very active in the rice industry development such as TANRICE which aims to strengthen government institutions services to rice cultivation

Other multinational donors (e.g., AGRA) and bilateral donors (e.g., FMO) might also be interested

Source: Desk research

APPENDIX

Interviewees and desk research

NGOs and Industry experts

- USAID
- Rural Urban Development Initiative (RUDI)
- Tanzania Agricultural Partnership (TAP)
- Aga Khan Foundation
- NAFAKA
- World Bank
- TechnoServe

Commercial players

- Kilombero Plantation Limited
- Kapunga Rice Plantation Limited
- Export Trading Group
- Mtenda Kyela Rice Supply Limited
- Duxton
- SS. Bakhresa
- Mohammad Enterprises
- OLAM

Government

- Ministry of Agriculture - Deputy Permanent Secretary
- Ministry of Agriculture - Research & Development
- Tanzania Ministry of Water and Irrigation
- SACGOT (South Agriculture Growth Corridor Government of Tanzania)
- Extension officers
- Farmer Association
- Microfinance

Smallholders

- Kilombero smallholders
- Mbarali smalllholders

Desk research

- U.S. Dept. of Agriculture (USDA)
- Food & Agriculture Org (FAO)
- International Monetary Fund (IMF)
- World Bank
- East Africa Regional Agricultural Trade Intelligence Network (RATIN)
- National Bureau Statistics Tanzania
- Match Maker Associates