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# STUDY OF POLICY OPTIONS FOR INCREASING TANZANIAN EXPORTS OF MAIZE AND RICE

## Improving Food Security to the Year 2025

**JUNE 2012**

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## Improving Food Security to the Year 2025

USAID Feed the Future Nafaka Value Chain Project

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# Study of Policy Options for Increasing Tanzanian Exports of Maize and Rice in East Africa While Improving Its Food Security to the Year 2025

June 12, 2012

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## Acronyms

ACV	World Customs Organization Agreement on Customs Valuation
AIRD	Associates for International Resources and Development
CET	Common External Tariff
CGE	Computable General Equilibrium
CIBER	Competitive Impacts of Business Environment Reform
CLIR	Climate, Legal, and Institutional Reform
COMESA	Common Market for Eastern and Southern Africa
COMPETE	Competitiveness and Trade Expansion Programme
CU	Customs Union
CMA	Customs Management Act
DAI	Development Alternatives Incorporated
DRC	Democratic Republic of Congo
EAC	East African Community
FEWS NET	Famine Early Warning System Network
FAO	Food and Agricultural Organization of the United Nations
IFSNAS	Integrated Food Security and Nutrition Assessment System
IFPRI	International Food Policy Research Institute
IMF	International Monetary Fund
KG	Kilogram
MAFC	Ministry of Agriculture, Food Security, and Cooperatives
M&E	Monitoring and Evaluation
MT	Metric Tons
MUCHALI	<i>Mfumo wa Uchambuzi wa Uhakika wa Chakula na Lishe</i>
NAFCO	National Agricultural and Food Corporation
NBS	National Bureau of Statistics
NFRA	National Food Reserve Agency
NMC	National Milling Corporation
NTB	Non-Tariff Barrier
RATIN	Regional Agricultural Trade Intelligence Network

REPOA	Research on Poverty Alleviation
ReSAKSS	Regional Strategic Analysis and Knowledge Support System
SADC	Southern African Development Community
SGR	Strategic Grain Reserves
SPS	Sanitary and Phyto-Sanitary Standards
TANDREC	Tanzania Disaster and Relief Committee
TANEXA	Tanzania Exporters Association
TIN	Tax Identification Number
TRA	Tanzania Revenue Authority
TSH	Tanzanian Shillings
Trade Map	Trade Statistics for International Business Development
USAID	U.S. Agency for international Development
USD	U.S. Dollars
USDA	U.S. Department of Agriculture
WFP	World Food Program

## Introduction

Tanzania has a unique opportunity to become the granary of eastern Africa due to its large expanse of productive agricultural land, its experience with growing crops such as rice and maize that are increasingly in demand in a region with generally limited land resources, and its market networks and traders with a sound knowledge of export opportunities. At the same time, it is a country conscious of its need to assure food security for all of its population. The perceived conflict between agricultural development based on regional export growth and the need for food security has resulted in a number of key policy issues, which are addressed in this report.

## Background

Tanzania's potential to become a major exporter of food crops, especially maize and rice, to the East Africa region and the Horn of Africa<sup>1</sup> results from its large and relatively underutilized natural resource base and the growing import demand of bordering and neighbouring countries. Kenya is currently the largest importer in the region, with average maize imports of 530,000 tons during 2007-2011, but rapid population and income growth and limited land for expanding crop production will cause imports to rise in other countries in the future. While Tanzania has a transportation advantage for supplying the Kenyan and Horn of Africa markets, it will still need to compete with other exporters in the East Africa region, such as Uganda, and countries in Southern Africa such as Malawi, Zambia, Zimbabwe and South Africa. It will also have to assure the food security of its population. Its challenge will be to provide food security for the poorest and most vulnerable part of the population without jeopardizing the economic growth that in the long run can reduce poverty and thus lead to lasting food security.

If Tanzania is to reach its export potential, it will need to focus on expanding production and pursuing policies that encourage exports rather than restricting exports, as has been the case in recent years. This shift in policy will need to be driven by a better understanding of the cereals markets in Tanzania and the region.

A primary policy instrument that has been used by the Government of Tanzania to assure food security has been a periodic ban on maize and rice exports. The reasoning behind this ban is that it will increase supplies of these cereals for the domestic market in relation to demand, driving down their prices and making them more affordable for the poor. At the same time, however, producers of these cereals are discouraged by lower prices, reducing their supplies to the market. Since the bans have been imposed and lifted frequently and without much warning, this has also introduced a lot of uncertainty into their calculations. There is also the problem that neighboring countries may not accept Tanzania as a reliable exporter and therefore develop their own production or import from other countries as an alternative. Furthermore, there is evidence that the bans have not worked very well for the purpose intended since prices to consumers have remained relatively constant at the same time that those to producers have fallen – benefiting only traders.<sup>2</sup> It is also not clear to what extent the bans have been respected by traders, transporters, and the Tanzanian authorities, though one can be sure that they have increased the cost and uncertainty associated with regional trade.

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<sup>1</sup> The East Africa Region includes Kenya, Tanzania, Uganda, Rwanda, and Burundi, and the Horn of Africa includes Djibouti, Eritrea, Ethiopia, South Sudan and Somalia.

<sup>2</sup> Bernard Kagira, "Case Study: Tanzania Export Bans," 3<sup>rd</sup> USAID Feed the Future East Africa Regional Meeting – Focus on Structured Trade, December 8-9, 2011, Sea Cliff Resort, Dar es Salaam.

A Concept Note has recently been prepared as a first step towards looking at the impact on producers, consumers, and the overall economy of maize export restrictions within a comprehensive framework. The International Food Policy Research (IFPRI) has made use of a Computable General Equilibrium (CGE) Model for Tanzania to estimate the impact of current policy and its alternatives on economic growth, poverty, and food security.<sup>3</sup>

The U.S. Department of Agriculture (USDA) is assessing the food security needs of Tanzania and the capacity to meet these needs through a review of data quality and timeliness for monitoring food insecurity, management and use of the National Food Reserve Agency (NFRA) reserves to provide emergency food aid where needed, and the magnitude of emergency food aid required.

To supplement these efforts, the NAFKA project is providing assistance to analyze agricultural production, marketing, and trade in Tanzania and East Africa for the purpose of identifying the policy options that exist and evaluating which will be most effective in achieving the program's goals of food security and economic growth and poverty reduction through food exports. Among the options to be considered are use of trade taxes and quantitative restrictions; the purchase, storage, sale and distribution of grain reserves; and reduction of non-tariff barriers to marketing and trade.

Once the impacts of the current policies are quantified, the regional export market potential is assessed, and the food security needs and capacity of Tanzania are examined, a food security options paper will be designed that balances food security, economic growth, and poverty reduction. This will be done in a report to the Government prepared jointly by SERA and REPOA.

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<sup>3</sup>"Draft Concept Note on Food Security, Economic Growth and Poverty Reduction: Analytics, Options and Way Forward", prepared by the Booz Allen Hamilton SERA team of USAID's Feed the Future Initiative in collaboration with REPOA. October 10, 2011.

## Objectives

The objectives of the present report are the following:

1. To assess the size and growth of the East African market for maize and rice over the period to 2025.
2. To evaluate the extent to which Tanzania is capable of meeting this market's needs.
3. To assess the validity of different sources of agricultural production data and to derive a reasonable series of estimates.
4. To describe the geographical basis for Tanzania's comparative advantage in maize and rice production and exports.
5. To describe the structure of marketing and trade, as well as the incentives to producers and traders, taking into account regional variations in production and consumption .
6. To estimate the importance of non-tariff barriers to marketing and trade, including transportation costs and illegal payments.
7. To estimate actual exports of maize and rice in comparison with data derived from Tanzanian customs by looking at estimates of this trade derived from other sources, such as mirror data from trading partners, direct participant observation, etc.
8. To estimate the impact of the ban on actual trade and market prices, both within Tanzania and between Tanzania and its neighbors, and the consequences this has for maize and rice marketing and trade.
9. To estimate the impact of the need for exporters to have a permit to export cereals.
10. To estimate the effects of the EAC common external tariff (CET) on imports of rice.
11. To analyze the impact of the operations of the NFRA on the maize market and on the achievement of food security.
12. To assess the experience in East and Southern Africa of countries that have pursued relatively open food trade policies without substantial government

involvement in food markets with those that have been more closed with more government involvement.

Following this assessment, a set of recommendations will be made for improving food security without resorting to bans and other interference in the functioning of the market.

### **Approach to Data Collection and Analysis**

There is a large amount of research that has been conducted in eastern and southern Africa, and in Tanzania in particular, on maize and rice production, consumption, marketing, and trade. This literature was consulted, and the results of much of it were incorporated into this report. Primary data were also gathered through a series of field visits to southern and northern Tanzania in March 2012. In addition, Tanzanian Customs furnished monthly data by customs post for exports, imports, and transit trade for 2010 through the first few months of 2012. Trade Map was used for historical trade data and for mirror trade data from neighboring countries. RATIN and FEWSNET data on informal trade also fleshed out the trade estimates. Extensive use was also made of monthly wholesale market price data collected by the Ministry of Industry and Trade, as well as price data from markets in neighboring countries furnished by RATIN.

In the field, extensive interviews were held with customs officials, traders, transporters, market observers, and farmers. Extensive price and cost information was collected for marketing, proceeding, transportation, and trade. In addition, these interviews helped the team to understand how markets actually work and what the effects of different policies have been. We cannot thank enough all those people who patiently answered our numerous questions.

### **Organization of the Report**

The next section of the report looks at maize and rice production and consumption in Tanzania, including their past trends and projections to the year 2025. This is followed by a description of the structure of marketing and trade, and then a discussion of the history of marketing and trade policy in East Africa and Tanzania. The impact of changes in the policy regime is then analyzed, and the methodology used to estimate actual trade is described. The findings of the report are then summarized and the recommendations are presented.

## Maize and Rice Production and Consumption

### Maize

Food production dominates Tanzania's agriculture economy with over 5 million hectares cultivated per year of which 85 per cent are in food crops. Maize is the main subsistence crop, and is grown by more than 50 per cent of Tanzanian farmers. Tanzania produces mostly white maize with an annual average of well over 4 million tons according to official estimates. Maize is produced in all 21 mainland Regions. The *vuli* season (October-December) contributes approximately 15 per cent of the total annual maize production, with Mara, Arusha, Kilimanjaro, Tanga, Morogoro, Mbeya, Coast, Kagera, Kigoma, and Mwanza regions having two agricultural seasons per year (*vuli* and *masika* seasons). The remaining maize production is from the unimodal and bimodal *masika* long rain seasons (Ashimogo, 2008, p.48)

Maize is mostly produced on smallholder farms throughout the country, though production and demand levels vary, creating surplus and deficit regions. Only 6 regions are reported to have a regular surplus: Iringa, Mbeya, Rukwa, Ruvuma, Arusha, and Singida. The first four of these regions are in the southern highlands of Tanzania, which have unusually good growing conditions and long experience using improved seed, fertilizer, and other inputs, at least as far back as 1974-79, when the National Maize project provided them on a subsidized basis (Ashimogo, 2008, 48).

### Rice

Rice is the third most important food crop in Tanzania after maize and cassava. According to official production figures, total production currently averages about 1.35 million tons. Rice is grown in almost all regions of the country, with Coast, Morogoro, Tabora, Mbeya, Mwanza, Shinyanga, and Arusha regions each producing at least 100,000 tons. Most rice is grown by smallholders under rainfed conditions. Small farmers also grow 2 to 2.5 hectares of rice under irrigation, often initiated and controlled by the government. Larger farmers have somewhat larger areas under irrigated cultivation, but large-scale commercial rice farming is limited to a few private firms who bought farms when large-scale National Agricultural and Food Corporation (NAFCO) schemes were privatized (USAID, Compete, 2010, p. 21).

### Trends in Maize and Rice Production and Consumption

Data on agricultural production are collected from rural extension agents, reviewed by district and regional agricultural officers, and compiled by the Ministry of Agriculture, Food Security, and Cooperatives. The methods used to collect the data are relatively crude and do not rely on careful measurement or sampling. The procedure for estimating area, yield and production is to have village extension agents observe the 900 or so farmers in villages assigned to him/her and visually estimate these variables. There are no guidelines on how this is to be done.<sup>4</sup> The production estimates are an important input into the estimation of consumption for purpose of identifying food surplus and deficit areas, so the consumption data are suspect as well.

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<sup>4</sup> Described by officials from MAFC and NBS at the USAID M&E Workshop on July 13, 2011 in Dar es Salaam.

There are two basic ways to verify whether at least the orders of magnitude of these data are correct. One is to compare them with other sources of information, principally agricultural censuses and surveys and the household consumption survey, each of which is undertaken about every five years, though the results may not appear for several years after the data are collected. The other is to examine the consistency of these data in comparison with other sources of information such as population, per capital income, and rural-urban mix.

The latest agricultural census-survey for which data are available was done in 2004 and measures agricultural production during the crop year from October 1, 2002 to September 30, 2003. A complete census was undertaken of all farms of 20 hectares or more; a carefully constructed sample was used to measure small farms of 25 square meters to 20 hectares. The census-survey covered all 21 mainland regions plus Zanzibar. These results may be compared with the Ministry's data for the crop year 2002/2003. The same comparison may be made with the data from the 2007/08 National Sample Census of Agriculture (National Bureau of Statistics, 2010). The results are shown in Table 1.

**Table 1: Comparison of Agricultural Survey and Ministry of Agriculture Production**  
(Million metric tons)

	Ministry of Agriculture		Survey Census
	Single Year	3-Year Avg	
Maize			
2002/2003	2.322	3.266	2.613
2007/2008	3.556	4.047	5.439
Milled Rice			
2002/2003	0.713	0.716	0.595
2007/2008	0.875	1.343	1.400

Source: National Bureau of Statistics, *National Sample Census of Agriculture, 2007/2008, Preliminary Report*, November 2010

It is apparent from this table that there are quite wide discrepancies between the two sources of information. Aside from year-to-year fluctuations, there appears to be a tendency for the Ministry's data to lag behind increases in production that are being recorded in the surveys and censuses. This may reflect a bias towards conservatism, especially when the data recorded by extension agents are reviewed by agricultural officials at the district and regional levels. In particular, since the production data are used to identify the districts that are in deficit, and since there are benefits to being in deficit from the receipt of food assistance, there may be a tendency

to underreport increases in production – at least in the initial year and especially for maize, the commodity used for food assistance. One way of testing this is to use not the current year's estimate but to take an average of three subsequent years to see if there is a catch-up process involved.

The results suggest that there is underreporting, especially when production is increasing, as in 2007/2008 relative to 2002/2003. In this case, the three-year average captures much better the expansion that has been occurring in both maize and rice production in the latter half of the last decade. This expansion is corroborated to some extent by experienced experts who have witnessed it in the field. Even so, as we will see later, the 235% expansion of rice production in five years may be exaggerated, especially since there is no evidence that maize production fell during this period, so farmers were not simply shifting crops.

One reason for the expansion of both maize and rice production may be the reintroduction of the fertilizer subsidy in 2008. Another is the high prices for these crops that have been prevailing. For rice this can be explained by the CET duty rate of 75% being applied by the East Africa Community, though, as we will see in a later section, there is evidence that this high rate of duty has not been fully applied. For maize it appears to be due more to demand outstripping supply within the region, a subject to which we will return.

A second check on the reasonableness of the production data is to compare it with the 2000/01 household budget and consumption survey, which shows total consumption of maize at the time the survey was undertaken to equal about 4.755 million MT and that of rice to equal 0.824 million MT. This compares with official production estimates in 2000/2001 of 2,579 million MT of maize and 0.564 million MT of rice. Assuming the survey is correct, if we allocate consumption in 2000/2001 to the rural and urban populations and carry these estimates forward to the Year 2011, taking into account the effects of population growth and rising per capita income on demand, we arrive at the figures in Table 2.<sup>5</sup>

These extrapolations show consumption of maize in 2008 to be 5.816 million MT, which conforms pretty well to the 2007/08 agricultural survey production estimate of 5.439 million MT. For rice, the analysis estimates that consumption in 2008 was 1.133 million MT, which is less than the production figure of 1.400 MT from the 2007/2008 survey, but is considerably higher than the Ministry of Agriculture estimate for that year of 0.875 million MT.

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<sup>5</sup> This analysis uses income elasticities of demand for maize equal to 0.293 in rural areas and 0.043 in urban areas and for rice equal to 0.500 in rural areas and 0.043 in urban areas. These elasticities are taken from the Food Commodity Trend Projection Model with Application to East African Countries, developed with USAID financing by the DAI/Nathan Group (USAID/DAI/Nathan, 2011). The elasticities are specific to Tanzania and differentiate between rural and urban areas for maize and rice separately.

**Table 2: Adjusted Estimates of Maize and Rice Consumption, 2001-2011, and MAFC Production**

**(Metric tons)**

	Maize Consumption			MAFC Maize Production Estimate	Milled Rice Consumption			MAFC Milled Rice Production Estimate
	Rural	Urban	Total		Rural	Urban	Total	
2001	4,004,654	750,818	4,755,472	2,705,000	271,266	553,181	824,447	640,000
2002	4,079,006	784,406	4,863,412	2,322,000	275,733	581,352	857,085	712,000
2003	4,166,795	818,835	4,985,629	3,232,000	281,582	606,615	888,197	586,000
2004	4,243,670	855,873	5,099,543	3,219,000	285,992	638,307	924,299	759,000
2005	4,352,470	896,699	5,249,170	3,423,000	293,888	682,758	976,646	805,000
2006	4,525,116	940,675	5,465,791	3,302,000	309,164	724,727	1,033,891	872,000
2007	4,663,746	986,089	5,649,835	3,556,000	320,340	764,545	1,084,885	875,000
2008	4,783,504	1,033,235	5,816,739	3,326,283	329,124	803,574	1,132,699	886,480
2009	4,892,468	1,081,928	5,974,396	4,475,741	336,463	840,564	1,177,027	1,700,000
2010	4,990,571	1,154,466	6,145,037	4,340,877	343,511	906,954	1,250,465	1,461,000
2011	5,187,866	1,230,381	6,418,248		362,352	969,726	1,332,078	

Note: The official figures for maize and rice consumption are taken from the Food Commodity Trend Projection Model with Application to East African Countries, which adjusts official production data for net exports, seed, feed, and changes in stocks.

All told, it appears that production of maize has been seriously underestimated, as has its consumption. The revised estimates for maize consumption presented in Table 2 agree much more closely with both the household budget and consumption survey of 2000/2001 and the agricultural survey of 2007/2008. They suggest that there was a significant increase in maize and especially rice production over the past decade or more. Furthermore, they suggest that the current method used to gather annual agricultural production data is seriously flawed because of the lack of a clear methodology for obtaining these estimates and perhaps, too, because of the incentive to lower the figures in order to benefit from food assistance. It would be far better to use the resources for unbiased agricultural surveys instead.

In order to have a set of data that can be used for analysis, production of maize and rice was estimated annually for 2001 – 2011 as a residual consistent with the 2007-2008 agricultural survey production figure for maize and with the consumption figures shown in Table 2. In deriving production estimates, consumption was adjusted for imports, exports, and seed.<sup>6</sup> Trade data were taken from Trade Map, except for the period 2008-2011, when exports were adjusted upwards to reflect the amount of unrecorded exports, the estimation of which is described in a later section. Seed data are from the Food Commodity Trend Projection Model.

The results of this analysis are presented in Table 3 for maize and in Table 4 for rice. Once again, the calculations suggest that actual maize production was substantially greater than what is

**Table 3: Estimation of Maize Production, 2001 – 2011**  
(Metric tons)

	<b>Consumption</b>	<b>Imports</b>	<b>Exports</b>	<b>Seed</b>	<b>Production</b>
2001	4,755,472	31,045	25,579	34,000	4,784,006
2002	4,863,412	63,373	152,310	69,000	5,021,349
2003	4,985,629	77,991	156,193	63,000	5,126,831
2004	5,099,543	128,374	53,747	62,000	5,086,916
2005	5,249,170	18,901	101,394	60,000	5,391,663
2006	5,465,791	252,632	23,507	62,000	5,298,666
2007	5,649,835	6,609	87,076	62,000	5,792,302
2008	5,816,739	20,468	93,834	59,226	5,949,330
2009	5,974,396	6,415	100,592	62,000	6,130,572
2010	6,145,037	18,588	107,349	69,605	6,303,403
2011	6,418,248	11,931	114,107	73,827	6,594,251

Source: As explained in the text

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<sup>6</sup> The Food Commodity Trend Projection Model also includes feed as one of the uses of production. However, the quantities assumed to be used are very high – about one-fifth of total production – which does not appear at all reasonable given the low level of development of most Tanzanian agriculture.

shown in the official statistics and much closer to that measured by the 2007/2008 agricultural survey. Together with the data on trade, to be discussed later in the report, they suggest that production of maize has been expanding at a rapid rate, which has been sufficient to give rise to growth of exports despite the bans and other impediments to trade. It is important to emphasize that the most important factor in explaining this growth of consumption has been the growth of population. Although there has also been some expansion due to growth of income, the elasticities of demand with respect to income are fairly low, lessening this effect on consumption.

Table 4 tells a similar story with respect to rice, except that growth of production and net exports has been much more rapid. Here population growth has accounted for some of the expansion of consumption, but equally as important have been the growth of income, increased urbanization, and expanding net exports.

**Table 4: Estimation of Rice Production**  
(Metric tons of milled rice)

	<b>Consumption</b>	<b>Imports</b>	<b>Exports</b>	<b>Seed</b>	<b>Production</b>
2001	824,447	139,053	4,768	34,000	724,162
2002	857,085	76,530	9,055	37,000	826,610
2003	888,197	189,621	11,006	37,000	746,582
2004	924,299	181,986	2,487	42,000	786,800
2005	976,646	67,495	10,618	45,000	964,769
2006	1,033,891	90,480	10,093	43,000	996,504
2007	1,084,885	45,187	20,176	43,000	1,102,874
2008	1,132,699	64,147	34,197	55,882	1,158,631
2009	1,177,027	39,607	48,218	44,483	1,230,121
2010	1,250,465	1,493	62,239	42,503	1,353,714
2011	1,332,078	32,884	76,260	47,782	1,423,236

Source: As explained in the text

### Projections of Production, Consumption, and Trade to the Year 2025

Projections were made of Tanzanian production, consumption, and trade of maize and rice to the year 2025 using the basic Food Commodity Trend Projection Model with Application to East African Countries, modified to incorporate the revised 2011 base-year estimates in Tables 2, 3, and 4. This model projects until the year 2020 quantities of production, consumption, and net exports for eleven countries in the east African region: Burundi, Democratic Republic of the Congo, Eritrea, Ethiopia, Kenya, Malawi, Mozambique, Rwanda, Tanzania, Uganda, and Zambia. Southern Sudan is also partially included in the model. The projections are undertaken separately for each country for 20 food products. The results are then aggregated across the countries of the region.

Except for the revised estimates for Tanzania described above, the projections of production are based on an extrapolation of past trends in yields and area under production. Consumption projections are based on projected increases in population (United Nations) and per capita income (IMF), as well as assumed income elasticities of demand (in Tanzania's case, based on statistical

analysis of 2007 Tanzanian household budget survey data). Separate projections are made for rural and urban populations. Net exports are calculated as a balancing item. No separate projections are made for exports and imports, so a negative value of exports implies positive net imports. Prices are not incorporated into the model.

For all of eastern Africa, the model projects a substantial and growing deficit in food. For maize, this deficit is projected to rise from 1.34 million tons in 2009 to 7.76 million tons in 2020. For rice, the corresponding figures are 1.15 million tons in 2009 to 2.84 million tons in 2020. Deficits for the major competing sources of calories are also projected to increase: wheat from 3.42 million tons in 2009 to 4.79 million tons in 2010 and cassava from 4.48 million tons in 2009 to 20.84 million tons in 2020. The projections do not take into account constraints on land availability, though it is acknowledged that such constraints do exist and are likely to be important in countries such as Burundi and Rwanda.

The projections for Tanzania in the original model were based on trends for 1990 to 2009, derived from FAO data. These trends included the period during the 1990s when maize production was relatively flat – primarily because of the elimination of the subsidy on seeds and fertilizers. As a result, the projections showed no increase in maize production, resulting in a growing deficit, which reached 2.2 million tons in 2020. On the other hand, if we calculate the average growth trend for the period 2000-2008, during which time the seed and fertilizer subsidies were reinstated, we would come up with a growth rate for maize production of about 5%. Carried over into the future, this would result in a substantial increase in production, so that net imports in 2020 would be only 0.4 million tons. If production were to increase by 7% per year, Tanzania could be exporting 0.6 million tons in 2020. If we were to go forward another five years, by the year 2025, this export surplus would be 0.9 million tons, which would still be substantially less than the 5-6 million ton deficit for the region as a whole. However, this would require a major revolution in maize agriculture.

If we substitute into the model the revised estimates from Table 4, the projections look much better, as shown in Table 5. Although continuation of the growth of production along the trend of 3% a year from 2001 to 2011 results in a growing trade deficit in maize, increasing that growth rate to only 4% yields a surplus until at least the year 2025. If the growth rate of production should increase to 5% per annum, Tanzania would be exporting almost two million tons within the region, which would still be well below the total market of well over 8 million tons.

**Table 5: Projections of Maize and Rice Net Exports to 2025 (millions of metric tons)**

Year	Maize			Rice		
	3% Growth	4% Growth	5% Growth	7.3% Growth	10% Growth	5% Growth
2012	+0.129	+0.388	+0.674	-0.119	+0.098	-0.266
2020	-0.351	+0.600	+1.647	+0.165	+1.030	-0.419
2025	-1.143	+0.240	+1.763	+0.090	+1.360	-0.766

Source: Calculations as explained in the text.

Rice, however, is another story. From 2001 to 2011, production of rice grew at 7.3% per annum. If this rate of growth were to continue, Tanzania would have deficit in rice in 2012, which would be reversed to reach a maximum export surplus of close to 0.165 million MT in 2020. This surplus would decline thereafter to reach 0.090 million MT in 2025. This is less than 10% of the total regional market. Because of rapidly growing domestic demand, Tanzania will have a harder time achieving and sustaining an export surplus in rice. However should the rice sector reach a 10% rate of growth, continuing and sustained export surpluses would ensue. On the other hand, if the rate of growth should slide back to 5%, one could expect ever growing trade deficits

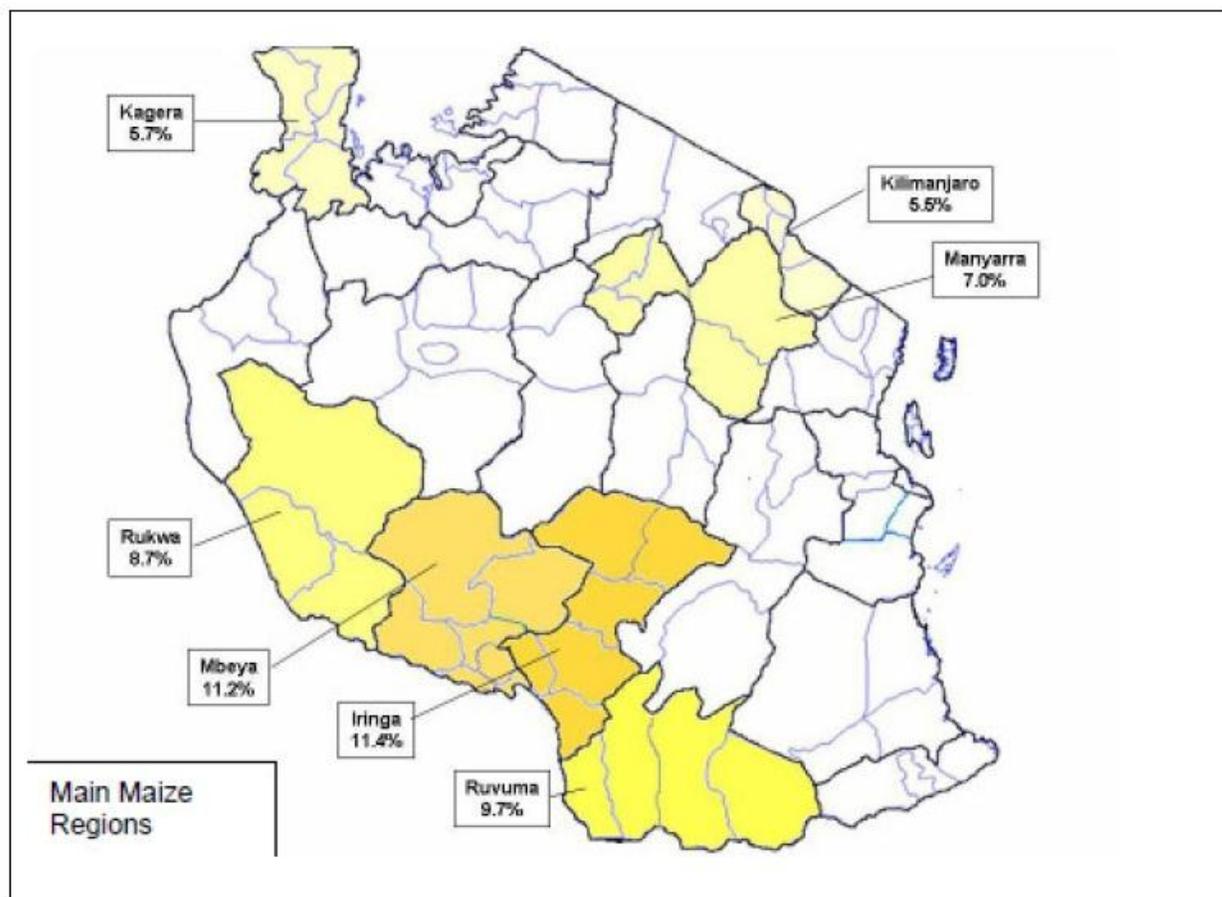
In summary, on the demand side, there is no serious constraint on Tanzania's exports of either maize or rice within the eastern African region. The constraints are only on the side of supply.

## Marketing and Trade

### Maize

The spatial pattern of production and consumption in Tanzania largely determines the direction of marketing and trade. Bearing in mind the limitations of these data, discussed in the previous section, they are sufficient to describe the broad regional difference. For maize these are shown in Map 1. Although maize is produced by farmers all over the country, almost one-half of national production comes from only a few regions, chiefly Iringa, Mbeya, Ruvuma, and Rukwa in the southern highlands. In addition, other regions, such as Kagera and Kigoma in the west and Arusha, Kilimanjaro, and Manyara in the north, are located in the bimodal rainfall area and are able to supply maize earlier in the crop year than regions in the south.

Map 1: Maize Producing Regions in Tanzania



Source: USAID 2010

Maize consumption is more evenly distributed than production, though there are a number of regions in which consumption of maize is less important. Some of these are in the drier central part of the country, where sorghum is more important, e.g., Dodoma. Others are in the west and north, where bananas are important in Kagera, Kigoma, and Kilimanjaro. Cassava is also an important crop

in such varied regions as the Coast, Kagera, and Mwanza. Finally, focusing on maize does not take into account the dependence of a large part of the population on livestock production and consumption, particularly in the north. Production of maize is, therefore, not a very good indicator of regions that are deficient in overall food availability. For example, the 2010/2011 Final Food Crop Production Forecast for 2011/12 Food Security (MAFC, 2011) identifies the following regions as food deficient: Mwanza, Mara, Dodoma, Shinyanga, Arusha, and Dar es Salaam. Except for Dar es Salaam, which as a major city has consumption far in excess of production, and Dodoma, which also has some “urban” effect, these regions are all in the north, where livestock is an important food activity.

Barring movement of maize to major cities, especially Dar es Salaam, comparing surplus and deficit regions may not be a very good guide to the direction of marketing. For one thing, deficit regions are only able to attract inflows of maize if there is adequate purchasing power to push prices up. When there is drought or other natural disasters, incomes decline and there is a reduction in purchasing power with which to buy food. For another, a lower maize production may not imply there is a deficit if food needs are met by other crops and livestock.

The picture of course also changes once we take external demand into account. Although most of the maize produced in the country is consumed locally, during good years Tanzania exports maize to neighboring countries such as Kenya, Zambia, DRC, and Malawi. These exports fluctuate depending on harvests within the country and in neighboring countries. Most of the exported maize, especially to the south and west, comes from the southern highlands. These are not only major maize producing regions in Tanzania but they are also close to DRC, Zambia, and Malawi. To the north exports are dominated by Kenya. Arusha serves as a major assembly point for the early harvest in the north but also for maize coming from all over the country.

Although Tanzania is mostly self-sufficient in maize, it has imported maize in the form of food aid and commercial imports to alleviate shortages caused by natural calamities such as drought and floods. Between 2001 and 2006, Tanzania imported an average of 95,386 MT per year, mostly in 2004 and 2006; from 2007 to 2010, the average was only 13,020 MT per year.

Marketing of maize occurs through four main channels (USAID, 2010).

1. The first channel entails the large traders/processors such as Mohamed Enterprise and Export Trading Co. They mostly buy directly from the large producers and integrate a number of the value chain functions, such as processing and export. They operate both in the Southern and Northern areas of Tanzania and, due to their volume of trade, have an important influence on prices. They have a number of buying posts in the towns, which are managed by their own staff, but they also buy through networks of agents. Moreover, they own substantial storage facilities, which enable them to buy large quantities when the price is low and store the maize until the price increases.
2. The second channel is the National Food Reserve Agency (NFRA) and the World Food Program (WFP). Prior to liberalization, the predecessor to the NFRA – the Strategic Grain Reserve -- was one of the key players in the maize market. After liberalization, its role

diminished to holding and delivering emergency reserves in time of need. WFP is a somewhat different player in that it buys maize for food relief, usually outside the country. It tends to be the preferred buyer by many of the larger farmers and traders because it pays a premium price for good-quality maize.

3. The third channel is comprised of the agents, brokers, and traders that are able to handle reasonably large quantities. They buy from large and medium scale farmers, either directly or through village collectors and small wholesalers. Their outlets include millers, exporters, WFP and large traders.
4. The last channel is a band of small producers and collectors who sell their maize via brokers to larger traders. Mostly they sell in small quantities and are of less interest to the larger traders. Only the surplus maize is sold; the rest is consumed by the household, often after processing it through the village *posho* mill. Part of this channel is also the small wholesalers who mainly buy from village collectors. They provide the town *posho* shops and sometimes even sell to small exporters.

Only 25 to 35 percent of the grain produced in Tanzania enters commercial channels. About 65 to 75 percent is consumed within the village. A significant volume of this grain is traded between households on a less formal and more direct basis that may or may not involve cash transactions. 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 small scale and fragmented nature of maize production in Tanzania makes 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 bicycles to ox carts to 5-ton trucks), or by the agents of larger trading companies. In each case, however, volumes usually of 100–1000 kg 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 price discovery. 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 still develop links with specific traders whom they supply on the basis of an agreed price. Some assembling is done by farmers, who may produce their own crops and sell them together with those of their neighbors, making a small margin in the process. In other instances, 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 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.

Almost all grain in Tanzania is transported by road. Transportation costs depend on distance, topography, road quality, and fuel costs (Ashimogo, 2008, p.50). These costs tend to be quite high in Tanzania compared with other East African countries (World Bank, 2009).

Other transfer costs include loading and unloading, which is expensive because of bulking and debulking between different size vehicles. Illegal payments are made at roadblocks and weigh stations to avoid long delays. There is also the cost of the cess imposed on grain movements by district, and even village, authorities. In practice, this is not more than 1.5 to 2 percent of the wholesale value, and is in any case capped at 5 percent of wholesale value by national legislation. The major constraint lies in the cost of transport on feeder roads, which is estimated to be on average more than 70 percent of the total (World Bank, 2009).

Maize is milled to flour, either by a hammer mill, which converts almost 99% of the grain to flour, or by a roller mill that may be set to discard the seed coat so as to produce purer white flour with a yield of 85 percent. Most maize in Tanzania is milled by hammer mill, either on a custom basis or for sale by the miller as maize meal. The milling business is highly competitive. A large number of small hammer mills operate throughout the country, and millers complain of inadequate throughput. The fee charged by hammer mills for custom milling is 1,200 TSH per 18 kg tin, or 6,672 per 100 kg bag. For wholesale maize in Dar es Salaam costing 48,000 – 56,000 TSH per 100kg bag, this fee adds 11 to 13 %.

In contrast to the small traders and millers described here, the larger processors are usually also traders and are generally the same entities that import maize to supplement their local production. The larger traders are few in number (no more than five or six throughout Tanzania) and operate on a very different business model. The key characteristics of the large traders include the following (USAID, MicroCLIR/CIBER Assessment, 2010)

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.
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 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.

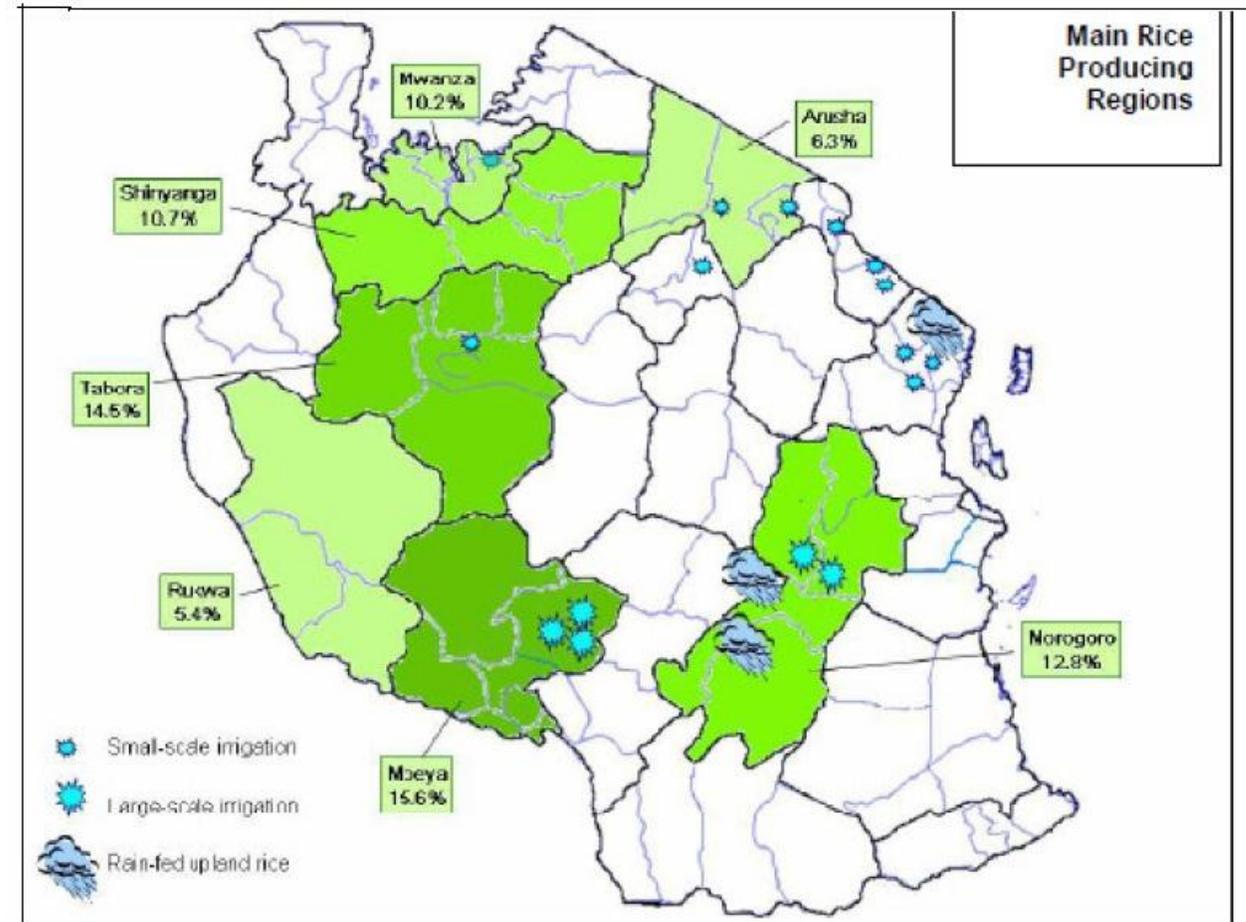
Despite the presence of these larger traders, most marketing is carried out by smaller operators, and this serves as a cushion against the larger traders offering farmers too low a price. Instead, they are

able to cut their costs to the point that they make a much larger profit per unit of sale than the smaller traders, who operate in a very competitive, and higher cost, world.

## Rice

Rice is grown in almost all regions of the country, mainly by small-scale farmers under upland or lowland rainfed conditions. Map 2 shows the spatial distribution of three-quarters of total rice

Map2: Rice Producing Regions in Tanzania



Source: USAID 2010

production. Here we see the extent to which most rice production is concentrated in Mbeya, Tabora, Shinyanga, Mwanza, and Morogoro, which are relatively far from the major center of consumption in Tanzania, which is Dar es Salaam. However, these producing regions are fairly close to markets in neighboring countries, where aromatic Tanzanian rice of good quality is highly appreciated and commands something like a 15 % premium over imported rice.

Overall, rice is the third most important source of calories in Tanzania, with per capita consumption at about 16 kg per year. Although rice is grown throughout Tanzania, its consumption is much more concentrated in urban areas, especially among higher income classes, than is that of maize.

There are three basic channels for the marketing of Tanzanian rice (USAID, MicroCLIR/CIBER Assessment, pp. 15-16).

1. An integrated channel including a handful of large trading companies, which are mostly involved in the import/export and storage of milled rice, and to a much lesser degree rice milling and production. These large agribusinesses typically compare the cost of local rice with the landed cost of rice imports. If they buy locally, they generally purchase from a large number of smallholder producers through an extensive network of agents.
2. Irrigated rice producers who also store and trade rice locally or even regionally. They normally have their paddy custom-milled in small rice mills near the production areas. These farmers at times operate in groups when taking on additional value-chain functions.
3. The largest, traditional channel tends to be long and fragmented. Paddy is sold by rice producers to local or regional traders who use small local mills for processing. Farmers may also sell directly to the mills, which in turn sell the rice to traders and rural households. The bulk of the marketed rice is sold by regional traders via brokers or directly to urban wholesalers, who sell the rice to urban retailers. Smaller volumes are exported regionally by these traders. This channel accounts for 90% of the rice market.

The market for haulage is quite competitive. 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 is no indication that this segment of the value chain is very profitable, but the average cost for transporting rice from a rural market to Dar es Salaam is estimated at 142,000 TSH/MT of grain, which is equivalent to 25 percent of the producer price.

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 rice is critical since it allows the holders of grain to take advantage of the seasonal differences in price. Tanzanian grain markets exhibit the highest seasonal price variation 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. There are few new entrants into the grain markets with the capacity to construct and fill warehouses, so the market continues to be dominated by a small number of large traders with access to most of the available warehouse space.

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 source, mill, and transport rice to their warehouses. They have the financial and physical capacity to store small volumes of grain, but generally work on a back-to-back basis, supplying retailers and export markets

with grain sourced on demand. Some small traders also purchase directly from the larger rural markets, hiring transport to bring grain to their stores.

Most rice on the market is custom milled in medium-sized mills operating at about 1,000 kg of milled rice per hour. The custom milling fee is 3,600 TSH/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. Most of the rice produced locally is graded into several different categories based primarily on the per cent broken. Although many small-scale hullers are not capable of cleaning or grading rice, there are a considerable number of medium-size mills that do have this capacity, and this is increasingly driving the market. The quality of even the second grade of local rice is superior to that of rice imported from Pakistan, and price differences reflect this both within Tanzania and in neighboring countries.

## History of Marketing and Trade Policy within the East African Region

### Trade Policy

The history of marketing and trade policy within the East Africa region has been characterized by increasing efforts towards trade integration. Two trade agreements dominate East Africa's regional trade system: the East African Community (EAC) and the Common Market for Eastern and Southern Africa (COMESA). The member states of EAC are Burundi, Kenya, Rwanda, Tanzania, and Uganda. The member states of COMESA are Angola, Burundi, Comoros, Democratic Republic of Congo, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Madagascar, Malawi,

Mauritius, Rwanda, Seychelles, Sudan, Swaziland, Uganda, Zambia, and Zimbabwe. Although Tanzania trades actively with a number of the COMESA member states, it withdrew from COMESA in 2000, citing concerns that diminishing tariffs charged to member countries would be too great a fiscal sacrifice. On the other hand, Tanzania belongs to the South African Development Community (SADC), another large trade pact of 19 countries.

The treaty establishing the EAC, comprising at the time Kenya, Tanzania, and Uganda, was signed in 1999 and ratified in July 2000. Rwanda and Burundi joined the EAC in 2007. The trade pact's objective is to widen and deepen political, economic, and social cooperation among the member states. As a result, the governments agreed to remove tariff barriers among the countries. In late 2004, Kenya, Tanzania, and Uganda ratified a Customs Union (CU) Protocol, which came into effect in early 2005. With the establishment of the CU came the introduction of the Common External Tariff (CET). Of the five member states, only Burundi does not yet apply the CET. The CET adopted for non-EAC countries is a three-tier tariff system. Under the protocol, EAC member states apply zero duty for raw materials and inputs, 10% for processed or manufactured inputs, and 25% for finished products. For intra-regional trade, the import duty (internal tariff rate) initially ranged between 0% and 25% with a gradual phase-out by 2011. A selected list of sensitive items, comprising 58 tariff "lines," has CET rates above 25%, including milk and milk products, maize, rice, wheat, and wheat flour (USAID, *Cross-Border Trade in East African Countries*, 2009, pp. 3-5).

As of late 2011, the CET for rice was 75% and that for maize was 50%. Both products were supposed to trade freely within the EAC. However, Kenya was provided with a special reduction in its customs duty on rice to 35% because of a preferential agreement it has with Pakistan, a major supplier. Furthermore, because Tanzania is a member of SADC, it assesses a preferential tariff of 15–25% on maize and 0-15% on rice imports from these member states (ESRF, 2010)

### Nontariff Barriers

In addition to changes in tariff rates, substantial efforts were also made to reduce non-tariff barriers. The most important of these are presented in Table 6. Despite these efforts, it is evident that non-tariff barriers (NTB) are the most serious impediments to trade. Part of the problem is that The EAC customs union has had difficulty promoting the free internal movement of goods

**Table 6: EAC Policy Efforts to Reduce Non-Tariff Barriers to Trade**

Impediments	Policy Measures	Status		Required Action
		In place	Proposed	
Customs procedures	Simplified procedures	√		Publicity, awareness and roll out at national level
SPS measures and procedures	Regional SPS cross border trade facilitation policy and guidelines (PRA, etc.)		√	NPPO ownership and roll out at national level
Standards	Harmonized Staple Foods Standards	√		Publicity, awareness and roll out at national level
Export bans/restriction	Regional Food Balance Sheet and proposed predictable regime for management of export bans/restrictions		√	Due for consideration by EAC Experts and also introduction into the EAC Food Security Policy
Lack of an Integrated Regional Policy for promotion of intra-regional trade in staple foods	Green channel for intra-regional trade in staple foods - trade regulatory institutions linking origin and end markets		√	Due for consideration by EAC Experts and also introduction into the EAC Food Security Policy

Source: Kagira 2011

between EAC countries because border controls are necessary to ensure that EAC preferences are not accidentally granted to SADC and COMESA countries. Overlap adds extra costs and delays to the trading process. In addition, it is not feasible for Kenya, Burundi, and Uganda to join the customs unions of *both* EAC and COMESA, because the two trade agreements have different customs and CET requirements. Meanwhile, the absence of Tanzania from COMESA and its presence in SADC confuses the role of those agreements within the five EAC countries (USAID, *Cross-Border Trade in East African Countries*, 2009, p. 8)

In East Africa, customs is the principal state authority charged with enforcing import tariffs, keeping out contraband, and guarding against incoming products that violate intellectual property laws, SPS standards, and other requirements. Other state agencies, including those overseeing health and safety of food, plants, animals and their products, consumer goods, and other imports, also play a key role at the borders. When time spent at the border is needlessly belabored or rife with corruption, trade is encumbered and the desirability of the country as a trading partner is diminished. At present, there is a long way to go in reducing or eliminating these barriers.

### **Customs Administration**

Each of the EAC member states, except for Burundi, now operates under the EAC 2005 Customs Management Act (CMA). The CMA is an important effort to harmonize customs practices in the

region. The EAC's slow pace in developing implementing regulations for the CMA has until recently resulted in inconsistencies in border practices throughout the EAC. Ambiguous provisions result in excessive officer discretion, particularly with respect to penalties (USAID, *Cross-Border Trade in East African Countries*, 2009, p. 13)

Customs administrators face three main areas of corruption:

- 1. Facilitation payments.** Importers or customs brokers and their representatives pay bribes to obtain a normal or trouble-free release.
- 2. Customs-complicit fraud.** Importers circumvent procedures and pay less—or nothing at all—in duties, taxes, and fees compared to their law-abiding competitors. This can involve other government ministry jurisdictions such as food purity and plant/animal quarantine strictures. Customs officers either ignore or are actively involved in the fraud.
- 3. Criminal corruption.** Operators pay bribes to use customs channels for illicit purposes involving lucrative contraband ranging from drugs to arms and munitions.

Corruption in the area of trade facilitation has been addressed to some degree in East Africa, but the region is still perceived as mired in bribery and other illegal conduct. Unlawful transactions reportedly occur principally with imports since exports are generally less subject to collection of informal fees. A notable exception, however, exists where there are export bans, a subject discussed below.

As the customs services of the EAC member states are being modernized and automated, the situation is improving. For example, in Tanzania, it is now possible for an importer or exporter to submit customs documents in advance of the shipment's arrival at the border post. Valuation and risk assessment is made in Dar es Salaam and communicated to the post, indicating whether the shipment has a green, yellow, or red light. If green, the ship goes through with minimum verification of documents; if yellow, the documents are examined in detail and only if there is a problem is the shipment physically inspected; if the light is red, the shipment is always physically inspected. Tanzania, along with the other EAC member states, has formally accepted the World Customs Organization Agreement on Customs Valuation (ACV). This calls for the greatest possible use of transaction value, or the price paid or payable for the imported goods. Although the extent to which the ACV is actually used in practice is not known, it does appear that the stability, predictability, and transparency of customs processing has greatly improved. Furthermore, with modern methods of risk assessment and tracking, Tanzania has made important strides toward facilitating goods flowing across its borders. Tanzania's customs authority is moving to a system in which most importers are trusted once customs has verified their knowledge, professionalism, and high compliance rates through random examinations and post-release audit (USAID, *Cross-Border Trade in East African Countries*, 20

gains, the situation is far from perfect. Other border agencies that exercise discretion over imports and exports are not yet well integrated with Tanzania's automated system. Importers and other members of the trade community report that customs personnel routinely solicit and

receive small bribes for facilitation of service. Some firms refuse to pay and suffer the consequences of delay, excessive document checks, and physical examinations of their cargo. However, observers praise the revenue authority's internal affairs unit, which investigates allegations of misconduct, and conducts lifestyle and financial checks on individual employees.

A substantial amount of contraband, including counterfeit goods, bypasses Tanzanian customs via the expansive Lake Tanganyika, as well as across remote and unofficial border crossings. Counterfeit and smuggled legitimate goods are not only brought across maritime and land borders, but are also offloaded from transit shipments. Although more efficient automated systems have been introduced for tracking transit goods, there are still a number of control points in place, which creates unnecessary costs and delays.

### **Quantitative Restrictions on Imports and Exports**

The most pernicious NTBs are the quantitative restrictions placed on imports and exports, including the application of export bans.

#### **Import Permits**

Import permits must be obtained from the MAFC prior to importing maize or rice. Normally this is done only when domestic production is lagging. To obtain the required import permits, traders must submit an application in a simple letter showing the quality, quantity, delivery time and source of their product. Conditions required to be granted a license include: possession of a trading license and being registered with the Tanzania Revenue Authority (TRA), evidenced by a TIN number. An import permit is for a single shipment, is valid for up to six months, and can be extended

#### **Export Permits**

The Government of Tanzania requires that a letter of authorization to export foodstuff be obtained prior to purchasing, transporting, and exporting the consignment. This practice is founded in the Food Security Act of 1991, but the requirement can be traced back to the 1980s when Tanzania had a centralized, closed economy that discouraged trade with neighboring countries. Agricultural trade policies at the time discouraged private traders and middlemen, which was one of the reasons why check-points were established along highways leading to border points.

Another, more recent justification for issuing the letter of authorization to export food has been the need to safeguard national food security. Food security in Tanzania is monitored through the Integrated Food Security and Nutrition Assessment System (IFSNAS), which is more famously known in Kiswahili as "*Mfumo wa Uchambuzi wa Uhakika wa Chakula na Lishe*" (MUCHALI). This system makes an assessment and projections of food production and requirements in all districts and for each of the two cropping seasons. The MUCHALI system, which is located in MAFC, informs the Disaster Prevention Division of the Prime Minister's Office on the general situation of food availability, access, and forecast by conducting a vulnerability assessment and issuing an early warning report on food scarcity, which then triggers a national notice to impose either a food export quota or recommends imposition of a total presidential food export ban. A food export quota necessitates issuance of a letter of authorization to regulate the quantity and place from which food exports are permitted. Even when there is a total presidential food export ban, letters of authorization to export a specified quantity of food are still issued.

The letter of authorization to export food is initiated by the District Administrative Secretary and has to be endorsed and validated by the Regional Administrative Secretary before it is submitted to the Department of Food Security at MAFC. The role of district and regional authorities is to certify that there is a sufficient amount of food in their particular district and at that particular time that exports can be safely permitted. Given the sensitive nature of food availability, the current requirement is that the final letter of authority to export food must be issued centrally by the Department of Food Security in MAFC. In order to control against forgery, abuse and dishonesty, the same letter of authority to export food has to pass through the Regional Administrative Secretary and District Administrative Secretary to be endorsed and validated.

Thus a Tanzanian exporter has to obtain five different letters of authorization to export staple foods. The steps are:

1. Letter of request by the District Administrative Secretary for an exporter to be issued a National Food Export Permit
2. Forwarding letter by the Regional Administrative Secretary for the exporter to be issued a National Food Export Permit
3. National Export Permit issued by MAFC
4. Letter of validation of National Food Export Permit by the Regional Administrative Secretary
5. Letter of validation of National Food Export Permit by the District Administrative Secretary

This top-heavy process creates high transaction costs for Tanzania exporters to conduct their business of trade in foodstuffs within the EAC and SADC. The letter of authorization to export food is needed for all types of cereal staple foods such as maize, rice, sorghum and millet, and in rare cases beans (Tanzania Exporters Association (TANEXA) 2012).

### ***Export Bans***

Tanzania is the only country in East Africa that formally restricts trade other than on an occasional ad hoc basis. Export bans have been imposed particularly following a poor harvest (or perceived poor harvest) or when consumer prices are unusually high. As shown in Table 7, since 2000, the export ban has been a more or less permanent feature of the cereals landscape, with only a few months of formal lifting.

**Table 7: Chronology of Maize Export Bans in Tanzania**

<b>Year</b>	<b>Events</b>
1983/84	GOT implements partial import liberalization by allowing individuals with own sources of foreign exchange to import incentive goods and sell them at market clearing prices.
1990	GOT abolishes import and export licenses for various goods.
2000	Export ban made permanent except when temporarily lifted.
1999/2000	Export ban lifted to allow export of maize to food deficit countries in Southern Africa.
2004	Minister of Agriculture and Food Security imposes export ban by withdrawal of all maize export permits given to traders and suspending the issuance of new permits.
Jan 2006	Export ban was lifted for two months.
Mar 2006	Export ban reintroduced.
Jan 2007	Export ban lifted.
Jan 2008	Export ban reintroduced.
May 2008	Export ban lifted
Jan 2009	Export ban reintroduced
Oct 2010	Export ban lifted
March 2011	Export ban informally announced
July 2011	Export ban formally effective
Oct 2011	Export ban informally announced
Jan 2012	Export ban formally lifted

Source: FAO, Global Information and Early Warning System, newspaper articles, and discussions with traders and others.

Sometimes the export ban does not include some of the western regions, such as Ruvuma region on the border with DRC, which normally has permission to export because the infrastructure between it and the rest of Tanzania is so poor that it makes sense to export to DRC.

There is often great confusion about when a ban is or is not in place. The President may make a formal announcement, but implementing orders may not reach border posts and other agencies for some time – if at all. In the meantime customs, police, and other officials will act as if the ban is in effect. In 2011, for example, the lifting of the ban was announced on October 12, according to a news report by Reuters, but the President ordered officials to “supervise regulated grain exports to ensure the country did not deplete its own food reserves”. Given the confusion that often seems to surround when export bans are in effect and when they are not, it is highly likely that this “regulated” export was interpreted by customs officials as a continuation of the export ban. The situation remained unclear until January 2012.

## Other NTBs

There are a number of other NTBs that inhibit both domestic marketing and cross-border trade. An example, cited earlier, is the problem of excessive number of roadblocks and weigh stations. Bribes are often paid to avoid delays, to compensate for lack of documents, to pay for overloading, and to avoid infractions due to the poor condition of the truck. Although each bribe sought from a trucker at a roadblock or weigh station is usually not large, the total becomes important. In addition, the time lost in transport imposes untold costs in terms of lost trade opportunities (USAID, *Cross-Border Trade in East African Countries*, 2009, p. 8).

Several studies have examined these NTBs in detail (World Bank, 2008). Few have actually quantified their effects. One such study, based on 2007/08 data, looks at the cost of NTBs in relation to total transfer cost, including transportation. Non-tariff barriers here include weigh stations, security, customs clearance, road toll stations, standards and certification, and bribes. These costs account for 35% of total transfer costs in Kenya, 12% in Tanzania, and 55% in Uganda. NTBs are less costly in Tanzania, according to this study, than in the rest of East Africa (RESAKSS, 2009, p. 23). However, this is partly because transport costs are so high in Tanzania. Also the study lumps together bribes and legitimate transfer costs. A World Bank study estimates the average cost of bribes in Tanzania in 2007-2008 to be \$3.84 per ton. Of this, \$0.48 is the estimated cost of delays in terms of tied up capital and driver time (World Bank, 2009, pp. 54-55). Overall, the results for Tanzania are similar once differences in methodology are taken into account. That is NTBs take up about 10% of total transfer costs, the rest being transport (74%), handling (10%), cess (3%), storage (2%), and drying (1%) (World Bank, 2009, p. 44). None of these studies, however, takes into account the fact that these delays may result in the trader missing market opportunities, which are more difficult to measure.

## Marketing Policy within Tanzania

Maize market liberalization in Tanzania has involved, among others, elimination of regulatory control over maize prices and reduction of government involvement in distribution of maize in the domestic markets. Reforms in the food crop sectors began with government withdrawal from controlling prices of cereal grains and the operations of the National Milling Corporation (NMC), which had a substantial share of grain marketing including maize. Government control over maize producer and consumer prices ended in 1989/90, and by the 1992/93 cropping season maize and other grain prices depended on market conditions. The subsidy on inputs, particularly the fertilizer subsidy, was officially removed in 1994/95. Also, controls on importation and distribution of inputs for most crops, including maize, were removed.

Despite deregulation of the maize market, notable forms of government interventions have re-emerged, such as the re-introduction of fertilizer subsidies in 2008, the operation of the Strategic Grain Reserves (SGR), and restrictions on inter-district, inter-regional, and cross-border trade with Tanzania's neighbors. Much of this was due to the Government's reluctance to leave food security in the hands of the private sector, and hence market forces, partly because of a perceived need to ensure food market stability and fear of speculative behavior of on the part of traders in times of food shortages. (Ashimogo, 2008, p. 51).

## Grain Reserve and Price stabilization

The Ministry of Agriculture, Food Security, and Cooperatives (MAFC) maintains 30 storage facilities under the Food Security Department that are spread over the regions, with a total capacity of 241,000 tons. They were established under the Strategic Grain Reserve in 1977, enforced by the Food Security Act of 1991, with the objective of maintaining reserve maize stocks of up to 150,000 tons, which was considered adequate to meet Tanzania's needs for three months, to allow imports to take place, in the event of an emergency. However, in an increasingly liberalized market, the reserves also came to be seen as an instrument to cap and maintain a floor for maize prices.

The twin goals of storing and distributing emergency food stocks and maintaining price stability were in conflict, resulting in heavy financial losses. Furthermore, the capacity of the SGR to meet emergency needs was eroded in the 1990s, as stocks were progressively depleted. By 2008/09, the SGR was utilizing less than 50 per cent of its storage space with a total stock of 94,000 tons.

In 2008, the SGR was transformed into the National Food Reserve Agency (NFRA) with the objectives of maintaining a reserve stock of food for emergencies and of operating in a businesslike manner. Gone, at least explicitly, was the objective of food price stabilization. Instead the NFRA was to operate as a profit-making enterprise, buy food at harvest time and sell it after prices had risen, for example to the WFP, to the extent that stocks would not be needed for emergency assistance. When emergency assistance was required, the Prime Minister's office would be responsible for paying for the cost of purchasing and delivering the food from NFRA and either giving it away or selling it for only 50 KSH per kilogram depending on need.

NFRA procurement of food stocks starts in July and ends in December with a peak in October. The Agency uses collection centres, where producers and/or traders bring their food grain for sale. Provided the grain meets the minimum requirements, it is purchased at a pre-determined price based on prevailing market price and unit cost of production. Care is taken to limit the number of buying centres so that private sector traders are not discouraged from entering the market. Procurement of services and goods required for grain storage is done competitively through tendering processes.

Releases from the reserve are made to counteract food shortages determined from time to time by the Food Security Department of the Ministry of Agriculture, Food Security, and Cooperatives in collaboration with the Local Government Authorities. This is done by carrying out vulnerability assessment studies which determine target groups and recommends amounts of food releases in the form of food aid. Usually the releases are sanctioned by the National Committee called Tanzania Relief and Disaster Committee (TANDREC) under the chairmanship of the Prime Minister's office (PMO). Distribution of the released food to the target groups is the responsibility of the local government authorities. (NFRA, n.d.)

## Impact of Marketing and Trade Policy

It is critically important to try to understand what the impact of marketing and trade policy in Tanzania is on trade, growth, and food security. To do this we make use of the analysis that has been undertaken thus far in this report plus two other analyses that were undertaken with data that were available. One was data on trade flows from various sources, including Tanzanian Customs, Trade Map, FEWSNET, and direct observations in the field. The other was the extensive data on prices available from the Ministry of Industry and Trade, RATIN, and a few other sources.

### Data

Tanzanian Customs furnished the SERA project with detailed data by customs post on exports, imports, and transit flows by origin and destination for each month for most of 2010, virtually all of 2011, and a few months of 2012. Trade Map provides trade data from official Tanzanian sources but also detailed trade data from Tanzania's partners to check against Tanzanian data. This is important because import data are generally much better than export data, since customs collects more revenue from imports than from exports. Furthermore, comparing Kenyan imports of maize and rice from Tanzania during the months in which a ban is in place yields very different results from looking at Tanzanian export data. In addition to the data on official trade – whether from Tanzania or its trading partners --FEWSNET, RATIN, and the East Africa Grain Council have been collecting data for some time on informal (panya) trade, which bypasses customs posts.

Direct observation in the market and discussion with market traders is also an important source of information. For example, MAFC has issued no permits for importing rice this year. Yet direct observation in the Dar markets reveals that about one-quarter of the rice in those markets is imported, primarily from Pakistan.

Monthly data on wholesale prices were obtained from the Ministry of Industry and Trade, which assembles these data from 19 major markets. These data are complemented by RATIN data on prices in markets outside of Tanzania. We also make use of data on prices and costs obtained from markets we visited and the many traders, farmers, and others who assisted us in so many ways to understand their activities.

### Impact of Export Bans

Customs officers, traders, market observers, and others with an intimate knowledge of trade flows say that export bans slow but certainly do not stop trade. To try to measure this quantitatively, we divided monthly exports of Tanzania to Kenya into three categories: (1) exports officially recorded by Tanzanian customs, (2) excess of imports into Kenya from Tanzania over officially reported Tanzanian exports to Kenya, the difference being exports that flow through customs posts regardless of whether or not there is a ban in effect, and (3) unrecorded trade that does not flow through customs posts but is picked up by one of the sources of information measuring this trade.

The results for maize and rice are shown in Tables 8 and 9. From these tables, the following observations can be made:

Table 8: Breakdown of Tanzanian Maize Exports to Kenya, 2010-12

Tanzania and Kenya Maize Trade, MT					
2010 - 2012					
Country	Declared by TZ Customs	Undeclared by TZ Customs	Trade by Panya Roads	Total Exports to Kenya	Transit Trade
<b>Kenya</b>					
2010-07	0	270	95	365	639
2010-08	0	0	0	0	0
2010-09	222	0	78	300	0
2010-10	179	0	18	197	0
2010-11	48	0	5	53	0
2010-12	23	978	100	1,100	0
2011-01	153	4,708	486	5,346	981
2011-02	200	2,070	227	2,497	106
2011-03	45	0	5	50	22
2011-04	0	9,385	938	10,323	0
2011-05	0	5,516	1,103	6,619	140
2011-06	0	41,510	8,302	49,812	6,208
2011-07	301	5,819	2,142	8,262	8,844
2011-08	0	0	0	0	11,072
2011-09	0	900	315	1,215	31,566
2011-10	0	10,226	2,045	12,271	7,318
2011-11	0	5,695	1,139	6,834	3,263
2011-12	450	5,695	1,229	7,374	10,628
2012-01	5,470				506
2012-02	1,694				399
2012-03	8,827				
<b>Total</b>	<b>17,611</b>	<b>92,771</b>	<b>18,226</b>	<b>112,616</b>	<b>81,692</b>

Source: as described in text.

**Table 9: Breakdown of Tanzanian Rice Exports to Kenya and Rwanda, 2010-12**

Country	Trade with Kenya			Trade with Rwanda		
	Declared by TZ Customs	Undeclared by TZ Customs	Total Exports to Kenya	Declared by TZ Customs	Undeclared by TZ Customs	Total Exports to Rwanda
Kenya						
2010-05	1,500	0	1,500	0	1,702	1,702
2010-06	1,950	0	1,950	0	1,280	1,280
2010-07	1,021	0	1,021	0	2,656	2,656
2010-08	3,311	417	3,728	2,972	794	3,766
2010-09	4,041	0	4,041	3,596	0	3,596
2010-10	2,565	0	2,565	3,494	0	3,494
2010-11	3,435	0	3,435	4,959	0	4,959
2010-12	1,447	0	1,447	4,089	0	4,089
2011-01	1,450	125	1,575	2,210	183	2,393
2011-02	623	2,727	3,350	2,199	0	2,199
2011-03	260	0	260	8,149	0	8,149
2011-04	231	2,969	3,200	3,463	0	3,463
2011-05	606	0	606	2,608	0	2,608
2011-06	721	1,080	1,800	3,192	0	3,192
2011-07	0	500	500	6,391	0	6,391
2011-08	0	50	50	0	2,770	2,770
2011-09	0	0	-	0	1,782	1,782
2011-10	0	10,226	10,226	0	1,630	1,630
2011-11	0	0	-	0	1,145	1,145
2011-12	0	0	-	565	526	1,091
2012-01	0		-	224		224
2012-02	200		200	0		-
2012-03	200		200	0		-
<b>Total</b>	<b>23,561</b>	<b>18,093</b>	<b>41,654</b>	<b>48,111</b>	<b>14,467</b>	<b>62,578</b>

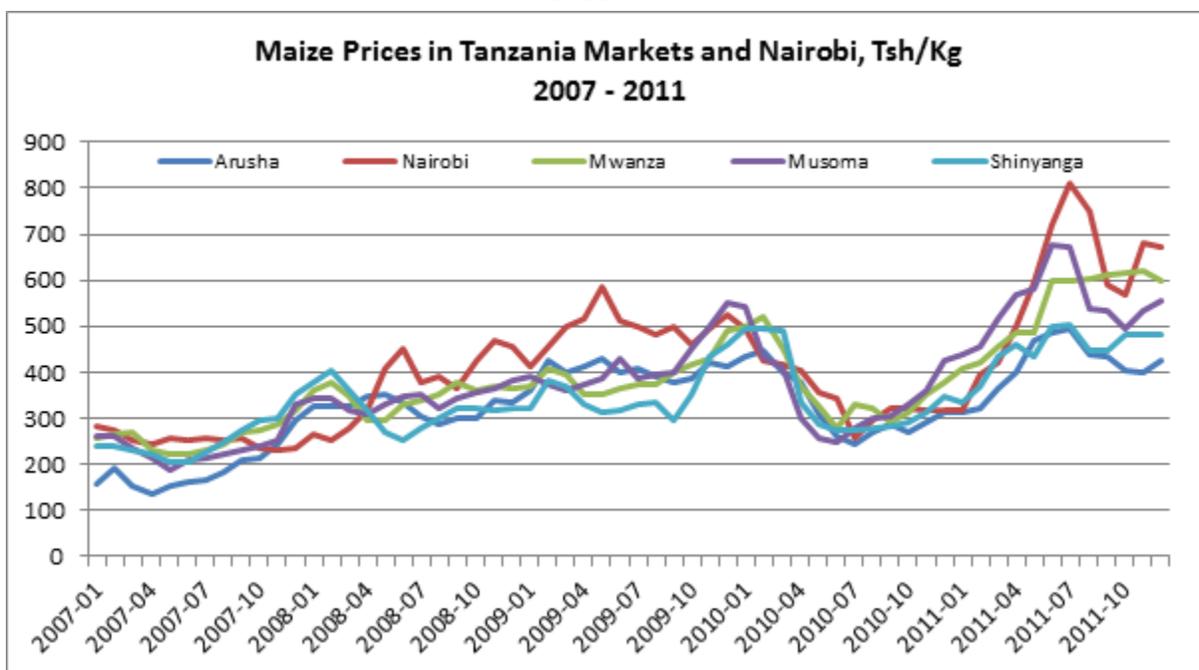
Source: as described in text.

1. Official data on maize and rice exports greatly understate actual flows, especially, but not limited to when there is a ban in effect. For example, exports of maize to Kenya officially reported by Tanzanian customs from July 2010 to December 2011 were 1,620 MT. Our estimate is 80,787 MT during this same period. Officially reported rice exports to Kenya from May 2010 to December 2011 were 23,161 MT compared with our estimated 41,254 MT, and to Rwanda were 47,887 MT compared with our 62,355 MT. See Tables 8 and 9 for monthly figures.
2. Exports of maize from Tanzania to Kenya in the month of June 2011, after the ban had been announced but before it went into effect, are estimated at close to 50,000 MT, which was to be expected with the new harvest coming in, prices very high in Nairobi, and traders anticipating the ban. During the ensuing period, while the ban was in effect, Tanzanian exports dropped from 50,000 MT in June alone to a total of 36,000 MT from July until the

end of December. During the same six months, transit trade in maize to Kenya was almost 73,000 MT. Tanzania clearly missed a golden opportunity.

Market price data for Nairobi and northern Tanzania, shown in Graph 1, indicate a decline in maize prices in Nairobi and Tanzania, all converted to Tanzanian shillings, from early 2010 until mid-2010. Thereafter, there was a steep rise in prices, which peaked in Nairobi in July 2011. Prices in Tanzania peaked in the same month or just a bit earlier, probably because traders were anticipating the ban and buying up grain to get ahead of it. In July and subsequent months, prices in Tanzania tended to stabilize at levels that were somewhat lower than their peaks – as were prices in Nairobi. But the ratio of the two prices rose from an average of 1.14 for July 2010 through June 2011 to an average of 1.44 for July 2011 through April 2012. This is consistent with other evidence showing a widening of price margins between Nairobi and Arusha when a ban is in place (World Bank, 2009, p. 36)

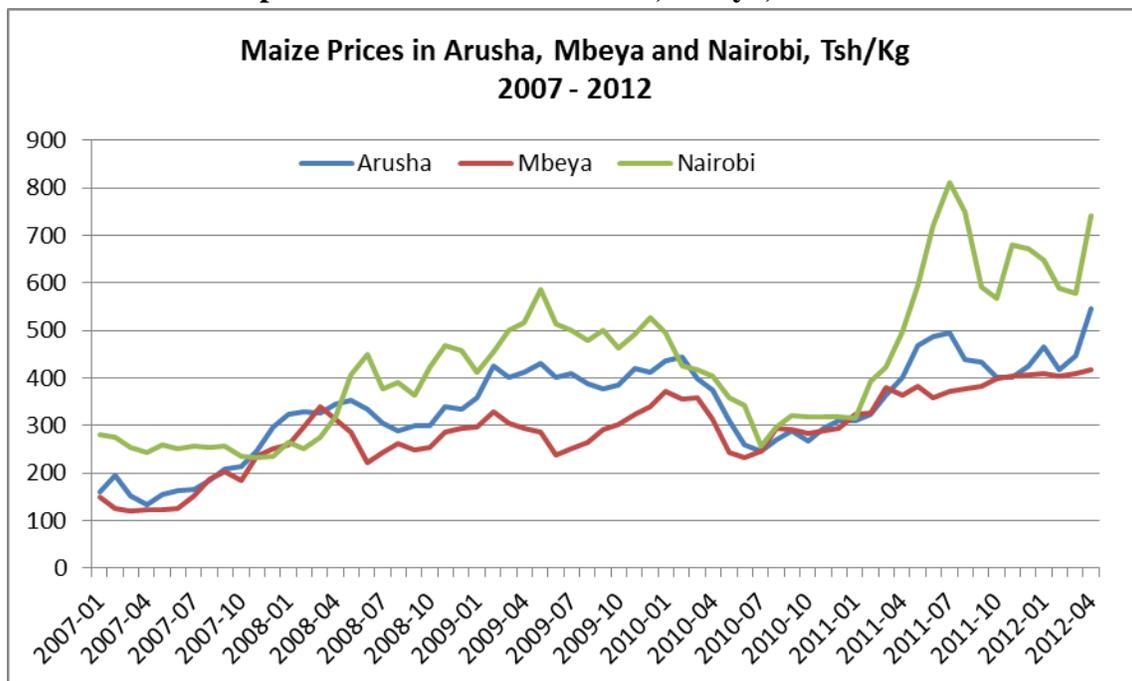
**Graph 1: Prices in Nairobi and Northern Tanzania, 2007 – 2011**



The conclusion that is consistent with these results is that the imposition of the export ban has an effect, but not one that is intended. It is anticipated and widely violated when it is imposed, but these violations have a cost. They transfer income from producers to those who receive bribes in order to allow maize-laden trucks to pass, to those who take the risks of continuing to export maize, and to the additional costs involved with loading and unloading, and traversing *panya* routes in smaller vehicles.

One consequence is that the traders from Arusha and other northern Tanzanian markets do not go as far to buy maize for export to Kenya. This was evident in Tunduma, on the border with Zambia, where wholesalers said that the traders from Arusha did not come this year because of the ban. Clearly, traders continue to export maize during a ban but not as much as when the ban is not in place and they source their grain from areas that are closer to the frontier. This can be seen in Graph 2, which shows maize prices in Mbeya, a major maize producing region in the south, in relation to prices in Arusha and Nairobi. Maize prices in Mbeya declined together with prices in Nairobi and Arusha until June 2010. Thereafter they rose slowly until April 2012. They did not follow the price spike and subsequent decline in Nairobi and, to a lesser extent, Arusha in July 2011 and succeeding months despite the fact that prices in Mbeya had tended to follow those prices in earlier years. That they did not follow this spike can be explained by the fact that transactions costs had increased with the imposition of the ban and traders were no longer looking for maize as far away as Mbeya.

**Graph 2: Maize Prices in Arusha, Mbeya, and Nairobi**



Although Kenya is the most important market for Tanzanian exports of maize and rice, there are exports to other countries as well. Estimates of these exports within eastern Africa were made applying the technique described earlier to exports of rice and maize to Kenya, Rwanda, Burundi, DRC, and Uganda. The results show the very striking magnitude of exports of both products during a year in which the ban was in place during the critical marketing season.

**Table 10: Tanzania Maize Exports 2011  
(Metric tons)**

Tanzania Maize Export in MT, CY2011				
Country	Formal Trade		Informal Trade	Overall Trade
	Tanzania export	Importing Country		
Kenya	1,012	79,073	15,815	94,888
Rwanda	1,830	11,042	2,208	13,250
Burundi	-	4,719	944	5,663
Uganda	30	254	51	305
DRC	1	1	0	1
<b>Total</b>	<b>2,873</b>	<b>95,089</b>	<b>19,018</b>	<b>114,107</b>

Note: informal trade is determined by adding 20% to neighboring country import data. The 20% is based on FEWS NET data

**Table 11: Tanzania Rice Exports, 2011  
(Metric tons of milled rice)**

Tanzania Rice Export in MT, CY2011				
Country	Formal Trade		Informal Trade	Overall Trade
	Tanzania Export Data	Importing Country Data		
Uganda	7,743	27,338	2,734	30,072
Rwanda	23,985	24,228	2,423	26,651
Kenya	2,622	10,475	1,048	11,523
Burundi	155	5,877	588	6,465
DRC	1,409	1,409	141	1,550
<b>Total</b>	<b>35,914</b>	<b>69,327</b>	<b>6,933</b>	<b>76,260</b>

The imposition of export bans hurts small farmers especially. The evidence from the price analysis shows that marketing margins widen when the ban is imposed. The increased price difference is

absorbed by bribes, returns to risk-taking by traders, and higher transport costs. These increased costs of marketing and trade benefit only the receivers of bribes, though even they are also being compensated for greater risks. The impact on producers and consumers depends on whether we are talking of food surplus or food deficit regions. Producers in food surplus regions certainly lose as does the entire community because of the loss of indirect, second-round income effects. Investment also suffers because producers are not motivated to invest and have less cash with which to invest.<sup>7</sup> In food deficit regions, including the cities, consumers may benefit from somewhat lower prices, but this is largely offset by the decline in production and marketing volumes, which raise costs throughout the entire marketing network.

### Impact of Export Permits

The requirement to have export permits is costly and has led to a decline in the number of businesses who are engaged in food exports.<sup>8</sup> Over 80% of respondents interviewed in a TANEXA survey of exporters said the requirement to obtain a letter of authorization has severely or highly constrained their business. A major problem is that exporters have to travel long distances to obtain their permits. The majority of cereal exporters must travel to both the regional and national capitals to obtain a letter of authorization to export food. Whereas the letter of authorization to export food is in principle only needed when rains have failed, in practice, they continue to be issued by district and regional authorities through-out the year irrespective of food availability. Because the system of letters of authorization to export food has now been institutionalized in the minds of law enforcement agents, they have to be obtained or food traders will be harassed at check-points. Furthermore, at the district and regional level, the authorization system creates patronage and favors from food exporters and clearing or forwarding agents. This results in loss of profit, loss of business orders due to late delivery, and loss of competitiveness of Tanzania staple cereals.

As a result of these high costs, the whole system is being extensively circumvented. First, there are clearing and forwarding agents who obtain letters of authorization to export staple cereal foodstuff even though they do not have any consignment for export. They re-cycle these permits to “pass-through” tens of thousands of tons. Secondly, the system encourages use of parallel trade routes which are not regulated. This is because traders prefer to use these routes rather than to go through the rigorous process of obtaining the letters of authorization. Third the system encourages corruption since food exporters find it cheaper to make under the table payments at check-points than to comply with the rigorous and cumbersome process of obtaining the letters of authorization.

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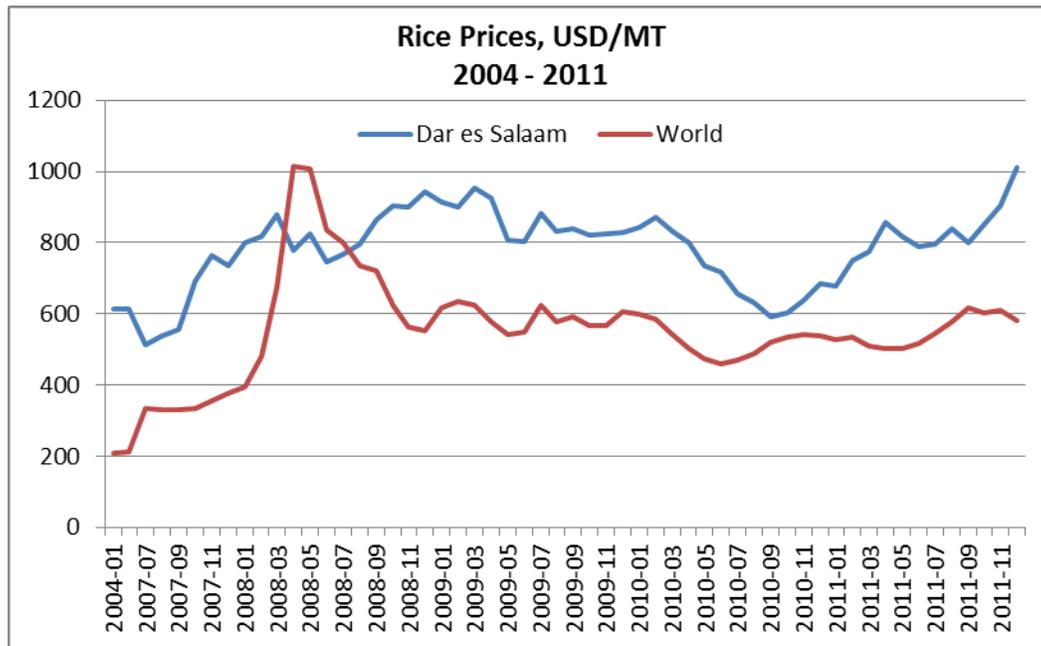
<sup>7</sup> Hella, Haug, and Kamile (2011) have shown that one third of farm income in at least one food-surplus village in Ruvuma Region is invested in inputs, tools, and equipment.

<sup>8</sup> Much of this section is drawn from TANEXA, *Problems of Official Food Export Permits to East Africa Community (EAC) and Southern Africa Community Development Community (SADC): The Case of Tanzania*, 2012, which reports on the results of an extensive survey of food exporters.

### Impact of High Tariff on Rice

Except for a brief period in 2008, the domestic price of rice in Tanzania has been much higher than world market levels, as shown in Graph 3.

Graph 3: Domestic Versus World market Price of Rice



Notes: World market price is for Thai 5% broken FOB Bangkok; domestic price is wholesale for Tanzania aromatic rice of top grade in Dar es Salaam market..

Normally, with this price differential, you would expect a substantial amount of rice imports. These accounted for up to 50 percent of marketed rice in Tanzania prior to 2005, when the tariff on rice was 25 percent. The introduction of a 75% common external tariff reduced imports significantly after 2005, and wholesale prices rose, but the actual duty paid on rice imports remained fairly constant regardless of the official tariff rate in place in any particular year (Therkildsen, 2011). Duty exemptions are allowed under EAC rules if “a natural disaster /calamity” has occurred, but there is very little evidence that Tanzania has taken advantage of such a provision. There is no information available on other exemptions.

Our team’s observations in the Dar es Salaam markets suggests that relatively low quality rice from Pakistan makes up about one-quarter of the rice that is available in these markets. This is a significant volume even if it is a very rough estimate. Taking our estimated average consumption of rice in urban areas of 75 kg per year and multiplying times Dar es Salaam’s population in 2012 of about 3.9 million people, we arrive at total rice consumption in the capital of roughly 300,000 MT. One quarter of this comprises 75,000 MT of rice being imported and consumed in the capital city. More rice undoubtedly flows to the hinterland. There is evidence that some rice is smuggled in from Zanzibar, which has a lower tariff and may have recently imported as much as 100,000 tons a year. But given

the limited amount of shipping that exists between Zanzibar and the mainland, it seems unlikely that this is a major source of supply. Besides, Zanzibar needs most of this rice itself.

The other more likely explanation is that rice is being imported by five large companies, even though they say they have not been importing rice and there were no permits issued recently for rice imports. In fact, it appears that these very large traders are on very good terms with government and do not bother with permits at all. Most of this rice is 25-35% broken imported from Pakistan, India, and Vietnam. Imported rice of this quality can be landed CIF in Dar es Salaam for about 520 USD/MT. If they pay the full duty rate of 75%, that would add 390 USD/MT. Additional port and transport charges are about 40 USD/ MT, making total cost equal to about 950 USD/MT. This quality rice was selling in the market wholesale in March 2012 for 80,000 TSH/50 kg bag, the equivalent of 1600 TSH/kg or 1,000 USD/MT. Adding a small margin for miscellaneous costs and profit, the domestic price of imported rice is what you would expect if the full tariff were being paid.

The only problem with this is that the quantity of rice reported as being imported by customs is far less than the roughly 75,000 MT estimated as being consumed in Dar es Salaam. Total rice imports through Dar es Salaam in 2011 are reported to be 16,320 MT, while imports for the first three months of 2012 are reported as 3,317 MT. Trade Map, which makes use of mirror data from trading partners along with official data from Tanzania, reports more than twice this tonnage of rice imports for 2011, almost all of it from the United States and Japan, which is almost certainly higher quality rice<sup>9</sup>. Pakistan, which exports the bulk of rice seen in the market, is reported as exporting only 23 tons to Tanzania.<sup>10</sup> It appears, then, that there is a substantial quantity of rice imports that is not being recorded, especially low quality rice from Asia. If this is the case, then it is unlikely that import duties are being collected on this rice and, instead, importers are making substantial profits. This may explain why both importers and wholesalers were very reluctant to discuss the importation and marketing of imported rice.

While Pakistan rice was selling wholesale for 1600 TSH/kg, Grade 2 Tanzanian rice was selling at close to 2000 TSH/kg. This is a premium of 25% over the price of imported rice. It reflects the cleanliness, lower percentage broken, and aromatic qualities of the Tanzania rice, which are appreciated not only in Tanzania but in neighboring countries as well. This is one indication of the potential value of Tanzanian rice exports.

An important question is whether the lower quality imported rice could be a substitute for maize in consumption, at least in the cities where most of it is consumed, if the price of rice were lowered through a reduction in the tariff rate. There is very little information available on cross-price elasticities of demand between rice and maize and that which exists suggests they are very low, implying limited substitutability (Haggblade, Nielson, Govereh, and Dorosh, 2008, p.25). However, rice is an increasingly important food, especially in the cities, so a reduction in its price could take some of the pressure off of the maize market.

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<sup>9</sup> Some of this rice might be food aid or other types of imports that are duty-exempt and therefore not recorded by customs.

<sup>10</sup> This contrasts with Pakistan's exports of rice to Tanzania reported in Trade Map, which are on the order of 20,000 MT.

## Impact of NFRA Operations

The goal of the NFRA is to maintain a reserve stock of food for emergencies and to operate in a businesslike manner without trying to achieve food price stabilization. Grain is purchased at a pre-determined price based on prevailing market price and unit cost of production. When emergency assistance is required, it is the Prime Minister's office that is responsible for paying for the cost of purchasing and delivering the food from NFRA and either giving it away or selling it for only 50 KSH per kilogram depending on need. Otherwise the grain is sold on the open market or to an agency such as the WFP.

In practice the NFRA sets a purchase price that is high enough so that it can be assured of getting access to grain which might otherwise be exported. Conscious of the possibility that a ban on exports might be imposed, traders are tempted to sell instead to the NFRA. But then they face the possibility that the Agency may run out of storage space or cash with which to purchase the grain. This is what happened in 2011, which left many traders with stocks of grain and nowhere to sell them because by this time the export ban was in effect.

This kind of intervention creates great uncertainty in the marketing sector and frustrates its development. If the NFRA were to set a minimum price and buy all of the grain that would be offered at that price, this would effectively set a floor price for grain in Tanzania. But the Agency has neither the financial nor the physical capacity to achieve this objective. Instead it just creates uncertainty. It would be far better if the NFRA would just bid for grain on the market in the same way as any other buyer, without announcing a price.

In terms of its sales or distribution of food, the NFRA is less disruptive of the market. To the extent that sales are made to WFP for distribution outside of Tanzania, there is almost no market distortion. Even distribution of food assistance for free or at a minimum price does not adversely affect the market to the extent that this implicitly adds purchasing power along with stocks of grain to consumers.

Complaints that the costs of delivering food assistance are high are supported by evidence from other studies of transport costs on feeder roads and those supplying secondary markets (World Bank, 2009). These costs are higher in Tanzania than in other East African countries. This not only raises the cost of delivering food assistance but also inhibits the movement of food by private traders from surplus to deficit areas in response to price signals. The answer is not to create more storage but to improve the roads.

## Experience in Other Countries

There are a number of studies that show the benefits of open food trade policies and minimum government intervention in food markets on economic growth and food price stability. One of the best of these examines the amplitude of price instability and unpredictability between countries using trade barriers and marketing board operations to stabilize prices versus countries with relatively open trade policies in East and Southern Africa (Chapoto and Jayne, 2009).

The first group of countries (Category A) is comprised of those having adopted food

market liberalization in a relatively comprehensive and sustained manner, with the role of government being limited mostly to regulating the playing field, investing in physical infrastructure, encouraging diversification of food consumption patterns, improving rural financial markets to improve traders' capacity to absorb surplus production, and relying primarily on private trade to stabilize maize prices. The second group of countries (Category B) includes those having implemented a partial liberalization process, in which the private sector is encouraged to operate but governments also continue to operate extensively in food markets, mainly through marketing board activities and discretionary trade policy tools such as export bans, changes in import tariff rates, and direct government importation and stock release. Mozambique and Uganda best fit the first category (A), whilst Zambia, Malawi, Ethiopia, and Tanzania fit the second category (B).

With the exception of Malawi, each of the Category B countries pursuing food price stabilization policies and food security objectives through direct state operations over the past decade has experienced slower growth of maize production than sub-Saharan Africa as a whole. By contrast, Mozambique and Uganda, countries that have maintained relatively stable maize marketing and trade policies, have shown more than a 100% increase in maize production.

Second, Malawi and Zambia have the highest degree of price volatility and price uncertainty compared to all the other countries. The measures of price uncertainty control for other factors affecting prices such as rainfall, seasonal effects, and exchange rate movements. This finding suggests that the highly discretionary trade and marketing policies in these two countries have had a destabilizing effect on prices and market predictability.

## Summary of Principle Findings

This section reviews and summarizes the principle findings of the study before setting out recommendations in the next section.

1. For all of eastern Africa, long-term projections are for a substantial and growing deficit in food. For maize, this deficit is projected to rise from 1.34 million tons in 2009 to 7.76 million tons in 2020. For rice, the corresponding figures are 1.15 million tons in 2009 to 2.84 million tons in 2020. These trends are expected to continue on past 2025.
2. Although continuation of the growth of Tanzanian production along the trend of 3% a year from 2001 to 2011 results in a growing trade deficit in maize, increasing that growth rate to only 4% yields a surplus until at least the year 2025. If the growth rate of production should increase to 5% per annum, Tanzania would be exporting almost two million tons within the region, which would still be well below the total market of over 8 million tons. Because of rapidly growing domestic demand, Tanzania will have a harder time achieving and sustaining an export surplus in rice. However should the rice sector reach a 10% rate of growth, continuing and sustained export surpluses would ensue. In summary, on the demand side, there is no serious constraint on Tanzania's exports of either maize or rice within the eastern African region. The constraints are only on the side of supply.
3. Official statistics on maize and rice production are seriously flawed and provide a very weak base for estimating food security needs. Their collection lacks a clear methodology, scientific sampling, careful means of measurement, and ways to avoid introducing bias into the estimates based on the desire to attract food assistance. Production of maize has been expanding at a more rapid rate than shown in the official data, which has been sufficient to give rise to growth of exports despite the bans and other impediments to trade. Growth of rice production has been even more rapid in response to expanding demand due to growth of population and income as well as urbanization and expanding export opportunities.
4. Tanzania has a strong comparative advantage in the production and export of maize and rice to eastern Africa. This is based on abundant good land for increased maize production in the southern highlands, a bimodal rain pattern in the north that gives farmers an early edge in the Kenyan and other markets, aromatic rice varieties of high quality that carry a 25% price premium, and close proximity of rice producers to markets in Malawi, Zambia, DRC, Burundi, Rwanda, and Uganda.

5. Most maize is consumed on the farm, though there are some farmers who grow maize as a cash crop. Rice is more likely to be grown as a cash crop. Marketing and trade are dominated by large numbers of small to medium-size traders, millers, and exporters. There are also a few large trading companies with substantial storage facilities, which give them a competitive edge in the cereals market, though the large number of smaller traders in these markets keeps them from dictating prices. Most trading is characterized by the need for bulking small quantities, which results in high handling costs.
6. Among non-tariff barriers to trade, high transportation cost, especially on feeder roads, are most important, followed by loading and unloading. The need to pay bribes at roadblocks, weigh stations, and customs is a nuisance and can result in missed marketing opportunities, but these barriers are not very large and have decreased in importance over the last few years. The computerization and modernization of the customs service has greatly facilitated trade.
7. Substantial quantities of maize and rice are being exported – much more than is reported by customs. For example, exports of maize to Kenya officially reported by Tanzanian customs from July 2010 to December 2011 were 1,620 MT, compared with 80,787 MT estimated in this report on the basis of mirror data and the estimated use of *panya* routes. During this same period, officially reported rice exports to Kenya were 23,161 MT compared with our estimated 41,254 MT. All these exports took place despite the imposition of a ban on them from July 2011 through December 2011.
8. The major effect of the ban on exports was to create a wider price margin between the source and destination markets. For example, the average ratio of maize prices in Nairobi to maize prices in northern Tanzania rose from 1.14 for the period July 2010 through June 2011 to 1.44 for the period July 2011 through April 2012. This is consistent with other historical evidence showing a widening of price margins between Nairobi and Arusha when a ban is in place. This widening price margin goes to those who receive bribes in order to allow maize-laden trucks to pass, to those who take the risks of continuing to export maize, and to the additional costs involved with loading and unloading, and traversing *panya* routes in smaller vehicles. One consequence is that the traders from Arusha and other northern Tanzanian markets do not go as far to buy maize for export to Kenya. The imposition of export bans hurts producers and their communities in food surplus regions especially. Investment also suffers because producers are not motivated to invest and have less cash with which to invest. In food deficit regions, including cities, consumers may benefit from somewhat lower prices, but this is largely offset by the decline in production and marketing volumes, which raises costs throughout the entire marketing network. Export bans also undermine the confidence of neighboring countries in Tanzania as a reliable supplier

9. The requirement to have export permits is costly and has led to a decline in the number of businesses who are engaged in food exports. A major problem is that exporters have to travel long distances to obtain their permits. The letter of authorization to export cereals is in principle only needed when rains have failed, but in practice they continue to be issued by district and regional authorities through-out the year irrespective of food availability. This results in loss of profit, loss of business orders due to late delivery, and loss of competitiveness of Tanzania staple cereals. As a result of these high costs, the whole system is being extensively circumvented. Clearing and forwarding agents obtain letters of authorization to export staple cereals, even though they do not have any consignment for export; they then re-cycle these permits to “pass-through” tens of thousands of tons. The system encourages use of parallel trade routes and corruption along regulated routes since it is cheaper to make under the table payments than to comply with the rigorous and cumbersome process of obtaining letters of authorization.
10. Given the high differential between rice prices in Tanzania and on the world market, one would expect substantial rice imports. The introduction of a 75% common external tariff in 2005, however, reduced officially recorded imports significantly. However, there is reason to suppose that these official data understate actual imports, based on observations of significant quantities of low-quality Pakistani rice in the market and verification of official statistics using mirror data from exporting countries. It appears that much of this rice is being imported by large importers without import permits. Local prices for the imported rice just cover its cost inclusive of full duty, but the failure to record these imports suggests that this duty is not being paid. Instead it may be that very large profits are being gained by the importers. This is important because this low-quality could provide an alternative to maize for urban consumers if its price were lowered.
11. The current system for the NFRA’s buying, storing, and delivering of emergency food assistance is very disruptive to maize markets and creates a lot of uncertainty. The principal problem is the setting and announcing of a minimum purchase price when NFRA does not have the capacity to buy all the maize offered at that price.
12. Evidence from other countries in East and Southern Africa suggests that open trade policies and minimum government intervention in grain markets not only contributes to the growth and development of those markets and of grain production but also lessens the variability of grain prices.

## Recommendations

Based on these findings, the following recommendations are offered to assure food security without disrupting grain markets, so as to promote the development of these markets, increase economic growth, and reduce poverty – the surest path to long-run food security.

### Eliminate export bans and import/export permits

There is overwhelming evidence that the export bans and import/export permits are ineffective in controlling trade, costly to traders and producers, and an important source of corruption and rent-seeking behavior. They stand in the way of Tanzania seizing the opportunity currently presented to become the granary of eastern Africa.

### Extensively Revise the System for Identifying Food Assistance Needs

The system that currently exists for identifying food assistance needs is fundamentally flawed in that it is based on very poor production data and does not take sufficiently into account the diversity of ways people have of satisfying their food needs.

### Agricultural Production Estimates

The current system for estimating agricultural production suffers from lack of a clear methodology, the failure to use scientific sampling, no transparent measurement instruments, and a strong possibility of bias. This system should be replaced by one comprising the following elements:

1. Periodic surveys of agricultural and livestock production based on sound sampling and measurement techniques.
2. Identification from these and from household consumption surveys of districts that need to be carefully watched because they are likely to be in chronic food deficit.
3. Use of easy to measure, early warning indicators of food security problems, with a focus on the districts that are most vulnerable. Examples of such indicators are
  - a. Market prices, to the extent that purchasing power is sustained for at least the upper and middle income groups through large farms, off-farm jobs, sales of livestock, and other means. This is important so that scarcity of supply will be reflected in higher prices.
  - b. Rainfall data collected through the use of rain gauges. This should be standard procedure in any case.
  - c. Direct observations and forecasts of likely crop yields by expert forecasters in areas of probable distress. These can be farmers in the local area, but a standardized questionnaire should be used to increase accuracy and avoid bias.

### Estimates of Food Needs and Their Satisfaction

These need to be based on household budget and consumption surveys. They must take into account both own-produced and purchased food, as well as the ways in which income is sustained to make these purchases. They should also cover a diverse range of foods, not just maize.

### **Concentrate NFRA Operations on Emergency Food Assistance**

NFRA should not make any effort to support cereals prices or maintain a ceiling on them. It should buy at unannounced market prices through a public tender and not at a pre-announced minimum price, as at present. Supplies will be available to the extent that NFRA becomes known as a transparent and dependable customer.

### **Improved Feeder Roads and Roads to Secondary Markets**

These are the most costly links in the supply chain. Upgrading them will help to strengthen private sector delivery of food to deficit areas as well as delivery of food assistance.

### **Work within EAC to Reduce Tariff on Rice Imports**

This high tariff rate is helping to make rice very expensive in Tanzania. Furthermore, it is not generating increased revenues for the State. If rice prices were lower, this would take some pressure off of the maize market, especially in urban areas.

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