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MicroCLIR/CIBER ASSESSMENT

The legal, policy, regulatory, and institutional constraints
to the growth of maize and rice in Tanzania

AGENDA FOR ACTION

August 2010



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DISCLAIMER

The views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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INTRODUCTION

The purpose of the MicroCLIR/CIBER assessment was twofold: to analyze the legal, policy, regulatory, and institutional constraints to the growth of two important food crops in Tanzania (maize and rice), and to see how the two diagnostic tools, MicroCLIR and CIBER, can be used in concert. The results yielded findings that were specific both to the two value chains and to the issue of food security in Tanzania generally, and highlighted systemic policy issues affecting the entire agricultural sector.

OVERVIEW OF MicroCLIR

MicroCLIR is a new way to apply the more general BizCLIR diagnostic methodology. BizCLIR is a tool designed to assess the business climate in a given country based on four assessment dimensions (legal framework, implementing institutions, supporting institutions, and social dynamics) and is aligned with the 10 Doing Business topics included in the World Bank's Ease of Doing Business Index. MicroCLIR applies this framework to one or more specific value chains to assess the practical effects of certain laws, policies, and regulations on a sub-sector. Because the analysis is so focused, the team used the four dimensions to examine six constraints to the growth of the maize and rice value chains and did not apply the more general Doing Business topics.

MicroCLIR consists of the following steps:

1. Perform a literature review to form a hypothesis of potential constraints facing the value chain.
2. Conduct an overview value-chain analysis to understand how each segment interacts with the next and who the main stakeholders are.
3. Identify priority constraints affecting the value chain.
4. Analyze each constraint from four perspectives: legal framework, implementing institutions, supporting institutions, and social dynamics.

- **Legal Framework.** This section will contain an analysis of the laws and regulations that govern or are the structural basis for the particular constraint. The analysis will examine how the laws, regulations, and policies affect the different players in the value chain, whether the legal framework causes or promotes the constraint, how clear the guidelines are, how closely they follow global standards, and what inconsistencies exist.
- **Implementing Institutions.** Next this report will examine how those institutions with the primary responsibility for implementing a regulation or policy are enabling or alleviating a particular constraint. These institutions include government ministries, authorities, and registries, and, in certain cases, private institutions such as banks and credit bureaus.
- **Supporting Institutions.** The report will then discuss the supporting institutions and how they affect or interact within the value chain as a result of a particular constraint. Examples include farmer associations and cooperatives, rural banks, professional associations, agriculture and other university faculties, and donors.
- **Social Dynamics.** Each constraint section will also elaborate on key social or cultural issues that underpin the constraint. Roadblocks to reform, in particular, are considered, including those

entities that may be undermining change. Social dynamics also concern such important matters of gender, human capacity, and public health, each of which may have a significant bearing on how the business environment truly functions.

OVERVIEW OF CIBER

The Competitiveness Impacts of Business Environment Reform (CIBER) approach was developed by DAI in 2008 with support from the USAID Microenterprise Development Office. This approach provides guidance to increase competitiveness of targeted value chains within donor-funded programs by accomplishing reforms in the business environment while building advocacy capacity among value-chain stakeholders. Using this action-oriented approach, researchers and program staff are able to do the following:

1. Carry out a comprehensive strategic analysis of markets and competitors;
2. Identify key elements of the business environment that affect competitiveness from the perspective of the selected value chains;
3. Assess the benefits and costs of business environment reforms that target the constraints (or reinforce positive impacts) identified in Step 2;
4. Assess the political and administrative feasibility of specific reforms; and
5. Develop (and implement) advocacy plans to support reform initiatives.¹

The approach builds on existing research and understanding of official documentation governing business environment issues (such as laws or regulations), while working closely with value-chain stakeholders to assess the on-the-ground impacts of specific constraints or missed opportunities (frequently in terms of quality or market access). These assessments, which may include cost models estimating the value lost to the value chain or specific categories of stakeholders, serve as the foundation for stakeholder-led activities to advocate for reform.

PROGRAM CYCLE TOOLS: STRATEGY AND TACTICS

MicroCLIR and CIBER are both powerful diagnostic tools to use within USAID's program cycle. The MicroCLIR approach is most appropriately used as a program-planning tool to understand and prioritize possible interventions in the policy and regulatory environment from a strategic perspective. The CIBER approach is most effective when conducted in the framework of an existing program where immediate actionable recommendations are required and where program personnel and value chain stakeholders are engaged in collaborating to achieve reform.

BLENDING OF THE TOOLS

MicroCLIR and CIBER both serve to prioritize key constraints to the business environment for specific value chains. Both review the business environment, including legal and regulatory regimes, and both identify the key stakeholders engaged in the process of reform. The areas of each report that address laws, institutions, and supporting institutions are only presented once. Where these tools differ in terms of the approaches and outputs of their analytic strategies suggests that they both have important roles to play at different stages of the program cycle.

JOINT METHODOLOGY FOR TANZANIA

The MicroCLIR team and the CIBER team joined up to conduct the assessment applying both methodologies to the maize and rice value chains in Tanzania. USAID/Tanzania selected these two value chains because of their importance for food security in Tanzania, a major focus of future agriculture programming for USAID in the country. Over a two-week period, March 15–30, 2010, the joint team focused on two regions: Morogoro/Kilombero and Manyara/Kiteto. These regions are both major producers of rice (Kilombero) and maize (Kiteto) and are chronically food insecure.

The team interviewed a broad spectrum of value-chain stakeholders for both maize and rice including farmers, traders, millers, exporters,

¹ USAID. CIBER: Enhancing Competitiveness Impacts of Business Environment Reforms, *A Value-Chain Approach for Analysis and Action* (August, 2008).

input supply companies, financial institutions and other service providers, central government, district government, NGOs, donors, and advocacy institutions. From these interviews, the team developed a long list of constraints affecting the value chains. Through a process of prioritization, the top six were selected.

The MicroCLIR assessment identifies high-level constraints, such as marketing systems and productivity, while CIBER is most relevant to understanding and building activities to reform one or more specific issues that can be immediately addressed. Due to the context of this assessment, which served as a pilot application of MicroCLIR in the pre-program design phase, full implementation of the CIBER tool was not applicable. Instead, legal and institutional reviews have been included as part of MicroCLIR, and sample CIBER analyses and reform feasibility assessments have been included to illustrate the potential for this methodology to contribute to reform advocacy initiatives.

An analysis of political and administrative feasibility of reform can be used both to identify constraints that can be addressed during the lifespan of a USAID-funded project and to understand the opportunities and challenges that reformers are likely to face, based on a host of factors including past reform efforts along with other historical, cultural, and political issues. The administrative reform analysis addresses the fact that reforms requiring a constitutional change or a new law and implementing regulations, for example, will necessitate a much different approach than one that

requires political will to enforce an existing law, or a change to an administrative procedure.

Complete CIBER analyses have been conducted elsewhere, including with the cashew value chain in Brazil,² the swine value chain in Cambodia, and the meat industry in Moldova.

OVERVIEW OF COMPETITIVENESS VS. FOOD SECURITY

Analysis of food security has conventionally considered three components: availability, access, and utilization (although a fourth component of sustainability/reliability has increasingly been included). Although these components are interrelated, they tend to be affected by different sections of the value chain. Thus, availability is normally a function of production (although transport may also have a significant impact), while access is primarily a function of price and income levels (i.e., the dynamics of the market). Utilization may be affected by health and sanitation, and by dietary diversity, which may itself be affected by access to and availability of different foods.

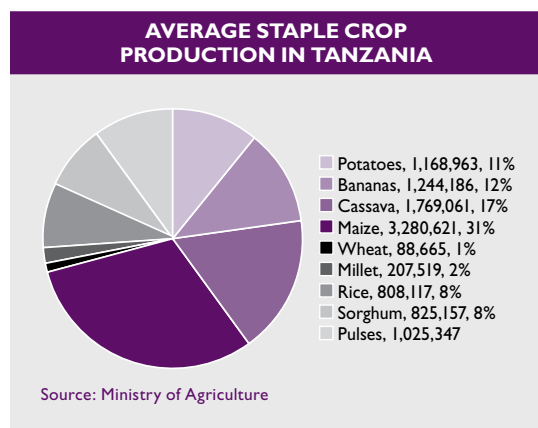
Maize and rice are main staple crops produced in Tanzania which are the primary and secondary crops as a portion of food budget, and serve as the two primary and secondary cereals in Tanzania measured by kcal per capita per day as of 2007³; thus interventions in these value chains will necessarily support greater food security. It is important to determine which components are the primary constraints on national food security, since initiatives designed to enhance food security can then be most cost-effectively focused on the appropriate links of the value chains.

A national assessment of food insecurity in Tanzania conducted by Oxfam in January 2010 lists the most vulnerable areas and social groups. The assessment describes the following four key groups:

- I. Poor households in urban and rural areas that are reliant upon the market for most of their food

2 Hugo Santana de Figueirêdo Junior and Bryanna Millis. "Evaluating Competitiveness Impacts of Regulatory Reforms in the Brazilian Cashew Industry." *Development in Practice*. Volume 20, No. 6, August 2010.

3 FAO (Food and Agriculture Organization) (2009). See <http://faostat.fao.org/site/339/default.aspx>. For FAO agricultural trade data, see <http://faostat.fao.org/site/342/default.aspx>.





2. Marginal producers who are not capable of producing enough food to meet their needs
3. Farmers whose crop production has been affected by specific diseases (such as cassava mosaic and banana wilt)
4. Pastoralists subject to repeated drought and diminishing herd size

The third and fourth groupings are not relevant to this specific assessment, but it is the first and second groups and their relative sizes that are key to the design of food security initiatives.

For the first group, the poor households who are market dependent, access to food is the main determinant of food security. This is the largest group in the country and food security is a function of the group's purchasing power and of price. Two types of development initiative will benefit these households: those that create employment and increase household income and those that reduce consumer prices.

For the second smaller group, the situation is less clear-cut. Households that could feed themselves in a good year could improve their food security if they were assisted by increasing production to achieve a consistent surplus.

This would remove any need to access the market, other than to sell food to generate income. Households that could not feed themselves even in a good year could nevertheless reduce their reliance upon the market by increasing production, which would in turn increase the amount of food available in the market. This would tend to reduce food prices, thus increasing access for those who are more market dependent.

Initiatives to increase food availability would benefit most households, but most initiatives that increase production require some additional investment on the part of the farmer, either in labor or in inputs. Such additional investment can only be justified if the increased revenue consistently exceeds the additional costs. Unfortunately, given the inelastic price demand for staple foods, this is rarely the case. Initiatives designed to increase food supplies can easily result in a collapse in producer prices by a proportion that exceeds the increase in volume, effectively reducing producer incomes, leading to widespread farmer indebtedness and reduced food security in the long term. The availability of food in Tanzania can only be sustainably increased if initiatives focusing on production are balanced with those that increase demand so that the increased food can be absorbed by the market.

The last two components of food security (utilization and reliability) are also important for Tanzania, however that assistance focused on availability and access likely will yield greater impact. Incidence rates of malnutrition in Tanzania are partly attributed to poor utilization of food and lack of dietary diversity, but trends have shown positive developments over the past ten years. Both rural and urban diets are sufficiently diverse generally to meet nutritional requirements, and population levels are not such as to make sanitation the issue it is in other countries (such as Bangladesh). The reliability of food supplies is an issue in a predominantly rain-fed agricultural sector. In the absence of widespread irrigation, this is an

unavoidable situation that increases the importance of achieving the necessary purchasing power to access food from the international market when necessary.

Overall, nationwide food security assessments consistently indicate that access to food through the market is most critical to food security.

Improved access can be achieved by the following:

- **Increased production:** This is only sustainable if farmers can make their production systems more profitable, usually by increasing the scale of their operations and making cost savings through economies of scale and by achieving more timely production through mechanization.
- **Market interventions:** These tend to depress prices and de-motivate producers. Prices are artificially held down, but yields do not increase; farmers' incomes can be substantially reduced and the incentives for subsequent production decreased.
- **Reduced transaction costs between producer and consumer:** This can result in increased consumer access and increased producer prices. Reduced transaction costs can be achieved through improved infrastructure (e.g., reduced transport costs through improved feeder road network) or increased competition within each step

of the farm-to-market chain. The increased competition will inevitably result in reduced profits being taken at each step, so that retail prices can be reduced.

- **Increased consumer incomes:** If costs cannot be reduced, then increased food security is dependent upon increases in purchasing power as a result of overall development within the economy.

The balance between consumer and producer has to be set so that there is sufficient market incentive to the producer to increase production at a price that the consumer can afford. Within this context, it is important that the current Kilimo Kwanza program is balanced in terms of both increased production and market development. It can be argued that given market development, production will increase of its own accord. This may be debatable, but it is clear that production initiatives in the absence of market development are positively detrimental to food security. Support to those initiatives that can increase the efficiency of the value chain and reduce transaction costs can increase the market for staples, while simultaneously reducing consumer prices. This will be critical to the success of the Kilimo Kwanza initiative.



VALUE CHAIN ANALYSES: MAIZE AND RICE

Maize and rice are both important food crops in Tanzania. Maize is traditionally the primary staple preferred by Tanzanians and throughout the East African region. This makes maize a historically politicized crop subject to trade restrictions and protectionism. Maize is also considered primarily a food crop and not at all a cash crop, but as detailed throughout this report, most maize producers grow maize for consumption and for sale. Rice, while an important staple in Tanzania, is considered a more affluent food product. As Tanzania urbanizes and the population becomes more affluent, the demand for rice has grown. Unlike maize, rice is viewed as more of a cash crop despite the fact that many rice producers also grow rice for consumption and for sale.

The basic structures of both value chains are quite similar but there are some nuanced differences. Below are two brief value chain analyses: one for maize and one for rice.

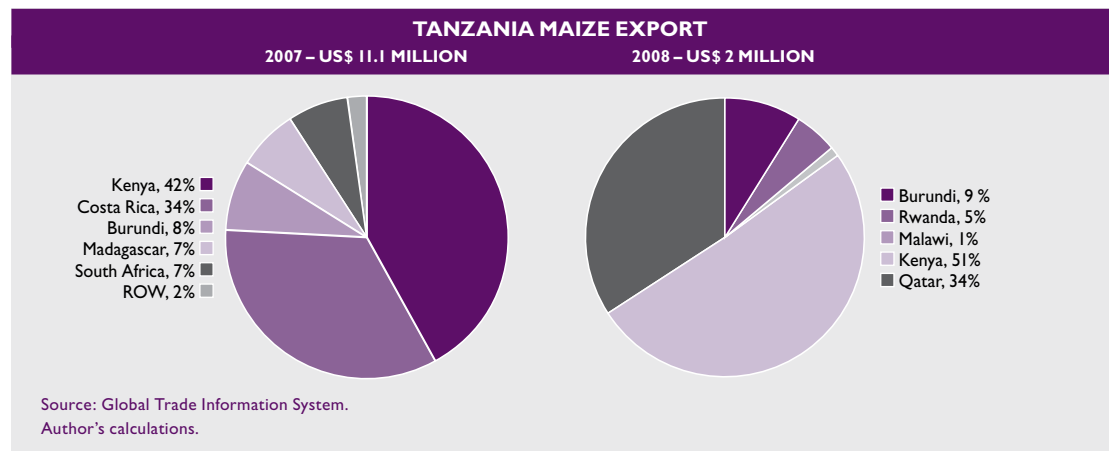
MAIZE VALUE CHAIN OVERVIEW

END MARKETS

Of the 3.4 million MT of maize produced in the 2005–2007 period, Tanzania exported only 71,400 MT or 2.10 percent, while the country imported 11.6 million MT, or 3.4 percent of its consumption.⁴ The value of maize exports

varies dramatically from year to year, ranging from US\$3.4 million in 2004 to US\$11.2 million in 2007. Following the institution of an export ban on maize in early 2008, exports dropped to US\$2 million.

Neighboring countries in East and Southern Africa, Kenya in particular, have traditionally been Tanzania's primary export markets. However, in 2007 and 2008, respectively, Costa Rica and Qatar imported nearly a third of Tanzania's exports, while in 2009 only the Netherlands reported official imports of maize from Tanzania. The map shows regional trade flows of maize in and out of Tanzania.



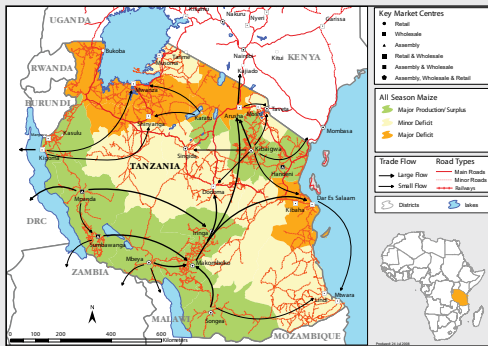
4 Nicholas Minot, *Staple Food Prices in Tanzania*, prepared for the Comesa policy seminar on "Variation in staple food prices: Causes, consequence, and policy options," Maputo, Mozambique, January 25–26, 2010, under the African Agricultural Marketing Project (AAMP), FAO (Food and Agriculture Organization) (2009). For FAO agricultural production data, see <http://faostat.fao.org/site/339/default.aspx>. For FAO agricultural trade data, see <http://faostat.fao.org/site/342/default.aspx>.

MAIZE CONSUMPTION

Maize is Tanzania's most important staple, contributing 33 percent of the total calories in the national diet. The key characteristic of the majority of maize consumers—their limited purchasing power—is an extremely price-sensitive market

that is predicated on lower quality produce. Maize millers interviewed noted the very limited demand for anything other than hammer milled maize. Overall, the market is dominated by products that deliver the most adequate nutrition at the cheapest price. As a result, the degree of price differentiation for quality, either at the retail level or at other levels of the value chains for maize, is very limited.

PRODUCTION AND MARKET FLOW MAPS: TANZANIA ALL SEASON MAIZE



Source: USAID-FEWSNET

MAIZE IMPORTS

The value of maize imports mirrors the annual fluctuations in domestic production. In recent years imports have ranged from US\$24 million in 2006 to US\$1 million in 2007 before rising to US\$14 million in 2008. In 2009 Tanzania imported US\$5 million in maize, primarily from South Africa. The drop in imports from Kenya between 2007 and 2008 reflects Kenya's own export ban, put in place several months after Tanzania's.

STAPLE FOOD CONSUMPTION

Commodity	Quantity Consumed (kg/head/year)	Daily Intake of Calories (Kcl/head/day)	Share of Calories (%)
Maize	73	655	33
Cassava	157	298	15
Rice	16	154	8
Wheat	10	79	4
Sorghum	9	79	4
Other		730	36
Total		1995	100

Source: FAO Food Balance Sheet 2009 (<http://faostat.fao.org/site/368/default.aspx#ancor>)

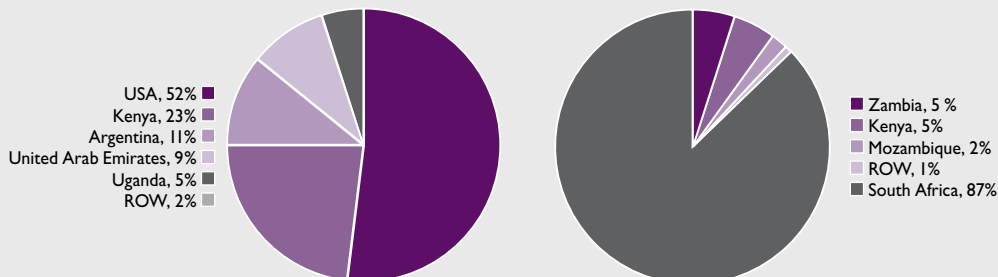
MARKET TRENDS AND DEMANDS

Prices. On average, the prices in four East African countries—Kenya, Rwanda, Tanzania, and Uganda—follow the same general trends, as shown below. Prices were rising rapidly in 2007 and 2008 before stabilizing somewhat at a relatively high level in 2009 and beginning to fall in 2010. Maize prices are impacted by a number of factors, including costs of fuel and other inputs. Thus, the stabilization of prices in 2009—one intended impact of the export ban—is not solely the result of this policy change. Prices did

TANZANIA MAIZE IMPORT

2007 – US\$ 1 MILLION

2008 – US\$ 14 MILLION



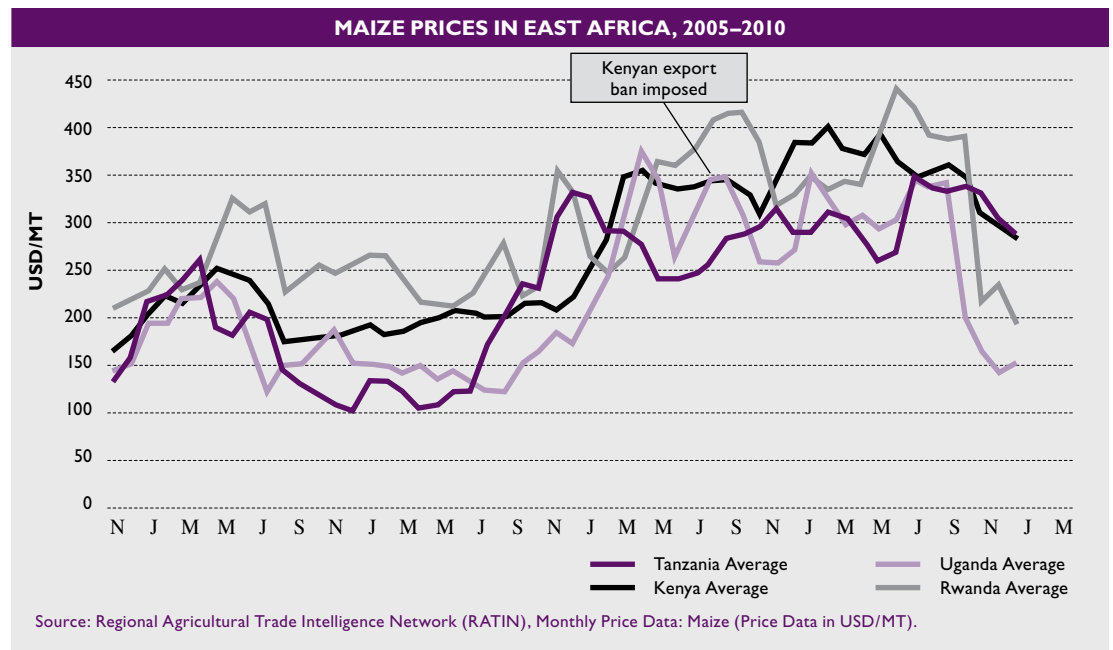
Source: Global Trade Information System.
Author's calculations.

initially fall, following the harvest time trend in March and April.

Tanzania's average prices have historically been well below those in Rwanda and somewhat lower than in Kenya. The current exception to this trend—in March 2010 prices in Tanzania were about US\$275/MT while in Rwanda they had fallen to less than US\$200—is expected to

change as Tanzanian stocks are cleared for the new harvest in May.⁵

It is also apparent from the above graph and the figure that follows (Maize Calendar for COMESA & EAC) that the timing of harvests and lean times (and hence higher and lower prices) are staggered among EAC countries. Given the existing cost of finance (no more than 20 percent per annum) and average storage



MAIZE CALENDAR FOR COMESA AND EAC

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Uganda	H	H T	P T	P L	T L	T L	H	H	T	T	T H	T H
Kenya	H	H T	P T	P T	T L	T L	T L	T H	L H	H	H	H
Tanzania	H	H	L	L	H	H	H T	T	T	P	P	T P
Malawi	L	L	L H	H T	H T	H T	H T	T	T	T P	P	P
Zambia	L	L	L	T H	H	H T	H T	T	T	P	P	P
Zimbabwe	L	L	H	H	H	H	H	T	T	P	P	P
Ethiopia	H T	T	T	P T	P T	P T	L	L	L	L	H	H
	L=Lean (Low availability)			P=Planting			H=Harvest			T=Trading		

Source: RATES Program, USAID, Stephen Njuki, *Using Markets to Increase Food Security*, 2nd African Drought Risk and Development Forum (October 16th, 2006).

5 USAID, FEWSNET, TANZANIA Food Security Update, April to September 2010 USAID, available at [Tanzania_Outlook_April_2010_final.pdf](#).

EXTREME MONTHLY MAIZE PRICE RATIOS—EAST AFRICA

Country	Monthly Maize Price Ratio			Month	
	2005/6	2006/7	2007/8	High	Low
Tanzania (Dar es Salaam)	2.06	2.56	2.92	Mar	Jul
Malawi (Lilongwe)	2.49	1.39	2.79	Mar	May
Uganda (Kampala)	1.98	1.72	1.96	Dec	May
Mocambique (Maputo)	2.01	1.45	1.34	Feb	Jun
Ethiopia (Addis Ababa)	1.15	1.45	2.13	Aug	Nov
Kenya (Nairobi)	1.35	1.23	2.03	Jun	Nov
South Africa (Randfontein)	2.02	1.52	1.01	Mar	May
Zambia (Lusaka)	1.33	1.49	1.35	Jan	Jun

Source: Chapoto and Jayne, January 2010

losses of 20 percent, the seasonal variation observed from 2005 to 2008 (shown above) in Tanzania would allow for a 66 to 152 percent gross margin to be made through temporal arbitrage, provided that storage was available. This situation was not repeated in 2009 when the imposition of the export ban depressed domestic grain prices.

MAIZE VALUE CHAIN MAP

Channel 1 Local Maize Production

Only 25 to 35 percent of the grain produced in Tanzania enters the commercial channel. About 65 to 75 percent is consumed within the village infrastructure. This does not mean, however, that 65 to 75 percent of the grain produced remains within individual rural households. A significant volume of this grain is also traded between households on a less formal and more direct basis that may or may not involve cash transactions. Various sources⁶ have noted that only a small percentage of rural households regularly produce surplus grain and the majority of households depend upon purchases from formal or informal markets to meet their needs. The informal transactions that make up the bulk of the grain market in Tanzania are not reflected here, although they may in some way shadow the values determined in formal markets.

Input supply. Inputs suppliers providing fertilizers, seeds, herbicides, and agricultural implements are well established and offer different types of products. They usually do not sell on

credit and either import directly or procure from main chemical importers based in Dar es Salaam.

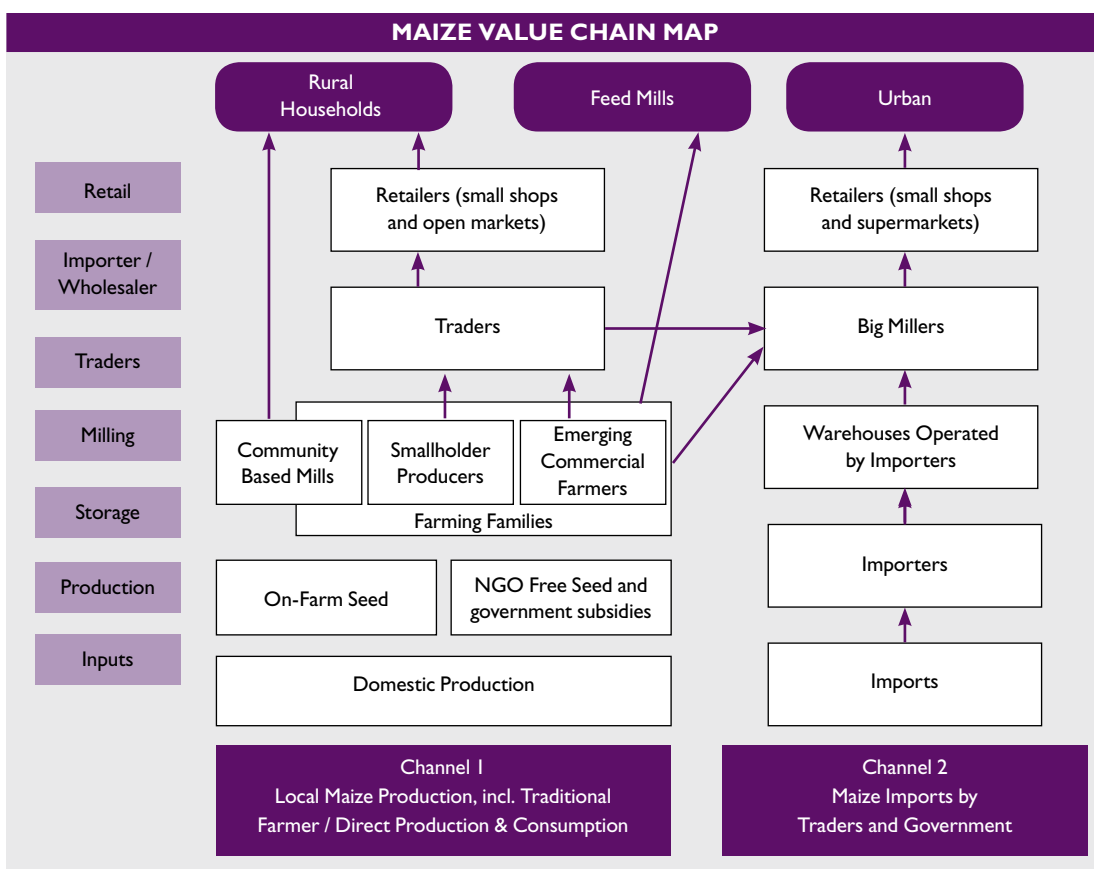
Support services. The transport of grains within Tanzania has been well assessed recently.⁷ There is no reliable rail network at present and almost all grain is transported by road. Transport costs contribute significantly to both maize and rice value chains. In this regard, the key constraints have been clearly identified. There are both nuisance issues (roadblocks, weigh bridges and associated delays and corruption) and inefficiencies at border crossings that can be addressed. There is also the cost of cess imposed by district authorities on grains moving between districts. This latter charge is often quoted as contributing to high transport costs, but in practice this was not found to be more than 1.5 to 2 percent (and sometimes significantly less) of the wholesale value, and is in any case capped at 5 percent of wholesale value by national legislation. The major constraint to grain distribution lies in the cost of transport on feeder roads, which was estimated to be more than 70 percent.

Producers. The production of both maize and rice is undertaken mainly by small-scale farmers. Less than 2 percent of the national maize crop is derived from large-scale production.⁸ The crop is grown throughout most of the country, although commercial production is concentrated in the Southern Highlands (Iringa, Mbeya, Rukwa, and Ruvuma), in the West (Kagoma, Kagera, Shinyanga, and Tabora), and in Manyara in the north. Nevertheless 85 percent of all Tanzanian

⁶ T.S. Jayne et al., *Do Farmers Really Benefit From High Food Prices? Balancing Rural Interests in Kenya's Maize Pricing and Marketing Policy*, Working Paper 2b, Tegemeo Institute, Nairobi, Kenya (2001).

⁷ Ibid.

⁸ The National Agricultural Sample Census 2002–2003 estimates 54,000 MT have been produced from 600 large-scale farms covering 25,000 ha.



ESTIMATED COST OF MAIZE PRODUCTION

Notes	System Inputs	Qty/ha	Traditional Price/Unit	Cost/ha	Qty/ha	Improved Price/Unit	Cost/ha
1	Seeds	15	\$0.301	\$4.51	17.5	\$1.729	\$30.26
2	Fertilizer (basal)	2000	\$0.008	\$15.04	5	\$20.680	\$103.40
3	Top dressing				2.5	\$24.440	\$61.10
4	Pesticides						\$22.56
5	Labor (man days)						
	Land preparation	15	\$1.500	\$22.50	15	\$1.500	\$22.50
	Seeding	2	\$1.500	\$3.00	2	\$1.500	\$3.00
	Thinning	1	\$1.500	\$1.50	1	\$1.500	\$1.50
	1st-3rd weeding	13	\$1.500	\$19.50	13	\$1.500	\$19.50
	Harvesting	4	\$1.500	\$6.00	12	\$1.500	\$18.00
6	Transport	3	\$2.000	\$6.00	9	\$2.000	\$18.00
	Total			\$78.05			299.82
7	Yield kg/ha			1150			4400
	Cost per 100 kg			6.786858			6.814081
	Cost per short ton			61.569340			61.816303

Sources:

1. Data provided by Kibaya DALDO.
2. Traditional use of 1 MT/ha manure, improved use of 250 kg/ha Minjingo phosphate.
3. Improved use of 125 kg/ha Urea.
4. Use of Actellic dust on stored grain.
5. Estimated unskilled wage.
6. Higher cost includes hire of oxcart.
7. Traditional yield is five year average, improved yield is level required to achieve similar cost/bag to traditional system.

farmers produce maize. The average farm size is 2.4 ha, of which 1.9 ha is cultivated in any one year and on those farms growing maize, the crop is allocated approximately 0.8 ha.⁹

Consolidators. The small scale and fragmented nature of maize production in Tanzania make it necessary to assemble larger volumes for wholesale from a number of different farms. This may be undertaken by farmer groups, by private individuals with access to small-scale transport facilities (ranging from ox carts to small trucks), or by the agents of larger trading companies. In each case, however, volumes usually of 100–1000kg are brought to a single point for onward shipment or sale. The value added by the consolidators consists of the cost of transport, finance, and discovery. Discovery is the key characteristic of the process of assembly, and provides both added value and the opportunity for profit. The barriers to entry into the business are small and the number of consolidators in any given market is enough to ensure open competition so that margins for both rice and maize assembly are limited to no more than 5 percent.

In most cases, assemblers are financially independent, but will still develop links with specific traders who they will supply on the basis of a pre-agreed price. Some assembling is done by farmers who may produce their own crops and sell them in conjunction with those of their neighbors, making a small margin in the process. In other cases, farmers may assemble their crops through the agency of a local cooperative or farmers' association, in which case, any margin derived from the larger assembled volume will be shared among all participants. A third type of consolidator is the agent of a large trading company, operating with access to the resources of that company. Such agents often have ready access to finance, storage, and transport and tend to have an advantage in the market.

Key characteristics of independent consolidators that were observed in this study include the following:

1. Limited financial capacity, allowing the accumulation of no more than 5- or 10-ton lots of grain at a time;
2. Zero or limited storage capacity, requiring grain to be moved rapidly to its final destination; and
3. Limited transport capacity, requiring the hiring of external transport facilities.

These characteristics define assemblers as quintessential middlemen, trading on a rapid back-to-back basis and making a small margin on most trades, irrespective of market movements, but incapable of taking a position in the market or of affecting prices.

Millers. Maize is milled to flour, either by a hammer mill, which converts almost 99 percent of the grain to flour, or by a roller mill that may be set to discard the seed coat so as to produce a more pure white flour with a yield of 85 percent. Alternatively, a dehuller may be used prior to hammer milling, in which case the yield of flour is approximately 67 percent.¹⁰ The majority of maize in Tanzania is milled by hammer mill, either on a custom milling basis or for sale as maize meal. The milling business is highly competitive. A large number of small hammer mills operate throughout the country, and millers currently complain of inadequate throughput. Although there are a small number of large maize and rice mills in Tanzania, almost all production is undertaken by the smaller mills (hammer mills for maize and small village processing rice mills of 10 MT/day capacity). Millers operate from their own premises but have limited capacity to store either grain or flour. Many of the maize mills operate on a back-to-back basis and/or undertake custom milling, while almost all the rice mills operate on a custom-milling basis. As a result, the milling business has few barriers to entry other than the initial capital costs, and there are many small maize and rice mills in every town in the production areas. Consequently, the sub-sector is extremely competitive. One large grain trader noted that he owned four large rice mills, but had mothballed

⁹ Nicholas Minot, *Staple Food Prices in Tanzania*, prepared for the Comesa policy seminar on "Variation in staple food prices: Causes, consequence, and policy options," Maputo, Mozambique, January 25–26, 2010.

¹⁰ Super refined meal with an out turn of 62% is not produced in any significant volumes in Tanzania.

all of them and rented out one as a storage compound from which the revenue was greater than that previously earned from rice milling. The fee charged by hammer mills for custom milling is US\$0.75 per 18 kg tin, or US\$4.17 per 100 kg bag. For wholesale maize in Dar costing US\$30–35 per 100kg bag, this fee represents an increase in value of 11 to 13 percent.

Maize meal is sold out of the mill at a price of US\$37.5 per 100kg bag for hammer-milled maize and US\$60 per 100kg bag for dehulled maize meal. Given that the maize itself will cost approximately US\$32 per 100kg and that custom-milling costs another US\$4.17, the actual profit added by the miller in selling maize meal is relatively small, probably less than US\$3 per 100kg.

Traders. The smaller grain traders operate from small and large towns where they own or rent limited warehouse space holding 100 to 500 MT. They purchase grain from consolidators who will source and transport grain to their stores. They may mill grain but will also sell to other millers. They have the financial and physical capacity to store small volumes of grain, but generally work on a back-to-back basis, supplying mills and retail outlets (and export markets when possible) with grain sourced on demand. Some small traders also purchase directly from the larger rural markets, hiring transport to bring grain to their stores. The key characteristics of the small traders include the following:

1. They have limited capital resources, albeit greater than consolidators. They have the capacity to store grain for up to three months in some cases.
2. They nevertheless trade mainly on a back-to-back basis and are generally risk averse. Few appear to be taking a position in the market.
3. They operate in a competitive market and price-sensitive market with limited barriers to entry; as a result margins are slim.
4. The small traders are not a major determinant of prices. As is the case for assemblers, the smaller traders' income is derived from a

margin on continual grain movement, made whether markets are rising or falling. The profitability of the small trader is dependent upon the volume of grain that can be moved, and therefore the speed with which grain can be turned over is critical.

Channel 2 Imported Maize Channel

Maize importers. The larger processors are usually traders and are generally the same entities importing maize to supplement their local production. The larger traders are few in number (no more than five or six throughout Tanzania) and operate a very different business model. The key characteristics of the large traders include the following:

1. They have integrated the various processes of the value chain into a single business operation and engage in assembly, transport, storage, and milling; some are also producers of grain themselves on commercial farms.¹¹
2. They source grain directly from farmers using their own agents.
3. They have networks of rural depots that can be used to channel grain to central warehouses.
4. They have the financial and warehouse capacity to store substantial volumes of grain in Dar and other urban centers.
5. Unlike almost any other stakeholders, they are able to take a position in the market, storing grain and releasing it into the market when prices are most favorable. As such, their overall profitability does not depend on margins made in the course of day-to-day trading. Rather it depends upon the rapid accumulation of stocks during those periods when markets are depressed and their sale during periods of shortage.
6. The scope and scale of their operations is such that they have the capacity to influence price within the domestic market.

Retailers. Maize is retailed both as grain and flour. Maize meal is frequently retailed in small sacks (5, 10, or 20 kg), although sales are also

¹¹ Some large traders have also engaged in out-grower schemes as a means of guaranteeing supply, but without any evidence of success to date.

made by volume in cups or tins. Both maize grain and rice are retailed volumetrically in tins (weighing 18 kg for maize and slightly less for rice) or smaller cups. There are retail outlets in all towns and villages and the business is extremely price sensitive. A difference of US\$0.2 in the price of a tin of maize valued at US\$8 is sufficient to lose or gain customers. Competition between retailers is intense, especially since consumers can access maize and rice through low-cost market stalls that have minimal set-up costs beyond immediate working capital requirements. The large numbers of retailers and the cost sensitivities of consumers result in tight margins and slim profits. Although there is room for profit, taking in the use of volumetric measures that are not immediately verifiable, the value added in retailing, nevertheless, rarely exceeds 5 percent and appears to be closer to 2 percent of the value of maize and rice sold.

VALUE-CHAIN DYNAMICS (SYSTEMIC CONSTRAINTS AND DRIVERS)

Low production. Maize production per square ha is still relatively low compared to its maximum sustainable yield. This is due to the following:

1. Maize farmers are cash poor, lacking either savings or access to credit. As a result, “distress” sales made immediately after harvest are common to receive cash quickly to pay for immediate needs. Informal loans made within the village infrastructure must be paid back and the early sale of maize or rice is one of the most common mechanisms to achieve this end.
2. Maize farmers have very limited infrastructure for the storage of grain. As indicated elsewhere in this report, household-level grain storage facilities in Tanzania are rudimentary and prone to excessive losses. This also contributes to farmers’ early sale of grain crops.
3. Few maize farmers are organized into producer associations. Although producers of cash crops are frequently organized into strong cooperatives, grain crop

producers are not well organized. This reduces their ability to negotiate with assemblers and traders.

4. The main production areas are situated at some distance from the main domestic markets and in many cases are closer to potential export markets in Zambia, the DRC, and the East African Community.

Unpredictable market prices. Maize production overall is subject to significant price constraints as a result of limited consumer purchasing power, but nevertheless exhibits marked seasonal fluctuations in price. However, none of the stakeholders in the value chain are in a position to take advantage of these fluctuations except for the larger traders. All other stakeholders operate on the basis of trading margins and turnover in a fluctuating market that they do not influence. Every trading process within the value chain is competitive and all trading and processing margins were observed to be slim. Only those traders with the capacity to buy and store grain can take advantage of the substantial seasonal fluctuations in price, and it is those traders who not only influence the market but also are able to make the largest margins when they buy and sell grain. (The average difference between the highest prices and lowest prices over the last three years exceeded 100 percent.) In addition, the government has made it a policy to treat maize as a major food security crop and in doing so tries to keep the prices low.

Lack of proper affordable storage. Although there is capacity within the country to store grain, it is largely concentrated in urban centers and there is a lack of effective storage capacity in rural areas. As a result, post-harvest losses of grain stored in rural areas are high (regularly exceeding 20 percent). The situation in Tanzania is made worse by the presence of the larger grain borer (introduced from Central America in the late 1970s), a wood-boring pest that is now established throughout the Tanzanian bush from where it can invade domestic wooden storage systems as soon as they have been filled. The

presence of this pest has effectively doubled the post-harvest losses of domestically stored maize in those countries where it has become established.¹² Storage losses for rice are much lower than those for maize (the single quoted figure is only 1.1 percent),¹³ because the crop is less prone to pests and rot.

More resourceful traders. The larger traders are in a position not only to profit from temporal arbitrage but also to minimize losses through risk and uncertainty by virtue of their integrated structure. Through the use of agents, collection centers, in-house transport, and (when profitable) their own milling facilities, the larger grain traders are able to reduce risk—one of the key constraints to business development faced by other traders. These combined advantages have given the small number of large traders a position of almost complete dominance across both the maize and rice value chains. As a result, the share of the difference between the costs of production and the final retail price that accrues to the large trader is significantly greater than the shares accruing to any other stakeholder in the value chain. In an equitable and competitive market, the shares accruing to each stakeholder would be roughly equal; this is not the case in the maize and rice markets of Tanzania, where producers, assemblers, small traders, and millers alike all operate on minimal margins, while large traders are able to capitalize on more substantial seasonal price fluctuations.

Government policy. The current export ban on maize depresses the local market prices so that growth in the maize sector is not stimulated. Following sections will discuss the effect of the export ban on the maize value chain in depth.

RICE VALUE CHAIN OVERVIEW

END MARKETS

Domestic market. Overall, rice is the third most important crop from a caloric perspective with a per-capita consumption rate of 16kg

per year. Rice is more important in the diets of high-income consumers in urban areas. FAO data (2009) suggests that national consumption of rice (based upon a population of 41 million¹⁴) is 657,000 MT or 81 percent of average production. This implies that the country is a potential net exporter of rice. In fact, Tanzania is currently a net rice importer.

There is some differentiation by quality in the domestic rice market, with some consumers preferring the more expensive but tastier local rice varieties over locally grown varieties or imported rice. The size of this differentiated quality segment is small as the limited purchasing power of the majority of consumers generates an extremely price-sensitive market predicated towards lower-quality produce. One rice trader noted that it did not pay for him to grade the rice that he purchased since there was such a limited market for the higher-grade fraction. In practice, rice of lower and higher quality is often blended at the mill, thus further discouraging the development of differentiation quality standards in the rice markets.

DOMESTIC RICE MARKET PROTECTION IN TANZANIA

Although substantial volumes of rice are produced in Tanzania, the domestic crop is not particularly price competitive in the local market. In January 2010, Thai AI Super rice (a low-quality rice) could be imported at a CIF price of US\$445/MT, as compared with domestic rice selling in Dar at US\$750/MT for low grade and US\$970/MT for best quality rice. In a price-sensitive market, local rice would lose out to the imported product were it not for the 75 percent duty imposed on rice imported into Tanzania. This raises the price of Thai AI Super to US\$756/MT and allows the local product to compete.

There is a market for Tanzanian rice, both domestically and internationally, based upon its particular aromatic and taste qualities. However, this is a high-value market of limited volume and is insufficient to absorb the current level of production in Tanzania. Without the current tariff in rice imports, both domestic and export prices would fall substantially.

12 ARC Plant Protection Research Institute.

13 European Commission Post Harvest Loss Information System, available at www.phosses.net.

14 CIA World Factbook 2010 estimates the population of Tanzania at 41,048,532.

The Tanzanian rice market is also protected through import tariffs (see box above), without which the extent of the market for locally produced rice would undoubtedly be considerably diminished. The market is dominated by products of a quality that delivers the most adequate nutrition at the cheapest price. As a result, the degree of price differentiation for quality, either at the retail level or at other levels of the value chains for maize or rice, is very limited.

Trade and regional export markets.

Tanzania's strategic location creates opportunities to access rice markets in the region. Where and when Tanzanian rice enters these export markets (Burundi, Rwanda, Uganda, DRC, and Kenya), the premium for traditional Tanzanian rice varieties based on its preferred aroma and taste is amplified as these are markets where rice prices are in excess of US\$1,200/MT due to higher purchasing power or general supply inefficiencies. According to the FAO, between 2005 and 2007 Tanzania exported 10,000 MT.¹⁵

Prices. Rice prices rose dramatically in late 2007 and early 2008, as shown in the graph below. However, as rice production in Tanzania has been on the rise, domestic rice has a growing market share in the domestic market and prices are increasingly dependent on local production.

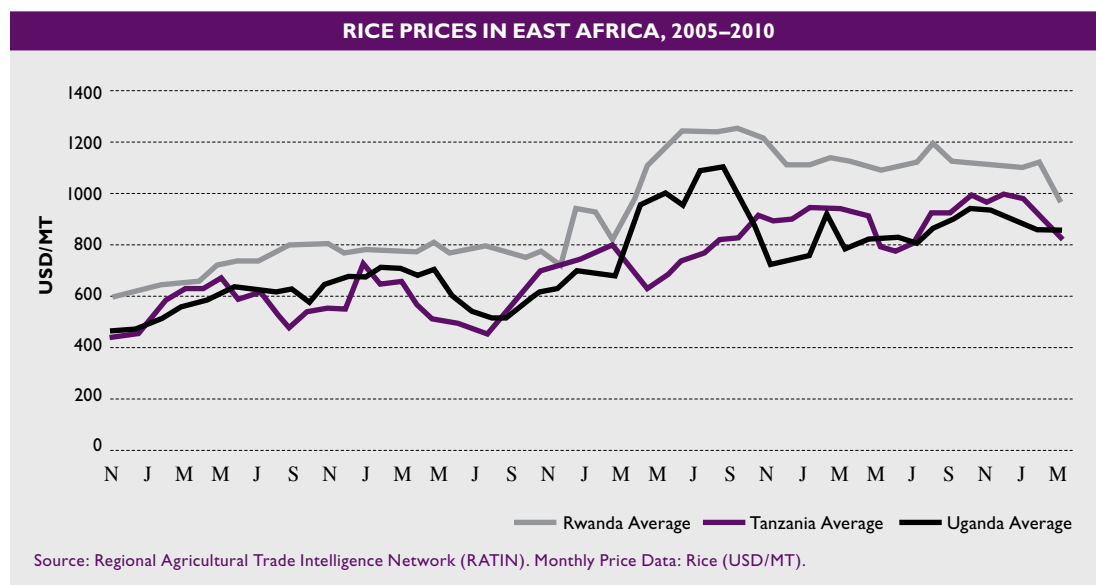
Prices are expected to fall beginning in June 2010 with the start of the rain-fed rice harvest.¹⁶

RICE VALUE CHAIN MAP

The rice value chain (shown in detail below) begins with farmers buying inputs and producing grain that is sold to either assemblers or consolidators (local traders) or agents of larger traders. These operate in rural areas and will in turn sell to traders who transport rice to urban centers for sale to millers and eventual retail. The larger trading companies are vertically integrated and will transport, store, and mill rice for sale in both urban and rural retail outlets. At the same time, rural millers will buy rice from assemblers or from producers directly and will sell to retail outlets.

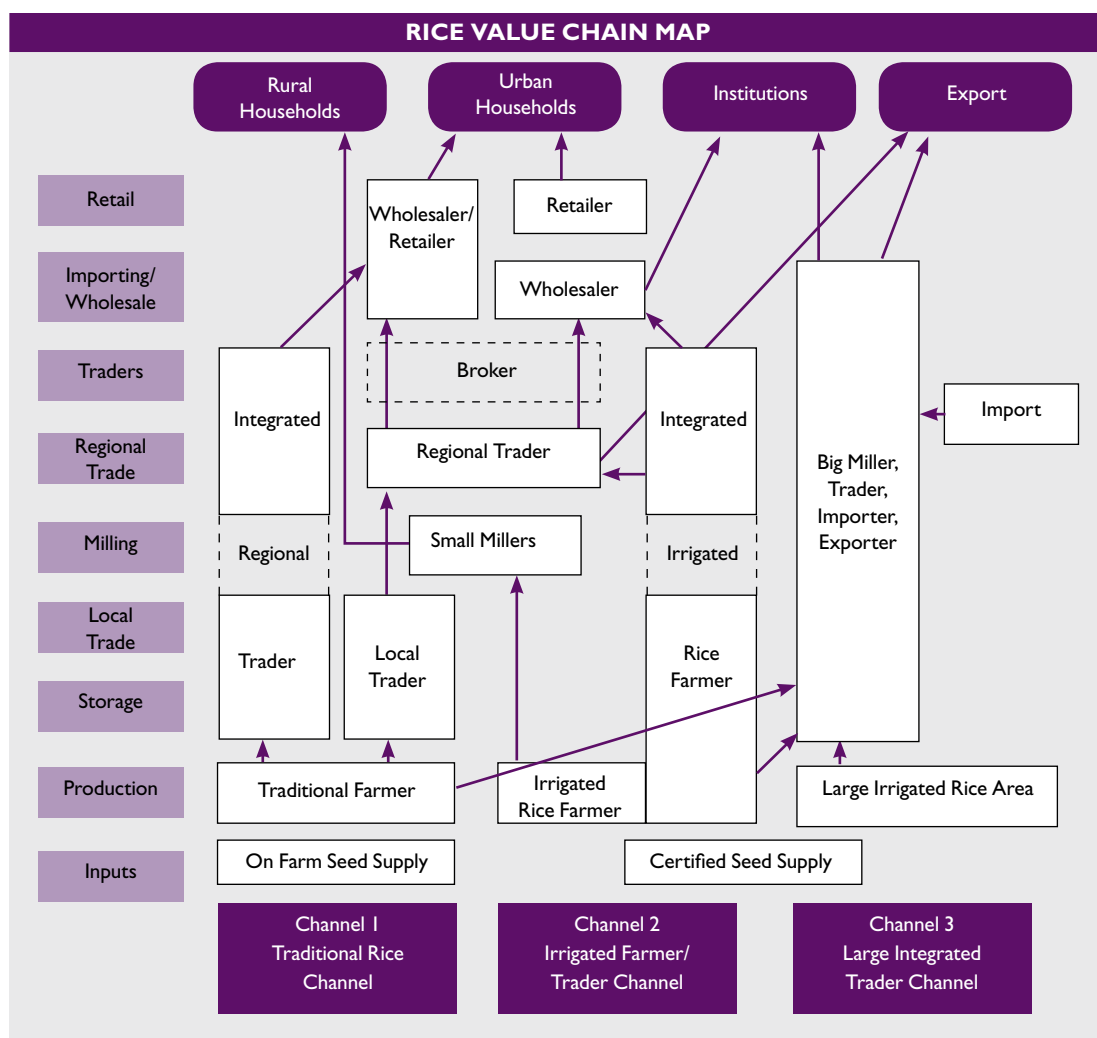
Channel 1: Traditional Rice Channel

In this long and fragmented channel, rice is sold by rice producers (rain-fed produce) to local or integrated regional traders who use small local mills to process the rice. Farmers may also sell directly to the mills that in turn sell the rice to rural households. The bulk of the marketed rice is sold by regional traders via brokers or directly to urban wholesalers that sell the rice to urban retailers. Smaller volumes are being exported regionally by traders. This is the larg-



¹⁵ FAO (Food and Agriculture Organization), FAO agricultural production data (2009), available at <http://faostat.fao.org/site/339/default.aspx>; FAO Agricultural trade data, available at <http://faostat.fao.org/site/342/default.aspx>.

¹⁶ USAID, FEWSNET, TANZANIA Food Security Update February 2010, available at <http://www.fews.net/tanzania>.



est channel and accounts for over 90 percent of the rice market.

Channel 2: Irrigated Farmer/Trader Channel

There is more integration in this channel with irrigated rice producers’ taking on more of the storage and local and even regional trading functions. These farmers, which achieve far higher yields than farmers in channel 1 and also operate more often in clusters, also use the services of small rice mills near the production areas. These farmers at times operate in groups when taking on these additional value-chain functions. This channel has emerged as integrated state-owned farming-milling operations disappeared after market liberalization.

Channel 3: Large Integrated Trader Channel

This channel includes a handful of large trading companies that are mostly involved in import/

export and storage of milled rice, and to a far lesser degree in rice milling and production (e.g., the ownership of large irrigated farms divided in blocks operated by individual farmers). The latter is again the result of market liberalization in the rice sector. The large agribusinesses that dominate this channel compare the cost of processing local rice with the landed cost of imported processed rice on a continuous basis. When they buy locally, they typically purchase from large numbers of smallholder producers through an extensive network of agents.

VALUE-CHAIN STAGES

Production. Paddy production in Tanzania is about 1.2 million MT annually, or 750,000 MT of milled rice. This production level is nearly twice what it was in 2000, reflecting a supply response to increasing demand as living standards have

risen. Although rice is consumed widely, only about 16 percent of Tanzanian farmers—virtually all of them smallholders—produce rice.¹⁷

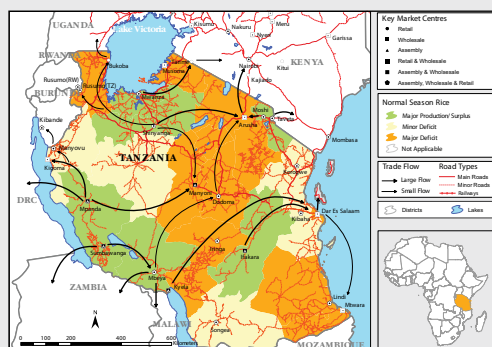
The production cost of rice is summarized below. The yield of rice has averaged 1.3 MT/ha over the last five years. The current average cost of rice production is US\$234/ha, or

US\$180/MT. The use of improved inputs is estimated to increase costs to US\$593/ha, requiring a higher yield of 3.2 MT/ha to achieve the same cost per ton.

The actual price received by a producer of paddy rice is less linked to the cost of production than to the household's requirement for cash and to overall supply and demand. Farm gate prices for paddy rice in March 2008 were US\$32–\$36 per 100kg bag. Such prices would result in gross profits per bag of at least US\$14, or 78 percent of the paddy rice cost. This may appear large, but from the individual household perspective, the total profit on a national average planting of 0.9 ha is only \$163 for paddy rice. It is the restriction on farm size (due to limitations in both available land and mechanization) that exerts the upward pressure on paddy rice production costs at the producer level.

Assembly and transport. The small scale and fragmented nature of most of the rice

PRODUCTION AND MARKET FLOW MAPS: TANZANIA ALL SEASON RICE



Source: USAID-FEWSNET

ESTIMATED COST OF RICE PRODUCTION

Notes	System Inputs	Qty/ha	Traditional Price/Unit	Cost/ha	Qty/ha	Improved Price/Unit	Cost/ha
1	Seeds	200	\$0.38	\$75.19	200	\$1.128	\$225.56
2	Fertilizer (basal)	2000	\$0.01	\$15.04	5	\$20.676	\$103.38
3	Top dressing				2.5	\$24.436	\$61.09
4	Pesticides						\$22.56
5	Labor (man days)						
	Land preparation	16	\$1.50	\$24.00	16	\$1.500	\$24.00
	Seeding	2	\$1.50	\$3.00	2	\$1.500	\$3.00
	Thinning	10	\$1.50	\$15.00	10	\$1.500	\$15.00
	1st-3rd weeding	48	\$1.50	\$72.00	48	\$1.500	\$72.00
	Harvesting	16	\$1.50	\$24.00	35	\$1.500	\$52.50
6	Transport	3	\$2.00	\$6.00	7	\$2.000	\$14.00
	Total			\$234.23			593.09
7	Yield kg/ha			1300			3200
	Cost per 100 kg			18.01735			18.53419
	Cost per short ton			163.45065			168.13934

Sources:

1. Data provided by Kibaya DALDO.
2. Traditional use of 1 MT/ha manure, improved use of 250 kg/ha Minjinga phosphate.
3. Improved use of 125 kg/ha Urea.
4. Use of Actellic dust on stored grain.
5. Estimated unskilled wage.
6. Higher cost includes hire of oxcart.
7. Traditional yield is five-year average; improved yield is level required to achieve similar cost/bag to traditional system.

17 Nicholas Minot, *Staple Food Prices in Tanzania*, prepared for the Comesa policy seminar on "Variation in staple food prices: Causes, consequence, and policy options," Maputo, Mozambique, January 25–26, 2010, under the African Agricultural Marketing Project (AAMP).

production in Tanzania make necessary an assembly process undertaken by farmer groups, by private individuals with access to small-scale transport facilities (ranging from ox-carts to small trucks), or by the agents of larger trading companies. Assembly has a transport, finance, and discovery cost component. Low barriers to entry make assembly a competitive endeavor, and marketing margins are typically 10 percent or less.

The market for haulage is quite competitive. Haulers indicated that prices vary throughout the season according to demand and the availability of back loads (which can reduce rates by as much as 40 percent). There was no indication that this aspect of the value chain was excessively profitable, and some haulers indicated that they can only run trucks as part of either grain trading or retailing businesses. Nevertheless, the average cost for transporting rice from a rural market to Dar has been estimated at nearly US\$89/MT of grain, which is equivalent to 25 percent of the paddy rice producer prices.

Storage. Although there is capacity within the country to store rice, it is largely concentrated in urban centers and there is a lack of effective storage capacity in rural areas. The ability to store paddy rice is critical within the value chain since it allows the holders of grain to take advantage of the seasonal differences in price. Tanzanian grain markets exhibit the highest seasonal variation in price in East Africa. Prices can rise by as much as 192 percent from the period immediately after harvest to the period immediately preceding the next harvest.¹⁸ This high seasonal price variation creates a strong incentive for the development of further grain storage capacity, but in practice there are few new entrants into the grain markets with the capacity to construct and fill new warehouses. Thus, the market continues to be dominated by a small number of large traders with access to the majority of the available warehouse space.

Milling. The majority of the rice on the market is milled on a custom basis by medium-sized

mills operating at about 1,000 kg milled rice per hour. The custom milling fee is US\$2.25/100kg bag and the conversion rate is approximately 60 percent of the paddy weight. Of this, the head rice (unbroken grain) percentage is slightly more than 50 percent. Paddy rice sold in wholesale markets at US\$45/100kg may be sold as milled rice for US\$82/100kg; of this, about US\$75 represents the value of the rice, US\$2.25, the cost of milling and US\$4.75 the margin taken by the miller, equivalent to approximately 6 percent of the total value. As with maize, the profit margins associated with milling rice are limited.

Retailing. Competition between retailers is intense, especially since consumers can access rice through low-cost market stalls that have minimal set-up costs beyond immediate working capital requirements. The large numbers of retailers and the costs sensitivities of consumers result in tight margins and slim profits. Although there is scope for profit taking in the use of volumetric measures that are not immediately verifiable, the value added in retailing rarely exceeds 5 percent and appears to be closer to 2 percent of the value of rice sold.

STAKEHOLDERS AND VERTICAL AND HORIZONTAL RELATIONSHIPS

In Tanzania, asymmetries of resources, especially of information and of risk, result in imperfect markets for rice in which some stakeholders are at an advantage over others. It is therefore pertinent to analyze the individual stakeholder groups and in particular the power structures within the value chains that determine which groups of stakeholders are most able to take advantage of current market conditions.

Producers. The production of rice is undertaken mainly by small-scale farmers. Less than 1 percent of the rice crop is produced from large-scale production, although some small-scale production takes place within larger-scale communal irrigation schemes (some of which were formerly state managed farms). The rice crop is more skewed towards commercial production than maize. Although only 13 percent of rice

¹⁸ Antony Chapoto & T.S. Jayne, *Maize, Price Instability in Eastern and Southern Africa: The Impact of Trade Barriers and Market Interventions* (January 5, 2010).

producers actually sell rice, 42 percent of rice production is marketed, compared to about 28 percent of maize.¹⁹

There are four key characteristics of rice producers in Tanzania:

1. They are cash poor, lacking either savings or access to credit. As a result, “distress” sales made immediately after harvest are common. Informal loans made within the village infrastructure must be paid back and the early sale of rice or other crops is one of the most common mechanisms to achieve this end.
2. They have very limited infrastructure for the storage of rice.
3. Very few are organized into producer associations. In a few cases where farmers have organized and succeeded in aggregating and storing a larger volume of cleaned paddy rice (e.g., 100–300MT), they have to deal with a shift in market in the sense that their aggregated volumes are too large for the regular assemblers, forcing them to sell to a far smaller group of large rice traders/processors. This poses new challenges in the vertical relationships between rice farmers and their direct buyers.

Assemblers/Consolidators. Characteristics of consolidators/assemblers in the rice value chain are similar to (and often are actually the same individuals) as those in the maize value chain. Assembler/consolidators are in three categories: are self-employed in specific regions and working on behalf of larger traders, farmers associations, and large trading companies who send representatives into the rural areas to consolidate grain purchases from small holder farmers.

Millers. Although there are a small number of large rice mills in Tanzania, almost all production is undertaken by the smaller mills (small village processing rice mills of 10 MT/day capacity). Millers operate from their own premises, but have limited capacity to store either paddy or rice. Almost all the rice mills operate on a custom-milling basis. As a result, the milling

business has few barriers to entry other than the initial capital costs, and there are many small rice mills in every town in the production areas. Consequently, the sub-sector is extremely competitive. One large grain trader noted that he owned four large rice mills, but had moth-balled all of them and rented out one as a storage compound, from which the revenue was greater than that previously earned from rice milling.

Traders. The market for rice appears is dominated by a small number of very large trading companies, competing with a much larger number of very small companies. There do not appear to be many, if any, medium-sized operations. The smaller rice traders operate from small and large towns where they own or rent limited warehouse space holding 100–500 MT. They purchase from assemblers who will source and transport to their stores. They may mill rice but will also sell to other millers. They have the financial and physical capacity to store small volumes of grain, but generally work on a back-to-back basis, supplying mills and retail outlets (and export markets when possible) with grain sourced on demand. Some small traders also purchase directly from the larger rural markets, hiring transport to bring grain to their stores.

The large grain traders are the same ones discussed under the maize value chain analysis. The key characteristics include vertical integration and control over the majority of the rice market in Tanzania. (See Trader section in the Maize Value Chain Analysis section). The combined advantages have given the small number of large traders a position of almost complete dominance across the rice value chain. As a result, the share of the difference between the costs of production and the final retail price that accrues to the large trader is significantly greater than the shares accruing to any other stakeholder in the value chain. In an equitable and competitive market, the shares accruing to each stakeholder would be roughly equal, but this is not the case in the maize and rice markets of Tanzania, where producers, assemblers, small traders, and millers

¹⁹ National Agricultural Sample Census 2002–2003.

alike all operate on minimal margins, while large traders are able to capitalize on more substantial seasonal price fluctuations.

VALUE-CHAIN DYNAMICS (SYSTEMIC CONSTRAINTS AND DRIVERS)

Two key dynamics in Tanzania's rice value chain since the mid 1990s include: (1) a strong growth in the private milling capacity as small mills have replaced the National Milling Company mills, taking the processing much closer to the farms, which benefits the smallholder farmers, and leading to a shift by integrated milling/trading firms to vertical integration into production or an increased reliance on small local traders; and (2) a shift in the use of irrigated National Agriculture and Food Corporation land to smallholder producers.

Factors driving dynamics in the rice value chain include: world market prices and their effect on price in the markets in Dar and regional market centers; the investment decisions from large traders/millers in production, storage, and processing capacity; government trade, market, transport, and land/irrigation policies; weather and its effect on local production (regional effects); changes in consumer incomes and related rice preferences; and competition from other crops (e.g., farmers switching to sugar cane).

Maximum impact of support activities in the value chain is achieved by focusing on key leverage points, areas of geographic concentration, and policy. Key points of leverage for the rice value chain include the rice mills, equipment

suppliers, tractor service providers, large processors/traders, brokers, transporters, and main input suppliers. Key geographic clusters include the rice-producing regions of Morogoro, Shinyanga, Mbeya, and Mwanza. The more important policies related to the rice value chain relate to transportation, tax (cess, diesel fuel), and trade.

There are many factors that constrain the growth of the rice sub-sector, but there are also many positive factors that provide opportunities for growth of the sub-sector:

- *Positive factors* include: concentrated areas of high-production potential for small holders in irrigated areas with many different services available (although not always at affordable prices to farmers); many opportunities for service development and enhancement of the production and marketing processes; and the long storage life of paddy, which facilitates holding it for better prices as well as providing a nice reserve.
- *Constraining factors* include: weak availability of Dar wholesale market information at the farm and small-town level; the primarily rain-fed smallholder with low productivity; cash flow constraints at the small-farmer level; long value chains with many intermediaries; costly transport mechanisms; lack of business management skills at the farmer level; and big price fluctuations over the course of the year (on average about 100 percent), which add risk to the sector.²⁰

20 Private Enterprise Support Activities Project, Tanzania, Rice Sub-Sector Study, (DAI, prepared for USAID, 2003); Match Maker Assocs. Ltd., Rice for Local and Export Markets—Sub-sector and Value Chain Analysis—Shinyanga/Tanzania—Final Report (prepared for Oxfam GB Tanzania, 2008) (confidential report).



ASSESSMENT FINDINGS

PRIORITIZATION OF CONSTRAINTS

The recently completed AgCLIR report, along with a wealth of other documents, lay out many of the general constraints facing the agricultural sector, and the maize and rice value chains in particular, in Tanzania. The MicroCLIR/CIBER team reviewed these issues and sought to determine their degree of importance to the maize and rice value chains in the particular regions of the study, through extensive discussions with a wide variety of experts. During this stakeholder review, the team also provided the opportunity for interviewees to raise additional items of concern.

Issues that emerged as priorities are listed in the table on the next page.

THE EXPERTS WE CONSULTED THROUGH THE VALUE CHAIN

- Input Suppliers
- Producers
- Processors
- Producer, processor, transporter, exporter
- Trader, Transporter Storage owner
- Wholesaler
- Retailer
- Marketer
- Exporter
- Credit
- Local/district government
- National government
- Research
- Business association
- Donors
- Donor project
- International NGOs

From this list, the team sought to identify the issues impacting the competitiveness of the maize and rice value chains, with particular focus on those that can be addressed by one or more USAID-funded programs. As described below, access to information, transport costs, and taxes are therefore not addressed individually in this report.

Lack of **access to information** has impacts along these value chains, from farmers who lack access to current market prices to government leaders who do not have accurate estimates of the amount of grain stocks available in the next harvest or stored in warehouses around the country. Lack of access to information causes increases in transaction costs, imbalances in the power structure among price makers and price takers along the value chains, and is in part responsible for policy decisions, such as the export ban on maize, that are estimated to have negative welfare impacts on many stakeholders. Because this issue is so wide ranging, however, it is addressed separately in the sections on trade policy, storage distribution, and market regulation.

The high **cost of transport** in Tanzania reflects the poor state of the roads, which are largely unpaved and very rough outside of urban areas and main thoroughfares. Another major contributing factor to high prices is non-tariffs measures, including bribery payments along the roads and at ports and border crossings.

Taxes are a common source of frustration for businesspeople, but the impacts vary greatly depending on the stage of the value chain and level of activity. In Tanzania the main taxes

**SHORT LIST OF REGULATORY CONSTRAINTS
TO THE MAIZE AND RICE VALUE CHAINS IN CENTRAL TANZANIA**

Issue or Regulation	Legal Framework	Explanation
Trade policy inconsistencies	Export bans, import duties	Uncertainty in trade policies increases costs and discourages investment.
Storage distribution	Warehouse Receipts Act 2005; The Food Security Act 1991; National Economic Empowerment Act 2004; Weights and Measures Act 1982	Lack of storage distribution leads to insufficient capacity at the farmer level and lower farm gate prices.
Unlocking capital	Regulation of banks and non-bank financial institutions; Leasing; Warehouse receipts; Municipal Finance and Agriculture	Lack of capital in the maize and rice value chains (e.g., credit, investment, savings) leads to inability of the market to respond to demand.
Honoring agreements	Law on Contract Ordinances; Sale of Goods Ordinance; Alternate Dispute Resolution; Informal Dispute Resolution; Marketplace dispute resolution systems and reputation	Lack of adherence to contracts and agreements (trust) decreases efficiency along the links of the value chain.
Market regulation	Licenses from The Tanzania Food and Drug Agency (TFDA) and the Tanzania Bureau of Standards (TBS)	Market is unable to differentiate products and prices based on quality, restricting consumer choice and value chain prices. Inconsistent weights and measures are inefficient and open opportunities for dishonesty.
Market regulation/quality standards	The Weights and Measures Act 1982; The Weights and Measures Act 1982; The Standards Act 1975 (amended 1977); The Food Drugs and Cosmetics Act 2003; The Ward Tribunals Act 1985 and The Magistrates' Courts Act 1984; The Fair Competition Act 2003	Market is unable to differentiate products and prices based on quality, which restricts consumer choice and value chain prices.
Productivity		Reliance on rainfall and lack of access to seeds and fertilizer lead to lower yields reduces yields.
Access to information		Lack of information adds to inefficiencies and imbalances in the value chain power structure.
Transport costs	District cess Non-tariff barriers	Lack of quality transportation infrastructure and non-tariff barriers contribute to high transportation costs.
Taxes	Valued added tax (VAT) framework District cess: Local Government Finances Act Import duties: Set in conjunction with EAC with exceptions for sensitive crops (maize and rice) Village cess ²¹	Multiple overlapping taxes and levies increase costs along the value chain.

impacting the maize and rice value chains are listed on the next page.

Analyses of the tax regime in the AgCLIR report found no serious issues with the VAT framework.²² Furthermore, tariff rates, which were set in conjunction with the East African Community, are typically 25 percent for finished goods, 10 percent on intermediate goods, and 0 percent for machinery and raw material. Maize and rice are both sensitive

goods, which have separate tariffs: a 75 percent import duty on rice and a 50 percent import duty on maize during surplus years.²³

The high import duty on rice was raised as an issue, as Tanzanian rice is higher priced than East Asian imports, although consumers generally prefer Tanzanian rice. Of particular concern for both sector competitiveness and food security in terms of taxes, however, is the lack of clarity on import duties, including what rate applies and when.

21 USAID, Tanzania AgCLIR Assessment, January 2010
22 USAID, Tanzania AgCLIR Assessment, January 2010
23 USAID, Tanzania AgCLIR Assessment, January 2010

TAXES WITHIN THE MAIZE AND RICE VALUE CHAINS

	Farmers		Traders	Millers	Transporters	Importers/Exporters
	Peasants	Commercial				
Value added tax (VAT)	Exempt	Exempt	18%	Exempt	18%	Exempt for unprocessed maize
Income tax	Exempt		Tax bands on profit less than TZS 20 million 30% on profit more than TZS 20 million			
Sales tax	Exempt		Eliminated in 1998			
Cess (district sales tax)	Exempt		1–5% of bag value; determined and collected at the district level; and paid by whomever is transporting grain			
Market tax (Kibaigwa)	2.5 TZS/kg	2.5 TZS/kg				
Import duties: maize						EAC CET 50% of CIF; 0% during shortages
Import duties: rice						EAC CET 50% of CIF or 200 USD/MT

While the import duty on rice benefits farmers by increasing demand for the higher-priced local rice and expanding the market for Tanzanian rice in Kenya, it negatively impacts domestic consumers and creates a conflicting policy environment when a rice export ban is in place.²⁴ This issue is dealt with further in the section below on trade policy.

Transporters (who are thought to pass this cost down to the farmer) and farmers both raised the issue of the district cess taxes as constraints. However, among the districts visited, cess rates were about 2.5 percent or lower of the sale value of a bag of grain, although legally they can be between 1 percent and 5 percent. Thus, the cess taxes themselves are not onerous in terms of value, and in districts with progressive leadership there is a visible benefit from payment of this tax in terms of infrastructure and other improvements. However, the method of payment of this tax along roadsides does contribute to delays in transportation and raises multiple opportunities for bribes as transporters move through districts to bring the grain to the final market.

OVERARCHING PROBLEMS OF UNCERTAINTY AND RISK

Uncertainty and risk permeate the maize and rice value chains in Tanzania and this underlies many of the key constraints to growth that are outlined in this report. This uncertainty is characterized

differently for the various players in the value chains and is caused by inconsistent or poorly implemented policy, a dearth of information and quality infrastructure, and an inherent lack of trust and strong relationships between value chain actors. These risks create inefficiencies in the system and discourage capital investment (via debt or equity) that only a large fully integrated company can minimize and capitalize on. The graphic on the next page illustrates the Cycle of Uncertainty that exists at each stage of the two value chains examined during this assessment.

PRODUCTION/FARMERS

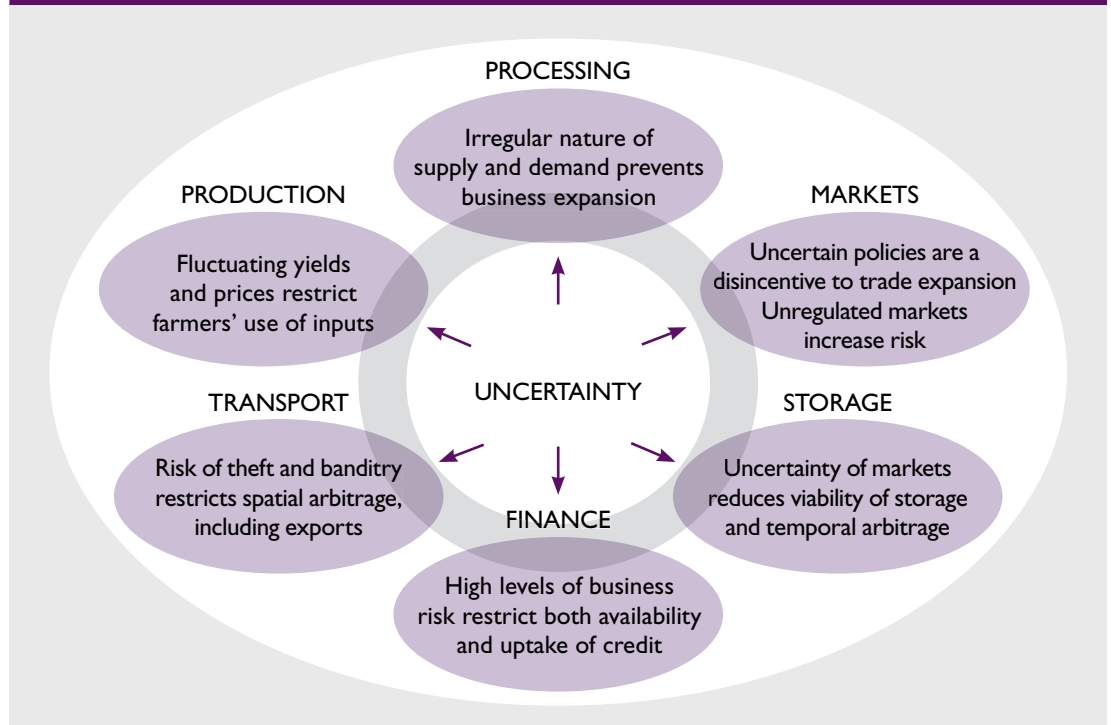
Crop production in Tanzania is predominantly rain-fed. These production systems create uncertain yields and variable national production, which can cause dramatic fluctuations in price. In many markets such fluctuations are buffered by the global or regional market, but high transport costs and inconsistent trade policy in Tanzania mean the difference between import parity price and export parity price can be more than US\$100 per MT. Uncertain yields and price fluctuation discourage farmers from investing in improved seed, fertilizer, or any post-harvest grading, sorting, or quality improvements.

PROCESSING

Because most rural producers consume the majority of their production, the extent of any surplus can vary even more than production

²⁴ Nicholas Minot, *Staple Food Prices in Tanzania*, prepared for the Comesa policy seminar on “Variation in staple food prices: Causes, consequence, and policy options,” Maputo, Mozambique, January 25–26, 2010, under the African Agricultural Marketing Project (AAMP).

POLICY AND REGULATORY ENVIRONMENT



itself: if 80 percent is consumed, then a 10 percent fluctuation in yield is a 50 percent fluctuation in surplus. This makes it hard to achieve full utilization of the plant, and investment in processing remains at a low level (lots of small mills). The irregular nature of supply and demand for processed grains limits business expansion.

MARKETS

Most grain trading is generally imperfect. Contracts are rare and poorly enforced; informal agreements are the norm. This means that most transactions are of the “see it to believe it” variety where both parties are present and witness the goods change hands. All other transactions involve a significant risk that one or both parties will renege on the deal. When this uncertainty is coupled with variable bag weights and a lack of attention paid to variation in quality, it is inevitable that trader margins must be increased to minimize the impact of trades that go bad. This raises consumer prices and passes on the cost of this risk to the farmer. In addition, because most traders need to be able to see and sample the grain before making the

transaction, they incur high transport costs that they pass along in the form of low prices for the farmer and high prices for the consumer.

STORAGE/COLLECTION

The lack of storage capacity and distribution means that Tanzanian farmers and traders have little choice about when to sell their grain. Without storage facilities, farmers must sell their grain during the harvest season when there is a glut on the market and thus low prices. If they could store their grain, they could sell some during the harvest season and store some to wait until there is less grain on the market and prices are higher. The ability to store would smooth the supply and demand (and thus the price) for grains in Tanzania.

FINANCE

Agriculture, especially low-value rain-fed agriculture like grain and rice production, is considered a risky proposition for banks and investors. High levels of business risk throughout the maize and rice value chains restrict both availability (lenders) and uptake of credit (borrowers). A lack of understanding of how to evaluate and price this

risk also contributes to the stalemate on both sides of financial transactions.

TRANSPORT COST AND SECURITY

The relative balance between the extensive network of poor feeder roads and the limited number of paved major roads within Tanzania cause a severe escalation of transport costs. There are both nuisance issues (roadblocks, weigh bridges and associated delays, and corruption) and inefficiencies at border crossings that can be addressed. The major constraint to grain distribution lies in the cost of transport on feeder roads, which is estimated at US\$0.17 per MT per km.²⁵ Furthermore, during transport, there is some risk of theft, which encourages traders to send loads in smaller volumes to avoid losing all their stock at one time.

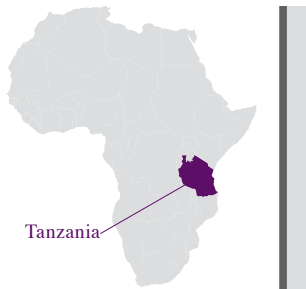
POLICY AND REGULATORY ENVIRONMENT

Underlying all the issues of risk and uncertainty throughout the value chains is an inconsistent policy environment. There are many examples where Tanzania's economic policy is inconsistent or where the implementation of a certain policy is not well understood and thus is not enacted in the way it is written. In addition, the government of Tanzania still sometimes shows a preference for regulation as opposed to economic incentive structures. Examples of inconsistent policies include trade policies such as export restrictions and import duties (sometimes on the same crop), land policies that make large tracts of land virtually impossible to obtain, and the Fertilizers Act, 2009, which was passed without stakeholder involvement and contains problematic procedures for licensing imports.

TANZANIA'S FERTILIZER LAW: UNCERTAINTY AND RISK

In late April 2009, Tanzania's Parliament passed the Fertilizers Act, 2009, repealing the Fertilizers and Animal Foodstuffs Act of 1962. The bill had only been tabled in the Parliament a few weeks earlier, with less than a month's worth of legislative discussion and with little notice provided to key interested stakeholders. Many interested stakeholders, including fertilizer dealers, farmers, importers, and other key constituencies, uniformly cited concerns that the Fertilizers Act had been passed with little input from those affected. Indeed, few stakeholders have yet received a copy of the final bill that was passed in April 2009, and even fewer stakeholders know the current status of the law or bylaws required to implement the provisions of the act. Stakeholders have cited concerns about changes to the licensing procedures; the creation of a new implementing institution, the Tanzanian Fertilizer Institute (TFI); and the process for licensing imports. Penalties under the new act, imposed for failure to properly register with the TFI, failure to properly secure a license for fertilizer imports through the TFI, or failure to comply with other provisions of the new law, include a 5 million Tsh fine, up to 3 years in prison, or a combination of the fine and prison time, as well as forfeiture of all unlicensed fertilizer. The uncertainty of the status of the law concerns many stakeholders, and questions about how the law will be implemented have created uncertainty in the status of existing licensing regimes implemented by authorities. Stakeholders have expressed concerns about the validity of licenses on current fertilizer inventory and about how registration processes will impact business continuity.

²⁵ Data collected in the field from grain traders in Dodoma, Morogoro, Kibigwa, and Kibaya.



CONSTRAINTS

LIMITED STORAGE CAPACITY

Tanzania has limited grain storage capacity in terms of quantity of quality warehouse facilities, geographic distribution (i.e., lacking in rural areas), and farmers' ability to access existing facilities. Most farmers do not store grain or they use traditional methods of storage in homes or small sheds that do not protect adequately against moisture or pests. They face lower prices and increased loss due to poor storage conditions, and the status quo of the power structure in the value chain is maintained.

Maize and rice value chain stakeholders experience price volatility. Prices spike in times of shortage and plummet during the harvest season when the market is flooded with grain. Storage creates the opportunity to smooth out supply and match supply to demand, which is constant throughout the year. This can help stabilize prices and also gives farmers inventory credit opportunities.²⁶

For both crops there is virtually no effective on-farm storage capacity beyond the traditional storage techniques, such as cribs, used to store grain

for household consumption. Such storage is subject to losses regularly exceeding 20 percent. Most surplus grain that might enter the commercial market is stored in the same way. Although old cooperative-based storage infrastructures do exist, most are decrepit and would need considerable renovation before they could meet even the most basic storage standards. Moreover, the traditional reluctance of farmers to place grain in communal warehouses has meant that the development of new infrastructure has been slow. Overall therefore, there is a significant scarcity of any sort of grain storage infrastructure in rural areas. By contrast, urban centers have considerable storage resources—both government-run (as part of the National Food Reserve Agency) and privately owned. There is substantial warehouse capacity in Dar es Salaam, and a proportion of each year's crop is accumulated in these warehouses during the months following the maize and rice harvests, for sale to retail outlets later in the year. It can be argued, therefore, that national storage capacity for maize and rice in Tanzania is adequate, but the distribution of that storage is strongly skewed towards the urban centers.

This has significant implications for the overall efficiency of the maize and rice value chains and for the balance between different stakeholders in each value chain. The high transport costs associated with poor feeder roads have increased transaction costs overall, raising prices to the consumer and reducing prices to growers, while the lack of storage has meant that there has been little development of inventory credit (using grain as collateral) in rural areas. As a result farmers have been unable to take advantage of marketing opportunities, generally selling off grain into depressed markets,

STORAGE FACILITY NEEDS: MAIZE AND RICE

Maize and rice are both storable grains, although the warehouse needs are slightly different. Rice can be stored easily as paddy, as hulled rice, or as polished rice. It is relatively immune to disease and pests while in storage. Maize, on the other hand, needs much more intensive care while in a warehouse. Maize is more prone to pests and rot, given its higher moisture content. Therefore, warehouses storing maize have to be rigorously fumigated and monitored.

²⁶ Storage, while very useful, has its limitations. Farmers may be unable to store because they need the revenue from immediate sales to pay loans, to use as working capital for the next growing season, or to use for consumption. Lack of information about market prices—both current and forecasted—also increases the risk of storage for farmers as prices may fall in the future.

immediately after harvest, to meet urgent cash needs. Both issues are well recognized and there are some initiatives in place to address them, but these are isolated and will require much assistance if they are to succeed.

LEGAL FRAMEWORK

Two pieces of legislation are directly related to the storage of grain. The **Warehouse Receipts Act, 2005** provides for the licensing of warehouses; defines the rights and obligations of warehouse receipt operators, including the issuance of warehouse receipts; and provides for the trading and negotiation of warehouse receipts. **The Food Security Act, 1991** establishes the Food Security Department for overseeing the National Food Reserve Agency (NFRA) and provides for other matters connected with or incidental to the establishment and management of the reserve. In addition, the **National Economic Empowerment Act, 2004** may be relevant in supporting the development of rural warehousing, while the **Weights and Measures Act 1982** should be relevant to the operation of a warehouse, but is as yet largely incidental.

The Warehouse Receipts Act is a broad piece of legislation that simply provides for licensed warehouse operation and the transaction of warehouse receipts. It makes no specific provisions as to standards, comingling of grain (which is allowed under the act), or credit against warehouse receipts. Nor does it set up any system for the registration of receipts or of charges against receipts. Instead it places the emphasis for the security of the system upon the physical receipts themselves, which must be proof against forgery, especially duplication. As such, the act paves the way for a simple grain trading system based upon paper transactions, but also places considerable reliance upon the validity of the paper itself, without any supporting system of verification. There has been little, if any, use of warehouse receipts as collateral against credit or as a means of transferring ownership of stored grain. It remains to be seen



whether or not the legal provisions are adequate to provide the necessary security in what is otherwise an uncertain market.

The Food Security Act provides for the establishment of the Board of Trustees (at the ministerial level), which oversees the procurement, storage, and distribution of grain for the NFRA. It also establishes the Food Security Department within the Ministry of Agriculture, which acts as the executive arm of the Board of Trustees. The NFRA is mandated to hold 150,000 MT of grain as emergency cover (for three months of food shortage) and to purchase and sell an additional amount up to 50,000 MT for the purpose of price stabilization.

The National Economic Empowerment Act is incidental to grain storage, but provides for deliberate measures to be taken “to establish structures and mechanism to redress the existing economic inequalities among various sections of the population.” This act has no impact on rural storage development, and initiatives under the act might result in the distortion of markets, but it is included here because the distribution of storage facilities enhances the economic inequalities that the act was intended to redress.

IMPLEMENTING INSTITUTIONS

The Warehouse Receipts Act established a **Tanzanian Warehouse Licensing Board**, which is mandated to license warehouse inspectors, warehouses, and warehouse operators (subject to inspection) and to approve warehouse receipt documentation. Since only a few warehouse receipts systems have been established (and none are effectively functional in the conventional sense of warehouse receipt operation), there has been little call upon the board's services. Nevertheless, where village warehousing and inventory credit systems have been recently initiated, the board has conducted initial inspections and issued the appropriate licenses. Significantly however, the main bank expected to provide inventory credit will not do so without first conducting its own inspection of the warehouse; it will evidently take some time before the validity of a board license is fully accepted.

The **National Food Reserve Agency** is the key implementing institution in national grain storage. Despite the requirement to maintain three months' worth of grain in reserve, NFRA been financially constrained in its purchases. Before the 2008 global food price crisis, stocks were only 128,000 MT, and fell in 2008 to 80,000 MT. Current reserves are estimated to be 120,000 MT.²⁷ Overall, the financial capacity of the Food Security Department limits purchases to a maximum of approximately this amount (120,000 MT), which represents less than 20 percent of the marketed maize, or 4 percent of the national maize production and less than 2 percent of national staple crop production. Its potential impact on food security is therefore minimal, although by judicious buying and selling it may exert some influence on price. Nevertheless, the storage capacity of the SGR exceeds its activities—the SGR owns 285,000 MT of storage capacity. The Food Security Department retains control of 205,000 MT capacity (although some of this requires rehabilitation), while at least 80,000 MT have been leased to the private sector, particularly the larger grain trading compa-

nies that use the facilities as rural depots for their purchasing operations.

The **large grain companies** form the other main stakeholder involved in grain storage. Although not public implementing institutions, they do implement grain storage. It is the asymmetric distribution of storage facilities, whereby the majority of storage capacity is concentrated in the hands of a small number of large businesses, that largely determines the existing markets for maize and rice. There is no good data available regarding private sector grain storage capacity. While at least 85,000 MT have been leased from the SGR, there are additional private warehouses in most urban centers. Some of these belong to small traders, although demand for small volumes of storage space is high, suggesting that the amount of available small warehouse space is limited. There is additional storage in the form of large go-downs in Dar es Salaam, the majority of which are held by the larger companies, and it is in these that the bulk of the privately stored grain is held.

In the absence of rural privately owned warehouse capacity, and because of the concentration of urban storage capacity within a limited number of companies, farmers are obliged to sell their maize and rice soon after harvest or face considerable post-harvest losses. If rural warehouse receipt facilities were widely available, losses might be reduced. If inventory credit systems were also then to put in place, then the cash-flow constraints faced by farmers would be reduced and early sales of grain onto a depressed market could be minimized. However, while there are initiatives both to operate warehouses as a professional service and to provide credit against stored grain, these are all in their infancy, and none of these initiatives has yet gained any significant momentum.

As indicated in the previous section, the Weights and Measures Act and the National Economic Empowerment Act have no impact on grain storage, so the implementing institutions (the Tanzania Food and Drugs Authority and

²⁷ East Africa Grains Council Estimate, March 2010.

the Tanzania Bureau of Standards, on the one hand, and the National Economic Empowerment Council, on the other hand) do not interact with grain storage at present.

SUPPORTING INSTITUTIONS

There are a number of institutions involved in supporting the development of rural storage capacity. These include the village-based farmer groups, NGOs (including such institutions as the Rural and Urban Development Initiative, the Agriculture Council of Tanzania (ACT), and the MVIWATA), and the SACCOS and banks such as the National Microfinance Bank (NMB) that provide credit against stored grain. These institutions shared a number of common characteristics, including the following:

- Although these institutions involved the communal storage of grain and the provision of credit to farmers, they were not warehouse receipt systems but rather extended inventory credit, an important first step in a warehouse receipts system.
- These institutions relied upon the intervention of a trusted intermediary (the NGO or SACCOS) to interact with the warehouse licensing authority, so as to provide credit to farmers against a facility that had been made available by the National Microfinance Bank (NMB) to the intermediary using the stored grain as collateral (but not necessarily the only security).
- They were all at the very early stages of implementation.

The first systems were based upon village-level warehouses of 5000–10,000 bag²⁸ capacity, either built as new or renovated community structures, which the farmers' associations had developed and managed for communal storage. Once these had been inspected and licensed, farmers brought their grain to be deposited in the warehouse and received a loan equivalent to 50 percent of the value of the grain stored. Towards the end of the season, when higher prices were anticipated,²⁹ the grain was sold as a single lot, the loans were repaid and farmers received the balance outstanding.

The NGOs provided the necessary assistance in administration and management of the storage, facilitated the provision of finance to farmers against the stored grain and assisted in the sale of grain to traders.

These warehouse systems, although licensed, lacked the capacity to issue warehouse receipts. Credit was advanced not to individual farmers but to the supporting NGO, with the grain in store as security. The bank was diligent in its assessment of risk, including the inspection of each store, and required an NGO of good standing as an effective intermediary. Nevertheless, although not true warehouse receipt systems, these village-based storage and credit schemes allowed farmers many of the advantages of a warehouse receipt system including the following:

- Reduced post-harvest losses (through professional storage in custom-built stores)
- Access to credit based upon stored grain, thus minimizing pressure for post-harvest sales
- Ability to sell grain later in the season, thus taking advantage of (anticipated) higher grain prices.

These initiatives have thus proved beneficial to farmers in their first year of operation and look set to increase in number and scope next year. However, the following observations are pertinent:

1. These initiatives are not entirely new in concept and have almost certainly been tried before. Yet no such initiatives could demonstrate a longer track record of success.
2. The schemes have obliged farmers to store grain on a communal basis, commingling the grain and losing the individual identity of their production. This in itself is a challenge that many communities have difficulty overcoming.
3. In one instance, RUDI, the supporting NGO, noted that the costs of providing storage (including the leasing of premises, fumigation, and management) had been

²⁸ 100 kg bags.

²⁹ Although in 2010 prices had been depressed as a result of the export ban and had not achieved the levels expected. Nevertheless, grain was sold at a price that repaid the loan in full and allowed the farmers to receive a small additional balance.

subsidized and if recovered from farmers at full cost would have substantially reduced the profitability of the exercise, suggesting that the whole process is vulnerable to the diseconomies of small-scale operation (i.e., at a village level).

4. Although the farmers from the Association of Kilombero High Quality Rice Producers were able to sell their grain later in the season, they were restricted in the number of buyers who were able to offer a good price and ultimately sold to the same large buyer who had purchased grain from them before, and at a lower price than offered earlier in the season. It is doubtful that the larger volume of grain offered any material advantage in terms of negotiating price.

Thus while the initiatives observed during the course of this assessment represent considerable progress, substantial issues remain to be addressed if the negotiating capacity of farmers is to be significantly improved.

SOCIAL DYNAMICS

Rural storage capacity is very limited, based on field observations. Notably however, this limitation extends not only to farmers, but also to small traders and to private sector warehouse operators. There is simply not enough storage capacity at or near the production end of the farm-to-market chains of either maize or rice. Initiatives to redress this situation have focused on the development of farmer-owned storage capacity. However, it is not essential that rural storage should be undertaken by farmers, or that farmers should own the storage facilities. The same advantages of professional storage, inventory credit, and delayed sales could be derived from a professionally managed storage system, provided that there were enough such systems to compete with each other in the market for the provision of storage services to farmers. Such systems could be owned by farmers, by independent warehouse operators, by traders, or by a combination of all three groups.

The development of competing rural storage facilities rather than farmer-owned storage facilities is necessary to redress the balance in the value chain. Experience has shown that farmer groups require considerable mentoring in order to maintain the levels of governance necessary to operate effectively. Support in the form of objective oversight, if not scrutiny, is required to ensure both the validity of business plans and the performance of individual executive members; such support can be required over a period of five or more years before it can be assumed that operations might be sustainable. While commercial mentoring may be required of many small businesses, the individual profit motive can be taken for granted and support for storage development provided in the form of competitive grant funding and technical assistance within a commercial, rather than a community-based framework, stands a greater chance of long-term sustainability.

For example, one community storing grain had chosen not to mill the rice in storage since that would incur additional cost, although the market for small quantities of milled rice was substantially larger than the limited market for large quantities of unmilled paddy. A commercial storage operator would undoubtedly have made the individual decision to mill small quantities of rice each week and would have taken advantage of the higher profits to be generated in this way. In a competitive environment some of that profit would have been passed back to the farmers. Instead, the community had chosen to market its grain as a single lot (for ease of administration) and in doing so had restricted its market to the few large grain buyers capable of purchasing large lots of rice.

The predominance of urban storage owned by a small number of large grain companies clearly distorts the market in favor of these companies and to the detriment of farmers, small grain traders, and consumers. The absence of rural storage facilities for farmers prevents them from taking advantage of opportunities for

TYPOLOGY FOR STORAGE DISTRIBUTION

Level of Law/ Regulation	Area of Constraint	Type of Enterprise Affected	Section of the Value Chain Affected	Stakeholders for Reform
National District	Small farmers lack access to quality storage facilities and are thus unable to safely store their grain, maintaining its value, until prices rise following the harvest season. This results in lower prices, eliminates a potential source of credit, and effectively gives unequal power to large, vertically integrated, farmers with their own storage facilities. In addition to protecting stocks, supporting higher prices, and providing potential access to credit, an effective warehousing system will provide the government with the necessary information to manage grain reserves.	Micro Small	Producer	DALDO MALDO Farmers SACCOs MVIWATA Cereal Growers Association RUDI ACT

temporal arbitrage. As a result, they are obliged to sell onto a depressed market at lower prices. The development of rural storage facilities would allow farmers to benefit from the improved storage of grain and the development of inventory credit to help smooth out seasonal fluctuations in price. These advantages could be achieved, irrespective of the ownership of the storage facilities, provided that the market for storage was sufficiently competitive. In practice there is no competitive market for storage, and farmers suffer as a result.

Attempts to develop storage in rural areas may help to redress the balance, but may themselves be insufficient to improve farmers' negotiating capacity to any significant degree. This will only come about if the trading sector itself can be revitalized with increased competition between businesses of all sizes within an equitable business environment. That can create the competition necessary to provide fair prices to both producer and consumer. Access to storage is one element of that business environment, but storage initiatives and inventory credit are unlikely to prove sufficient or sustainable unless the market itself can become more open.

CIBER ANALYSIS: STORAGE

Lack of storage has many impacts along the value chain and this issue is interconnected with other constraints, as described in the typology below. Increasing access to storage will not be the result of a regulatory change per se, although regulations may be developed that assist in the process.

The following analysis of the impacts of lack of storage compares the low prices available to farmers (immediately after harvest) with those they may be able to obtain later in the year. The information reflects costs for farmers in Kibaigwa, and the storage opportunity in this case is at the Kibaigwa maize market.

This partial budget model illustrates the marginal rate of return (MRR) for storage for farmers using traditional and improved technologies.³⁰ It is estimated that the typical small farmer who is not making use of improved seeds or fertilizer, and who retains each harvest on the farm to be picked up by traders, has no input costs outside of his own labor. This farmer will sell the harvest immediately and it is assumed that he will receive the low market

30 Rafael N. Uaiene. *Introduction of New Agricultural Technologies and Marketing Strategies in Central Mozambique* (Institute of Agricultural Research of Mozambique, Directorate of Training, Documentation, and Technology Transfer) (Research Report No. 2E, August 2006); M.O. Adetunji. "Economics of Maize Storage Techniques by Farmers in Kwara State, Nigeria," *Pakistan Journal of Social Sciences* 4 (3): 442–50 (2007).

**PARTIAL BUDGET ANALYSIS OF MAIZE
IN TWO DIFFERENT SALE PERIODS IN KIBAIGWA**

Technology Price	Traditional Low	Traditional High	Improved Low	Improved High
Expected grain production (kg/ha) ^{(1)*}	773.50	773.50	4400.50	4400.50
Grain price (\$/kg) ⁽²⁾	0.19	0.31	0.19	0.31
Total Revenue (\$/ha)	149.29	241.33	849.30	1372.96
Seeds (\$/ha)	—	—	2.97	2.97
Fertilizer (\$/ha) ⁽³⁾	—	—	8.65	0.48
Tractor (\$/ha)	—	—	4.75	4.75
Weeding (\$/ha)	—	—	4.75	4.75
Harvest labor (\$/ha)	—	—	7.42	7.42
Storage cost for 3 months (\$/ha)	—	29.64	—	168.61
Fee paid by farmer at maize market (\$/ha)	—	0.01	—	0.06
Transportation (\$/ha)	—	31.50	—	179.23
Total variable costs (\$/ha)	0.00	61.15	28.52	368.27
Gross income (\$/ha)	149.29	241.33	849.30	1372.96
Net income (\$/ha)	149.29	180.18	820.77	1004.69
Marginal net benefit (\$/ha) from storage over traditional without storage	—	30.89	671.49	855.40
Marginal rate of return (%) from storage	—	104.23	—	507.32

Sources: Survey data
1. Elibariki Emmanuel Msuya et al., *Explaining Productivity Variation among Smallholder Maize Farmers in Tanzania* (2008), available at <http://mpr.ub.uni-muenchen.de/14626/>.
2. Regional Agricultural Intelligence Network (RATIN), Monthly Price Data.
3: World Development Indicators database, accessed through http://www.nationmaster.com/graph/agr_fer_con_100_gra_per_hect_of_ara_lan_grams-per-hectare-arable-land#source.

Notes: Prices represent average highs and lows from 2006–2009 in Dar es Salaam.
Seed cost is \$2.96/ha.
Price of fertilizer: \$0.48/kg.
The total cost of storage includes the marginal cost of storage plus the opportunity cost of capital.
1 USD=TSH 1364 (March 17, 2010).
* Yield discounted due to estimated 35 percent physical loss during production and storage.

price available at harvest—US\$0.19/kg—earning US\$149 per hectare. In contrast, a traditional farmer who stores his grain until the price rises—an estimated three months—will earn net income of US\$180 per hectare factoring in the additional costs of transportation and market fees. This represents a 104 percent marginal rate of return from storage.

The rate of return from storage increases dramatically when the farmer makes use of improved technologies. The estimated increase

in yield is nearly 18 percent higher, and even with the much-increased costs associated with improved inputs, the marginal rate of return of storage rises to 507 percent.

CIBER: FEASIBILITY OF REFORM

Lack of access to storage is a nationwide concern for small farmers. The regulatory constraint in this area is related to the lack of policies supporting investment in private sector storage at the national, district, and local level. Uncertain and inconsistent policy making, as

described above, is a policy-related factor contributing to the lack of investment.

Large farmers are likely to oppose changes that threaten their supremacy in the market. Thus, the value-chain-wide effects of policy changes meant to support small holders will need to be assessed in advance. Large companies that farm, transport, process, and market maize may also benefit from better organized farmers groups that can serve as suppliers of stocks to their other operations. One large farmer stated that he has storage capacity of 18,000 bags but in 2009 he stored only 5,500 bags—1,500 from his own crops and 4,000 from nearby farmers—because he was unable to find enough maize in the local market. Large firms may also work with government offices or other programs to support the rehabilitation or construction and management of warehouses.

The NFRA offers some storage space for rent, but this is not available to individual small farmers and is located in larger populated centers around Tanzania. Farmers' groups might be able to make use of excess space if they were sufficiently organized.

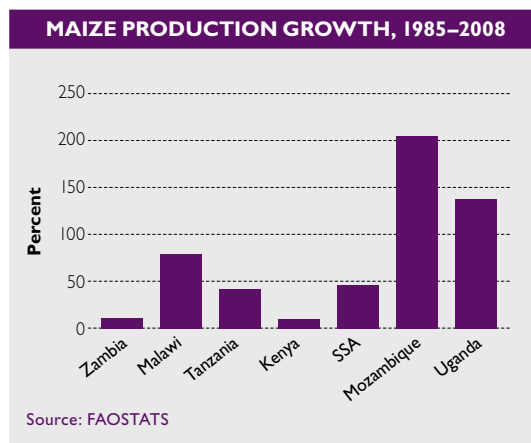
Farmers' organizations can obtain support to develop storage facilities closer to the farm. During this research the team met with the Makingere community farmer group that had just completed construction of a small warehouse with support from the Government of Tanzania's Agricultural Development Support Program (ADSP). The structure cost TSH40 million (US\$30,000) to build over three years and has capacity for 10,000 105–108kg bags, or the equivalent of storage by about 2,000 farmers. The community plans to charge a storage fee of 1,500–2,000 TSH/bag according to the costs of warehouse management and fumigation. Longer-term plans include accessing soft loans with low interest rates by working with the CRDB or other banks that could loan to the community through a SACCO on the premises. The community also plans to advertise in regional newspapers to draw buyers and to

access market prices from Kibaigwa market. This model presents some potential solutions to the range of constraints faced by farmers, although this example has not been tested and should be revisited after one or more seasons of operation.

DALDOs (District Agriculture and Livestock Development Officers) and MALDOs (Municipal Agriculture and Livestock Development Officers) also play a role in drawing investment to their regions, and DALDOs in particular raise and budget tax revenue for regional use.

TRADE POLICY INCONSISTENCIES

The maize and rice value chains as well as the agribusiness environment in Tanzania are plagued by uncertain and inconsistent government policy. Policies can be applied and removed without any clear rationale or analysis and without stakeholder consultation. This creates an environment characterized by uncertainty and risk, which decreases investment and increases transaction costs throughout the maize and rice value chains. Certain government policies or regulations contradict each other. This uncertain and inconsistent policy environment reduces critical investments in infrastructure (roads, storage, processing facilities), increases the risk of value-chain lending, reduces the desire of business people within the value chain to take on credit, and reduces incentives for farmers to invest in their farms, store



grain, add value, or grow high-quality varieties because of uncertain and volatile market prices.

The recent AgCLIR report section on Trading Across Borders presents a good picture of the stagnancy of the trading environment in Tanzania. This stagnation is caused in part by poor trade policy. With respect to maize and rice, the lack of dynamism and free flow of goods across borders in Tanzania is preventing the region (i.e., the East African Community) from effectively supporting food security within the region, rather than country by country. The USAID-supported RATES project promoted a “maize without borders” regional trade policy that has proven that free trade policy (i.e., allowing maize to flow freely across borders to neighboring countries) stabilizes staple food prices and increases production. In fact, a recent study has demonstrated that countries that have implemented a “maize without borders” policy and predictable government operations (e.g., Mozambique, South Africa, and Uganda) have been able to stabilize prices and increase production while in those countries that use export controls and external trade policies (e.g., Ethiopia, Malawi, Tanzania, and Zambia), productivity has slowed and prices are volatile.³¹

LEGAL FRAMEWORK

Export restrictions on food crops. One example of uncertain and inconsistent policy that was highlighted by stakeholders along the maize value chain is the export ban in place from 2008 until quite recently. This ban was instituted in response to the dramatic increases in food prices worldwide that began in 2006 as a result of rising oil prices, financial market speculation, changing weather patterns, and other factors.³² In agriculture-dependent developing countries, these price increases had an extremely negative impact on the welfare of many groups, including farmers who did not necessarily receive the benefit of rising prices due to lack of information about market prices, their own role as consumers, and pass-through of higher costs of inputs.³³ The export restriction was thus imposed in the name of helping

the country become food secure and self-sufficient in food production, but after two years, it was lifted abruptly; in a statement issued on April 16, 2010, Prime Minister Mizengo Pinda announced that “Effective today farmers keeping grain in granaries and still in need of cash for other purposes can sell their crops to both local and foreign markets.”

Uncertainty: The export ban was imposed and then lifted with almost no stakeholder consultation, no in-depth analysis of long-term consequences, and no clear guidelines on how the policy should be implemented. Even now that the ban has been lifted, it has been done so in a way that is not clearly explained. At the same time Mr. Pinda announced that farmers with grain in their stores could sell their produce across borders, he also said, “It is important for the government to keep track on food production. ...The exercise needs to be carried out in a controlled manner, not haphazardly leading to food shortage. We need to keep records and only the surplus will be exported.” This statement leads to additional questions about who is allowed to sell across borders (e.g., only farmers with surplus), how export licenses will be obtained, and how the government will track or “control” the process. Other articles indicate that this is a temporary lifting of the ban and only “special permission” will be granted to a select few to export. Furthermore, the statement suggests that the government will track food production and inventory.

Our analysis indicates that the government of Tanzania (GoT) does not have this capacity. The GOT has limited understanding of where and how much production and inventory exists within the country. In meetings with the Ministry of Agriculture and the Warehouse Licensing Board, government stakeholders acknowledged this point and stated that access to better information and improved infrastructure would help them avoid blunt policy tools such as an export ban. Meanwhile, this randomness application and implementation of export

31 Maize without Borders in Africa, DFID Funded Research on the Food Crisis.

32 Getachew Abebe Woldie & Khalid Siddig, *The impact of banning export of cereals in response to soaring food prices: Evidence from Ethiopia using the new GTAP African database* (MPRA Paper No. 18241) (Munich Personal RePEc Archive, 2009).

33 Ibid.

restrictions without clear guidelines is a systemic issue that creates the environment of risk for investors.

Inconsistency: The export ban was imposed in the name of food security. In our meetings with the Ministry of Agriculture, government stakeholders acknowledged that the export ban was a blunt but necessary instrument to encourage food self-sufficiency and keep food production within the country's borders. The Ministry of Agriculture estimates that Tanzania is 90 percent food self-sufficient, although the ministry also acknowledges that the government does not have enough data to truly understand production, grain inventory, and internal trade flows. The FEWSNET Food Security Outlook for Tanzania for January–June 2010 shows widespread food security and only sporadic areas of moderate food insecurity in the central regions of the country from January through March.³⁴ Furthermore, as many stakeholders understood implicitly, the long-term effect of an export ban is to increase the amount of grain on the local markets, which dramatically reduces grain prices. Reduced prices or an inability to offload grains at all (in absence of storage infrastructure) creates disincentives for farmers to produce next year, thereby actually decreasing production and productivity and causing the country to be even less self-sufficient and less food secure. Furthermore, there is little analysis to show that production or productivity is at the root of Tanzania's food shortage fears. Many of the insights gathered from this assessment show that in fact, food security in Tanzania has more to do with improving road infrastructure throughout the country so food crops can move from places of surplus to places of deficit, with the lack of storage capacity, and with lack of information. Improving the ability of the government to actually know where grain exists on farms or in warehouses would go a long way toward improving food security.

Import duty on food crops. Unclear and confusing regulations around import duties on

food crops—especially while the government is simultaneously supporting export restrictions—are another example of inconsistent policy. During the assessment, the team received reports of anywhere from a 25–75 percent import duty on rice and a 0–50 percent import duty on maize. In fact, the 75 percent import duty on rice does exist in accordance with an East African Community agreement. But interviews with the Tanzania Revenue Authority revealed that this information is not widely known, is not published anywhere, and is implemented independently of other policies such as the export ban. The EAC Common External Tariffs from 2005 indicate that there was no tax on maize or rice or any maize or rice product. As of 2007, however, these commodities are listed as “sensitive items” and taxed at 50 percent for maize and 75 percent or US\$200/MT, whichever is higher, for rice.³⁵ Additionally, Tanzanian rice growers did not know about the import duty on rice or what it meant for the competitiveness of the local rice industry.

The GoT also recently published a National Rice Strategy that proposes to enhance the competitiveness of Tanzanian rice and triple rice production by 2018 by facilitating irrigation schemes and promoting Upland rice varieties³⁶ while at the same time instituting a 75 percent import duty on external rice to protect the domestic industry. This protectionist policy, made in agreement with the EAC customs union, is implicitly sending the signal that Tanzanian rice cannot compete effectively with rice from Asia.

The assessment team also heard reports that Zanzibar had succeeded in lobbying the GoT and the EAC to reduce the import tariff on rice into Zanzibar from 75 percent to 25 percent. This fact has not been confirmed, but the reports indicate that rice is being imported into Zanzibar at 25 percent and then shipped to the mainland, avoiding 50 percent of the duty that would have been applied if imported through the port in Dar es Salaam.³⁷ This indicates a lack of harmonization of trade policy between

34 See www.fews.net.

35 EAC Customs Union Protocol External Common Tariffs, 2005 & 2007.

36 Ministry of Agriculture Food Security and Cooperatives, National Rice Development Strategy (May 2009).

37 Stakeholder interview.

mainland Tanzania and Zanzibar. More generally, the confusion on tariffs within the EAC points to a regional problem that limits a dynamic trading of food crops and stymies a regional approach to food security.

IMPLEMENTING INSTITUTIONS

The implementing institutions for critical economic policy and especially those affecting food crops like maize and rice include the central government (Office of the Prime Minister, Parliament, and the Ministry of Agriculture), the Food Security Department, the National Food Reserve Agency (NFRA), the Tanzania Revenue Authority (TRA), Tanzania Customs, and district government.

The **Food Security Department** influences the maize and rice value chains in two ways. First, it determines the timing and extent of purchases and sales of grain into and out of the NFRA. Second, it recommends whether or not various staples should be exported.³⁸

In the first instance, the impact of local purchase and sales was not reported by traders to be of any great significance; traders considered the activities of the grain reserve to be neither an incentive nor a disincentive to their business. Producers were concerned that the grain reserve should be required to purchase grain from them in the event that they were unable to access export markets. But in this regard, the activities of the grain reserve are limited by budgetary capacity.

It is in the second area that the Food Security Department has a major influence over both maize and rice markets. By recommending to the minister, on an ad hoc basis, whether or not maize or rice should be exported, the Food Security Department can influence the domestic prices of maize and rice and exert a major impact on the profitability of trade in these commodities.

Unfortunately, the capacity of the Food Security Department to undertake production assessments, analyses of the rice and maize markets, or impact assessments of export restrictions is limited. The beneficial impact of such restrictions upon food security is unproven and the level of uncertainty created within the maize and rice value chains is considerable. **The Ministry of Agriculture** and its supporting institutions are ill equipped to effectively track and monitor food production, inventory, and movement within the country. Many activities are centralized in Dar (with the exception of the DALDOs and the extension agents who are district-level administrators for the Ministry of Agriculture), and the flow of information from the field into ministry headquarters is not always broad, deep, rapid, or reliable. The Ministry of Agriculture requires tools and processes that can help it employ better policies and use more sophisticated tools to incentivize food crop production and increase food security.

The **National Food Reserve Agency (NFRA)** works with the Food Security Department at the Ministry of Agriculture to purchase and store maize and sorghum, focusing on regions with shortages and coordinating

DISCOURAGING MAIZE PRODUCTION IN DODOMA

In the Dodoma region, the district government is actively discouraging maize production. Dodoma is an area plagued by drought and is more suitable for growing drought-resistant food crops like sorghum and millet. The district bylaws state that only a certain percentage of any household's plot be used for maize production, and the district government is supposed to audit farms for compliance. But the district government lacks the audit capacity to do this. Thus, farmers continue to plant maize due to local taste preferences as well as the ability to use the surplus as a cash crop. This is an example where local government policies (discouraging maize production) directly conflict with central government policies (ostensibly to increase maize production). It is also worth noting that the local policy, like the central government policy, is regulatory and coercive rather than focusing on incentives.

38 Although the export of a staple food crop does not require an export license, it does require clearance from the management of the NFRA.

buying, storage, and transportation at the local government level. NFRA's goal is to purchase and store domestic stocks equivalent to four months of consumption—or approximately 160,000 tons—in addition to gathering and distributing grain from surplus to deficit areas in times of need and providing some support to stabilize grain prices. However, the NFRA and the SGR before it have not been able to fulfill these roles. According to a recent report, *Staple Food Prices in Tanzania*, the NFRA is only able to purchase about 50,000 tons per year due to budget constraints, capacity issues, and bureaucratic procedures. This is only a small fraction of Tanzanian grain production (more than 1.25 million tons of marketed surplus).³⁹ The MicroCLIR/CIBER team found similar results in conversations with the National Food Reserve Agency. The NFRA representative estimated that approximately 70 million tons had been purchased so far in 2010 but the government would be unable to fulfill its goal due to budget constraints. Meanwhile, during March 2010 there were multiple reports of crops rotting in the fields due to surpluses in regions dependent on exports such as Rukwa.⁴⁰ That region reportedly had a surplus of 330,000 tons in 2009, of which only 172,000 tons were sold to the market and NFRA and through informal exports to Congo.

An additional challenge within the NFRA is the method of price setting. The price NFRA offers for maize is set once a year based on an aggregation of costs of production in regions across Tanzania. In practice, however, prices both fluctuate dramatically throughout the year and differ significantly from region to region, and the government price is unable to respond to these.

While the Food Security Department advises on the export of staple crops, it is the customs agents of the **Tanzania Revenue Authority (TRA)** who implement the duties imposed on various staples imported into the country. While TRA is fairly efficient and perhaps even “zealous”⁴¹ in its collections, not all officers

were knowledgeable about various import duties and this information is not published on the Internet. It can be expected that the customs agents operating in Dar es Salaam will be accurate in their knowledge of current duty regimes. However, this is not necessarily the case for TRA agents working within the country. While both traders and producers might seek to know the relevant customs duties on imported maize and rice as indicators of the government's attitude towards, and the anticipated profitability of, the domestic production of these crops, such information is not readily available. Despite the Internet linkage among TRA offices throughout the country, the relevant customs duties could not be obtained from the regional TRA office in Morogoro with any degree of certainty.

The **district governments** are responsible for implementing many aspects of the Agriculture Sector Development (ASDP) program including the inputs voucher program. Key to district-level agriculture development, especially with regard to maize and rice, is the DALDO. The capacity and professionalism of district-level government officials, and in particular the DALDOs, vary greatly from district to district. As a general rule, district extension agents are not well informed about the market or market controls, although they are aware that farmers and their constituents complain about the export ban.

SUPPORTING INSTITUTIONS

Several advocacy groups expressed concern over the export ban in Tanzania. However, most of these groups lack capacity and self-sufficiency to effectively lobby the government for more consistent and economically powerful policies and regulations. Among them are the **Agriculture Council of Tanzania (ACT)**, the **Tanzania Chamber of Commerce, Industry, and Agriculture (TCCIA)**, the **Tanzania National Business Council (TNBC)**, and the **Tanzania Private Sector Foundation (TPSF)**. Additionally strong

39 Nicholas Minot, *Staple Food Prices in Tanzania*, prepared for the Comesa policy seminar on “Variation in staple food prices: Causes, consequence, and policy options,” Maputo, Mozambique, January 25–26, 2010, under the African Agricultural Marketing Project (AAMP).

40 “Farmers call on government to lift ban on food export,” *Citizen* (March 19, 2010), available at <http://www.thecitizen.co.tz/business/13-local-business/688-farmers-call-on-govt-to-lift-ban-on-food-export.html>.

41 AgCLIR Report Trading Across Borders.

farmer associations such as **MVIWATA**, the **Cereal Growers Association**, and service providers such as **Rural and Urban Development Initiatives (RUDI)** and the **Eastern Africa Grain Council/Tanzania** have the potential to service as powerful farmer advocates for policy change.

Some institutions, including ACT and the Chamber of Commerce, have both the resources to undertake impact assessments, and access to appropriate fora (such as the National Business Council) to debate the results of such assessments with government counterparts. However, these higher-level institutions are to some extent compromised by government support for their activities (including significant levels of funding) and, while clearly concerned about the impact of a cereal export ban, have tended to adopt a low profile to discussions on this issue. Other institutions, especially those more directly linked to producers, including ANSAF, MVIWATA, and the Cereal Growers Association, are independent and so can be both vehement and vocal in their opposition to such a ban and the apparent ad hoc nature of its imposition and occasional removal. However, they lack the necessary resources to investigate objectively the impact of a cereal export ban, and their discussions with government are hampered accordingly.

ACT is a lobbying, advocacy, and capacity-building organization for farmers and farmer associations. They work at the district level in maize and paddy production and are currently focused on coordinating with CNFA/TAGMARK to offer farm input promotion services. The organization has a network of district coordinators who support village-based and apex farmer organizations.

ACT appears to be a well-organized institution whose professionals understand the issues around maize and rice very well and have ideas for policy changes that would incentivize production and economic growth. Currently their advocacy efforts are limited to a study of the farm gate cess and a duplicity of district and central

taxes facing farmers, small traders, and transporters. This may be “low hanging fruit” given that the issue of farm gate taxes as a regulatory constraint is minor in comparison to more complex macroeconomic issues such as the export ban. ACT’s biggest weakness is that it is in part financially supported by the government, which ACT’s ability to be a strident or quickly effective advocacy voice and commits the group to quieter advocacy work “behind the scenes.”

Similarly **TCCIA** is a somewhat weak institution but does have a few strong and knowledgeable professionals and a pervasive (if not always effective) network of branches in 21 regions and 94 districts. TCCIA is also working on district tax issue that speaks to a lack of coordination between advocacy organizations. It is a member-based organization that provides advocacy and business development services. The group has been working on this issue of standardizing weights and measures, although it is unclear how successful its participation has been. Like ACT, TCCIA is largely funded by donors such as SIDA, UNIDO, and the World Bank and by the government.

MVIWATA is a national farmers association with more than 70,000 members. MVIWATA’s goal is to mobilize and organize farmers as well as advocate on their behalf. The association focuses on marketing, credit cooperatives and community banks such as SACCOS, crop banking and warehouse management for SACCOS members, extension services, and farmer training. Membership fees are Tsh 2000/farmer/year. MVIWATA is supported in part by the ASDP at the national level and the District Agriculture Development Program (DADP).

The **Cereal Growers Association** is a new organization established and funded by the USAID-COMPETE project. It currently operates three warehouses and will collect maize from member farmers through the harvest season as a pilot. The grain will be bulked and sold as one lot. The CGA has three subcommittees on quality, marketing, and finance. The association views itself as commodity advocacy

organization and in 2010 and 2011 its advocacy efforts will be marketing, government intervention during the harvest season, the export ban, and standardizing weights and measures for regional grain exports.

RUDI is a donor-funded service provider that gives technical assistance and business support services to farmers associations, especially in the Kilombero region. RUDI is primarily responsible for establishing the **Association of Kilombero High Quality Rice Producers**, an APEX organization for rice farmers in the district. RUDI has also been influential in helping those farmers obtain a licensed warehouse and a line of credit from NMB against their paddy deposits in the warehouse. The APEX farmers association claims the export ban has made the price for last year's stored paddy harvest lower than expected and orders for paddy coming in from NASFAM in Malawi that it cannot fill because of the ban.

Eastern Africa Grain Council is a regional member-based organization whose mandate is to "improve the policy and trade environment for the betterment of the grain sector from producer to consumer." Its objectives are to promote functioning regional grain supply chains, to serve as third-party certification for warehouse facilities and commodity exchanges, and generally to build alliances and lobby nationally and regionally on behalf of grain sector members. This regional organization is still nascent and is almost entirely funded by the USAID-COMPETE program. So far the organization has 13 members who are millers (maize and rice), producers represented by farmers associations or organizations like RUDI, sellers/traders, and a few big food-processing companies like Bakhresa. The council intends to certify warehouses to international standards and quality management over and above what the warehouse licensing board requires. Although still quite weak as an institution, with the right support and growth strategy the council might help legitimize and promote better and more evenly

distributed storage facilities and provide advocacy for grain value chains.

SOCIAL DYNAMICS

Maize and rice are staple crops, so their markets are of great political significance. Indeed, maize is commonly described as a "political crop." Rice, which fetches a higher price and is consumed less by the most food insecure, is not as highly politicized.

The government has placed a high priority upon national food security. In a country where more than 60 percent of rural households (and all urban households) indicated the market to be their main source of food,⁴² access to staples, as determined by price, must be a major concern. In this context, the ban on the export of cereals should come as no surprise. The government views the ban as a means of reducing domestic prices and thereby increasing short-term access to food for a substantial majority of the population. There are arguments to be made both for and against such import duties, export bans, and national grain reserve purchase and sale operations, but the key question is, "Does the current operation of these mechanisms enhance the efficiency of the maize and rice value chains, and permit the achievement of optimal returns to the producer and costs to the consumer?"

This question can be answered from two perspectives. From the aspect of price, high import duties will increase domestic cereal prices, while a ban on exports will reduce them. Both will effectively distort the market and may result in either incentives or disincentives to local producers and the inefficient use of national resources for a perceived social good. However, irrespective of the economic/social balance struck, if the manner in which either import duties or export bans are promulgated and imposed is inconsistent, irregular, or just ad hoc, then it will create a degree of uncertainty that will be amplified with every change in the import/export regimes. Such uncertainty will result, on the one hand, in increased margins being taken by traders in order to offset

⁴² WFP, *Comprehensive Food Security and Vulnerability Analysis* (February 2007).

losses made when the market shifts in an unexpected direction, and, on the other hand, in fewer traders in the value chains as some traders are unable to cope with the unexpected losses incurred. In both cases, the result will be increased transaction costs to the detriment of both producer and consumer.

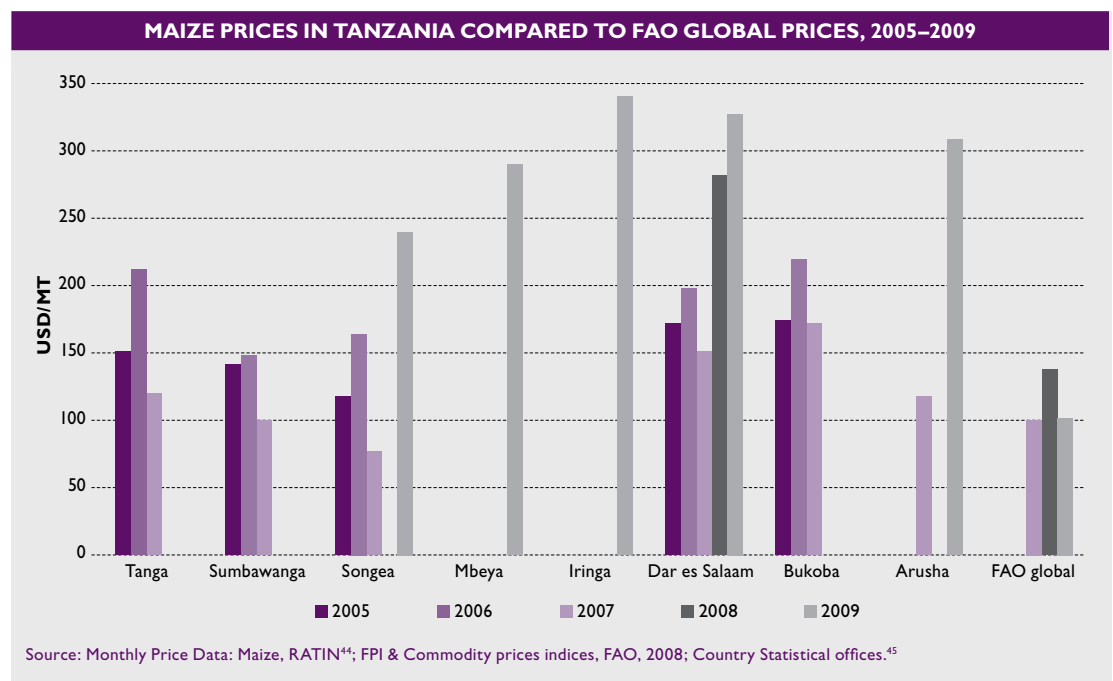
There is very little trust between the different actors in the value chain (farmer to trader, trader to transporter, transporter to exporter, and so on). The only players in the market who can take advantage of such inefficiencies are large, well-financed actors who can vertically integrate and spread the high transaction costs over a large volume of transactions. In Tanzania, this means a small group of large grain traders. These large firms can actually benefit from an uncertain policy environment by capturing the majority of value in grain value chains. They may even be able to perpetuate the status quo by lobbying the government for policies that favor them.

Finally, Tanzania's borders are fairly porous at the best of times. During times of export restrictions, an enormous amount of illegal trade occurs, costing the government uncollected tax

revenue. It is estimated that 250,000 MT⁴³ has crossed the border illegally. In addition to costing the government money, this illegal trade increases transaction costs due to "unofficial" costs of doing business. One exporter reported that it costs more than 100,000 Tsh/shipment to get goods across the border.

CIBER ANALYSIS: EXPORT BAN

The following section provides a sample impact assessment of maize and rice export bans using two elements of the CIBER approach: a basic cost model, focusing on the segment of the value chain most affected by the export ban, and a political and administrative reform analysis. The section briefly reviews the official rationale behind the export ban, followed by a chart summarizing the constraint and the relevant stakeholders. Descriptions of recent analyses of the impacts of export bans in Ethiopia and Tanzania are accompanied by models of the impact of the export ban on maize and rice traders/exporter in Tanzania, based on information gathered through interviews with producers, processors, traders, exporters, and other stakeholders in the central region in March 2010. These illustrate the kind of analysis that can be conducted to contribute to reform advocacy efforts. Full



43 Anecdotal figure from interviewee.

44 See <http://www.ratin.net/priceinfo.asp?commodityid=1&countryid=3&startdate=2005&enddate=2010>.

45 See <http://www.ilri.org/Link/Files/ReSAKSS-ECA/Quarterly%20food%20price%20updates/Commodity%20price%20index%20graphs%20-%2009%204th%20update.pdf>.

TYPOLOGY FOR MAIZE AND RICE EXPORT BANS

Level of Law/ Regulation	Area of Constraint	Type of Enterprise Affected	Section of the Value Chain Affected	Stakeholders for Reform
National	Export bans on food crops (specifically maize and rice) in Tanzania are intended to establish domestic food security, but they result in negative net welfare impacts. Consumer prices may be lowered, but farmers and traders face smaller markets and lower sale prices (impacting their consumption levels). Uncertain timing of ban placement and lifting renders farmers unable to plan or invest. Long-term impacts may be a reduction in production for non-subsistence use.	Micro	Input supplier	National government
		Small	Producer	District government
		Medium	Processor	Producers in the southern highlands and border districts
		Large	Trader Exporter	Exporters Cereal Growers Association ACT RUDI

implementation of this tool would include analysis of ban impacts on a wide variety of stakeholders for a more complete picture.

Regional maize prices from 2005 to 2009 are shown below—with gaps reflecting missing data for some regions in some years—and compared to the FAO global price for maize in 2007, 2008, and 2009. The general increase in prices over time is visible across regions in Tanzania, with the area of most consistent data, Dar es Salaam, showing a striking increase from 2007 to 2009. FAO global prices, meanwhile, increased briefly in 2008 before decreasing the following year.

Tanzania was one of about 20 percent of countries in Africa, Latin America and the Caribbean, and the Middle East and North Africa to institute an export restriction in response to these conditions. In fact, Tanzania both instituted a ban on maize exports and eliminated the 50 percent import tariff that is in place in non-shortage years.⁴⁶ These policies were implemented in February 2008 to protect against food insecurity by lowering costs for domestic consumers and increasing

food stocks. Prices do appear to have stabilized somewhat in the intervening years, but they have remained high and the overall welfare impacts of the ban have been negative.

It is challenging to develop estimates of the full economic impacts of the maize export ban for several reasons. First, in contrast to evaluating the impact of an export tax, there is no specific value associated with a ban on exports. Furthermore, as shown in East Africa Grain Council reports, informal exports of maize to neighboring countries have continued in the face of the export ban. Finally, maize prices and production trends are impacted by a wide variety of factors, including weather conditions and geographic locations within Tanzania.

However, recent research has analyzed price margins between markets in Tanzania and Kenya with and without the ban, and regional price transmissions with and without Tanzania. This research found that the ban had negative impacts on prices, particularly in the surplus areas of the Southern Highlands. Lower output prices may ultimately lead to lower production,

46 International Monetary Fund. *Food and Fuel Prices—Recent Developments, Macroeconomic Impact, and Policy Responses*, prepared by the Fiscal Affairs, Policy Development and Review, and Research Departments (June 30, 2008).

negatively impacting both agricultural growth and food security. Furthermore, domestic and international investment in any industry requires stability in the policy environment. Uncertain and inconsistent policies, therefore,

further damage investment potential in areas that would have significant benefits for the maize sector, such as private storage.

Also relevant may be an analysis of the welfare impacts of an export ban on grain and cereals in Ethiopia conducted in 2009 using the Global Trade Analysis Project (GTAP) model and GTAP Africa database.⁴⁷ This research found that the price distortions resulting from an export ban would have dramatic welfare losses, totaling US\$148 million economy-wide. These losses are disaggregated as follows:

The increased trade balance reflects the fact that after the export ban, other countries reduced their exports to Ethiopia while exports of other goods from Ethiopia increased. In part this may be explained by the fact that cereals and grains

EFFECTS OF AN EXPORT BAN ON CEREALS AND GRAINS IN ETHIOPIA	
Variables	Simulation
Trade balance	70.35%
GDP quantity index	-2.52%
Volume of merchandise imports	-7.84%
Volume of merchandise exports	-10.34%
GDP value index	-9.47%
Value of merchandise imports	-7.84%
Value of merchandise exports	-6.95%
Household income	-10.00%
Household consumption expenditure	-9.86%

PRICE DIFFERENTIAL FOR MAIZE EXPORTERS/TRADERS (MZUZU, MALAWI 2003) ⁽¹⁾				
	Without Export Ban 2003		With Export Ban 2009	
	\$/ton	\$/month	\$/ton	\$/month
Volume of export sales = 120 tons/month				
Number of trucks to export = 4/month				
Volume of domestic sales = 10 tons/month				
International Sales				
Sale price in Malawi	291.52	34,982.07		
Purchase price	109.07	13,088.53		
Transportation costs (including customs/levies)	58.30	6,996.41		
Bribe at border ⁽²⁾	3.12	374.81		
Labor (Loading, unloading, packaging)	16.86	2,022.77		
Domestic Sales				
High sale price in Dar es Salaam ⁽³⁾			419.00	4190.00
Losses from post harvest and storage			146.65	1466.50
Purchase price in Dar es Salaam ⁽³⁾			160.56	1605.57
Domestic transportation costs			52.37	523.67
Tax			3.12	31.23
Labor (Loading, unloading, packaging)			9.53	95.31
Total				
Gross profit	291.52	34,982.07	272.35	2,723.50
Cost	187.35	22,482.53	225.58	2,255.78
Net Profit	104.16	12,499.55	46.77	467.72
Net profit (%)	0.36	0.36	0.17	0.17

\$1=TSH 800 2003 average.
\$1=TSH 1364 March 2010.
(1) Manager of Kibaigwa market and former maize exporter.
(2) Bribes estimated to occur 75 percent of the time, costing 100,000 TSH each time.
(3) Monthly Maize Price Data, RATIN.

47 Getachew Abebe Woldie & Khalid Siddig, *The impact of banning export of cereals in response to soaring food prices: Evidence from Ethiopia using the new GTAP African database* (MPRA Paper No 18241) (Munich Personal RePEc Archive, 2009).

PRICE DIFFERENTIAL FOR RICE EXPORTERS/TRADERS (BURUNDI 2009) ⁽¹⁾

	Without Export Ban March 2009		With Export Ban March 2010	
	\$/ton	\$/month	\$/ton	\$/month
Volume of export sales = 30 tons/month				
Number of trucks to export = 3/month				
Volume of domestic sales = 10 tons/month				
International Sales				
Sale price in Burundi	1,532.80	45,984.06		
Purchase price	574.80	17,244.02		
Permit from authorities (includes customs)	2.55	76.64		
Hired truck from Upanda to Burundi	229.92	6,897.61		
Bribe at border	15.33	459.84		
Labor (loading and unloading)	1.82	54.74		
Unloading	1.82	54.74		
Domestic Sales				
Sale price in Dar es Salaam ⁽²⁾			920	9,200.00
Purchase price			549.85	5,498.53
Domestic transportation costs			18.33	183.28
Labor (loading and unloading)			1.75	17.46
Gross profit	1,532.80	45,984.06	920.00	9,200.00
Cost	826.25	24,787.60	569.93	5,699.27
Net Profit	706.55	21,196.46	350.07	3,500.73
Net profit (%)	46	46	38	38

⁽¹⁾ \$1=TSH 1304.8 March 2009.
⁽²⁾ \$1=TSH 1364 March 2010.
 (1) Interview with rice exporter in Morogoro.
 (2) Monthly Rice Price Data, RATIN.

do not make up a large component of Ethiopia's exports. According to this simulation, as the availability of cereals and grains increases domestically, the prices should fall to absorb the excess capacity. However, because grains and cereals are price inelastic, absorption of the surplus would require an extremely large price decrease, resulting in either surplus production or a devastating crash in grain prices.

While this simulation used data from Ethiopia and looked at a ban on grains and cereals writ large, it is relevant for Tanzania, for which maize and rice are not major contributors to exports. It would also be of great interest to conduct a simulation for Tanzania, ideally with regional disaggregation to illustrate the impact of such a ban on border districts.

The analysis above uses data gathered from rice and maize exporters/traders in Morogoro and Kibaigwa, respectively. Farmers in this semi-arid central region are less directly impacted by the export ban on maize—although some welfare effects are felt economy-wide—because they have relative ease of access to major markets in Kibaigwa and Dar es Salaam and are less engaged in direct exports. An assessment of farmer losses should include information from farmers producing in border regions and the Southern Highlands.

The analysis illustrates price differentials for a trader exporting maize to Malawi in 2003 (when regions of that country were experiencing a food shortage) versus domestic sales in 2009. The key differences include the ability to access a higher sale price and the ability to move a much higher volume of maize to meet demand. When viewed

by ton, an exporter in 2003 was able to get about twice the net profit than the domestic trader in 2010. The analysis assumes that traders are able to buy at the annual low price and sell at the annual high price in 2009. With additional data, a similar analysis would be possible for farmers in exporting regions and other stakeholders along the value chain.

A similar analysis of the rice import ban compares data from March 2009 before the ban was instituted with data from March 2010 after the ban was in place. In this case the domestic purchase price in 2010 is lower than in 2009, but the domestic sale price is significantly lower than exporters were able to obtain in Burundi in March 2009. Again the exporter was able to earn about two times more per ton than the domestic trader and a much higher annual profit due to both higher prices and increased volume of sales.

CIBER: FEASIBILITY OF REFORM

According to FEWSNET, it is common for one or more semi-arid regions of the country to be food insecure at any one time. Lack of information about existing stocks, and an inability to efficiently transfer stocks from surplus to deficit regions, mean that the government and private sector cannot respond to food insecurity in a timely way.⁴⁸ Furthermore, many stakeholders believe that food crop export bans are more of a political tool than an effective measure to accomplish food security goals. Such bans are relatively common in the East African Community and often appear as a form of muscle flexing in response to other member states' activities.⁴⁹

Analyses of blanket bans such as this support the case that they neither protect food security nor support the agricultural and economic growth necessary for Tanzania to become food secure over the longer term. Rather than excluding staple crops such as maize and rice from regional harmonization efforts, domestic and regional goals would be better met by increasingly integrating regional production and trade.

Members of the Tanzanian government—and the EAC at large—are well aware of the recommendations that have been made by international and domestic analysts to improve productivity and facilitate the flow of food resources according to demand and supply. In times of crisis it is recommended that select, targeted interventions to provide food to the poorest of the poor will be more effective than economy-wide measures. The government does not, however, appear to take these recommendations into account when developing policy.

Thus, the reasons for continued policy making seemingly at odds with stated goals must be examined.

Tanzania and neighboring countries such as Kenya periodically ban exports. The export ban does appear to have stabilized maize and rice prices in Tanzania somewhat, although, as the analysis above shows, the level at which they stabilize remained higher than average in 2009 and 2010. In a more typical year the government might expect that prices would decrease following the ban, appealing to domestic consumers, particularly urban voters. If the government were able to purchase all excess grain stocks, it is possible that this political calculation would be well founded. However, as farmers faced dramatically reduced market sizes through lack of export markets and lack of budget at the National Food Reserve Agency, popular opinion moved away from a focus on lower prices. Export restrictions were recently reduced in advance of the July 2010 elections, but questions about the status of these restrictions remain.

While an export ban itself is not a market-friendly approach to addressing food security needs, an equally disruptive aspect of the ban is the uncertainty created as it is put in place and lifted at will. Any kind of large or small-scale investment initiative is likely to be put on hold until some degree of security or confidence about future markets can be obtained. Continued uncertainty in policy planning in this area reflects the uncertainty in production and

48 FEWSnet provides information about scarcity based on weather patterns, food prices, and trade flows but does not have information about existing stocks.

49 The East African Community (EAC) is the regional intergovernmental organization of the Republics of Kenya, Uganda, the United Republic of Tanzania, the Republic of Rwanda, and the Republic of Burundi with its headquarters in Arusha, Tanzania. See <http://www.eac.int/about-eac.html>.

storage that impacts many parts of the maize and rice value chains. Improving the access to information on prices and stocks and strengthening the capacity to assess the unintended consequences of policies are avenues to address this constraint. These are discussed in greater detail in the recommendations.

MARKET REGULATION

The risks associated with doing business in any country are inversely proportional to the extent of effective market regulation. A well-regulated market will still contain some element of risk, but market regulation reduces uncertainty to a level that reduces transaction costs. Market regulation (or the lack thereof) in Tanzania impinges on the maize and rice value chains.

Market regulation is defined as weights and measures, quality standards, and fair competition. The lack of enforcement of standards results in weak price signals to the producer, who generally receives no premium for good quality grain, although there is considerable price differentiation (especially of rice) in the retail market. This means that the producer receives little incentive to produce better quality grain and hence limits the efficiency of production. The increased transaction costs represent overheads that limit the profitability of the trading sector, creating a barrier to business expansion that only a small number of vertically integrated trading houses have been able to overcome. As a result, only a small number of trading houses (no more than five or six) dominate both the rice and maize value chains. This effective oligopoly results in limited competition within the trading sector to the detriment of both producers and consumers.

LEGAL FRAMEWORK

The rice and maize value chains are not subject to regulation by commodity boards as other commodities are. As a result, there is little agricultural legislation that directly relates to rice and maize other than the **Food Security Act, 1991** (which relates primarily to the

establishment of the Food Security Department within the Ministry of Agriculture and management of the National Food Reserve Agency). However, the implications of this act are considerable since clearance for the export of staple crops is dependent upon the recommendation of the Food Security Department. In addition, the value chains are also subject to the following more general legislation:

The Weights and Measures Act, 1982

stipulates the measures in which maize and rice grain can be sold (in the case of maize, by volume and by weight in various units up to 90 kg, and of rice, by weight only in various units up to 100 kg) and makes similar stipulations for bran and flour.

The Standards Act, 1975 (amended 1977)

empowers the Tanzania Bureau of Standards to prepare quality standards and to certify products.

The Food Drugs and Cosmetics Act, 2003 established the Tanzania Food and Drug Authority and empowered it to do the following:

- Regulate the importation, manufacture, labeling, marking, identification, storage, sale, and distribution of food.
- Test or facilitate the analysis of food and/or food products to ensure safety for human consumption.
- Prescribe minimum quality standards for imported and locally manufactured food.
- Enforce the regulations and apply penalties for non-compliance.

The Fair Competition Act, 2003 established the Fair Competition Commission with powers to investigate and take action against restrictive practices that might reduce competition within the market. It also establishes the National Consumer Advocacy Council with limited advisory powers.

In all of the above instances, it is not so much the legal framework that impacts the maize and rice value chains, but the implementation of that

framework, itself dependent upon the capacity of the implementing institutions described below.

IMPLEMENTING INSTITUTIONS

Four groups of implementing institutions are critical to the maize and rice value chains. **The Tanzania Bureau of Standards (TBS)** and **Tanzania Food and Drug Authority (TFDA)** overlap in their activities. Both the TFDA and the TBS have multiple responsibilities. The TFDA regulates packaging and products of both food and drugs, while the TBS deals not only with food quality standards, but also with cosmetics and sanitary and phytosanitary (SPS) issues. The TFDA and TBS regulate all milling establishments, and while one or other institution should also regulate all market activities insofar as weights and measures are concerned, in practice this does not occur. Weights for both maize and rice sold wholesale are extremely variable. Bags may be filled with five, six, or even seven 18 kg tins and consequently may weigh anywhere from 90 kg to 130 kg.

Both the TBS and the TFDA lack the capacity to deal with rural issues through their current centralized infrastructures. The TFDA has attempted to develop a zonal structure, co-opting local health officers to undertake some inspections, but the TBS, faced with wide-ranging responsibilities (especially those requiring laboratory testing), has yet to achieve satisfactory coverage. Until these issues of capacity can be addressed, neither the TFDA nor the TBS is able to discharge their legal obligations effectively.

The Fair Competition Commission is an active body, but has yet to exert any influence on either the maize or rice value chains. This is not surprising given the complex nature of the existing oligopoly and the lack of capacity within the commission to undertake detailed investigations. Nevertheless, this is the most appropriate institution to initiate actions that might lead to increased competition within the trading segments of both the maize and rice value chains.

SUPPORTING INSTITUTIONS

There are few supporting institutions that focus specifically upon market regulation. However, a number of institutions are concerned with the key issues listed above and either make unsolicited representations to government through various channels or are invited to take part in dialogue to review key aspects of market regulation. Thus, in developing standards, the TBS engages in an extensive consensus-building process. The Cereal and Cereal Products Technical Committee has at least eight representatives of different stakeholder institutions and is chaired by a non-government representative. Its deliberations are placed in the public forum for a three-month period for comment reconsidered in the light of comments, and republished for two months for additional comment before finalization. Nevertheless, despite such opportunities for private sector involvement, it is clear that developed standards are not considered relevant by the domestic industry, especially insofar as weights and measures are concerned. This suggests both that there is no real consensus among the private sector and that there is little real communication between stakeholders and the TBS on this issue.⁵⁰

SOCIAL DYNAMICS

The overall impact of poor and irregular market regulation is that overheads for market participants are increased in order to offset risk. Transaction costs are thereby increased, resulting in lower prices to the producer and higher prices to the consumer and reducing the profitability of traders. The reduced profitability (together with risk and other factors) constitutes a major barrier to business expansion, with the result that a significant part of the value chain consists of many small assemblers and traders competing on narrow margins.

Inflated overhead costs can be reduced through economies of scale so that poor market regulation favors the largest companies. As a result, the small number of companies that have been able to capture the bulk of the market is able to absorb the price fluctuations and overhead

⁵⁰ The TBS is also constrained by its membership in different international bodies, including the ILO, the SADC Committee of Experts for Standards, and the EAC Standards Committee, all of which seek to impose regional or international standards. Some of these are not appropriate to the situation in Tanzania (such as the ILO requirement for a maximum grain bag weight of 50kg). Until practices within Tanzania change, insistence on international standards simply reduces the relevance of the TBS to domestic trade.

costs and remain profitable. Two other factors also favor these larger businesses. First, they have achieved vertical integration of their operations from the purchase of grain from farmers by their own agents (who act in a similar manner to self-employed assemblers) to the milling of grain (although this aspect of the value chain is perhaps the least profitable). As a result, they have been able to internalize and effectively remove the element of trade risk. Second, although there is no direct evidence of such occurrence, the larger companies have sufficient financial standing and political weight to be able to lobby government for policies that favor their own business. It would be impolitic to reduce cereal prices to the point where farmers would have no incentive to produce, or to raise prices to the point of public outcry. Nevertheless, it would be quite possible to organize a small number of businesses to ensure maximum and minimum producer and retail prices, respectively. Similarly, it would be quite possible to successfully lobby government to temporarily waive export bans so that accumulated surplus stocks profitably could be profitably disposed of.⁵¹

The result of such real and perceived advantages of the larger companies is that while the smaller businesses trade on tight margins on a back-to-back basis, larger operations command the bulk of the market, storing large volumes of grain and taking advantage of the temporal arbitrage opportunities that exist between the initial after-harvest period and later in the season. The larger operations effectively dominate the market and their activities exert a major influence on cereal prices throughout the season.

In a more mature market, an oligopoly of this nature would be subject to restraint. However, in Tanzania, the Fair Competition Commission has not acted to curtail the larger grain buying companies. As a result, the value chain is distorted. Opportunities for profit in trading are restricted to a small number of large companies while a large number of smaller companies exist on slim

margins and are unable to achieve the critical mass necessary for sustained business growth.

The net result of such ineffective market regulation is that the oligopoly creates a lack of competition between traders to purchase farmers' grain and a similar lack of competition to supply retail outlets. As a result, both farmers and consumers are consistently price takers rather than price setters. This situation can change in two ways, either by regulating the markets so that the trading sector becomes sufficiently attractive to encourage new entrants and increased competition for grain, thus reducing the negotiating strength of traders, or by increasing the negotiating capacity of the farmers to the point where it exceeds that of the current oligopoly of grain traders. Most development initiatives focus on the latter, but given the observed size and strength of the main grain trading businesses, it is highly unlikely that any significant impact can be made to redress the negotiating position of producers unless the observed distortions in the trading sector are simultaneously addressed. Until this can be done, farmers will continue to be price takers, irrespective of the level of development assistance provided to them.

ACCESS TO CREDIT

The ability to access capital within the rice and maize value chains in Tanzania can mean the difference between investing in higher-yield seed inputs, financing storage construction, enabling value-added investments into more productive machines, or continuing to merely make do at subsistence levels. Recent assessments sponsored by USAID, including a BizCLIR assessment in 2008 and an AgCLIR assessment in 2010, have emphasized the importance of rural access to credit and financial services for the agribusiness sector generally. This assessment will build upon this analysis to identify unique constraints faced by the rice and maize value chain players in Tanzania in terms not only of accessing credit, but also in attracting investment and encouraging savings at the small-farmer level.

⁵¹ As has happened on more than one occasion in the last three years.



Approximately 90 percent of maize and rice farmers survive at near-subsistence levels in rural regions with few opportunities to access credit from brick and mortar financial institutions. While inputs dealers, traders, producers, and marketers are often able to access collateralized credit instruments, small-scale farmers are deemed too high risk. They also have insufficient title in immovable property to provide adequate collateral for credit instruments through commercial banks. Oftentimes, small entrepreneurs throughout the two value chains who can access commercial credit lines refuse to do so due to an aversion to risk in a volatile market. Further analysis of private sector utilization of financial instruments is required to better align incentives and market demand to consumer preferences.

LEGAL FRAMEWORK

Regulation of banks and non-bank financial institutions. While a robust regulatory scheme exists for banks, only limited regulations are applicable to SACCOS. The **Bank and Financial Institution Act, 2006** authorizes the Bank of Tanzania to establish a regulatory framework for SACCO operations, and

establishes the authority of the Bank of Tanzania to obligate SACCO contributions toward the Deposit Insurance Fund, but does not extend the existing banking regulatory framework to SACCOS. Section 48 of the Bank of Tanzania Act of 2006 obligates the Bank of Tanzania to develop a national credit reference bureau that extends to SACCOS; however, little oversight or regulations exist to regulate SACCOS.

Leasing. Tanzania's **Financial Leasing Law** establishes a sound framework for a standard financial lease that adopts many standard provisions. In a financial lease, the lessor retains ownership of the asset for the duration of the lease agreement, providing greater certainty in enforcement. The Financial Leasing Law authorizes self-help to repossess the leased asset, in addition to enforcement via court order, allowing for increased certainty in repossession. The Financial Leasing Law establishes liquidated damages for early termination, but notably does not expressly create an obligation on the part of the lessor to mitigate damages. The Financial Leasing Law provides lessors and lessees with the flexibility to contract around standard terms found within the act, allowing for flexible arrangements that suit the needs of the parties.

Notably, not all institutions are aware of the passage of the Financial Leasing Law, and fewer can relate to the terms of the law and the terms of the law to their leasing practices. Inquiring into the dearth of leasing products offered by one microfinance institution, a representative suggested that the risk for leasing activities remained too great until a law on leasing is passed, not knowing the Financial Leasing Law exists and covers microfinance institutions. Certain institutions also are unsure whether the Financial Leasing Law covered semi-formal financial institutions.

Commercial banks and SACCOS offer financial leasing arrangements for capital investments into certain kinds of movable property, particularly vehicles such as tractors and large-scale farm implements. Leasing transactions within

SACCOS show reasonably high repayment rates. One SACCO noted a 90 percent repayment rate for five-year leases for agricultural vehicles, substantially higher than other financial products offered by the SACCO. A standard financial lease offered to a member of a SACCO in Kibaigwa for a five-year lease for a tractor charges an effective interest rate of approximately 15 percent per annum.

Warehouse receipts. Warehouse receipts in Tanzania are governed by the **Warehouse Receipts Act, 2005**. Warehouse receipts function as negotiable instruments. As noted in the previous section, “warehouse receipts” systems in Tanzania are implemented almost exclusively as inventory credit through local SACCOS and banks rather than as negotiable instruments in their own right. Warehouses, licensed by the Warehouse Licensing Board, are reviewed and licensed annually through a review process that inquires into maintenance, application of pesticides, and financials.

While limited in use, the existing inventory credit schemes billed as warehouse receipts systems allow some farmers to apply the spot market value of their inventory as collateral for a loan up to 60 percent of the value of the inventory. This allows farmers to tap into the value of existing inventory to secure financing for inputs for the next growing season without having to sell their inventory immediately at harvest, which has historically resulted in lowest seasonal prices for rice and maize.

Municipal finance and agriculture. The **Local Government Service Act, 1982** devolves considerable authority to local governments in Tanzania and, specifically for purposes of this section, the legal authority to contract for services, raise revenues, and borrow upon approval from the Prime Minister’s office. Support for agriculture is a concurrent authority shared between the local government authorities and the Ministry of Agriculture and Food Security.

However, local government authorities have typically avoided capital investment into agricultural infrastructure, with activities focusing largely on agricultural extension services and support for livestock.⁵² Warehouses owned by villages inherited from state-owned companies sit largely idle while basic investments to bring the warehouses to code, and even provide basic maintenance and upkeep, are nonexistent. Stakeholders commonly expressed interest in improvements to infrastructure, especially for inputs that could result in revenue generation, higher yield, or greater certainty of yield, such as warehouses and year-round irrigation infrastructure.

Sources for municipal financing for agricultural infrastructure arise through at least four distinct sources: tax revenue, fees from concessions, grants from the central government, and municipal bonds. It is within the mandate of local government units in Tanzania to float municipal bonds for revenue-generating purposes, although they are not currently used by any of the localities for agricultural investment. While some analysis has been undertaken into sources of financing for local government unit activities, further inquiry should be undertaken to assess the cost benefits of the varied sources of financing for municipal services.

IMPLEMENTING INSTITUTIONS

Savings and credit cooperative societies (SACCOS). SACCOS serve as the primary vehicles for debt financing for the agricultural sector, and specifically the maize and rice sectors. SACCOS are informal savings and credit entities designed to encourage thrift among members, while providing access to credit primarily to underserved agribusinesses. Organized through laws on cooperative societies, SACCOS remain largely unregulated within Tanzania’s legal system, resulting in dramatic variations within the quality of services and management practices.

Rural SACCOS in Tanzania are primarily based within specific villages, with the goal of lending to local farmers who are often deemed too risky for traditional commercial banks. As noted

⁵² Pritha Venkatchalam, *An Overview of Municipal Finance Systems in Dar-es-Salaam, Tanzania* (November 2009).

in the 2010 AgCLIR assessment of Tanzania, the geographic concentration of rural SACCO clients, who often have little crop variation among members, can lead to substantial risk when regional weather patterns or market forces drive down the prices for crops within a particular region. Absent regulation, and absent risk-pooling mechanisms to spread risk broadly among many types of growers and geographically across Tanzania, the risk for catastrophic, cascading failure within a single SACCO is very real. Indeed, one SACCO, commonly cited as one of the best-performing and experienced SACCOS visited as part of this assessment, noted a three-year average repayment rate for agricultural loans at approximately 45 percent. While a number of contributing factors likely resulted in the poor performance, it is notable that a sharp reduction in loan repayment rates at this SACCO coincided with three years of insufficient rainfall, drastically reducing yields. This SACCO, whose membership largely grows the same crops within the same region, has encountered major difficulties in collection, renegotiation, and foreclosure.

Several SACCOS interviewed for this assessment activity showed largely unsustainable business practices. For example, one common practice is to take loans from commercial banks, repackaging the debt into higher-risk, smaller loans to farmers, cooperatives, and traders. During times of high productivity and rising farm gate prices, this model is not tested by strains in repayment. However, SACCOS engaging in these loan programs, emphasizing loans over savings schemes, are now suffering from low repayment rates, some as low as 30 percent in the most hard-hit locations, and are facing difficulties making timely payments on their outstanding debts owed to commercial banks. Another common practice is to charge for savings accounts, which provides a disincentive to save. One of the SACCOS visited during this assessment indicated that no deposit accounts accumulated interest, and that in fact all deposit accounts faced a 300 Tanzanian shilling financing

charge each month unless a minimum deposit of 500,000 Tanzanian shillings was maintained in the account. The only incentive to save afforded by this SACCO is the ability to incur additional debt: savings accounts are required for members to take on loans from the SACCO. Indeed, few options are available to the rural farmer seeking to build capital through savings over time; very few financial products are offered to the rural farmer.

Microfinance institutions (MFIs). Deposit-taking MFIs, as distinct from the SACCOS listed above, do not engage in significant direct lending to businesses in the rice and maize sectors. With few exceptions, most MFIs are not involved in Tanzania's agricultural sector; the country's MFIs are primarily focused on manufacturing, though some do provide credit for latter stages of the value chain. MFIs have suggested willingness to package capital for village community banks (VICOBAs) at competitive rates, but are largely unwilling to engage with SACCOS due to a perception of poor management and concerns over limited cash reserves of rural SACCOS.

Village community banks (VICOBAs). VICOBAs provide access to very thin lines of credit to members of a defined community. These village banks are largely informal and are typically organized into units of 30 members or less. VICOBAs use reputational risk and community-based enforcement mechanisms, rather than formal agreements, which reduce transaction costs to minimal levels. Because staff at most VICOBAs work on a voluntary basis, and overhead costs are de minimal, VICOBAs are able to provide a greater amount of small-value, revolving credit while charging interest rates as low as 5 percent compounded every three months, competitive with commercial banks and SACCOS. VICOBAs require membership contributions, and some VICOBAs allow members to take loans of up to two to four times the value of contributed capital for up to three months at a time. Some VICOBAs require basic

I will not offer credit to my customers. If I do, then tomorrow they will not pay, and will go to another store, and stop coming here for business.

Tanzanian inputs store owner

entrepreneurship skills and financial literacy training as a prerequisite to taking a loan. While many VICOBAAs are informal institutions existing as an agreement among participants, certain VICOBAAs have established relationships with commercial banks. For example, the CDRB has provided capital resources, institutional support, and management training through partnership with VICOBAAs.

Commercial banks. Commercial banks typically do not service rural farmers in the rice and maize value chains, focusing primarily on higher-value customers in urban areas, manufacturing, and asset-backed financing. However, commercial banks do provide a full range of services, including leasing, credit, deposit accounts, wire transfer services, inventory credit, and in most cases trade finance to large firms, especially those involved in the import of key inputs. Certain banks, such as NMB and CRDB, do offer inventory credit through warehouses and specific farmers' organizations. For example, the Ifikara branch of NMB offers an inventory credit scheme to the Kilombero Rice Farmers Association at commercially competitive rates for other sources of financing.

SUPPORTING INSTITUTIONS

Suppliers. Virtually no supplier offers credit to maize/rice farmers or agricultural entrepreneurs. Very broadly speaking, the level of trust between suppliers and farmers is low (see box quote above). While access to capital was not cited as a major problem for millers and input suppliers, because they have inventory and/or land that can serve as collateral, many farmers indicated a great degree of difficulty accessing sufficient capital to make the key investments

required to continually improve seed quality and quality of fertilizer to continue to drive up yield.

SOCIAL DYNAMICS

Risk aversion. Risk in Tanzania's rice and maize value poses a considerable cultural barrier to effective debt-based financing mechanisms. Throughout this assessment, many of the most productive farmers, traders, millers, and input dealers indicated a desire for capital investments into their business, but many indicated a strong aversion to the risk of repayment. As described by a visibly well-off maize trader from Morogoro, in a market as volatile as maize, there is always a risk that the price will "not go the way I need it to, and I will not be able to repay the debt, and then where will I be?"

PRODUCTIVITY

Productivity is still a major problem for maize and rice farmers. Ninety-eight percent of Tanzania's maize and 98 percent of rice farmers are small holders who own less than 2.4 hectares each. Maize and rice production is largely rain-fed and thus yields have suffered as a result of climate change and three consecutive years of poor rainfall. In addition, farmers lack access to quality inputs such as traditional irrigation mechanisms, seeds, and fertilizer. Farmers are also at a disadvantage when it comes to the overall knowledge base. Government agriculture extension is weak, and often is being offered by input supply companies on the application and use of their products. Finally, farmers do not have any incentives to invest in improving productivity or quality given that the market prices for both maize and rice are highly unpredictable. Without some stability or certainty in the market, farmers do not see the benefit of investing in higher-quality seed or fertilizer.

Seed. The assessment team spoke with several stakeholders involved in seed production and input supply for both maize and rice. Based on those interviews, it seems that, for the most part, high-quality seed is available and in storage. The problem lies in getting farmers who

cannot afford, or are unwilling to invest, to buy and use the seed.

Fertilizer. Fertilizer is readily available in the country. Most of it is imported, although there is a small amount of local fertilizer called Minjingu available at much lower prices.⁵³ Most fertilizer importers are concerned about the implications of the Fertilizers Act, 2009, which imposes complex licensing procedures. Regardless, farmers have access to fertilizer, but they do not buy it and when it is subsidized they often use it incorrectly by applying it at the wrong time or not applying enough, preferring instead to save some for the next year. The GoT, funded by the World Bank, has recently revamped and is implementing a fertilizer subsidy voucher program. This program has received mixed reviews. In some places it is working well, especially when supported by the CNFA/Tagmark project, which facilitates a network of small-scale rural agro-input dealers. In other places, there were complaints about the timing of voucher distribution vis-a-vis the planting cycle as well as how the government exit strategy will work. At the moment, the plan is to provide the subsidy to selected farmers in selected districts for a maximum period of three years after which time these farmers will graduate and the subsidy will be provided to different farmers. It is unclear exactly how this will be decided. There are also some complaints about competence and corruption.

Irrigation. Irrigation can have a major impact, particularly on the production of wheat and especially rice. Irrigating rice, even through traditional gravity-fed schemes, can double or triple the yields. Targeted support for establishing traditional or mechanized irrigation schemes or rehabilitation of older infrastructure in certain areas could make a big difference for productivity and increases in quality rice production

LEGAL FRAMEWORK

The legal framework does not directly affect productivity, but there are various elements of the legal environment that indirectly affect farmers and production. The AgCLIR report covered such topics as Obtaining Licenses,

Enforcing Contracts, and Registering Property, all of which have profound impacts on small-holder farmers and production. Obtaining licenses especially affects small-scale agro-input dealers who in turn provide inputs and much of the available credit to farmers. Enforcing contracts or the lack of enforceable agreements limits a farmer's ability to build meaningful relationships with other actors in the value chain, namely buyers or traders. The Registering Property section speaks to the ability of small farmers to access credit and own land tracts large enough to commercialize their production.

Unlike some commodities designated within Tanzania as "cash crops" such as coffee, cashew, or cotton, maize and rice are not sold through commodity boards. This indicates they are more liberalized markets with many possible buyers and many possible sellers. However, this lack of structure also increases the price vulnerability of small-holder farmers.

The Fertilizers Act, 2009 is problematic for reasons described in the text box under Overarching Problems of Uncertainty and Risk. The Seed Act of 2003 foresees mandatory registration to produce, distribute (exchange), or sell seed, mandatory registration of commercial varieties for major field crops and a national catalogue. The only mention of farm-saved seeds is in a small sub-clause, which says that the provisions of the act do not affect the sale of "quality declared seeds" between small-scale neighboring farmers as long as the farmer who purchases the seeds only uses them for his or her own farm.

IMPLEMENTING INSTITUTIONS

The **district government** is largely responsible for implementing the government's agricultural programs, including the fertilizer voucher program, with smallholder farmers. The district agriculture and livestock officer (DALDO) coordinates these activities and oversees agriculture extension officers or crop officers. The relative capacity and knowledge of the district government and the DALDOs is extremely variable.

53 Kibaya Market interviews.

In general, government extension workers are poorly trained and lack the capacity to fulfill their roles. The **seed importers and rural distributors (agro-input dealers)** and **seed multipliers** are important institutions that implement the fertilizer voucher and seed production programs.

SUPPORTING INSTITUTIONS

Productivity-support institutions are numerous, but vary widely in their capacity to improve productivity and farm-level incomes. There are many farmer associations at the village level as well as more formalized commodity specific associations. Of these associations and other cooperatives such as the Agriculture Marketing Cooperative Societies (AMCOS), few have managed to provide any value or services to their members, and the assessment team did not meet a single cooperative or association that was self-sufficient financially. Most of these associations are donor or government supported. The Kilombero Rice Growers Association is a rice farmer apex organization that supports its members with production assistance, warehousing, finance, and marketing; it has achieved a number of successes in encouraging the use of inputs and raising productivity. Despite its relative strength, however, this group would not exist without the support of donors and donor-funded service providers such as the RUDI.

Seed and fertilizer distribution networks are limited in rural areas. The CNFA/Tagmark project has done good work organizing small agro-input dealers into associations and penetrating rural areas, but the distribution is still relatively low. Seed in particular does not seem to flow well from the multiplication farms (mostly located at research facilities or on large farms in the Arusha area) to small farmers across the country.

One concept that attempts to deal with this problem, the **Quality Declared Seed (QDS)** was originally devised by the FAO in 1993 as one solution to the difficulty of multiplying and distributing conventionally certified seed to farmers in remote rural areas. It has been



modified to suit production conditions within Tanzania where it has been widely implemented. QDS facilitates the distribution of improved seeds between farmers without heavy reliance upon government facilities, especially trained seed certification agents and high-quality cleaning equipment. Instead it involves the use of simpler seed inspection and less rigorous seed-cleaning procedures, which can be carried out with relatively little training by local experts or even farmers' representatives. QDS has allowed some farmers who produce high-yielding varieties or even landraces to make their tested varieties available to other growers within the area at low cost, but with a guarantee of a minimum quality standard.

The program has been particularly important in the distribution of the less widely grown crops. Commercial seed producers in Tanzania focus mainly on the production of maize, sorghum, and sunflower, but certified seed of other crops (especially rice) is only available in limited quantities. Tanzania's rice industry has a market niche for aromatic rice varieties grown locally, but there has been no registration, patent, or multiplication on a commercial basis. The QDS

program has allowed the seed of the less widely grown crops to be distributed more effectively and has also allowed the multiplication and distribution of the landraces of rice that are especially favored by the market.

The QDS program has proved effective as a low-cost way of distributing seed of minimum quality standards. Additional technical assistance to the program would help to address one of the key constraints to increased productivity.

One improved technology that is potentially very relevant to large areas of maize production within Tanzania is **conservation farming (CF)**, as developed by the Conservation Farming Unit in Zambia. The CF system involves digging planting holes or basins on a predefined grid over the farmer's land. The digging of these holes is the only disturbance of the soil. There is no plowing or other form of tillage. Fertilizer is placed within the hole and covered and then seed is also placed in the same hole, close to but not in the fertilizer, and also covered. The same holes are used repeatedly each season. The crop must be weeded assiduously, and at harvest, the crop residue is left on the ground for mulch.

The main advantages of the technique include the following:

- Efficient use of seed and fertilizer (by accurate measurement and placement);
- Increased water absorption capacity of the soil and hence reduced soil erosion;
- Reduced labor requirements (a family of three can prepare more than 1.5 ha of land); and
- Increased timeliness of planting.

The technology allows a family to prepare the land (using heavy hoes to dig the basins) during the dry season so that the entire area is ready for planting with the first rains. This maximizes the potential yield, which otherwise decreases by approximately 20kg per ha for every day's delay in sowing. It is no more expensive than conventional cultivation, and actually uses less

labor. Its widespread adoption has been hindered because it is counterintuitive and not consistent with traditional practices, but it has been shown to produce increases in yield of 3 percent or more in the first year of application.

Conservation farming is particularly relevant in dry areas such as Kibaya where maize is widely planted but yield is reduced, due to poor timeliness of cultivation (because of limited resources, especially animal draft power) and to limited rainfall. The timely sowing and improved soil water absorption capacity both ensure that all the rain that falls can be used by the crop, thereby maximizing yield.

SOCIAL DYNAMICS

Risk aversion (noted in earlier sections) is a major social dynamic here. Small farmers are often reluctant to take on debt or other forms of risk, even if a cost-benefit assessment would seem to favor it. Small farmers may also be reluctant to engage in entirely new techniques, even if they are shown that they can enhance productivity, unless they are first provided with some type of safety net.

HONORING AGREEMENTS

Risk and uncertainty, key themes throughout this report, are addressed by private actors through agreements. Where parties are assured that their agreements will be enforced, they are able to enter into more complex, value-enhancing transactions. Absent trust and confidence that terms will be honored, parties are often unable to engage in meaningful business beyond established family and close social networks except for agreements and transactions that are performed simultaneously: payment is received upon delivery, and delivery occurs immediately at the time of agreement, such as in a marketplace. In Tanzania, some marketplaces exist to facilitate orderly exchange of rice and maize between farmers and traders. However, this spot-market exchange can be burdensome for farmers, and it does not encourage

more sophisticated transactions such as futures contracts or long-term supply contracts.

Increased introduction of formal contracts within the maize and rice sectors can support greater confidence, so long as those agreements are indeed honored.⁵⁴ But most participants at the inputs and production stages of the maize and rice value chains are fairly unsophisticated enterprises with little access to formal legal services. Informal agreements predominate at this level. Informal agreements enforced through traditional, non-state enforcement can indeed be more efficient than formal contracts through court systems in certain instances, but the predictability of outcome is an issue.⁵⁵ An emphasis on injecting certainty into agreements in the Tanzanian rice and maize value chains with improved enforcement mechanisms should enable greater investment and improved opportunity for wealth creation and improved yields.

LEGAL FRAMEWORK

In Tanzania, perceptions of lax enforcement of contracts by courts have led to a greater emphasis on extra-legal resolution measures for contract dispute, such as opportunistic contract renegotiation, breach, and informal dispute resolution mechanisms. This is particularly the case in the rice and maize value chains, which are dominated by small, relatively unsophisticated market participants. Even larger, formal businesses with ready access to legal counsel expressed some level of difficulty ensuring enforcement of agreements. Outside of the largest members of the value chain, formal contracting rules and legal enforcement remain largely ineffective, resulting in near universal reliance on alternative mechanisms.

Law on Contract Ordinances. The Law on Contract Ordinances of 1991 largely codifies the traditions of English common law. As discussed in the earlier BizCLIR and AgCLIR reports, Tanzania's Law on Contract Ordinances, while dated, clearly establishes the major underpinnings for a system of formal contracts, including formation, breach, and

remedies. In instances where sophisticated parties with access to legal services engage in memorialized agreements, general opinion holds that a contract can be enforced competently. In the rice and maize industries, however, formal contracts are limited to the largest agribusinesses in the value chain with access to legal representation in business dealings.

Sale of Goods Ordinance. The Tanganyika Sale of Goods Ordinance, 1931, serves to establish standard terms applied by courts in review of sales agreements for the sales of goods between all parties. Unlike international best practices, the Sale of Goods Ordinance does not merely regulate transactions between merchants, but rather all goods transactions, leading to a difficult decision: whether to implement the terms of sales contracts negotiated between parties at different sophistication levels leading to inequitable outcomes, or inject equity into review of commercial disputes to the detriment of legal enforcement. Many of the terms of the Sale of Goods Ordinance are outdated. Overall this law is long overdue for review and revision.

Alternate dispute resolution (ADR). As discussed in the BizCLIR report, Tanzania's Civil Procedure Code authorizes alternative dispute resolution, and prescribes the process for enforcement of arbitral awards. The Arbitration Act of 2002 authorizes arbitration as a process for dispute resolution, though it does not reflect certain best practices as established by UNCITRAL. Nevertheless, formal arbitration and mediation services in Tanzania largely remain the domain of the Commercial Courts. In the rice and maize sector, formal ADR mechanisms are largely eschewed for informal, traditional dispute resolution.

Informal dispute resolution. In addition to the Law on Contracts and ADR mechanisms, local governments and villages often have their own source of informal dispute resolution, sometimes captured in traditional and customary law, which serves as the basis for community-driven dispute resolution. The Law Reform

54 Iris Bohnet et al., "More Order with Less Law: On Contract Enforcement, Trust, and Crowding," *American Political Science Review* (March 2001).

55 Satu Kahonen & Patrick Meagher, "Contract Enforcement and Economic Performance," *IRIS Center* (May 1997).

Commission of Tanzania is undertaking a process of mapping customary law at the village level throughout Tanzania, although its emphasis is on property ownership and land use rights.

IMPLEMENTING INSTITUTIONS

Courts of first instance. Courts of first instance are largely perceived to be ineffective institutions for most disputes within the rice and maize value chains. Little statistical information exists as to the number of contracts cases related to agribusiness, but farmers, traders, and inputs suppliers outside of Dar es Salaam noted numerous constraints to litigation as an effective means of contract enforcement. Stakeholders perceived court procedures to be costly relative to the value of the contracts in dispute. They also perceived that the courts outside of Dar es Salaam were too overburdened to dispose of cases quickly enough to suit the needs of the parties. Several stakeholders stated that a commercial dispute could languish in a court for up to 10 years before a final decision was issued. Whether true or not, these perceptions sharply discourage recourse to the courts.

The **Ward Tribunals and Magistrates**

Courts are the institutions tasked with dealing with primary contract enforcement. The Ward Tribunals consist of four elected members in each ward tasked with the public arbitration of local disputes (including both civil and criminal cases). In general such tribunals have been effective for minor disputes, resolving the vast majority of cases within a year. In this way they have relieved the burden on the primary courts (although nearly 50 percent of all cases have subsequently been taken to primary Magistrates Courts when one or other parties have been dissatisfied with the judgment).⁵⁶ In contrast, the Magistrates Courts and High Court infrastructure are widely recognized to lack the capacity necessary to deal with the workload. It can take years to resolve a dispute, so that it is quite possible for any substantial case to be remain effectively unresolved.

Marketplace dispute resolution systems and reputation.

Rice and maize markets have established informal dispute resolution as a function of the marketplace. Indeed, one critical function provided by marketplaces is to provide a location where a spot market sale can be conducted in an orderly manner between buyer and seller. A marketplace such as the maize market in Kibaigwa serves several functions, including the following:

- temporary storage of grains;
- quality review;
- weights and measurement of grains;
- receipts-based sales; and
- information gathering and distribution.

In spite of some procedural and physical inefficiencies, the marketplace in Kibaigwa establishes rules for efficient negotiation of spot prices for grains among farmers and traders.

In Kibaigwa's maize market, disputes are infrequent, but do arise from time to time, primarily in regards to disputes in quality and the degree of foreign material in the grain. Parties to the transaction will usually avail themselves of customary dispute resolution within the marketplace. Through a simple dispute resolution system, the operations staff at the marketplace will engage in an informal dispute resolution process whereby buyer and seller may present their competing claims, with a final decision provided by market management on the claim. According to the market management, decisions are almost always accepted. The desire for buyers and sellers to access this key marketplace allows the market management to serve as an honest broker and resolve cases efficiently. According to traders and farmers alike, dispute resolution within the marketplace is deemed to be equitable, speedy, and acceptable.

SUPPORTING INSTITUTIONS

Local government. According to many stakeholders, another source for local dispute resolution exists within local governments. In many instances, disputes among farmers regarding verbal agreements can be heard informally by

⁵⁶ "Justice Administration outside the Ordinary Courts in Tanzania," Yusufu Q. Lawi Boston University African Studies Quarterly, (Issue 2, 1997).

ward representatives, representatives of the village council, or even farmers of high esteem known by both parties.

Farmers' organizations. Farmers' organizations are not yet perceived to be a viable option for dispute resolution, but are increasingly advocating for more support for reform activities. In Tanzania, associations and civil society organizations are increasingly building up membership and relevance as actors within the system. Membership-based organizations for farmers, such as umbrella organizations like MVIWATA, are proving successful due to hierarchical design that reaches down to connect farmers at the village, district, regional, and, ultimately, national levels. Many farmers' organizations in Tanzania serve as vehicles for disseminating market information, providing extension services and advice, and offering increasing advocacy on behalf of members.

SOCIAL DYNAMICS

Lack of culture of contract in rice and maize. The AgCLIR Tanzania report of 2010 captures a dynamic throughout the agribusiness sector outlining a lack of contracting culture within the agricultural sectors in Tanzania. Within this culture of unwritten contracts and informal agreements, it is often difficult to ascertain a "meeting of the minds," the notion that the parties had intended to be bound to the terms of an agreement. Within the rice and maize industries, the effects of a lack of a culture of contract are even more pronounced.

In cash crops, dominated by a crop board with a monopoly in marketing, contracts are largely honored by farmers because, in the alternative, farmers have no market access. The maize and rice sectors, in sharp contrast, are characterized by extreme fragmentation of producers and buyers. The fragmentation of producers and traders in both the rice and maize value chains means that parties are not forced to do business on a repeated basis. Over time, theory holds that parties will generally develop trust-enhancing rules governing their interactions, and will lead to party-based enforcement. In



Tanzania, market incentives lead to a substantial risk of side selling, the practice of selling crops to a higher-priced offer subsequent to a negotiated sale price. The large number of traders allows farmers who enter into supply contracts to engage in opportunistic behavior. Studies have shown that unless transactions are based upon repeated relationships, reputation and threat of future lost earnings from reciprocal behavior cannot be relied upon as a mechanism to compel both parties to honor an agreement. In Tanzania, members of the rice and maize value chain rely largely on transactions through spot sales, to allow little room for opportunistic behavior. But a supply chain that is based on spot sales will have great difficulties in achieving the benefits of temporal and spatial arbitrage and similar value-added activities.

Stigma favoring breach creates perverse incentives. In most functional contracts enforcement systems, a blend of legal and extra-legal incentives encourages behavior that enables contract enforcement. Trust is deemed to be a critical component of efficient value chains.⁵⁷ In some communities within Tanzania, stakeholders described a stigma associated with

⁵⁷ "Quantifying Trust in Value Chains," *International Journal of Logistics Supply*.

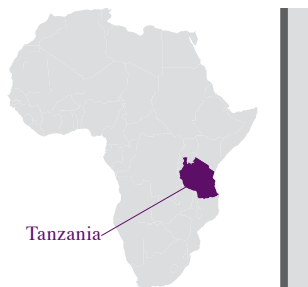
SIDE SELLING AND CONTRACT FARMING

A fortified foods producer in Dar es Salaam under contract to supply fortified biscuits to an international aid agency noted the difficulty finding maize meeting quality specs in sufficient supply on the open market. This entrepreneur negotiated a long-term supply contract with four maize farmers in Morogoro, provided seed and fertilizer, and negotiated a sale price at harvest above the market price at the time terms were negotiated. Owing to significant maize price volatility and a lack of oversight, the entrepreneur reported that upon harvest all four farmers sold their harvest for a higher fee on the spot market, in breach of their agreement.

According to the entrepreneur, there was no recourse, as litigation was not an option due to high costs and certain stigmas associated with litigiousness within her community. The uncertainty of quality supply has resulted in hardship as the entrepreneur struggles to supply the fortified biscuits to the international organization.

being the party who was vulnerable or foolish enough to be the victim of a breach. Especially in rural communities, where many of the rice and maize farmers produce at near-subsistence levels, stakeholders indicated that breach of an agreement, far from being associated with dishonesty or untrustworthiness, was considered to be evidence of intellect and cunning,

and prized within their community. Simply put, if a contract breach occurs to your detriment, you are considered to be a fool; however, if you breach a contract in your favor, you are esteemed by your community. In other communities, this notion was expressed as a function of poverty, i.e., that honoring an agreement was a luxury that many could simply not afford.



RECOMMENDATIONS

INCREASED AVAILABILITY OF MAIZE AND RICE

STRATEGIC LEVEL: MAIZE AND RICE AVAILABILITY (PRODUCTIVITY/PRODUCTION)

Overall increases in production will result in a drop in price, and therefore in margins for smallholders, if increases in yield are not accompanied by a lowering of the cost of production. The goal for food security is to balance the margins for producers of staple commodities so that they are motivated to keep producing and lowering the cost of production.

At a household level, increased production of maize or rice can increase the availability of these staples for those households that do not produce enough to achieve self-sufficiency and are therefore market-dependent for part of the year. By increasing production, these households can reduce their dependence on the market and increase both household food security and the amount of cash that remains for other purchases.

TACTICAL LEVEL

From both a national food access perspective and an individual household food availability perspective, the increased availability of maize and rice can enhance food security, provided that it can be achieved on a sustainable economic basis. There are many factors that contribute to increased production, but this study observed that the areas where maize and/or rice production might be most effectively and sustainably increased are the following:

- Increased availability of and access to improved inputs for both maize and rice

- Enhanced technologies, especially:
 - The use of irrigation to increase the production of rice for the high-value market
 - The use of conservation farming to increase the yields of maize in low rainfall areas

Interventions in these three areas can increase the availability of staples while simultaneously reducing the cost per unit of production.

OPERATIONAL LEVEL

Access and availability of improved inputs

The cost of using improved inputs under current market conditions outweighs the value of the additional production they might generate. This severely restricts their use. Some inputs such as “quality declared” seeds can be distributed at reduced cost, if programs to support their production can be extended more widely. The costs of other inputs, particularly fertilizers, are dependent upon both world market conditions and transport costs. Fertilizer costs are subsidized, but the breadth of the subsidy is negligible and sometimes abused. Alternative areas of subsidy (such as transport) might prove more effective in stimulating both uptake and production of locally manufactured fertilizers (such as Minjingu phosphate).

The efficiency of fertilizer use is also an area that can be improved. Large areas of central Tanzania comprise low pH acrisols on which the application of calcium can increase the availability of both phosphates and trace elements, significantly improving the yield response to fertilizer.⁵⁸

⁵⁸ The benefits of Minjingu fertilizer are partly due to this liming effect.

Initiatives relevant to these areas include the following:

- The subsidization of transport for lime and fertilizer (including Minjingu) would reduce its cost to the farmer and increase its use. The subsidy could be provided and administered by the government on the basis of a system of approved delivery notes countersigned by district or other local government officials to validate delivery. This would have the additional advantage of stimulating backloads that would reduce the costs of transport of other goods such as grain. Such a subsidy would probably require donor support.
- Support to the expansion of QDS programs to increase the area of coverage and the number of farmers that can access cheap but effective planting seed of both maize and rice. Such support can be directed both through the government and NGOs.
- Widespread popularization of liming as a method of soil improvement through traditional extension officers and other media (such as radio).

Technology enhancement

Tanzanian agriculture is predominantly rain-fed. This means yields are always unpredictable. The fact that the soil must be moist before it can be cultivated also severely restricts the area that a single household can plant in a timely fashion. Two technologies that can mitigate both these constraints are irrigation and conservation farming.

Irrigation. If the costs of irrigation infrastructure investment and maintenance are to be met, a higher level of productivity is absolutely necessary, requiring in turn an effective input supply chain, more skilled farm management, and an improved marketing network. If these aspects of the farm-to-market chain are also in place, irrigation can vastly increase production and food security. The key to sustainable irrigated production is that the irrigation infrastructure should be developed simultaneously with the required input, management, and market infrastructure. Irrigation infrastructure itself has

little long-term value. With this caveat, the following interventions are recommended:

- Provide support to rehabilitate selected irrigation schemes in the Kilombero region and elsewhere for rice production, focusing upon the initial organizing of producers who are willing to operate a communal irrigation scheme, including assistance in the governance and operation of a water users association. (In supporting new water users associations, USAID should also consider the downstream effects of new users tapping into existing levels of water usage. There is little capacity or competence in courts for this level of dispute. Most water is the property of villages, and systems would need to be established to develop water usage policies, regulate water usage, and hear water rights disputes.)
- Provide technical support for the identification of markets and sources of inputs.
- Rehabilitate irrigation infrastructure (may require subsidy or preferably a DCA-type loan guarantee).
- Work to attract private investment to fund irrigation scheme through large private sector (e.g., Olam) using GDA or DCA or explore municipal bonds of community finance to fund irrigation works.
- Assist in the production of irrigated high-value rice and in the management of the irrigations scheme
- Assist in the downstream processing and marketing of each crop.
- Provide on-demand technical/management oversight of existing small-scale irrigation schemes on a short-, medium-, or long-term (5–10 year) basis. Such oversight would be provided free to producer groups to assist in the management of their resources and to provide technical assistance in terms of both production and business management.

Conservation Farming. While many potentially yield-enhancing technologies require

additional investment in terms of either cash or labor, conservation farming (CF) does not. It requires less labor and employs less fertilizer more effectively. However, its adoption has been limited for the following reasons:

- It is a new and precise technology that is not well understood.
- It is counterintuitive (need an understanding of how less work can result in more yield).
- It is countercultural (many cultures consider it primitive compared to ox-plowing).

Nevertheless, in low rainfall areas, CF offers substantial benefits in terms of improved timeliness, reduced soil erosion, improved soil water absorption, and increased efficiency of fertilizer uptake. It is therefore recommended that CF technology be introduced in selected areas (such as Kibaya), where its advantages would be greatest. Introduction would require the following:

- The sensitization of MALDOs and DALDOs to the CF system (including study tours of successful CF operations in Zambia and/or Malawi);
- Support over a period of at least three seasons to a limited number of farmer groups in the target areas provided by extension officers specifically trained in CF (recommending that these officers should be trained in Zambia); and
- Ongoing study tours for farmers in neighboring districts to observe the success (or otherwise) of the initial CF plantings.

IMPROVED POLICY-MAKING PROCESSES

STRATEGIC LEVEL: IMPROVED POLICY-MAKING PROCESSES AND GOVERNMENT DECISION MAKING

It is clear the GoT needs more transparent and evidence-based policy decision making. In order to attract the level of investment in agriculture proposed in Kilimo Kwanza and to achieve overall food security and economic growth, both policy making and implementation need to be more consistent, less regulatory, and more

incentive-based. As stated by members of the government, they need more information, more analysis, and more transparent policy-making processes that involve all stakeholders, particularly those from the private sector.

Legal and regulatory reforms are an essential condition to increased business competitiveness, as well as for the promotion of local and direct foreign investment. These reforms should be prioritized by the private sector and implemented on a demand-driven basis. However, the private sector is weak in this capacity. This intervention would provide support to enable private sector organizations to become more comprehensive and representative, to develop analytical capacity, to inform public debate, and to lobby the government for the required legal and regulatory reforms. In addition, the intervention might provide complementary support to the government to respond to private sector concerns in a timely and professional manner. This would undoubtedly increase the likelihood of real progress, but is not essential to the positive benefits of this intervention.

Interventions to improve the business-enabling environment should focus on technical assistance strengthening the capacity of representative organizations to analyze issues, present them for public discussion, and lobby government, so as to guide the implementation of necessary legislative and regulatory reforms for increased private sector competitiveness. Technical assistance may be provided to a single apex body or on a demand-driven basis to sectoral associations to achieve sectoral-specific reforms.

The overall result of these interventions will be the strengthening of private sector association capacity to lobby government and an improved business-enabling environment.

TACTICAL LEVEL

There are several areas where USAID can have a dialogue with the GoT and provide technical assistance and support in terms of making additional information available, increasing the use of regulatory impact analyses, and providing for

a dialogue between the public and private sectors. Furthermore, advocacy organizations that do exist can be strengthened considerably and assisted in developing more sustainable revenue models to diminish the dependence on government resources. Tactical areas of support include the following:

- Information
- Process: Analysis and Stakeholder Involvement
- Advocacy

OPERATIONAL LEVEL

Information

- Develop a nationwide inventory management system linking warehouses throughout the country together (potentially through handheld device and GPS technology). This would enable the government to have better information on price setting, current stocks, expected volumes, locations, and methods/cost of transportation. As a result the government, in particular the Food Security Department and National Food Reserve Agency, could make more accurate decisions about how and where to buy food surpluses and how to transport food stocks. This would have the added benefit of enabling the NFRA to more precisely impose export and import restrictions in terms of timing and geography. USAID would work specifically with the NFRA and National Warehouse Licensing Board to implement this recommendation.

Process: Analysis and Stakeholder Involvement

- Build capacity for regulatory impact analysis within the government and develop mechanisms for stakeholders to comment on potential regulatory impact. For example, develop and implement procedures to make draft laws publicly available and create fora for comment and discussion.
- Encourage stakeholder (particularly private sector) involvement. Use Tanzania

Horticulture Association (TAHA) as a case study for dialogue between private sector and government

Advocacy

- Support advocacy organizations to launch independent and privately funded advocacy efforts. (Institutions that exist include ACT, TCCIA, The Cereal Growers Association, MVIWATA, and the newly established Tanzanian chapter of the Eastern Africa Grain Council.) Provide capacity-building support to institutions and organizations for specific advocacy efforts such as eliminating the export ban or lowering the district cess for food crop farmers.
- Build capacity within the organizations to develop tools for reform including cost modeling or performing a CIBER-type analysis on a specific issue, public awareness and support campaigns, negotiating strategies, and tactics for pushing the agenda, e.g., how to use media outlets and other public platforms to make their voices heard.
- Explore the potential for an ombudsman so aggrieved parties who have disputes with a law or regulation have a place to go.

INCREASING STORAGE DISTRIBUTION

STRATEGIC LEVEL: INCREASED STORAGE DISTRIBUTION AND CAPACITY

Seasonal fluctuations in staple food prices are higher in Tanzania than in any other country in East and Southern Africa. The demand for food is constant and the supply is largely predetermined, yet prices fall shortly after each harvest and surge later in the season as supplies dwindle. As a result, farmers who sell early in the season to meet cash needs receive a lower price, while the average price paid by consumers is substantially greater. In an equitable market, seasonal price fluctuations should not

exceed the cost of money, normal grain losses, and a reasonable profit margin (e.g., 20 percent, 5 percent, and 15 percent, respectively), so that seasonal price variations should not exceed 140 percent. In Tanzania, seasonal fluctuations over the last three years averaged 250 percent, suggesting that those who were able to buy grain at the cheapest prices and hold it through the season made profits of 125 percent. Such profits imply high prices to the consumer and by reducing access in this way are detrimental to food security.

The ability to buy and hold grain depends upon a number of factors, including the willingness to take risks, the ability to absorb the consequences, access to finance, and access to storage. In Tanzania, the last factor—access to storage—is limited to a small number of stakeholders so that the ability to take advantage of fluctuations in price is restricted. Increasing access to storage will open up the arbitrage market to a greater number of players, increasing competition and reducing seasonal price fluctuations to the benefit of both producer and consumer.

In addition to this primary benefit, increased access to storage capacity will reduce storage losses at the village level. If a program to develop storage capacity in rural areas and small markets were to be combined with a national inventory management scheme (requiring the monthly reporting of grain volumes in storage), it would also contribute towards enhanced national food security management, reducing the element of uncertainty associated with ad hoc decisions to implement or remove export bans. Finally, the development of more widely accessible facilities would pave the way towards the development of a warehouse receipts system that could both provide the basis for inventory credit and serve to reduce the risks associated with grain trading. Such improvements would have the following results:

- Smooth supply to meet constant demand
- Reduce post harvest losses

- Overlap with inventory management/information
- Take a first step for full-fledged warehouse receipts program

TACTICAL LEVEL

Grain storage serves a number of purposes including the protection of grain against pests and moisture, providing a hedge against price fluctuations, enhancing food security and providing logistical benefits. Specific areas of intervention include the following:

- Development of community-based grain storage facilities which will reduce post-harvest losses
- Support for commercial grain storage in the vicinity of rural grain markets (such as Kibaigwa and Ifakara) and elsewhere in rural areas
- Support to traders to buy and hold grain as part of the National Food Reserve Agency program
- Support implementation of a national grain reporting system or inventory management system to allow the monthly evaluation of national stocks
- Warehouse receipts

OPERATIONAL LEVEL

Community-based grain storage

In addition to the storage initiatives recommended to reduce losses, grain storage can be promoted through the development of associated credit schemes that use the stored grain as collateral. Although not a warehouse receipts system in its strictest sense, such systems do provide many of the same benefits to both the farmers' storing grain and to the bank providing credit. The system would also have the effect of reducing seasonal price fluctuations if applied on a wide scale. To promote this aspect of community-based storage it will be necessary to do the following:

- Identify and provide support to institutions such as RUDI and ACT that can act as intermediaries between commercial banks and farmers' storing grain. This



might include SACCOS that could provide a similar function, provided that they were given the necessary technical support to administer credit facilities to farmers.

- Sensitize each institution as to the key aspects of a successful storage-based credit scheme and provide the necessary oversight to ensure adherence to those aspects.
- Identify and sensitize other banks as to the potential advantages of storage-based credit and bring such banks together with communities looking to draw credit against securely stored grain.
- Identify, rehabilitate, or construct new community-based storage facilities. USAID/Tanzania could explore opportunities to attract private investment in these capital-intensive projects via the DCA facility. Another financing option is to provide a grant or loan (via DCA) to a farmers' association to co-finance the facility. The farmers' association would invest half the equity and own 50 percent or more of the shares. Over time, the farmers' association, provided with technical assistance could purchase additional shares until they own and operate 100 percent of the facility.
- NFRA warehouses are at low capacity. Even if they reach their purchasing target, they will still operate at only about 70

percent capacity. USAID could support private access to NFRA excess storage as a means of testing commercial storage models and creating additional revenue for NFRA for operations and crop purchase.

Post-harvest storage

Storage losses of maize in Tanzania are exceptionally high. Losses of other grains can also be significant. This is due to the presence of specific pests (such as the larger grain borer) and the lack of improved grain storage at the farm level. Storage is a key element of the value chain that requires development at a number of levels. Storage capacity at the village level should be rehabilitated, or developed from scratch, and that support should be provided to allow for the communal management of communal grain stores on a cost-effective basis. Measures taken to assist in the development of such community grain storage initiatives would include the following:

- Support to community members/producers who are willing to operate a communal storage. (including assistance in the governance and operation of the storage association or company).
- Technical support for the construction or rehabilitation of the storage infrastructure (may require subsidy or preferably a DCA-type loan guarantee).
- Assistance in the technical and financial management of the project, including assistance in the marketing of stored crops (if necessary).
- Provision of on-demand technical/management oversight of existing storage schemes on a short-, medium-, or long-term (5–10 year) basis. Such oversight would be provided free to communities/producer groups to assist in the management of their stores and to provide technical assistance in terms of both grain storage and business management.

Commercial grain storage

Although community-based grain storage may impact food security, additional commercial storage is required within Tanzanian grain

markets to achieve true competition and to reduce seasonal price fluctuations. Traditionally, grain storage is an investment with a slow rate of depreciation financed by long-term capital. This is not available in Tanzania and it is recommended that a suitable facility be provided to allow grain stores to be constructed. The key characteristics of such a facility would include the following:

- Repayment over 10 years.
- Repayment on the basis of the value of a fixed number of bags of grain (rice or maize) per annum, (thus reducing the risk to turnover alone).
- Finance provided on a competitive challenge-fund basis operated regionally, whereby regional steering committees would allocate monies to those commercial businesses that provided the most cost-effective storage proposals with the best repayment rates.
- Any storage constructed would remain the property of the regional authorities until the loan had been repaid in full.

While the construction of storage is one primary concern, incentives to store grain will also result in increased competition within the market if they cause more traders to participate in grain storage. Currently the risk associated with price fluctuations prevents some traders from holding grain stocks. One way to minimize this risk would be for traders to collaborate with the National Food Reserve Agency by purchasing options from the Food Security Department to sell a specific volume of grain to the NFRA at a given date and for a specified price. The option would provide for a bank financing the initial purchase of grain from the market with the security of a fixed minimum price against which to lend funds. If prices rose above the level of the option, the trader would not exercise it. If they did not, the grain would pass into the reserve at the specified price.

Such a system would be of little benefit unless it was carefully managed. Key aspects of such management would include the following:

- The sale of options would be designed to broaden the market by being offered only in small lots with a limitation on the number of lots sold to each trader.
- The volume of grain offered for purchase would not exceed 50 percent of the NFRA.
- The price offered should include a reasonable profit margin according to the storage period.

Such a system should be proposed to the Food Security Department and that technical assistance should be provided to the Ministry of Agriculture to oversee the first five years of its implementation.

Reporting of stored grain volumes

National grain storage management could be enhanced if stored grain volumes were regularly reported. Regulations should be introduced requiring the monthly reporting of all grain stocks of over 500 MT. This would be collected by district authorities and collated by central government. It would be made publicly available as soon as it was compiled. Such a system could be implemented at minimal cost, but would require technical assistance to effectively operate.

Implementation would require the following:

- Full delineation of the reporting system, its scope, and its requirements.
- Sensitization of the Food Security Department to the costs and advantages of the proposed system.
- Negotiation as to cost sharing (if considered necessary).
- Develop a scope of work for operation.
- Provision of technical assistance.

Introduction of warehouse receipt systems

Throughout Africa warehouse receipt systems (WRS) have been recommended to and embraced by governments as a means to reduce pressures upon small-scale farmers to engage in early season sales. In doing so, many agencies

have confused the WRS with inventory credit, and have imposed a sophisticated system upon stakeholders that have no need for it. As the Tanzanian experience has shown, a WRS is not necessary for credit to be advanced to producers, while inventory credit is not the only benefit of a WRS, which can of itself significantly reduce risk within grain markets.

A WRS should not be introduced in Tanzania until grain storage has become widely available to all stakeholders and the market has shown a willingness to adopt uniform grain standards and volumes, so that the paper trading of stored grain is a realistic option.

Instead, the communal grain storage and the provision of credit through trusted intermediary institutions should be developed as a first step toward warehousing. The examples of communal grain storage seen in Kilombero and elsewhere suggest that this is a system that is relevant to rural communities allowing credit to be successfully delivered by commercial banks through intermediaries.

REDUCING TRANSACTION COSTS

STRATEGIC LEVEL: REDUCED TRANSACTION COSTS AND INCREASED EFFICIENCIES THROUGHOUT THE MAIZE AND RICE VALUE CHAINS

An efficient market for rice and maize, with minimal transaction costs and adequate competition, should minimize the price differential between farm gate and final prices paid by the consumer, minimize price volatility caused by market forces, and improve consumer prices while providing as much price into the pockets of farmers as possible. Transaction costs include externalities that exist as a function of the sale, but not directly associated with the cost of the good. Factors driving up the cost of capital, enforceability of agreements, and barriers to market access account for a portion of the cost of the rice and

maize sold at market. Where the performance of agreements is in question, the law becomes a liability rather than a source of certainty for the rice and maize value chains. Improve the likelihood that agreements will be honored; farmers, traders, and markets will be able to properly order themselves to achieve market efficiencies; and the costs savings associated with risk reduction will be reflected in the price at market. Reduce the cost for access to markets, such as construction of feeder roads, and the cost to market will be reduced. Savings can then be distributed either to consumers via lower market price or to farmers via higher sales prices. Rice and maize will continue to be risky endeavors; the risk of weather-related crop failure, disease, or any number of other natural factors can still result in lower yields, price fluctuations, and supply problems. However, stakeholders, donors, and in particular USAID can provide solutions to mitigate several sources of market risk to strengthen the provision of rice and maize, and allow the market to incentivize efficient practices and behaviors within these value chains.

TACTICAL LEVEL

There are many areas where USAID, donors, and local stakeholders can engage to reduce transaction costs; improve the operation of markets; increase efficiency within the system; and allow farmers, traders, producers, and marketers to enable competitive forces to provide sustainable improvements to the market for rice and maize in Tanzania. Every shilling saved in reduction of unnecessary transaction costs is another shilling that may end up in the pockets of farmers, through higher farm gate prices, or in the pocket of consumers, through lower market prices. In any case, reduced transaction costs should encourage greater efficiencies within the maize and rice value chains for more sustainable models.

Notably, key transaction cost reductions can include the following:

- Sharing information
- Improving infrastructure for market access

- Increasing competition within the value chains
- Building trust into agreements
- Incentivizing creative capital instruments

OPERATIONAL LEVEL

Sharing information

Many sources of information exist for market prices of rice and grain in Tanzania, especially for markets in Dar es Salaam. However, not all distribution channels lead to Dar es Salaam; indeed, price data from alternate markets could be useful for farmers. Additionally, other forms of market information could prove useful, particularly in a policy environment as fluid as Tanzania. Other recommendations include the following:

- Gather price data and store historical price data by market to identify impact of investments and policies in the sector.
- Promote mobile networks to encourage information sharing on access to foreign markets, providing updates on closures, delays, and new rules enforced by customs and immigration officials.

Improving infrastructure for market access

- Conduct a cost-benefit analysis for village-based and national investment into feeder road construction and maintenance schemes, aligning investments to analysis of existing and future distribution channels.
- Develop financing model for concessions and rural public private partnerships for feeder road development and maintenance, through a process involving district governments, national government, and farmers' and traders' associations.

Increasing competition within the value chains

To support efficient outcomes, markets require either sufficient competition among firms or mechanisms that can artificially create the effect of competition where insufficient competition exists. Although Tanzania has an autonomous competition authority, the Tanzania Fair Competition Commission, certain segments of

the rice and maize value chains have a great deal of market share divided among a small number of firms. While this does not necessarily lead to an insufficient level of competition within the value chains, it does suggest the need for further inquiry to determine whether greater competition is necessary.

Additionally, throughout the course of the study, the team was aware of the overall concern both socially and within central and local authorities both for farmers and for poor consumers. At the same time, there was a lack of similar concern for middlemen, especially traders, apparently because they were less disadvantaged, had access to finance, and could absorb the impact of financial crises. Traders, in fact, are an essential element of the economic tissue linking producers and consumers, and the vitality of the trading sector is essential to all. Increased vigor within the trading sector requires not only reduced risk and increased access to finance, but also a culture of encouragement for the development of trading.

Recommendations include the following:

- Promote access to deep, long-term financing to enable consolidation within small-sized grain traders to encourage development of additional medium-sized grain traders along key distribution channels.
- In coordination with the Ministry of Agriculture and Food Security and the Fair Competition Commission, propose donor funding for an impact analysis of the accumulation of market power among grain traders to ascertain whether sufficient horizontal competition exists. Provide capacity building in investigation of competition issues within the agribusiness sector.
- Strengthen traders' associations.
- Increase representation of traders within local government fora.
- Increase dialogue between traders and agricultural extension agents—on the basis that farmers should be growing what the markets actually need.

- Provide technical assistance to link traders with producers on a sustainable and non-exploitative manner (such as out-grower schemes).

Building trust in agreements

While the onus for building trust falls largely upon individuals, some policy actions and interventions can be undertaken to encourage the growth of a culture that respects agreements within the value chains. Empirical research has suggested that focus on education, information, poverty alleviation, and, indirectly, the strengthening of formal contract enforcement institutions are efficient public policy interventions that can improve the development of trust and lead to economic growth.⁵⁹

Recommendations include the following:

- Continue to support formal agreement enforcement through court reforms, including refinement of case management system, adoption of communications and information technology systems, and improved efficiency of court processes to reduce costs for formal contract enforcement.
- Develop a strategic public awareness campaign promoting the value of certainty and abiding by negotiated agreements using respected members of the community, district councils, civil society, and media. Pilot-test a campaign within regions outside of the Dar es Salaam region, where access to formal dispute resolution is largely unavailable. Sponsor trainings through farmers' associations such as MVIWATA to encourage broad roll out.
- Support analysis within public policy institutions, such as the Rural Livelihood Development Company, to catalogue plausible informal enforcement mechanisms in agricultural transactions, such as development of villages as third-party beneficiaries within supply contracts to encourage village-based enforcement mechanisms. Provide training in informal enforcement mechanisms

for traders and agricultural producers to encourage contract-farming ventures.

- Reexamine opportunities for alternative dispute resolution through regional officials and private sector associations. Develop training in alternate dispute resolution procedures for key members of agribusiness associations and respected members of civil society to encourage broader adoption.
- Identify methods for capturing reputational risk of contracting parties through local business organizations, including (possibly) a credit registry and/or a Better Business Bureau model.

Incentivizing creative capital instruments

Access to capital is a key constraint to effective participation in the value chain. In some instances, sustainable access to credit is critical. Yet most rural agribusinesses, and especially small-scale farmers, have little or no access to instruments that incentivize savings and building equity. Further, certain investments that create positive impact for the community are unlikely to be financed by private parties without the ability to effectively control free rider problems. Thus, community-based financing for certain investments, or the development of public-private partnerships for capital investments into infrastructure, should be investigated and supported.

Recommendations include the following:

- Develop a financial stress-test tool to analyze the viability of SACCOS. Identify critical risk factors and support capacity building to mitigate key risks.
- Provide management training, risk analysis, and product development training to viable SACCOS, targeting rural SACCOS with a high percentage of agricultural members.
- Catalogue services offered by SACCOS to identify best practices in encouraging savings by members rather than encouraging debt financing among smallholder farmers. Such policies should include review of finance charge policies for deposit

⁵⁹ Stephen Knack & Paul Zak, "Building Trust: Public Policy, Interpersonal Trust, and Economic Development," *Supreme Court Economic Review* (2003).

accounts, incentives for deposit accounts, and deposit account insurance.

- Pilot-test new product development with SACCOS and MFIs focused on long-term savings products, and develop a temporary deposit guarantee account to mitigate risk while restructuring loan processes.
- Conduct cost-benefit analysis for structuring municipal bonds as funding sources

for community infrastructure finance for equipment, irrigation, feeder roads, or other large capital outlays.

- Build upon successful public-private partnership models and concession agreements to encourage private investment into infrastructure, especially for irrigation systems, storage facilities, and road construction.

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