VALUE CHAIN ANALYSIS OF RICE AND MAIZE IN SELECTED DISTRICTS IN TANZANIA

VOLUME I: INTRODUCTION, CONTEXT ANALYSIS AND RECOMMENDED WAY FORWARD

FINAL REPORT

NOVEMBER 2010

STUDY COMMISSIONED BY ACT – TANZANIA AGRICULTURAL PARTNERSHIP FUNDED BY EU-EC FOOD FACILITY GRANT NO. 2009/213-569

CONDUCTED BY MATCH MAKER ASSOCIATES LIMITED
ABBREVIATIONS

ACT Agricultural Council of Tanzania
ADDA Agricultural Development Denmark Asia (Africa)
AKIRIGO Kilombero High Quality Rice Growers Company
AMCOS Agricultural Marketing Cooperative Society Ltd
ARI Agricultural Research Institute
ASA Agricultural Seed Agency
ASDP Agricultural Sector Development Programme
ASEAN Association of the South Eastern Nations
ASF Agricultores Sen Fronteira
BDS Business Development Services
BET Board of External Trade
BOT Bank of Tanzania
BULOG Badan Urusan Logistik (Indonesian national logistics agency)
CAN Calcium Ammonium Nitrate
CF / CFS Contract Farming / Contract Farming Scheme
CFSV Comprehensive Food Security and Vulnerability Analysis
CIF Cost Insurance and Freight (sales contract including…)
CRMP Coastal Resource Management Programme
CSF Critical Success Factors
DADP District Agricultural Development Programme
DAI-PESA Dai - Private Enterprise Support Activity
DALDO District Agriculture and Livestock Development Officer
DAP Di-Ammonium Phosphate
DC – D/C District Council
DSM Dar es Salaam
EAC East African Community
EC European Commission
EM Export Market
EU European Union
FAO Food and Agriculture Organization
FDI Foreign Direct Investment
FERT Fondation pour l’Epanouissement et le Renouveau de la Terre
FFS Farmer Field School
GAP Good Agronomic Practices
GDP Gross Domestic Product
GoT, GovT Government of Tanzania
HIMIC High and Medium Income Consumers
IM Institutional Markets
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Name</th>
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<tbody>
<tr>
<td>INCOMET</td>
<td>Tanzanian NGO that supports MUCOBA in Mufindi District</td>
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<tr>
<td>IRRI (ESARO)</td>
<td>International Rice Research Institute</td>
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<td>ISO</td>
<td>International Organisation of Standardisation</td>
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<td>JICA</td>
<td>Japan International Cooperation Agency</td>
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<td>KACE</td>
<td>Kenyan Agricultural Commodity Exchange</td>
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<td>KATRIN</td>
<td>Kilombero Agricultural Training and Research Institute</td>
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<td>KPL</td>
<td>Kilombero Plantation Limited</td>
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<td>KRCC</td>
<td>Korean Rural Community Cooperation</td>
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<td>LGA</td>
<td>Local Government Authorities</td>
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<td>MAFC</td>
<td>Ministry of Agriculture, Fisheries and Cooperatives</td>
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<td>MATI</td>
<td>Ministry of agriculture Training Institute</td>
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<tr>
<td>MFI</td>
<td>Micro Finance Institutions</td>
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<tr>
<td>(M)FIs</td>
<td>Financial Institutions – either micro or not</td>
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<td>MITM</td>
<td>Ministry of Industry, Trade and Marketing</td>
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<td>MMA</td>
<td>Match Maker Associated Limited</td>
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<td>MOF</td>
<td>Ministry of Finance</td>
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<td>MT</td>
<td>Metric Ton</td>
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<td>MUCOBA</td>
<td>Mufindi Cooperative Bank</td>
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<td>MVIWATA</td>
<td>National Network of Farmers’ Groups</td>
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<td>NADO</td>
<td>Njombe Agricultural Development Organization</td>
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<td>NAFCO</td>
<td>National Agricultural and Food Company</td>
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<td>NFRA</td>
<td>National Food Reserve Agency</td>
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<td>NGO</td>
<td>Non Governmental Organization</td>
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<td>NMB</td>
<td>National Microfinance Bank</td>
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<td>NMC</td>
<td>National Milling Corporation</td>
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<tr>
<td>P4P</td>
<td>Purchase for(4) Progress</td>
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<tr>
<td>PADEP</td>
<td>Participatory Agricultural Development and Empowerment Project</td>
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<tr>
<td>PASS</td>
<td>Private Agricultural Sector Support Limited</td>
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<tr>
<td>PMG</td>
<td>Producers’ Marketing Group</td>
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<td>PPP</td>
<td>Public Private Partnership</td>
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<td>PRIDE</td>
<td>Promotion of Rural Initiative and Development Enterprises Limited</td>
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<tr>
<td>QDS</td>
<td>Quality Delivered Seeds</td>
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<td>RALG</td>
<td>Risk Assessment Liaison Group</td>
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<tr>
<td>RATIN</td>
<td>Regional Agricultural Trade Intelligence Network</td>
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<td>RFSP</td>
<td>Rural Financing Support Programme</td>
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<td>RLDC</td>
<td>Rural Livelihood development company</td>
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<tr>
<td>RUBADA</td>
<td>Rufiji Basin Development Authority</td>
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<tr>
<td>RUDI</td>
<td>Rural urban Development Initiatives</td>
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<tr>
<td>SACCOS</td>
<td>Saving and Credit Cooperative Society</td>
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<td>SADC</td>
<td>Southern African development Community</td>
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<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>SAGCOT</td>
<td>Southern Agricultural Corridor Tanzania</td>
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<tr>
<td>SELF</td>
<td>Small Entrepreneurs Loan Facility</td>
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<tr>
<td>SGM</td>
<td>Simplified Gross Margins</td>
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<td>SGP</td>
<td>Simplified Gross Profit</td>
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<td>SGR</td>
<td>Strategic Grain Reserve</td>
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<td>SHC</td>
<td>Southern Highland Company</td>
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<td>SHF</td>
<td>Small Holder Farmer</td>
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<td>SIDO</td>
<td>Small Industries Development Organization</td>
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<td>SSA</td>
<td>Sub-Saharan Africa</td>
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<td>TACE</td>
<td>Tanzanian Agricultural Commodity Exchange</td>
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<td>TADB</td>
<td>Tanzanian Agricultural Development Bank</td>
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<tr>
<td>TAGMARK-CNFA</td>
<td>Tanzanian Agricultural Market Development Trust / Conference of National Foreign Affairs</td>
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<tr>
<td>TAGRODE</td>
<td>Tanzania Grass-Root Development</td>
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<td>TAP</td>
<td>Tanzanian Agricultural Partnership</td>
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<td>TASAF</td>
<td>Tanzania Social Action Fund</td>
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<td>TAZARA</td>
<td>Tanzania Zambia Railway</td>
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<td>TBL</td>
<td>Tanzanian Breweries Limited</td>
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<td>TBS</td>
<td>Tanzanian Bureau of Standards</td>
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<td>TCCIA</td>
<td>Tanzanian Chamber of Commerce Industry and Agriculture</td>
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<td>TFA</td>
<td>Tanganyika Farmers’ Association</td>
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<td>TFC</td>
<td>Tanzanian Fertilizers Company</td>
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<td>TFDA</td>
<td>Tanzania Food and Drugs Authority</td>
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<td>TIB</td>
<td>Tanzanian Investment Bank</td>
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<td>TIC</td>
<td>Tanzanian Investment Centre</td>
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<tr>
<td>TOR</td>
<td>Terms of Reference</td>
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<tr>
<td>TOSCI</td>
<td>Tanzania Official Seed Certification Institute</td>
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<tr>
<td>TPAWU</td>
<td>Tanzania Plantation and Agriculture Workers Union</td>
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<tr>
<td>TPSF</td>
<td>Tanzania Private Sector Federation</td>
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<tr>
<td>TZS</td>
<td>Tanzanian Shillings</td>
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<tr>
<td>UAE</td>
<td>United Arab Emirates</td>
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<tr>
<td>ULIC</td>
<td>Urban Low Income Consumers</td>
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<tr>
<td>US</td>
<td>United States</td>
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<tr>
<td>US$/USD</td>
<td>US Dollar</td>
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<tr>
<td>VAT</td>
<td>Value Added Tax</td>
</tr>
<tr>
<td>VCD</td>
<td>Value Chain Development</td>
</tr>
<tr>
<td>VINA</td>
<td>Vietnam Nation</td>
</tr>
<tr>
<td>WFP</td>
<td>World Food Programme</td>
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<tr>
<td>WRS</td>
<td>Warehouse Receipt System</td>
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ACKNOWLEDGEMENT AND DISCLAIMER

A team led by Peniel Uliwa (MMA) together with Frederic Kilcher (Affiliate Consultant), Marc Keller (MMA), Jimmy Ebong (MMA), Edmond Ringo (MMA) and Ron Kopicki (Independent Supply Chain Consultant) has written this report.

During the whole assignment, the team has received enormous support and cooperation from different people and organisations, all of which are sincerely acknowledged. As it is not easy to mention one by one, we would like to mention a few that were instrumental in bringing this study to fruition.

The entire TAP team from national (Mr Mark Magilla, Ms Susan Masagasi, and Katrine Plesner) and the rest of the colleagues deserve a special mention for their able and tireless support from conception to the end of the study. The TAP District Coordinators were extremely valuable in supporting our team during field visits. Their insights and contacts made the field study possible.

The respondents from private sector and public institutions at national, regional and district levels were also very informative. Their willingness to share their insights of the sub sector dynamics is appreciated. Farmers, traders, processors at all levels of the supply chain assisted us to make sense of the challenges and opportunities and we would like to appreciate their inputs.

Last but definitely not least; we would like to register our appreciation to the participants of the validation workshop (listed in Annex I: List of participants to the validation workshop) and the TAP advisors (Joel Strauss, Jeffrey Lewis and Patrick Guyver) that offered a critical and constructive review of the reports to the study team. Their contributions have greatly shaped this report.

This report does not necessarily represent the views of interviewees and or their organisations or the study-funding organisation. Errors, omissions and interpretations are, therefore, the responsibility of the authors.
EXECUTIVE SUMMARY

Preamble
This study was commissioned to Match Maker Associates by Agriculture Council of Tanzania (ACT) through Tanzania Agriculture Partnership (TAP) to undertake, a critical review of the maize and rice sub sectors in Tanzania. The objective of the analysis is to identify potential value chains development projects, and to recommend sub sector and value chain development strategies. The study is based on field interviews undertaken in 13 districts where TAP is active and which are considered to have significant production growth potential. The analysis is intended to contextualize findings within recent national, regional and international developments and to make the analysis relevant to the resolution of strategic decisions in these domains, which are pending. The study takes as its starting point the current policy emphasis, under which the Tanzanian government has given agriculture a prominent position in the national economic development agenda.

Context
This report is preceded by a review of some context issues, that has relevance to specific decisions being considered and to still-to-be-determined, new strategic directions which are pending in Tanzania’s endeavour to develop the agricultural sector. Some of these context issues include among others; the international maize and rice trading protocols and different market requirements; the government agricultural policies including the newly adopted mixed crop regulatory framework, general policies affecting private sector investments; and the state of Tanzanian farmers.

These context issues highlight the formative aspects of Tanzania’s evolving food system and have brought up key questions, which the study seeks to address in an effort to advance the rapid development of the nation’s food system.

Rice sub sector
Rice is the second most important crop in Tanzania after maize and mostly used as a cash crop. Tanzanian rice productivity is lower than most neighbouring countries and one of the lowest in the world. Furthermore Tanzania hardly meets its own rice demand and therefore imports large quantities, mostly from South-East Asia. However Tanzania is the second largest rice producer in Eastern Africa. Tanzania’s total rice production is 899,000 Mt, from which a small part is exported to neighbouring countries.

Around 90% of the rice production is by (subsistence) smallholders and production concentrates in Mbeya, Morogoro, Arusha, Iringa and Dar es Salaam Regions. The rice subsector is highly fragmented with millers and brokers playing a central role in the trading process. The supply channels are generally long and the produce changes many hands before reaching the final consumer. A few more structured supply chains are emerging and there is increasing interest from large (foreign) investors.
The profitability – simplified gross margin (SGM) of rain-fed smallholder farmers (SHFs) varies from negative to modest returns of 27%, which suggests the profits are negligible and most producers remain at a subsistence level. The irrigated farms are much more productive and profitable, with SGMs varying from 2% to 61%. The producers’ main cost drivers are (own) labour (60-80%), inputs (10-30%) and local transport costs (5-10%). The other main actors (traders, millers and retailers) realize positive gross margins varying from 9 to 25%. The main costs drivers for traders/millers are raw material (paddy): 60-80%, transport costs: 6-12%, milling: 5-10%, Loading-unloading 2-3%, taxes 2-3% and for the bigger traders, storage rental: 20-30%.

Critical weaknesses of the subsector are, among others, limited production and distribution of improved seeds (inputs), low quality (i.e. due to mixing of varieties), inefficient chains, insufficient input suppliers and extension workers, inadequate storage capacity, high post-harvest losses due to poor post-harvest handling and uses of inefficient milling machines. Production and productivity is low (average of 2-4 Mt/ha), farmer organisations are weak and transport costs are significantly high. Moreover there is a general lack of transparency, enforcement of regulations, traceability and a conductive business environment.

There are numerous project interventions by NGOs and the government but these have not yet managed to sustainably improve the situation by developing effective and efficient supply chains in order to take full advantage of growing market opportunities.

This study has confirmed that the demand from urban medium-high consumers is increasing for quality and branded aromatic rice, which is primarily produced in Tanzania. Likewise most neighbouring countries have rice deficiencies, which makes the regional block a highly attractive market if efficient supply chains can be developed. The export ban imposed by the Tanzania government was lifted earlier in 2010 and this could motivate more structured supply chains to penetrate this market segment. The study has also identified institutional niche clients (army barracks, hospitals, schools and mining companies etc.) as another attractive market segment.

Based on these subsector findings, three supply chains founded on the growing market segments have been identified for further development. These are coupled with it a number of business models including WRS, out-grower/contract farming, tenant lease model, stockists led credit/SACCO and crop insurance that have been crafted for value chain upgrading strategies. Whilst the primary target of supply/value chain improvements will target local market self sufficiency (medium/high income and institutional), there are deliberate efforts to craft efficient supply chains that will take up a substantial export market in the region taking into account the comparative advantage that Tanzania has.

The first selected chain is the ‘integrated channel aiming at local medium-high urban consumers’. In this chain the Mtenda Company is the clear chain leader, as it has set-up outgrowers’ schemes with over 10,000 farmers. Mtenda has a strong partnership with Wela miller, owns two retail outlets and has a strong network of wholesalers in Dar es Salaam. This chain is proposed to increase its focus on the local upmarket by, among other things, expanding its distribution system, to double
its outgrowers (farmers), expanding its storage capacity and a feasibility study on the attractiveness of an own rice mill and transport facilities. In the medium-long term the chain is recommended to target the regional export market, however, an extensive feasibility and market study ought to guide this expansion. To successfully penetrate the regional market it was recommended to work with distributors in the respective country. Branding will play, both in the local as in the regional export market, a key marketing strategy in the development of this value chain. Analysis indicated that transport and storage are the main costs drivers and thus setting up strong modalities around them are key for the chain’s competitiveness. Specific identified support organisation (TAP, TPSF, MIKO, NMB, DALDO etc.), are proposed to play specific supportive tasks to catalyze the chain.

Six producer groups (associations) and the marketing organisation - Association of Kilombero High Quality Rice Growers Company (AKIRIGO), both in Kilombero District (Ifakara), are the main actors in the second chain. In the short term 3,000 producers will be active in the chain and that number is expected to double in three to five years. In Kenya there is a large deficit of quality rice and this chain is in the right position to benefit from this opportunity. However, the chain will continue to supply the local market. The main cost drivers (transport and storage), play an even more crucial role than in the other chain. Therefore, transport modelling in particular will be essential to compete with local Kenyan and foreign competitors. To become more competitive, support institutions with TAP and RUDI in a crucial coordinating role should play an important task of strengthening and supporting the expansion of the chain, especially on production and marketing. Currently, AKIRIGO sells its produce in an ad-hoc manner to different buyers and no long-term relations are in place. The value chain development recommendation is geared at changing this and setting up long-term relationships with dedicated buyers in Kenya. Moreover introducing and/or strengthening business models like the ‘renewed’ WRS, FFS and especially the TPAWU model (providing inputs and crop insurance on credit to producers) will further strengthen the trust.

The final chain is the ‘large scale led channel selling to institutional clients’. The chain actors namely Southern Highland Company (SHC) in Mbarali District (Mbeya Region), Export Trading with headquarters in Dar es Salaam and Kilombero Plantation Limited (KPL) in Kilombero District (Morogoro Region) are the three prominent potential chain leaders, with potential of selling to institutional clients (army barracks, schools, hospitals, mining companies etc.); however none of them is targeting such clients. This is mainly because the tendering process is rather bureaucratic and has recently been decentralised. The large scale farmers have two crucial benefits to successfully penetrate this segment, namely the ability to consistently supply larger volumes. Secondly the payment terms can be complex and payments irregular and/or lengthy, therefore larger suppliers are more likely to have substantial working capital to absorb payment problems (delays). The large scale producers are recommended to work extensively with SHF in a so-called tenant’s model. It is envisioned that SHF work on the land owned and managed (maintained for a fee) by the large scale holder and are for a large part supplying the institutional clients. Support organisations like TAP, LGA-DALDO, FAO and TPSF were further proposed, among other things, to set-up producer group (WRS/AMCOS), trials with different seeds, harmonizing harvest and post-harvest methods, stimulating stronger chain linkages and developing an efficient transport modality.
Although the analysed chains are located in specific districts, the chains and their respective approaches (business models) are replicable in other areas. TAP is envisioned to play a vital role in the coordination and catalyzing of the proposed chains but also lead, together with other identified support organisations on some specific interventions.

**Maize sub sector**

In 2007 about 780 million tonnes of maize was traded worldwide (yellow and white). Maize is the most important staple food in Tanzania and in the East Africa region in general. Maize market performance therefore has a significant impact on the welfare and food security especially of poor people. It has been ascertained that with growing urbanisation and high rates of poverty that limit dietary upgrading, market demand for food staples will grow steadily to USD 11.2 billion in 2015 and USD 16.7 billion in 2030 (WB Report AFR Sept 2009). This is a great emerging market opportunity for countries like Tanzania. A recent regional phenomenon is that Zambia and Malawi have increased maize production and have recorded exports of 1.1 million tonnes and 0.3 million tonnes respectively to countries in East Africa. These markets include Kenya which is much closer to Tanzania and which has a regular import demand of 60 - 75,000 tonnes per annum. In 2009 demand for maize in Kenya rose to 405,000 tonnes.

Tanzania essentially produces white maize. Annual production estimates by the Ministry of Agriculture, Food Security and Cooperatives were 3.3 million tonnes grown by over 90% SHFs on 4.9 million ha of land, with an average land holdings of 0.67 ha.

Tanzania’s production levels are just meeting local demand with very limited exports of approximately 90,000 tonnes per annum and small irregular imports of mostly seeds or for food security. Maize is the most important staple crop in the food security policy and has been subject to regular export bans. This is one reason that could account for disincentives for increased production and new investments by large private sector actors. Maize prices in Kenya are on average 20% above local Tanzanian prices, which is another reason why cross border trade could increase provided Tanzanian farmers manage to compete with Ugandan production and transport costs.

The maize sub sector channels are characterized by lengthy brokerage services dominating at village, district and national urban markets. The market margins are generally quite high signifying inefficiencies in supply chains and prices vary greatly between seasons (during harvesting and periods of scarcity). In addition, post harvest losses are quite significant and productivity levels are low. Actors with access to storage facilities and financial services are the only ones able to take advantage of price fluctuations. There are few emerging business models, such as WRS, that are supported by NGO projects but their significance is yet to be seen. Farmer organisational models are also emerging but have yet to reach a stage where SHF begin to see their endeavours as a business or command a credible position in the supply chains. Business acumen is generally low and maize farming is more a step-back strategy than a business practice.

Profitability levels across the various sub sector activities can be relatively attractive if economies of scale can be achieved. Yields can be improved from the current 1.3
MT/ha to 9.5 MT/ha, which can increase profitability from negative 70% to a positive 63%. Labour productivity per man-day could also increase up to 14,800 Tshs for SHF. Average margins of 24% and 42% are achievable by traders and processors respectively. The main cost drivers in the sub sector apart from own labour are transport and agricultural inputs.

Four market segments have been identified, namely low income urban consumers, which is the main market segment, followed by institutional markets such as the World Food Programme (WFP) and National Food Reserve Agency (NFRA). Another potential market is the export market to the East African Community (EAC) and to a lesser extent the urban medium/high-income consumers who traditionally would not forgo this staple food. There is a huge potential to create linkages with the animal feed industry if respective value development is promoted.

Supply chain improvement strategies and business models to foster linkages with the above market led chains have been suggested.

**Generic Interventions:**

This study has established that in addition to supply/value chain strategies, there are crucial supportive roles that need to be taken up in promoting growth and competitiveness of rice and maize sub sectors in Tanzania. This is also in line with the evolving context that is shaping the agricultural sector. The following recommendations have been offered:

- Tanzania government in collaboration with key private sector development stakeholders should further strengthen the business environment in order to make investments in rice and maize more attractive to the private companies.
- Government and development partners are urged to develop specific industrial restructuring mechanisms which can be used to effectively align supply chains to target specific niche markets such as the upcoming EAC agricultural market (a combination of bottom up and top down interventions).
- Government policies, which are needed to support the formation of regional supply chains, should be given priority.

In order to kick start the maize and rice supply/value chain implementation, district specific entry points and the supportive role of donors and in particular the immediate actions for TAP scaling up have been highlighted.
1 INTRODUCTION

Tanzania Agricultural Partnership (TAP) has received through the Agricultural Council of Tanzania (ACT) support from the European Commission (EC) for the scaling up of the rice and maize value chain development activities in thirteen high potential districts of Tanzania. Since 2006, TAP has been implementing a Fertiliser Fast Track pilot public-private partnership (PPP) program in 5 districts of Tanzania. The objective of this program has been to provide farmers with a stable supply of chemical fertiliser. Based on the lessons learned from the fast track program, a nation-wide operation has been designed which incorporates a broader value chain development agenda and which will be implemented in 25 districts.

It is in this context that ACT has commissioned Match Maker Associates Ltd (MMA), a private sector development and business consultancy firm, to undertake an analysis of the rice and maize sub sectors in Tanzania. This report presents MMA’s preliminary findings and recommendations.

1.1 OBJECTIVES AND RESULTS OF THE STUDY

The objective of the analysis is to identify potential value chains development projects, and to recommend sub sector and value chain development strategies. The study is based on field interviews undertaken in 13 districts where TAP is active and which are considered to have significant production growth potential. The analysis is intended to contextualize findings within recent national, regional and international developments and to make the analysis relevant to the resolution of strategic decisions in these several domains, which are pending. The study takes as its starting point the current policy emphasis, under which the Tanzanian government has give agriculture a prominent position in the national economic development agenda. The medium-term impact of this study should be improvements for all supply/value chain participants through the provision of information relevant to maize and rice value chain competitiveness enhancement. By providing an objective, informed and fact based vision of existing value chains, it is possible to assess aspects of the local, national and regional distribution channels for these two commodities which offer the greatest potential for competitive enhancement. This will, in turn, lead to better-informed decisions, which will increase the efficiency and effectiveness of rice and maize value chain operations.

This study should also inform overall industry development strategy, and, in the process, enhance incentives for commercial investment and for trade enhancement, more efficient responses to changes in consumer demand and increased national food security. The results of this study include identification of key local and national drivers in rice and maize value chain strengthening. The study is intended to focus attention on priority areas for investment and technical support.

The audience for this study includes all participants and stakeholders in existing value chains. However, early beneficiaries most notably include farmers, who will as a result of the study appreciate clearer vision regarding their options and alternatives and enjoy a wider, strategic view of local, regional and national value chain operations. With more, and more strategic information regarding value chain organization, reduced uncertainty regarding the risks of moving forward with various chain restructuring alternatives and enhanced information regarding what effects demand and supply balances at the point of sale throughout the region, incentives to
increase production and mechanisms for stabilizing prices should both be enhanced over the medium to long term.

1.2 STUDY METHODOLOGY AND LIMITATIONS

A value chain approach has been employed in this study in order to assess potential productivity and competitiveness gains, improvements in supply chain efficiency, and improvements in human capital productivity, among other factors as these coincide with business environment improvements to ensure that existing rice and maize value chains are strengthened. The project team analyzed both quantitative and qualitative data and collected additional information through secondary sources and value chain participant interviews. As far as feasible the group applied focus group discussion methods with key stakeholders in emerging value chains. In other cases, the team used bilateral discussions with stakeholders to garner information and to complete the assessment of the business contexts in which value chains must operate in Tanzania. The team also used field visits to all the 13 districts in the country together with site inspections and local interviews with farm groups at the production end of chains and with traders at the demand end of chains in markets located in the principal urban areas of the country especially Dar es Salaam, Mbeya, Iringa, Morogoro and Arusha.

The team also collected secondary data for benchmarking comparisons at regional and national levels. Due to diverse nature of the districts and logistical challenges, which the team faced, the intensity of data collection differed from district to district depending on the prominence of study commodities in specific districts. For instance in Iringa and Meru districts less emphasis was put on rice and more on maize while in Mbeya and Kilombero more emphasis was placed on maize. The selection of specific local respondents was done in consultation with TAP Coordinators and District Authorities, taking into account different agricultural practices, chain alignments and agro ecological zones.

After the team compiled preliminary analysis, a workshop was organised by TAP on the 24th August 2010 in Dar es Salaam where a selected number of stakeholders had an opportunity to validate the findings and offer suggestions, which have been used to shape this draft report.

1.3 STRUCTURE OF THE REPORT

The report is structured so as to provide a general picture of the two commodities; --rice and maize-- but also to provide insights and recommendations regarding each sub sector in the context of specific regional and niche markets.

The report is hence organised in four separate but interlinked volumes. The Synopsis document that summarises the main findings and is intended for interested individuals at the district level as a source of information to guide their planning.

Volume I presents the introduction to the study covering the main aspects of the TOR. It also presents a review of context that is shaping these sub sectors raising important questions that the study seeks to answer. This volume also presents a synthesis of the way forward in terms of generic interventions in addition to the specific value chains. Important annexes, which are general in nature, are also included in this volume.
Volume II deals with Rice sub sector / value chain analysis. It presents the main findings and specific upgrading strategies for growth and competitiveness.

Volume III has the same outlines as volume ii for maize subsector and supply/value chains analysis.

2 STUDY CONTEXT

The Maize and Rice value chain study, which is presented here, has relevance to specific decisions being considered and to still-to-be-determined, new strategic directions which are pending in Tanzania’s developing agricultural sector. The objective underlying this chapter is to highlight some of the most important contexts to which the study has relevance and to make explicit insights which emerge from the study which have relevance for clarifying, informing and advancing the key issue agendas, which are emerging from these contexts.

Each of the sections, which follow, are intended to highlight formative aspects of Tanzania’s evolving food system and to identify key questions which the study needs to address in an effort to advance the rapid development of the nation’s food system. The set of key questions, which emerge from this effort, which are intended to contextualize the study, become then the primary guidelines for framing issues in each of the subsequent chapters.

2.1 DIFFERENT STARTING POINTS IN RICE AND MAIZE SUB-SECTORS

Fundamental differences exist among the international markets in which rice and maize are traded. Thus, it may be useful to review some of these differences at the onset of this study in order to provide some international context for what is happening in Tanzania.

Distinct and quite different market institutions have evolved in various global regions for rice and maize. Whereas regional maize markets have tended to converge worldwide toward formal markets, e.g. commodity exchanges and futures markets, rice markets have developed toward more diverse and generally less formal market structures. The paradigm for maize trading is the one which has emerged in the largest maize exporting countries, including the US, Brazil and Thailand. The result for maize is the emergence of network of market institutions, which look alike in most regions of the world, and which are generally highly efficient mechanisms for price setting, as well as effective instruments for pricing and selling transaction risk.

As a result of the actions of globe spanning market arbitrageurs, prices discovered on this globe-spanning network of commodity exchanges tend to converge, as well. Maize is a global commodity. It is traded efficiently in the global market because market institutions through which it is traded are closely interconnected. Thus, for example, the grades and standards under which maize is traded are globally recognized. Maize grades are interchangeable in most global markets, where the benchmark reference grade is typically US #2.

With that said, the US #2 grade actually comes in several sub-standards, including yellow maize which is primarily traded outside of Africa and which is used primarily for animal feed and white maize which accounts for most of the maize traded within and into Africa. African’s have a strong preference for white maize, as a food staple. Demand for yellow maize, which is used only in animal feed, is quite limited in Africa.
The situation for rice is quite different. The varieties of rice are large in number and these are quite diverse in homogenised appearance, taste, texture, smell and colour. Preference for different forms and preparations of rice remains a local matter. Importantly, trading protocols for rice differ, as well, from region to region. With that said, rice is sold primarily, though not exclusively, in informal markets. Much of the rice trade takes place on a response-to-tender and/or on a government-to-government-negotiated basis. Prices for rice, moreover, are determined primarily within national borders. Trends toward price convergence in global rice markets are much less compelling than are comparable price convergence trends within global maize markets.

The largest rice exporters and importers of rice are in South East Asia, where the largest exporters include Thailand, Vietnam and Bangladesh and India. The largest importers in the world are also found in South East Asia and include Indonesia and the Philippines. The modes of trading which prevail in South East Asia have a significant influence on the way global markets in rice operate. Much of the rice traded across borders in South East Asia is bought and sold between and among parastatal organizations, including VINA Foods 1 and 2 (in Viet Nam), the National Food Authority (of the Philippines), BULOG (in Indonesia) and BERNAS (in Malaysia). Much of the remaining private sector-to-private sector trade is conducted among members of the Chinese Diasporas, which controls the regional trade. Even, in Thailand much of the exporting is done under the aegis the Thai Rice Exporters Association whose membership is dominated by ethnic Chinese. The net result of this structure is a regional market for rice, the largest in the world, in which government to government negotiated transactions and personal relationships trump low cost transactions consummated in efficient, open exchanges.

Although two formal exchanges, one in Thailand and one in Singapore, operate within South East Asia, neither exchange provides significant liquid or an sufficiently deep market to stabilize prices over time. Consequently, both have only limited influence on global price setting. If there is a benchmark reference price for global rice trading it is Thai Hom Mali 100% Grade B White Rice for which the Agricultural Futures Exchange of Thailand exact specifications.

Some further explanation of trading modes may be helpful in setting the context for Tanzania. An important distinction is the one between structured trade and unstructured trade. The simple distinction between the two is that structured trade is “rule based” with trading terms being embraced by the entire trading community while unstructured trade involves a great deal of negotiation between buyers and sellers.

Formal or structured markets, like commodity exchanges, greatly facilitate transaction rule making and thus reduce transaction costs. They assure, for example, that standardized sales contracts are tradable, negotiable and assignable and that they are, in every other significant commercial way, the equivalent of the commodity to which they correspond. Formal markets assure that the terms of the contracts traded on these markets are generally accepted within trading communities. Market governing institutions facilitate structured trade, which because it is rule based, entails little contract-enforcement risk on the part of either buyers or sellers. However, other institutions, like trade associations, or legislated market regulatory bodies can also do the work of establishing market terms within a trade or said another way “structuring the trade.”
Structured trade entails the general adoption and broad acceptance of a discrete and well-defined number of commodity grades and standards, which facilitate trading. Structured trade entails standard, tradable, sales lot sizes, as well. Typically standard tradable lot sizes are set in order to complement the most efficient modes of transport and the prevalent scales of storage facilities available within regional trading networks. These standards importantly facilitate linkage between the trading and financial sectors through standard inventory securitizing arrangements, which third party storehouse men apply. These storage facility providers act as asset managers in structured trading systems and as financial sector/trading sector intermediaries. Once generally accepted within a trading/financing community they facilitate the clearing of sale payments with the assistance of standard bank trade finance instruments.

Importantly, structured trade reduces risk and increases tradability of inventory moving through structured trade channels under the control of third party transport service providers. Structured trade entails the adoption of standard transport contract terms (e.g. standardized bills of lading). These standard transport contract terms assign custodial liabilities un-ambivalently to specific participants in the food chain. As noted above, maize transactions and the markets, which support maize trading, tend to converge toward trading terms based on “structured trade.”

As a result of their adherence to formal trading terms and to standardized contract terms both between transaction participants and with third party agents (e.g. storage facility providers, ocean carriers, truckers, etc), maize transactions are generally easier to finance and generally more transferrable to a diversity of potential buyers. This makes maize transactions generally more liquid than rice transactions. Rice transactions tend to be negotiated between buyer and seller on a one-off basis or to result from a formal public sector procurement process, which is complex and time consuming. As a result they require a great deal of additional specification and often-intense negotiation. In other words they incur larger transaction costs and are inherently more risky.

Prevailing market protocols, which apply in the rice trade, differ from global region to region. In the EU and in the Middle East they are different from Asia. In both the EU and the Middle East a combination of market modes co-exist, including trade via formal exchanges, intermediated sales through agents---agents of either the buyer or the seller, and brokered sales through brokerages, which buy, hold and resell. When rice is traded between principals in these venues, normally both buyer and seller are private parties. However, significant volumes of rice are also traded through commodity exchanges and this trade conforms to the structured trade requirements, which a formal trade requires.

The market protocols, which prevail in Tanzania, are also quite different for maize and rice. No formal commodity exchange exists within the country, so the work of setting trading terms and conditions is performed by other means. Approximately 14% of the maize traded in the nation (Estimated at 1.4 million tons 2009) purchased either by the WFP and/or with National Food Reserve Agency. Trading with these

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1 Total production as per MAFC was 3,336,200 MT in 2008, minus estimated home consumption of 1,924,133 MT (based on Globalis estimate of rural population and MAFS estimate of per capita consumption) gives traded amount of 1,402,000 MT.
two institutions requires conformance with the procurement terms, which they mandate.

Thus, this trade comes close to structured trade. Also the large domestic traders, namely Mohammed Enterprises, S.S. Bakhresa & Co and Export Trading, Olam (T) Ltd and Fidahussein have developed broad buying networks of their own within the country and their purchases from local farmers, traders and farmer associations are rule based as well\(^2\). Although the prices offered are amongst the lowest, farmers and local traders continue transacting with them. However, these private trading networks are exclusive. Rather than fostering a trade, which entails low transaction costs, which is open and contestable, these private trading networks are exclusionary, entail redundancies and contractions and are exclusionary one from another. Farmers benefit from the presence of these buyers as they constitute regular and reliable market outlets but they lose, as the prices paid are generally low. Consumers benefit because the final market prices of flour are somehow under control. And of course, the companies make huge profits through storage and utilization of seasonal price differences.

The rice trade involves few large trading intermediaries. It is less “rules based.” Most rice transactions take place without conformance to any specific set of formal terms and conditions, which apply generally through out an entire trading network. Instead, individual traders maintain their own quality standards. Typical lot sizes correspond to the 90 kg bags, which the Tanzania Weights and Measures Authority mandates but which are harmful for the cargo porters as bags are too heavy. These lot size are however, the only rules, which generally apply and even here significant disputes arise concerning the conformance of specific prefabricated sacks to lot size standards.

Terms and conditions for trading with individual traders/millers are typically set within the chains, which individual large domestic traders establish. Depending on the credibility with which tacit quality standards are enforced, quality standards within narrow channels are a source of competitive advantage for individual traders within the urban markets where they tend to cluster.

What is most striking about rice and maize trades in Tanzania is their distinct and separate organization. Wholesale traders and millers in main urban centres similarly tend to specialize in one of the other product line. In part this is because a great deal of trading in Tanzania is based on personal relationships and both trade credit and trust between trading partners is earned based on performance and reputation. This tactile aspect of traditional trading networks tends to reinforce specialization and separation (e.g. product, geographic, tribal and ecological). Although economies of scale appear to exist in trading for both commodities, these economies differ since the two trades require different sets of capital equipment and they require that that equipment be committed at different stages of the chain.

Other important differences between the rice and maize trades in Tanzania include the following:

\(^2\) The rules include among others, standard weighing using kgs /weighing scales) of the crops at the buying points, information about required minimum quality standards e.g. moisture content, current buying prices to all suppliers, quality controlled at the delivery of the crops, clear payment procedures etc.
Degree of trade protection
The government effectively protects the local market for rice for local producers by imposing as 75% import duty. Since this duty applies effectively only to rice imported from beyond the region (no other East African country grows rice to the extent of Tanzania), its continuance is likely even after the pending implementation of the regional free trade agreement. The corresponding tariff, which applies to maize, is not stable and this tariff has historically been raised or lowered depending on government’s assessment of production levels and resulting levels of maize self-sufficiency in the coming market. Trade protections then for rice are high and constant and for maize lower but variable. Neither set of conditions is conducive to large-scale private sector investment in export trading.

Local preferences for local products
The local market for rice is further protected by local consumer preferences for the specific varieties of aromatic rice, which are grown within Tanzania. Under this broad taste preference, local rice consumers have a further preference for the retail buying process itself. They prefer to purchase rice in large sacks after sampling and testing multiple sources and qualities of rice. This buying/testing protocol is unique to rice traders. Quality standards apply to maize, as well. However, maize is not differentiated into as many fine classes and varieties as rice. Moreover, maize grades act primarily as minimum acceptable threshold criteria and less as a basis for price differentiation. Miller/traders in maize prefer to source their product from specific regions (e.g. the Kibaigwa grain market catchment for example is highly regarded for the quality of it product), which provide a higher yield though the milling process. However, quality differentiation in maize is less a customer taste preference issue than a miller/trader preference issued related to superior production economics. Once milled into meal suitable for making Ugali, maize is more difficult to differentiate than is rice which retains its long white grain characteristics or less customer valued characteristics Thus, rice is much more highly differentiated by taste and appearance than is maize.

Product positioning
Rice is the preferred food staple among Tanzania’s middle class. Preference for rice is growing in line with a slow rise in disposable income in the country’s urban areas. Rice is normally priced above maize meal, reflecting its superior position in the local market. Rice prices in main urban centres ranges from 700 and can go up to 2000 TZS/kg depending on demand/supply balances. Maize is the food staple of preference for working class Tanzanians and for most of the country’s rural population. Maize is the primary ingredient in Ugali, which is the nation’s traditional table food. Maize meal prices range from 500 to 700 TZS/kilo and when as happens on rare occasions the prices lines for the two products cross over demand for rice increases greatly as it is substituted for its competing staple.

Scale economies/ investment requirements
Irrigation greatly increases rice yields (by 300% or more). It also reduces post harvest losses (by 20% and up). However, returns to investment in irrigation are constrained by the low levels of farm labour costs found in Tanzania. These make the economic substitution of capital for labour difficult at small scales. The labour content in rice
cultivation in Tanzania is high, between 300 and 350 man hours/ha. Moreover, small-scale farmers in Tanzania have little access to capital to make irrigation investments. Moreover, they lack the organizational structures required to carry out the collective management of large projects. No comparable single investment fix is available to create comparable quantum productivity gains within the maize chain. The implications are that different modes of farmer organization may be required to significantly increase rice yields and new modes for attracting private capital into large-scale farms. During the study it has been established though that Rufiji Basin Development Authority (RUBADA) is at advanced negotiations phase with strategic investors from Korean Rural Community Corporation to invest in large rice production, which may influence the sub sector dynamics in future.

Restrictions on sequencing of activities within chain

Rice paddy needs to be milled early in the value chain. Because paddy has 70% moisture content, the transport economics of shipping lighter weight milled rice dictate that primary milling take place near production centres. The same set of activity sequencing restrictions do not apply to maize.

In the context of these comparisons between the two food staples, a key question, which this study can help to address, then is this:

Given the inherent differences which exist between maize and rice production, distribution and marketing, and the different places from which both chains are developing, different approaches to supply/value chain strengthening are appropriate for rice and not for maize and conversely?

2.2 GOVERNMENT AGRICULTURAL POLICY

The resource commitments, which the Government of Tanzania has historically made to agriculture, have been low—low both in comparison with the nation’s Millennium Goal Commitments and with respect to those made by other East and Southern African countries. With that said, it also needs to be noted that public expenditures on agriculture have increased significantly in Tanzania over the past three budget cycles. Thus, in 2000/2001 only 2.9% of the national budget was allocated to agriculture. By 2009/2010 this figure had risen to 6.1%. Although the figure still fell short of Tanzania’s Millennium Goal commitment, it represented a very large increase.

Budget commitments compared to the total size of the Tanzania economy rose apace so that in the 2009/2010 budget, when several new programs including ASDP and CRMP (Coastal Resource Management Programme) were added, agricultural expenditures accounted for fully 1.9% of GDP.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Agriculture expenditure as a share in total budget expenditure</td>
<td>4.6%</td>
<td>5.0%</td>
<td>6.1%</td>
</tr>
<tr>
<td>Agriculture expenditure as a share of GDP</td>
<td>1.2%</td>
<td>1.3%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Agriculture wage bill as a share of the central government wage bill</td>
<td>4.1%</td>
<td>3.8%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Agriculture wage bill as share of total agriculture budget</td>
<td>26.2%</td>
<td>26.7%</td>
<td>21.4%</td>
</tr>
</tbody>
</table>
Capital spending as a share of total agriculture budget | 39.3% | 21.8% | 11.2%
--- | --- | --- | ---
Share of decentralized agriculture expenditure | 36.7% | 29.4% | 24.5%
Nominal budget change | n/a | 29.3% | 62.5%
Real budget change | n/a | 15.6% | 51.9%

Table 1: Tanzanian budgets for agriculture from 2007 to 2010

Against the backdrop of the Ministry of Agriculture’s significant year-over-year increase in total expenditures, the question still remains whether the targeting of these expenditures is adequate to improve productivity within farm to market chains and to enhance the competitiveness of Tanzania rice and maize sold into regional markets. The figure below assesses budget commitments made in 2009/10 in terms of commitments to specific expenditure categories. The table breaks total expenditures out into program categories corresponding to long-lived and short-lived assets and as well as to administrative overhead.

Note that a significant level of government expenditures has gone into consumables, which generate only short term, benefits. A lesser level has gone into capital assets (approximately 11%), which generate productivity gains over, extended periods. Also, note that some categories of government expenditure have been for private goods in which the government might reasonably have expected the private sector to invest, if the appropriate set of conditions and incentives had been set in place. In general the government has failed to focus its productive investments exclusively on public goods (53% of the current budget is committed to goods and services, most of which involve private goods and services, e.g. providing utilities like electricity, water, airline services, high costs of meetings, workshops etc) and further failed to create necessary incentives for complementary investment in private goods. At the same time, core public sector goods, such as extension services and rural roads remain under provided. In this way the government has missed an opportunity to leverage up its investment in productive agricultural assets through private sector collaboration and coordinated investment.
Another important aspect of the government’s involvement in agricultural investment has been its primary focus on productive assets, which operate at the supply end of chains. The largest share, by far, of total government investment in agriculture has been for on-farm activities and for agricultural inputs and technology transfers, such as core as extension services, animal disease control, irrigation, and agronomic research. Less investment has gone into the demand end or the export end of farm-to-market chains. This supply/demand imbalance has resulted in the saturation of domestic markets with some categories of farm product, including rice. Less government effort and investment has been applied to opening new niche markets for Tanzanian agricultural products.

Over the past twenty years the government has developed and tested a number of programs, the main one which is still under implementation been the Agricultural Sector Development Programme (ASDP) all designed to evoke the enormous potential which Tanzania’s comparative advantage in agriculture affords, e.g. its abundant and dormant arable land, its abundant rain fall, its abundant lake and river waters for irrigation and its superior coastal location, adjacent to six rapidly growing economies. Table 2 below shows the current land use in Tanzania.

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Surface Area</td>
<td>94,300,000</td>
</tr>
<tr>
<td>Reserves</td>
<td>22,000,000</td>
</tr>
<tr>
<td>National parks</td>
<td>4,200,000</td>
</tr>
<tr>
<td>Game Reserves</td>
<td>7,700,000</td>
</tr>
<tr>
<td>Forest Reserves</td>
<td>10,100,000</td>
</tr>
<tr>
<td><strong>Total Arable Land</strong></td>
<td><strong>15,100,000</strong></td>
</tr>
</tbody>
</table>
Table 2: Land availability and uses in Tanzania

<table>
<thead>
<tr>
<th>Land availability</th>
<th>Area in ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross area cultivated/planted annually</td>
<td>5,100,000</td>
</tr>
<tr>
<td>Uncultivated Arable land</td>
<td>10,000,000</td>
</tr>
<tr>
<td>Cultivatable Land in Reserves</td>
<td>4,000,000</td>
</tr>
</tbody>
</table>

Source: Tanzania National Website

However, in spite of this succession of programs, agricultural productivity has only slightly improved for a few crops, agricultural GDP has failed to keep up with overall growth in national productivity, exports of agricultural products has declined and the assets of farming households have been progressively depleted, all because of a lack of profitable growth in the sector. Part of the problem has been the lack of focus and another part has been a lack of market feedback. Most previous programs dealt primarily with the challenge of improving food security, rather than the challenge of transforming farming into a commercially viable endeavour. As a generalization, attempts on the part of government to modernize the entire agricultural sector through broad but thin investments shared over the entire on-farm population and ones, which have failed to engage the private sector effectively, as a partner and a co-investor, have been doomed to fail at making agriculture a business success.

The most recent agricultural development vision, Kilimo Kwanza, however is conceived in a different spirit. The reference point is Malawi which has made great strides in effecting its own green revolution and greatly stimulating its agricultural economy, growing its agricultural exports and raising the welfare of its farmers. Tanzania possesses 15.1 million hectares of highly productive arable land, as shown in table a above. The stated objective of Kilimo Kwanza is to put the country’s abundant base of renewable natural resources to full productive use. To this end, the government has committed itself to adopting appropriate policies revising existing strategies (ASDP/DADPs), and testing new approaches to agriculturally driven growth.

In this context, key questions, which this study can help to address, include these:

i) What mutually complementary roles can provincial and national government officials play in strengthening and expanding value chains for rice and maize?

ii) What actions can the government take to facilitate the development of new niche markets for rice and maize?

iii) How can normative rules be drawn and enforced, which clarify private and public sector roles for the provision of private goods by private investors and the provision of public goods by the government and donors, which together can enable value chain development?

2.3 POLICIES AFFECTING PRIVATE INVESTMENT IN AGRICULTURE

Foreign direct investment (FDI) in Tanzanian agriculture has remained lean over the past 10 years. Most FDIs, which has flowed into the agribusiness sector, has gone into food retailing (e.g. fast food outlets and supermarket chains) rather than into integrating links in the food chain, which would bring Tanzanian products into new markets. Part of the problem is that government policy with respect to large-scale investment in farming has been ambivalent at best. The country has imposed a large tax burden on agricultural production and, at the same time, has decentralized control
over taxing authority. Agricultural production has been the main source of government revenue. However, this policy has had a significant adverse impact both on the competitiveness of farmers based in high tax districts and more generally on private investment in the sector. The perception still persists among strategic investors that Tanzania’s agricultural taxation policies appropriate too large a share of benefits created though private investment. Hence, private investment lags.

At the same time, the government controls large tracts of underutilized prime arable land. Government agencies control an estimated 2 million hectares of dormant land and comparably large holdings have been entrusted to co-operatives, which are under performing. Currently there is one large-scale commercial rice farm in Morogoro (Kilombero District) and three large rice schemes in Mbeya – two are privately owned and smallholder farmers with government support run the other one (Madibira scheme). With maize there are over 750 emerging large-scale maize farms of an average of 40 hectares. Clearly an opportunity exists to put the large tracts of undeveloped land and others tracts of underutilized land to work in developing a study platform of large-scale commercial farms whose business model example, whose investment in collateral infrastructure and in essential technical competencies can help to lift off a commercial agricultural sector.

The timing is fortuitous to put some of this land to more productive use. Currently, a great deal of global capital has been mobilized, which is seeking investment opportunities in agricultural land where conditions are favourable and when government policies are conducive to foreign investment. Some of this investment is coming from sovereign growth funds based in the Middle East and East Asia. Some is coming from agricultural hedge funds based in the West and some of it is available from strategic investors like Cargill, CP Group, Louis Dreyfus, ADM and others.

Under Kilimo Kwanza opportunities may emerge to develop and test new forms of public private partnership and new business models which comply fully with the program’s mandate and which bring into Tanzania’s agricultural sector the set of “know how” and “know who” which only strategic investors possess.

In this context, key questions, which this study can help to address, are these:

i) What obstacles and restraints on investment in the Tanzania’s existing business environment need to be removed, as a first step toward making the maize and rice sector more attractive to local & foreign investors?

ii) What opportunities exist for the private and public sectors to work together through partnerships to apply best appropriate technologies at the farm level, in post harvest processing, transport and storage of maize and rice?
2.4 STATE OF TANZANIAN FARMERS

A great diversity exists among Tanzanian farmers, both in terms of the commercial orientation of their farming operations, in terms of the primary sources of their livelihoods and in terms of their readiness to undertake binding commitments with supply chain partners. Indeed, differences exist in the modes of farm operations over the course of a 12-month season. Many rice and maize farmers, for example, sell their cereals immediately after harvesting them only to purchase cereals back later in the season when their own saved stocks have been consumed.

The WFP recently completed a Comprehensive Food Security and Vulnerability Analysis (CFSV), which it undertook jointly with the Tanzania National Bureau of Statistics (NBS) and the Tanzania Food Security and Information Team. The CFSV is based on stratified sample survey of farm households, farm assets and farmer’s livelihoods.

The survey found that 4.1% of households suffered poor food consumption, 18.9% had borderline food consumption, and 77% enjoyed acceptable food consumption. Poor-food consumption households ate mainly a cereal-based diet with almost no animal protein and very little other food. For example they consumed vegetables less than 3 days per week and pulses less than 2 days. Borderline consumption households had a marginally better diet. These households ate pulses, vegetables and fruits approximately one more time per week than did poor consumption households. Acceptable consumption households had an appreciably better diet with about a three-fold increase in pulse and fruit consumption and even higher increases in animal protein and milk consumption.

The WFP survey suggests that, in spite of Tanzania’s large expanses of under utilized arable land, access to land remains a crucial issue throughout the country. The table below (taken from the CSFV) represents the distribution of primary livelihoods among rural households. Of the total population on rural households only 10% rely on commercial farming for their livelihoods. The survey breaks this groups out into two categories: i) small cash crop farmers who farm less than 2 ha and ii) big cash crop farmers who farm more than 2 ha. The former accounts for 6% of the rural population and the latter for 4%.

<table>
<thead>
<tr>
<th>Livelihood group and percentage of total</th>
<th>Description (Based on average characteristics of the group)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small subsistence farmers 26%</td>
<td>Small subsistence farmers depend nearly entirely on agriculture for their livelihoods (relative contribution of this activity to the overall livelihood is 92%). They farm less than 2 ha and, on average, they devote at least half of the total crop production to self-consumption.</td>
</tr>
<tr>
<td>Agro-pastoralists 12%</td>
<td>Agro-pastorals build their livelihoods on a combination of livestock (49%) and agriculture (45%).</td>
</tr>
<tr>
<td>Big subsistence farmers 12%</td>
<td>Households depending nearly entirely on agriculture for their livelihoods (the relative contribution of this activity is estimated at 91%). They farm more than 2 ha and, on average, they devote at least half of the total crop production to self-consumption.</td>
</tr>
<tr>
<td>Small business men 11%</td>
<td>Households with an average of 57% of their livelihoods generated by small business; agriculture accounts for 39%.</td>
</tr>
<tr>
<td>Daily workers</td>
<td>Daily work comprises 58% of the livelihoods of these households, while</td>
</tr>
</tbody>
</table>
9% agriculture contributes another 39% to the total.

Commerce 9% These households rely on commerce for 54% of their livelihoods; agriculture is also important, accounting for 42%.

Small cash crop farmers 6% Households depending nearly entirely on agriculture for their livelihoods (the relative contribution of this activity is estimated at 94%). They farm less than 2 ha and, on average, they devote less than half of the total crop production to self-consumption.

Big cash/crop farmers 4% Households depending nearly entirely on agriculture for their livelihoods (the relative contribution of this activity is estimated at 94%). They farm more than 2 ha and, on average, they devote less than half of the total crop production to self-consumption.

Others (non specified) 4% Households depending mainly on other (non-specified) activities (35%), significant presence artisan work (23%)

Salaried 3% Households with an average of 70% of their livelihoods generated by salaries.

Fishermen/hunters 3% Fishermen/hunters generate over half of their livelihoods from fishing (55%); agriculture and hunting are also important (23% and 14% respectively)

Aid: 2% Households with an average of 78% of their livelihoods generated by aid.

Table 3: Description of livelihood profiles (Source: 2009 CFSVA)

The findings of the CSFV were confirmed by the project’s own field surveys. Majority of rice and maize farmers are smallholders who produce cereals first for home consumption and who sell their surpluses directly to traders or indirectly through a cooperative society. The sizes of rice and maize farms range from 0.5 to 3 hectares. Most farms are worked by family members (e.g. fathers, mothers and children and other relatives) with more labour required to cultivate, weed and harvest rice and maize. The difference found in the survey was an average of 200 man-days/ ha for rice versus 140 man-days / ha for maize.

The three large-scale farms in Mbeya and Morogoro are operated as part of integrated supply chains by Export Trading Co Ltd, Southern Highlands Co Ltd and Kilombero Plantations Ltd. Large-scale maize farming is also quite limited in Tanzania. The survey found no maize farm larger than 250 ha.

Little contract farming takes place in either the maize or rice subsectors. What forward selling and advanced product specification does take place involves the pioneering entrepreneurial activities of trader/millers who are trying to secure comparative advantage in traditional markets by experimenting with strengthening their backward linkages. However, the small scale of this experimentation is unlikely to have a significant impact on either sector.

The economies of scale required to justify large private sector investment in irrigation systems require as a precondition the development of farm level business models which are not only larger but more adaptable and better capitalized than those which currently exist.
Anecdotal testimony provided by traders suggest that farmers have become progressively better at storing their products and selling them into local markets later in market seasons when prices are typically much higher and surpluses less abundant. This tactical shift in selling patterns may be related to expanding use of warehouse receipts or to increase on farm storage capacity. In any case, traders note that it has extended their buying season and required them to offer higher prices in order to extract larger volumes of maize and rice from farms.

Given the small scale and weak organizational foundations which support farming activity in Tanzania, two key questions which this study can help to address then are these:

What opportunities exist to strengthen farm level organizations so that they can serve as stronger and more efficient partners in newly formed supply/value chains?

Given the diversity of asset endowments, states of commercial readiness among farm level organizations and differences in farming competencies how can value chain support best be tailored to specific local conditions?

### 2.5 AGRICULTURAL TRADE INTEGRATION

Irrespective of its ability to completely access global markets for rice and maize, significant untapped opportunities clearly exist for Tanzanian farmers, traders and processors to tap regional markets for rice and maize. Several factors recommend an approach to export lead agriculture which has a regional focus: i) Regional food markets are growing with rising urban populations in Kenya, Rwanda, Zambia, Sudan and Ethiopia; ii) Disposable income within these regional markets is increasing rapidly as economic growth has accelerates and per capita income rises apace; iii) international prices for farm commodities have risen significantly over the past four years and promise to remain high in the near to medium term; iv) barriers to regional trade within the region are declining. This lowering of trade barriers is particularly propitious to Tanzanian producers of rice and maize.

As discussed in a recent World Bank study, global farm commodity markets have recently attained historically high price levels and are expected to remain at these levels well into the next decade. In particular, the sharp run up in global prices for farm products has affected rice and maize prices as the annex to this chapter explains.

The 2006-08 commodity price boom was one of the longest and broadest of the post-WWII period. After nearly three decades of low and declining commodity prices, a price run up began in the mid-2000s. This run up followed a protracted long-term decline in real prices for farm products. The secular price decline had been especially marked in agricultural products but felt as well in other basic commodities including energy and metals. Between 1975-76 and 2000-01, world food prices declined by 53 percent in real US-dollar terms. These price declines raised concerns, concerning the welfare of poor agricultural producers and the ability of farm incomes in developing countries to be lifted by productivity gains alone. In fact, one of the Doha Round’s chief motives (and also one of its perceived obstacles) was the reduction of agricultural support and trade barriers in high-income countries; a set of reforms that was expected to induce increases in commodity prices and hence improve the welfare of low-income commodity producers. Starting in the mid-2000s, however, most commodity prices reversed their downward course, eventually leading to an unprecedented commodity price boom.
Between 2003 and 2008, nominal prices for farm products doubled. However, over the same period prices for fertilizers increased even faster by fourfold. The boom reached its zenith in mid 2008, when rice prices doubled, from US$ 375/ton in January to $757/ton in June. Maize prices increased sharply as well. The price surge led to debates concerning causes and consequences, including the role of biofuels, speculation, policy reactions, and, most importantly, whether high agricultural prices were beneficial or harmful to the poor. In any case, what seems quite certain is that agricultural economies like Tanzania’s which are able to respond with increased supply are likely to benefit greatly during the protracted high water mark period for rice and maize prices.

At the same time, that commodity prices are high and expected to remain high, barriers to trade within East and Southern Africa are being lowered. Thus, for example, the three original participating states—Kenya, Tanzania and Uganda, which signed The East African Community (EAC) Treaty on 30 November 1999, have agreed to integrate their agricultural markets. From the start of the EAC Treaty, it was the EU integration, which served as the model and example for the EAC integration process. The EAC treaty came into actual effect in July 2000 with its final ratification by the three original partner states. The Treaty states that ‘the Partner States undertake to establish among themselves a Customs Union and a Common Market’ (Art. 5.2). In line with this objective, the Partner States signed the EAC Customs Union Protocol in March 2004. That protocol became effective on 1 January 2005.

For some time, the three EAC founders have allowed tariff preferences to each other for rice and maize, as a consequence of their participation in other regional trade treaties. Thus, Kenya granted a 90% MFN tariff preference to its East African trading partners while Tanzania and Uganda allowed an 80% MFN tariff preference to each other and to Kenya. However, even internal trade liberalizations has moved even further as the three EAC partners zeroed out their mutual tariffs in 2005. More recently with the accession of Rwanda and Burundi the number of EAC partners has expanded to five expanding to a population base of 130 million.

Still more recently, the EAC has been preparing to adopt a common external tariff, which would raise trade barriers to EAC countries for maize, maize meal and rice. The table below represents the levels of internal and external tariffs, which are scheduled to become effective by the end of 2010. Clearly, attractive trade opportunities in rice and maize are opening within the region for Tanzania. These common market reforms are taking place at the same time that disposable incomes are rising quickly in Rwanda, Uganda, Burundi and Kenya.

<table>
<thead>
<tr>
<th>HS code / product</th>
<th>Tariff 2003 (%)</th>
<th>Tariff 2010 (%)</th>
<th>Kenyan Imports US$ millions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EAC</td>
<td>MFN</td>
<td>EAC</td>
</tr>
<tr>
<td>Maize</td>
<td>2.5</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>Rice</td>
<td>3.5</td>
<td>35</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 4: Evolution of tariffs for maize and rice EAC / MFN – 2003/2010

A recent World Bank study suggests that Tanzania lags well behind other developing countries including African countries, which are its neighbours in exporting its farm products at a time when demand has been strong and prices for farm commodities
have been high. According to the WB, the government has undertaken few programs and advanced no agenda to improve incentives for exports. The Kilimo Kwanza program focuses on locally consumed products and the government periodically bans grain exports, a condition which is hardly conducive to investment in export capabilities.

Given the emerging regional trade opportunity for rice and maize a key question, which the study needs to address, are these:

What can the government do to strengthen traders and trader organizations so that they can more competitively participate in regional markets for rice and maize?

In anticipation of the pending Open East African Agricultural market and other growth potential markets, what specific actions need to be taken to fully leverage regional cross border trade opportunities for the benefit of maize and rice producers and growers?

2.6 NEWLY ADOPTED REGULATORY FRAMEWORK

Another significant development which affects both maize and rice market development in Tanzania is the Cereals and Other Produce Act of 2009. This Act creates a new Board and vests it with significant powers to intervene in rice and maize markets. The new Board is empowered to: i) facilitate research on cereals, ii) facilitate the offer of extension services to growers and dealers, iii) facilitate the development of agricultural input services, iv) disseminate information, including market information, v) promote production, processing and storage, vi) promote appropriate technologies, vii) assist with the formation of farmers organizations.

Importantly, the Board is further empowered to carry out commercial operations, to buy and sell cereals, to import and export cereals, to process them, to provide warehousing services, to clean, dry, weigh, grade and package and to perform other commercial functions which the Minister approves which aid the development of trade in cereals. To achieve its ends, the Board may build or purchase equipment and buildings, establish market centres and/or provide training.

The Act further creates a set of zone councils whose responsibly it will be to act as a liaison with local farmer groups, develop local market information services and further act as a consultative forum in which local farmers and traders can discuss and resolve their differences.

The Act also creates a new regulatory authority—the Cereal and Other Produce Regulatory Authority. The Act empowers this authority to: i) develop and enforce sustainable agronomical standards for products, processing and marketing, ii) ensure fair and competitive trade and set indicative market prices, iii) collect, refine and disseminate data, iv) license persons engaged in marketing and processing cereals, v) register growers, dealers and processors, vi) inspect premises in which cereals are stored and processed, and vii) regulate and control the collection, movement, marketing, transportation, importation and exportation and supply of cereals.

These are sweeping powers, which may be used either to enhance private sector investment and development of the maize or rice subsectors, or alternative, which may discourage further private investment and private sector lead development. The way in which the new board interprets and implements its new mission will largely determine the fate for good or bad of agricultural marketing in Tanzania for the next generation. The board is currently being organized. An acting executive
director has been chosen. It is slated to open for business by the end of 2010. The new Authority should follow it quickly thereafter.

In the context of these significant developments, the key questions, which this study attempts to address is “How can the regulatory authorities vested in the new regulatory board best be applied in efforts to improve transparency within chains, reduce transaction costs, strengthen chain integration and attract foreign direct investment into rice and maize subsectors?”

The remainder of this study attempts to respond to some of the context setting questions discussed in this chapter as far as the data permits.
3 FRAMEWORK FOR VALUE / SUPPLY CHAIN FEASIBILITY ANALYSIS

This chapter responds to the first context responsive question highlighted in the previous chapter. That question is: What inherent differences exist between legacy maize and rice production, distribution and marketing chains, which recommend different approaches to value chain strengthening for the two crops?

Supply chains are forms of industrial organization, which do the work of clearing markets. Said another way supply chains do the work of matching incremental demand and incremental supply precisely, for commodities like rice and maize, at the final point of retail sale. Supply chains provide the mode and means through which the flow rate, the scheduled delivery and the assured quality of products produced far from the point of final consumption are managed actively and made to conform to the demands of consumers in specific markets. Supply chains provide the logistical capability, which global markets require in order to clear without too much or too little inventory at the final point of sale. They also provide the discipline through the incentives and sanctions are enforced. Large-scale traders create these incentives and sanctions and impose them on producers in order to make use that they comply fully with the needs of retailers and ultimately with the expectations of consumers with whom they have no direct contract.

Value chains are similar to supply chains but different in important ways, as well. Value chains like supply chains are forms of industrial organization. The biggest difference is that value chains concern themselves with creating and maintaining maximum consumer value, whereas supply chains concern themselves primarily with minimizing the delivered cost of the products moving through them. Value chains develop in order to support the supply of relatively high value products—products, which are differentiated in value frequently based on the service or product attributes which are added within the chain itself. Supply chains, on the other hand, primarily move undifferentiated products or commodities from where they are produced to where they are consumed. Because commodities are interchangeable, supply chains concern themselves with cost, speed and efficiency of aggregate flows.

Value chains sometimes emerge from the back-to-back integration of two or more supply chains. For example, supply chains for maize production and supply chains for poultry production can merge under single corporate control to form a value chain when the business processes which each chain contain are precisely synchronized so that the final products—frozen broilers and/or table ready chicken parts in this example --- are more valuable than the sum of its component inputs. In the process of combining two or more supply chains significant value can be created and it is this value creation step up which most essentially distinguishes value chains from supply chains.

Other important distinctions exist as well between supply chains and value chains. These finer distinctions deserve further clarification, which we attempt to provide in the section, which follows. That section also explains how the efficiency, adaptability and precision of supply chains and value chains can be measured and, indeed, how it has been measured in this study. In this study the terms “supply chain” and “value chain” carry precise meanings. One term or the other term is used advisedly in the study, which follows and with reference to significant differences that exists between the two.
The remainder of this chapter includes six sections, which deal with the following topics: i) Conceptual framework for supply chain and value chain analysis; ii) Pre-requisites for sustainable chain development; iii) Readiness of farm level organizations; iv) incentivizing chain developers/ niche market integrators; v) economic viability of linking farmers to niche markets; vi) application of framework to specific districts.

### 3.1 CONCEPTUAL / ANALYTICAL FRAMEWORK

As already noted, relatively little value is added to the products which flow through the maize and rice supply chains from their point of production on farms to their final point of sale. Supply chains primarily move commodities and commodities, by definition, are undifferentiated in the value which they carry, expect for time and place value. In the case of both rice and maize, mill-processing activities take place in order to convert paddy into rice grains and maize kernels into milled maize. However, for the most part these processing steps do not have a great deal effect on the quality and value of the commodities. It is true, however, that the sizes of the lots, which move through supply chain may be transformed as both maize and rice move through their respective chains and the processes of assembling, sorting and packaging can add some limited value within supply chains. However, supply chains typically add little incremental value to the finished goods for which consumers are prepared to pay only commodity prices. The organization and operation of supply chains are geared primarily to minimizing costs.

It follows then that the analysis, which deals with the efficiency of supply chain operations is cost based. Supply chain metrics measure the resources and the time required to move a unit of product from the supply end of a chain to the demand end or, to be more precise from the farm gate to the retail customer in the nearest urban market who purchases a bag of either milled rice or milled maize. Channel flow speed and inventory turnover are useful measures relevant to assessing the relative competitiveness of specific supply chains.

In the analysis which is presented in this report three metrics have been chosen for measuring supply chains efficiency: i) the market margin or difference in unit price of the commodity between the farm gate and the retail end of the chain, this difference is then divided by the farm gate price in order to estimate the margin percentage. The larger the market margin the less efficient the chain. ii) The second metric is throughput time, measured in days. Through put time is the time required to move a unit of product from the farm end of a chain to the consumer end. The faster the operation of a supply chain, the fewer inventories required to pump prime the chain and the less working capital required to finance the chain as it operates. The faster and more efficient are specific chains in delivering food products into particular markets the more competitive are the sources of supply which depend on them and the greater are their shares of the end market, and iii) unit activity costs, including most importantly for rice and maize post harvest processing, handling, transport, trading and milling costs, and the physical losses absorbed as a unit of product moves through all of the process steps within the chain. These aggregate costs are sometimes referred to as transaction costs and are frequently measured as a percent of the final price of the commodity in the end market. Transaction costs are useful for making comparisons both across production platforms (and thus for comparing chain efficiencies with one another) and also for identifying specific activities within chains whose efficiency can and should be improved using different technologies or different
management methods. High transaction costs are typically the result of combinations of activities within chain, which entail excessive inventory accumulations, processing redundancies, or loss of process control which result in throughput delays or failed quality control. In the remainder of this study these three metrics have been estimated in each of the 13 districts surveyed.

Typically, supply chains are controlled or integrated either from their supply or their demand sides. It is the integrating agent who manages chain synchronization and/or who assigns responsibility for managing specific risks within the chain to specific actors. It is the supply chain integrator for example who schedules product flow so that neither too much nor too little product arrives at the retail end of the chain. It is only when chains are well integrated that customer demands are precisely met, at minimum cost.

In the parlance of supply chain management, chains are referred to either as being “supply push chains” or as “demand pull chains.” More highly differentiated products tend to be pulled through chains and less valuable undifferentiated commodities tend to be pushed toward end markets. “Demand pull” chains operate in the future tense whereas “supply push” chains operate in the past tense. Demand-pull chains require that the chain integrator make projections of expected future demand and then create incentives for all chain participants to act in coordination in order to fulfill these forecasts. The difficulty arises when forecasts turn out to be wrong. Managing the consequences of incorrect forecasts is one of the more important tasks, which Large-scale traders undertake. Each demand-pull chain includes somewhere within it a “reorder point” or inventory buffer where expected and actual demand are reconciled and adjustments in subsequent production/shipment cycles re-calibrated.

As we noted above value chains present a slightly different picture. Within value chains a significant level of value added processing takes place. The product, which emerges at the retail end of value chains, is different in kind than the product, which enters the chain at the farm end. Moreover, typically a diversity of end products emerges at the end of the chain, which are produced from a limited number of raw materials. Matching specific product characteristics with the specific preferences of customers typically creates additional value for the chain. When value-enhancing processes are carried out within a value chains they typically postpone the production of finished products, which are ready for sale until late in the chain sequence. In this way, through “postponement” a more precise match can be made and one with high confidence of matching customer preferences. As a chain design strategy, “postponement” both reduces demand fulfillment risk and avoids the absorption of working capital, as long as possible.

Value may be added in various ways. It may be added in value chains, for example, through blending two or more components, through mixing, assembling and/or repackaging. Integrating two or more different chains can create value, for example chains, which produce animal feed from maize and chains, which produce frozen chickens from animal feed and chicks. Value chain design and value chain analysis is all about maximizing the value of the final products, which emerge from value creating chains.

The distinction between supply chains and value chains is one, which is ultimately determined by the degree of competitive advantage, which any specific chain achieves. The critical distinction is between comparative advantage based on cost alone and comparative advantage based on superior products, broader spectrum of
consumer price/ product quality options, service value addition, etc. Thus, for example, when paddy is transformed into rice of different grades and brands and maize milled into flour of different grades some degree of competitive advantage is being realized. When rice however, is transformed into similar grades employing different milling technologies which different efficiencies and different levels of wastage comparative cost advantage only is being achieved. Comparative cost advantage is difficult to sustain and is typically discounted away in competitive markets in which prices tend to equalize at the marginal cost of production. Opportunities to upgrade product or to fundamentally differentiate value chain functions through strategic collaborations represent an important source of competitive advantage.

Metrics which we have applied to value chain analysis in this report include the following: i) chain profitability analysis or gross margin analysis when detailed information concerning asset amortization and use rates is unavailable. Profitability or gross margin analysis can usefully be undertaken both for the entire chain and for individual activities within the chain. Significant differences in margins among different chain linked activities points to links in the chain where rents are being extracted and where new modes of service provision may be useful for improving overall value chain competitiveness; ii) value realized for processes undertaken. By assessing the value step ups both across competing production platforms and within specific value chains it is possible to identify further where competitive advantage may be lost or gained.

The analysis presented in this project and summarized in the next four chapters represents a combination of supply chain and value chain analyses; whichever are more appropriate to the niche markets being served. Some analysis is also based on the potential that is emerging for value chain development. Both activity cost estimating and profit margin analyses have been applied in this study.

### 3.2 PRE-REQUISITES FOR SUSTAINABLE SUPPLY CHAIN DEVELOPMENT

In the absence of chain development within the domains of large corporations, which possess sufficient resources to provide all essential supports themselves, organically developing chains require third party service suppliers who provide the ancillary services. These third parties both support efficient chain linked operations and also provide credit, which sustains operations. These ancillary service providers are not part of the chain per se. They operate outside the industrial structure, which defines the insider of the chain. However, the economies of scale and economies of specialization that they realize are none the less essential for chain success. Their presence or absences in the immediate businesses environment in which the chain forms and operates can and does frequently determine chain success or failure.

Ancillary service providers essential for chain formation and to chain sustainability include, in the context of Tanzania maize and rice chains, the following: i) stockists and providers of productivity enhancing agricultural inputs, including hybrid seed and fertilizer. It is the providers of farm inputs and equipment which largely determine how close Tanzanian farmers are able to the prevailing technology frontier; ii) transport service providers. Transport service providers determine in large part which markets maize and rice traders and farmers are able to reach competitively; iii) storage facility
providers whose business is to create security interests in crop inventories still held by farmers. Storage facility providers extend the economic life of grains and in addition they determine in large part the level of risk associated with holding inventory assets; iv) providers of credit and capital including branches of commercial banks, SACCOS and other micro lending institutions.

In the field surveys undertaken in support of this study, surveyors determined whether each of these providers of third party services were available to local farmer groups, traders and millers. In addition, members of each service team discussed the strengths and weakness of the local business environments with local farmers and traders. On that basis survey team members determined the degree of service support available for chain development within the local business environment.

The project team went on to rank order individual districts based on a number of parameters for each of the essential support services noted above. These parameters, for example, related to the number of independent businesses found within each district (normalized for the size of each district) and to the assessments, of local farmers and traders, concerning the adequacy of basic support services found in each district and/or the rents which service providers were able to extract from local chains because of limited competition.

Another fundamental aspect of the local business environment involves the level of support of local government officials. Support from local officials is fundamentally important for chain development. Investments in local infrastructure---in rural roads or in irrigation systems---for example, can greatly improve chain competitiveness. Local officials who are mindful of the close connection between the public provision of productive infrastructure and the private provision of competitive services can have a significant impact on competitive chain development. In general, officials who perceive their role to be one of “problem solver” and “obstacle remover” vis-à-vis emerging chains ranked at the top of the district comparison scale, while officials who accepted bribes or who curried favour with specific subsector participants whom they favoured with more favourable decisions and allocations of resources ranked at the bottom. The results of these assessments are displayed in a set of star diagrams, whose intention is to compare and contrast the multiple factors, which affect the supportiveness of the local business environment in an integrated way. See the schematic below.

Business environments whose base of ancillary service providers are not sufficiently numerous to assure competition in local markets expose chain investors to additional risks the risks that either service providers may be able to extract rents from the large-scale traders or that integrators may have to incur additional capital expose when they undertake to strengthen weak service or substitute for rent collecting local service providers by providing their own substitute services. This kind of analysis is useful in indentifying ancillary policies, actions and programs that may be needed to evoke a chain response in a specific locale, which may otherwise afford attractive chain development opportunities.
3.3 READINESS OF FARM LEVEL ORGANIZATION

Not all farms or farm level organizations make equally good chain partners. Potential investors in supply chain or value chains will require farm level partners to perform reliably and to adapt new commercial practices rapidly in response to the chain integrating direction which investors provide. As a minimum, sustainable partnerships require the selection of farm level partners who have demonstrated their ability to “operate a farm as a business” and to sell farm surpluses into local markets.

Not all farm level groups are equally able to respond to supply chain incentives or to the directions of large-scale traders. Not all farm level organizations are equally trust worth and not all are equally credit worthy. For example, subsistence and sub-substance farmers are simply not able to anchor supply chains until their productivity has risen to a minimum level at which they can produce more rice and maize than their own families require for their own sustenance and well being.

In order to participate in either supply chains or value chains it is essential that farm level organizations are able to enter into contracts, which are enforceable against their property or that of their collective organizations. An important dimension of reliable fulfilment of agreements at the farm level is the quality and strength of the leaders of local farm level organizations. Strong, visionary leaders are able to build strong platforms for both supply and value chains.

It is useful as well that farm level organizations be credit worthy so that partners feel certain that extension of credit in the form of prepayment, input advances or co-guarantees to financial institutions are secure. To this end, farm organizations need to own or control assets, which they can pledge and commit as collateral against loan and/or chain contract performance. Cross-guarantees among members of a cooperative or collective farm organization provide further assurance of contract enforcement to large-scale traders.

It is equally important that farm level organizations achieve a minimum economic scale. Minimum economies of scale apply to the commercial cultivation and harvesting of both rice and maize, in the form of applicability of appropriate technology and use of hired in labour to undertake harvesting and initial cultivation. Moreover, not all farm level producers are equally capable to realize the economies
of scale, which are required to support investment in chain supporting technologies, like storage, assembly and shipment. Not all are able to achieve sufficient scales to allow the assembly into storage facilities of economic scaled harvests or to ship minimum economic lots of farm produce (e.g. full truck load quantities).

During the course of completing their field surveys members of the project team indentified and characterized as chain compatible/non compatible innovative business models, which they discovered and ranked the readiness of local farming organizations to become chain partners.

3.4 INCENTIVIZED LARGE-SCALE TRADERS / NICHE MARKET DEVELOPERS

Chains require active intervention on the part of an industrial agent who does the work of organizing the chain, installing control systems within it both for quality assurance and for timely delivery, integrating its day to day operations with those of customers and balancing risks and rewards among chain participants in ways which assure that all participants are adequately incentivized to assured chain competitiveness.

Large-scale traders provide the “know how” required to serve the specialized needs of specific niche markets. They are the lynch pins who link the production end of chains to the demand ends and whose chain integrating functions are made sustainable and economically justified through economies of scale, the quality controls, the niche market repositioning and any number of other factors which allow the producers whose products they deliver to become distinctive in the niches they serve. Integrators, for example, do the work of transforming supply chains into value chains by causing the chains, which they manage to consistently exceed the expectations of customers in specific niche markets.

In the case of Tanzanian rice and maize large-scale traders can help first to gain access to specific market niches and then to transform market openings into long term commercial relationships based on mutual benefits shared between chain participants and niche market makers. The niche markets which afford opportunities for access in Tanzania include the following: i) WFP, ii) Institutional food buyers; iii) Food security agencies; iv) tourism industry; v) large-scale millers of animal feed; vi) special product processors (. e.g. fortified milled grain products).

3.5 ECONOMIC VIABILITY OF LINKING FARMERS TO NICHE MARKETS

Ultimately, the economic viability which results from linking productive farm groups within specific districts to specific niche markets depends on whether those niches can be profitably served over the long term. If the market margin for example in these niches is less than the transactions cost associated with serving them, the market may not be economically accessible. Analysis which the World Bank recently completed suggests that maize markets in Tanzania my not be well integrated and may in fact be divided geographically into several separate markets.

In order to determine the economic viability on accessing specific niche market from various study districts, the project team collected field data on activity costs for each of the process steps involved in both rice and maize chains. The team then
proceeded to calibrate a number of economic profit models with these activity costs and market margins.

In a subsequent models were used in a “what if” mode to assess the merits or demerits of a number of different scenarios. Each scenario corresponds to the kinds of profit enhancing transformation which supply chain integration with specific niches might reasonably be expected to realize. Some of these scenarios, for example, involve the substitution of more appropriate technologies for less appropriate technologies; technologies for storing grains, for milling paddy, for transporting grains etc.

Other scenarios correspond to the development of economies of scale at the farm end of supply chains, at the milling and processing step and at the retail end of the chain.

The process of calibrating the models with base line data and subsequently using models to simulate a number of “what if” scenarios proved to be enormously revealing. The findings, which emerged from this exercise, are discussed in depth in the chapters, which follow this one.

3.6 APPLICATION OF THE FRAMEWORK TO SPECIFIC DISTRICTS

The project team proceeded in applying the same multi-factor chain development framework to each of the 13 study districts. The team compared each district from several perspectives including: i) the sustaining supportiveness of the local business environment; ii) the commercial readiness of local farm level groups; iii) the availability of large-scale traders and the feasibility of linking specific districts to specific market niches; and iv) the profitability on potential farm to niche market linkages.

The results of applying this framework are presented in the volumes II and III for rice and maize respectively. The appendices attached to this volume contain summaries of each of these districts specific analyses and the chapters, which follow extract from these analyses.
4 WAY FORWARD FOR CONTEXTUALIZED RICE & MAIZE VALUE CHAIN DEVELOPMENT

This chapter recommends specific actions and concrete initiatives for supply / value chain strengthening which are intended to achieve two objectives: i) to improve the business investment environment generally for private sector companies who may be interested in building rice and maize value chains on a Tanzanian production base; ii) to engage competent large-scale traders in aligning existing farm and off farm business processes, facilitating the adoption of best available technology and accelerating the commercial realignment of existing productive agents into chains in order to produce high quality rice and maize, to reliably fill orders in both domestic and international markets and progressively to enhance the competitiveness of regional food staple chains anchored in Tanzania.

The general approach, which is recommended in this study, involves two parallel efforts, one of which targets world-class large-scale traders. This approach works “from the top down” to attract investors like Cargill, the CP Group and/or Louis Dreyfus, who specialize in integrating local producers of rice and maize with global and regional markets. The recommendations discussed in this chapter are designed to engage the systems, to leverage the market access and to apply the technical expertise of world-class large-scale traders.

The second effort is intended to strengthen what is already in place and is beginning to realize positive competitive results. It targets regional and local investors in rice and maize chains, as well as NGOs and donor organizations that are attempting to strengthen existing farm level organizations, to build up regional market institutions and to coordinate previously uncoordinated activities within traditional “supply push” chains. This second effort is intended to work “from the bottom up” in ways which facilitate end-to-end coordination in the reengineering of existing chains.

The chapter is intended to respond to the real opportunities and serious threats, which exist in Tanzania’s current business environment. The context in which rice and maize chains are being challenged to develop was described in Chapter 2. This chapter addresses several of the context-setting questions, which we raised in the introductory chapter.

The chapter, which follows, is organized into four sections. The section, which immediately follows this introduction, addresses the challenge of finding ways forward for strengthening the business environment in order to make investment in rice and maize chains more attractive to private companies. This section addresses the following context relevant questions: i) What obstacles and restraints on investment in the existing business environment need to be removed, as a first step toward making the maize and rice sector more attractive to local & foreign investors? ii) What opportunities exist for the private and public sectors to work together through partnerships to apply best appropriate technologies at the farm level, in post harvest processing, transport and storage of maize and rice? iii) What opportunities exist to strengthen farm level organizations so that they can serve as stronger and more efficient partners in newly formed supply/value chains? iv) What can the government do to strengthen traders and trader organizations so that they can more competitively participate in regional markets for rice and maize?

The second section addresses the challenge of developing specific industrial restructuring mechanisms which can be use effectively for aligning business
processes within chains, in the process mitigating overall chain risk and assigning specific risks to most capable parties within chains and attracting companies to act as large-scale traders who possess the necessary “know how” and “know who” to link Tanzania farm level groups to specific niche markets, including both domestic and regional ones. This section is divided into two parts, one of which addresses mechanisms for developing competitive chains via various “top down” mode. The second part addresses mechanisms for strengthening chains via “bottom-up” modes. This section addresses the following questions: i) Given the diversity of asset endowments, states of commercial readiness among farm level organizations and differences in farming competencies how can value chain support best be tailored to specific local conditions? ii) What actions can the government, together with donors, take to facilitate the development of new niche markets for rice and maize? iii) In anticipation of the pending open East African Agricultural market, and other growth potential market opportunities what specific actions need to be taken to fully leverage regional cross border trade opportunities for the benefit of maize and rice producers in Tanzania?

The third section deals with government policies, which are needed to support the formation of regional supply chains. It addresses the following questions: i) What mutually complementary roles can district, regional and national government officials play in strengthening and expanding value chains for rice and maize? ii) How can the new grain regulatory framework best to implement in order to develop competitive, efficient and adaptable value chains for rice and maize? iii) How can the regulatory authorities vested in the new regulatory board best be applied in efforts to improve transparency within chains, reduce transaction costs, strengthen chain integration and attract foreign direct investment into rice and maize sub sectors?

The fourth section deals with the supportive role of donors and specifically of TAP. It addresses several key questions including: i) How can normative rules be drawn and enforced, which clarify donor, private and public sector roles for the provision of private goods by private investors and the provision of public goods by government and donors, which together can enable supply chain development? ii) What is a realistic and immediate action for pursuing initiatives identified and discussed in this study?

4.1 STRENGTHENING THE BUSINESS ENVIRONMENT

The chapters which preceded this one argued that private companies possess uniquely valuable competencies and specialized capabilities with which they are able to design, invest in and manage supply chains and value chains for rice and maize which can link local farmers to national and regional markets. If strategic investors who possess these special competencies and capabilities can be interested in investing in Tanzania significant benefits would accrue to farmers and to ancillary service providers and to other parties involved with the modernized chains which would result. Additional, “knock down” benefits would accrue to the entire Tanzania economy in the form of increased food security, improved balance of payments, increased headroom within the ministry of agriculture budget for additional competitiveness enhancing projects and more rapid growth in the agribusiness sector.
Private companies make good development partners for governments. They respond quickly to incentives and they typically create much more economic value than they can capture exclusively for themselves. In healthy business environments initial successes invite competitive responses and newly proved business models are quickly imitated and almost as quickly improved upon.

The key question then is how attractive is Tanzania’s investment environment vis-à-vis other national investment environments for rice and maize chain investors. According to a recently completed World Bank study, Tanzania ranked near the bottom (125 out of 183) with respect to the attractiveness of its investment environment for global investors. Perhaps more significantly it ranked next to last among East African countries, the first being Rwanda (67), followed by Kenya (95) and Uganda (112). Tanzania performed better on specific measures applied within the survey than on others. Thus for example, Tanzania ranked relatively high with respect to the enforcement of contracts, which is an essential pre-requisite for investment in supply and value chains. By a number of measures, including number of legal procedures (38), the number of days required to enforce a claim (462) and the legal cost as a percent of the claim (14%) Tanzania ranked relatively high with respect to contract enforcement. Similarly, Tanzania ranked relatively high in securing credit and in protecting investor’s rights as well as in trading across borders. At the same time, its record with respect to the provision of building permits is extremely low. The table below presents schematically, Tanzania’s the ranking with respect to each of the attributes of concern to potential investors, which were measured in the business environment survey. Clearly, a government wide effort needs to be undertaken to strengthen further existing investment environmental strengths (e.g. contact enforcement, securing credit, cross border trade, etc.) and, at the same time, to address squarely, quickly and visibly investment environment weaknesses (e.g. construction permits, registering property, including importantly farm land, etc.)

Figure 3: Tanzanian attractiveness for investments

Obstacles and constraints to private investment operate not only at the national level but also, even more importantly for food supply chain development, at the local and sector levels, too. In Tanzania, the primary new aspect of the nation’s investment environment which affects rice and maize sector investment directly and decisively is the interpretation and ultimate implementation of the newly passed legislation, the new Mixed Crop Board Act. The legislation creates two new government agencies. It

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3 “www.doingbusiness.org on 6th November 2011)
empowers these two—the Mixed Crop Board and the Mixed Crop Authority—to take strong regulatory, permitting of companies participating in specific links within farm to market chains and direct market invention actions in all-out efforts to modernize and reshape the nation’s rice and maize sub-sectors. Importantly, as well, the government devolves significant authorities to district and local government officials under the new legislation. It outlines the structures within which a working, multi-level system of supply chain food federalism will eventually evolve.

The legislation opens a one-time window of opportunity for government regulators either to promote Tanzania as the premier regional economy in terms of the opportunities which it affords potential investors or conversely to close that door completely to private investment by imposing on investors new and costly requirements for record keeping, financial reporting and mandated performance compliance. The fact is that the new agency requires close cooperation from the private sector in order to achieve its stated mission. The Government of Tanzania possess neither adequate resources not sufficient technical capabilities to modernize the nation’s rice and maize sectors without private sector involvement, and indeed without a great deal more of this kind of involvement and investment than has historically occurred. In important ways, the new legislation offers both the greatest opportunity for sector reengineering and the greatest threat of a rapid retreat of productive private sector involvement from the rice and maize sectors.

A great deal of interpretative latitude, which does not require new legislation, typically exists for the director of a new agency and the chairman of the new board. They both can use this latitude to interpret the new authority/board’s mission and to apply their new powers effectively and benignly, in this case in ways, which engage the resources, energies, supply chain knowledge and competencies of the private sector in partnership. Uncertainty with respect to the new agencies’ administrative intensions, in the new agencies’ mission direction and their initial set of priorities will extinguish any pending private investment. A lack of transparency in decision-making, broad communication with the entire private sector and the appearance of favouritism in opening opportunities and distributing benefits will result in unproductive and non-competitive rent protecting responses from the private sector. In order to avoid these backward steps, the newly appointed director of the new authority needs to clarify, as early in his tenure as possible, his plans and programs for the new agency and, importantly his intentions to work with and through the private sector.

A good place to begin would be for the new agencies leadership to convene a meeting of all current and future potential investors in the rice and maize sectors and to ask them for their advice about how additional private capital, private sector “know how” and “know who” can be engaged in optimal ways which stimulate sector growth. Private sector actors contacted during this study indicated that they were not aware and not yet consulted. Additionally, newly appointed leaders need to keep unnecessary regulatory compliance procedures to a minimum (a cost benefit need to know test ideally should be adopted), to share data and information collected from individual companies with all others and to rely, as much as possible, on the internet for the filing of applications, solicitation of feedback on proposed rule making, explanations of regulatory decisions and of decisions which involve resource awards. Broad, timely and in depth communication between the new authority and its constituents is essential for building trust and confidence in a new business environment which is about to undergo some significant changes. The meeting
should not be an end in itself but a means for a continuous engagement forum for public and private stakeholders.

Importantly, the new legislation empowers district councils to exercise their authority in organizing local trading systems and in coordinating local chains activities. These local mandates, like the national ones, need to focus early-on on collaborative activities which encourage increased private investment, opening markets and making them more contestable, trading based on preset terms, arbitrated and enforced farmer and trader organisations. It should be noted that specialised cereal based farmer and trader organisations still need to be set up and or strengthened. District offices of the new agency need to establish open and advocative partnerships with local commercial farmers, traders, millers and storage facility providers and to work in their interest and at their direction to remove obstacles, to assure contract enforcement, to provide incentives for lower transaction cost trading and to align potential business partners whose interest is to work through and with locally anchored supply chains.

No single investment can improve the environment for rice and maize chain investment more than public investment, which the new agencies needs to oversee, in information, including forward projections for market supply and demand, timely price information, inventory accumulation information, supply chain infrastructure information and information which can be used to support new business plans and rapid response, due diligence reviews of new business propositions. TAP could facilitate that districts make this information available.

A major factor, which determines the relative attractiveness of one agribusiness investment environment vs. competing ones, is the state of organization among farms themselves. Small shareholder farmers do not typically make for reliable and dependable supply chain partners, particularly in environments where contacts are difficult to enforce and few farm collaterals exist which can be used to assure contract performance. Investors in supply chain infrastructure require assurance that once their investment is made those subsequent risks will be minimal, including most importantly risks associated with securing sufficient volumes of farm products of appropriate quality. Accordingly, they require that their suppliers be of sufficiently large-scale, to be adequately funded and to be appropriately organized and lead to make good their supply commitments.

Finding farm level business models which work effectively and reliably as partners within supply chains, requires experimentation and testing of alternative models. To date neither the Ministry of Agriculture, Food Security & Cooperatives (MAFC) nor the Ministry of Industry, Trade and Marketing (MITM) have done enough in this area. In Tanzania, donors have supported most farming-as-a business demonstration projects both strategically and financially. However, there appears to be some dawning awareness within the Ministry of Agriculture that one of the most important functions, which the new Mixed Crop Authority needs to carry out, is just this: the testing, refinement and cross fertilization of innovative farm level business models which are compatible with the control systems and service parameters which specific supply chains require.

A similar challenge exist with respect to incubating rice and maize traders who are active, adaptable and capable of facilitating the transformation of supply chains from a “supply push” mode of operation to a “demand pull” orientation. Rice and maize traders with whom the project team interacted have demonstrated significant
adaptability and rapid enterprise learning, over the past decade, in adjusting to the dynamic conditions found in both markets. However, this resourcefulness needs to be amplified and various non traditional business models and trading modes developed, tested and refined in ways which will facilitate the rapid integration of Tanzania farmers with new niche market within the country as well as with new markets outside the country’s borders. Again, neither the Ministry of Agriculture nor the Ministry of Commerce do enough in this area, leaving what development investment has taken place of donors.

4.2 MECHANISMS FOR RESTRUCTURING TRADITIONAL CHANNELS INTO INTEGRATED CHAINS

In general two types of chain development efforts need to be undertaken simultaneously. One of these involves “top down” chain creation while the second involves “bottom up” chain strengthening.

4.2.1 TOP DOWN DEVELOPMENT

Room exists for more large-scale players in the Tanzania rice and maize market especially for those with track records in global rice and maize trade and the integration of two or more supply chains to form value chains, like those for frozen broilers, nutrition enhanced meals and cereals and processed pork products. Globally competitive value chains which link maize production, primary milling, and animal feed manufacture together with chicken or egg production have emerged in several places in the global economy, including the US, Canada, Brazil, Poland, Thailand and South Africa. Opportunities exist to attract the same large-scale traders who operate at the intersection of these two supply chains in other parts of the global economy into Tanzania, as well.

World-class investors, like the CP group, Almari, Cargill and Louis Dreyfus, are able to create new markets for Tanzanian maize and rice bran where none exist currently. These global integrators are able not to open these new markets beyond Tanzania’s borders but also within the country. Attracting one or more global large-scale traders to Tanzania would alter regional market dynamics in fundamental ways. It would increase competitiveness pressure for farm production and hence improve farmer incomes. It would introduce new high productivity technologies and would reduce investment risk up and down traditional chains. In addition it would shift regional demand to less price elastic areas on the regional demand curve. Increased farm gate prices and reduced market margins are two of the collateral outcomes, which could be expected. Well-organized farmer groups would benefit greatly from this development.

With all of this said it must still be remembered that foreign direct investment in Tanzania has been low and that the country would be undertaking any effort to attract investment from world-class food large-scale traders from a very low base. Some basic challenges exist, which any practical efforts that hope to succeed, must take into account. Few large-scale farms currently produce either maize or rice. Without investment in large-scale farming in these two sub sectors, a commercialisation threshold cannot be achieved and market re-positioning cannot be started. Land tenure constraints make it difficult for both local and foreign investors to secure large tracks of underutilised land. Risks associated with periodic export bans on certain crops (maize & rice included) pose a serious disincentive to long-term
investments. Global capital e.g. Hedge Funds and strategic investors alike, seeking investments opportunities in agricultural land can only be attracted when government policies are made more favourable to foreign investments.

Given all of these agribusiness investment constraints and also given the difficulties of doing business more generally in Tanzania, the only kinds of investment promotion efforts which are likely to succeed are ones in which the government internalizes several categories of risk on its side of a land-use-for-supply-chain-development transaction and provides guarantees and indemnifications to strategic investors who win a competitive tender in return for their building large-scale supply chain/ value chain structures within Tanzania. Indemnifications/ guarantees against the risk factors, which are controlled by government policy, could then be subrogated and co-insured through one of the international agencies such as MIGA.

The newly passed legislation discussed above opens new opportunities for formulating and executing land-use-for-supply-chain-development transactions. For the first time, it empowers a branch of government with sufficient legislated authorities to attract world-class large-scale traders.

In general two different approaches are available to the New Mixed Crop Authority: i) creating competition for specific niche markets and ii) creating competition for specific sets of productive assets which need to be aligned and integrated into supply chains.

The first set of approaches to top down development involve competing long term off take agreements to deliver rice or maize against forward contracts in sufficient volume and within prescribed quality specifications to satisfy the needs of institutional food purchasers, such as the Tanzania military, the nation’s prison system, the state owned and operated hospitals and the nation’s school systems. The new Mixed Crop Board could work with one or more of these authorities to estimate their base level demand for the next three to five year period and cooperate with them in specifying quality standards, which correspond to their needs. These specifications would then be bundled into a long term off take agreement which would also specify the ancillary storage, delivery and quality certification services and the on-buying terms and conditions which successful bidders (large-scale traders) would then be required to pass on to participating farms who supplied them under contract farming arrangements. Long term off take agreements could be designed in ways which made them assignable to financial institutions, which would provide credit to farmers and other ancillary service providers backed by these collaterals.

In this way, the Mixed Crop Board could leverage the government’s own purchasing power to drive forward qualified large-scale traders to modernize Tanzanian supply chains as a condition of complying with the terms of off take agreements.

The Mixed Crop Board might take the additional step of opening up to regional competition for government food procurement contracts under the EAC common market agreement. By the time this additional market opening agreement is negotiated, Tanzania based large-scale traders would already have gained the advantage of being first movers in complying with the protocols and methods of food tenders.

Competitive tendering of longer-term supply contracts like those described above are already underway in Tanzania, where the WFP has launched its new Purchase for Progress Program (P4P). Under P4P, WFP utilizes its own purchasing power to reform and remould local supply chains in ways, which allow smallholder farmers to
comply with and to supply WFP requirements under long-term supply agreements. Tanzania is one of 10 pilot countries in which the WFP is developing and refining the P4P concept with assistance from the Gates Foundation. WFP program managers with whom the project team spoke indicated an interest in expanding the program to include not only WFP own local procurement requirements but those of other institutional food purchasers in the public sector, as well as the private sector (e.g. hospitality and resort industry buyers.)

Text Box 1: Purchase for Progress Programme "P4P"

A second approach to apply transactions in ways, which induce private sector investment and the transfer of value chain development expertise, involves the competitive offer of assets rather than of institutional market access. This second approach is likely to be of greater interest to global large-scale traders who have already established themselves as suppliers of value differentiated food products, e.g. branded products, and as suppliers to specific well defined markets (e.g. CP Group supply of frozen broilers to supermarket chains throughout South East Asia).

This second approach to top down development involves offering through competitive tender long-term use rights to arable land together with commitments from government to invest in collateral infrastructure in order to improve roads and electrical service for the concessionaire. The cost of all other improvements to the land for irrigation, packing and processing would be absorbed by the strategic investor, as would the cost of training for skilled labour and agri-business management. Competition for land tracts suitable for rice and maize production would be based on anticipated export volume, total payroll, total investment, etc. Once awarded contacts would commit the government to manage or to absorb specific risks over which it had direct and singular control. In this way, many of the issues which adversely effect perceptions of potential foreign investors concerning Tanzania’s investment climate could be internalized and indemnified within the contract itself.

Under the approach the new Mixed Crop Board would work with district councils to identify potential development tracts and investment opportunities. Donors would support this effort by underwriting the development of feasibility studies and indicative business plans, which would test the investment feasibility of specific propositions.

One version of this approach might entail the development of one or more agribusiness real estate investment trust (AREIT). Under the AREIT scheme, underutilized land, possibly owner or controlled by absentee land holders would be swapped for shares of stock in an AREIT corporation, additional shares of preferred stock would be issued in the same corporation to small scale farmers and villagers on...
the periphery of the larger block of land. These shares would be exchanged for future production producing coming from these satellite land holdings, which would be jointly marketed with production coming from the core commercial estate. The claims or preferred shares holders would be senior to those of common share stock holders and would be designed to assure small holder farm families of a generous and increasing income which could be used to improve their welfare in ways that they choose either individually or collectively.

Rights to invest in the corporation and to hold ownership control would be offered only to pre-qualified strategic investors, investors like the CP Group, Delmonte, Cargill, etc. The award of majority ownership would be based on the price offered for the controlling ownership block of shares and the supply chain or value chain development plan, which the strategic investor put forward. The proceeds from the sale of the majority ownership block would be used to fund the capital development program, which the strategic investor defined in their business plan, which accompanied their competitive offer.

The merits of this non-traditional approach to engaging strategic investors are three-fold: i) risks to strategic investors of navigating through the bureaucratic tangles and complexities of numerous government agencies are significantly diminished. Other risks associated with market regulation, regional trade policy, labour law, complementary infrastructure construction, land title and ownership, etc. can be dealt with as well in negotiations leading up to transaction closure; ii) ownership rights in a profitable undertaking can be swapped for ownership rights in non revenue generating farm land, thus making absentee land owners better off. Similarly, ownership rights swapped for future production from satellite farmers assures farmers not only of superior market access but also of a fair and increasing share of corporate profits; iii) eventual sale of the AREIT onto the Dar stock exchange in an IPO will stimulate the local capital markets appetite for agribusiness investment and will assure that the benefits of the project are broadly distributed among local investors.

4.2.2 BOTTOM UP DEVELOPMENT

Each district has specific comparative and competitive advantages in rice or maize supply/value chain development. The main criteria we employed to determine viability and relative merits of specific value chain strengthening projects in different districts was the presence of (potential) chain champions who are knowledgeable in chain management methods, possess the “know who” to access specific market niches and have the leadership skills and motivational capacities required to turn on primary value chain actors (especially farmers).

The table below identifies promising entry points for chain development in each district. It is intentionally short and contains limited detail since more detailed information is available in respective volumes dealing with Rice & Maize value chain analysis respectively.
<table>
<thead>
<tr>
<th>District</th>
<th>Value Chain</th>
<th>Business Model</th>
<th>Chain Champion(s)</th>
<th>Immediate TAP intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Namtumbo</td>
<td>Maize / ULIC</td>
<td>WRS</td>
<td>Mtazamo Songea, Kikoti Namtumbo</td>
<td>Boost the strengthening of SACCOS and spread WRS / PMGs Market linkage</td>
</tr>
<tr>
<td></td>
<td>Maize / IM</td>
<td>PMG</td>
<td>NFRA</td>
<td>Promote PMGs and bulking by farmers</td>
</tr>
<tr>
<td>Songea</td>
<td>Maize / ULIC</td>
<td>WRS + CFS with miller</td>
<td>Mtazamo, Sodeco farmers</td>
<td>Boost the strengthening of SACCOS and spread WRS / PMGs Market linkage</td>
</tr>
<tr>
<td></td>
<td>Maize / IM</td>
<td>PMG</td>
<td>NFRA</td>
<td>Promote PMGs and bulking by farmers</td>
</tr>
<tr>
<td>Njombe</td>
<td>Maize / ULIC and HIMIC</td>
<td>WRS + CFS with miller</td>
<td>Tenende, Kilamlya, Msigwa</td>
<td>Boost the strengthening of SACCOS and spread WRS / PMGs Facilitate access to business upgrading for millers Market Linkage</td>
</tr>
<tr>
<td></td>
<td>Maize / IM</td>
<td>PMG</td>
<td>NFRA</td>
<td>Promote PMGs and bulking by farmers</td>
</tr>
<tr>
<td></td>
<td>Maize / EM</td>
<td>WRS</td>
<td>Henri, Kilamlya</td>
<td>Boost the strengthening of SACCOS and spread WRS / PMGs Facilitate access to business upgrading for millers</td>
</tr>
<tr>
<td>Mufindi</td>
<td>Maize / HIMIC</td>
<td>WRS/PMG + CFS</td>
<td>Lupembe, Tall</td>
<td>Boost the strengthening of SACCOS and spread WRS / PMGs Market Linkage</td>
</tr>
<tr>
<td></td>
<td>Maize / EM</td>
<td>WRS</td>
<td>Still to be identified</td>
<td>Boost the strengthening of SACCOS and spread WRS / PMGs Facilitate access to business upgrading for millers</td>
</tr>
<tr>
<td>Iringa Rural</td>
<td>Maize / IM</td>
<td>PMG</td>
<td>NFRA</td>
<td>Promote PMGs and bulking by farmers</td>
</tr>
<tr>
<td></td>
<td>Maize / HIMIC – ULIC</td>
<td>WRS/PMG + CFS / outgrowing</td>
<td>Rutuba farm</td>
<td>Boost the strengthening of SACCOS and spread WRS / PMGs Market Linkage Discussions with Rutuba farm and ASF</td>
</tr>
<tr>
<td>Morogoro + Kilombero</td>
<td>Maize / ULIC – HIMIC</td>
<td>WRS/PMG + CFS</td>
<td>Katundu + others to identify inclusive in Dar</td>
<td>Boost the strengthening of SACCOS and spread WRS / PMGs Market Linkage</td>
</tr>
<tr>
<td>District</td>
<td>Value Chain</td>
<td>Business Model</td>
<td>Chain Champion(s)</td>
<td>Immediate TAP intervention</td>
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<tr>
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</tr>
<tr>
<td>Maize EM</td>
<td>WRS</td>
<td>Export oriented Traders e.g those operating from Kibaigwa market</td>
<td>Boost the strengthening of SACCOS and spread WRS / PMGs Facilitate access to business upgrading for millers</td>
<td></td>
</tr>
<tr>
<td>Maize IM</td>
<td>PMG</td>
<td>NFRA</td>
<td>Promote PMGs and bulking by farmers</td>
<td></td>
</tr>
<tr>
<td>Kilombero</td>
<td>WRS led channel with main focus on regional export market (Rice) - using TWAPU model.</td>
<td>AKIRIGO</td>
<td>Bring together proposed chain actors (see Volume II); discuss findings of report and set-up action plan.</td>
<td></td>
</tr>
<tr>
<td>Kilombero</td>
<td>Large scale led channel selling to institutional clients and/or export market – Kenya (Rice) - Tenant model in combination with contract farming and/or WRS/AMCOS</td>
<td>KILOMERO PLANTATION LTD. (KPL)</td>
<td>Investigate interest of KPL in the proposed (see Volume II) approach and than do a feasibility study.</td>
<td></td>
</tr>
<tr>
<td>Kyela</td>
<td>Integrated channel aiming at local medium-high urban consumers and regional export (Rice) - Contract farming - AMCOS/WRS</td>
<td>MTENDA DISTRIBUTIONS LTD.</td>
<td>Bring together proposed chain actors (see Volume II); discuss findings of report and set-up action plan.</td>
<td></td>
</tr>
<tr>
<td>Mbozi</td>
<td>Integrated channel aiming at local medium-high urban consumers and regional export (Rice) - Contract farming - AMCOS/WRS</td>
<td>MTENDA DISTRIBUTIONS LTD.</td>
<td>Bring together proposed chain actors (see Volume II); discuss findings of report and set-up action plan.</td>
<td></td>
</tr>
<tr>
<td>Mbozi</td>
<td>Integrated channel aiming at local medium-high urban consumers and regional export (DRC), -Contract farming model</td>
<td>SHIWANDA MAIZE MILL (large processor)</td>
<td>Further discuss set-up of outgrowers scheme, the roll TAP (and partners) can play to capacitate and followed with a feasibility study.</td>
<td></td>
</tr>
<tr>
<td>District</td>
<td>Value Chain</td>
<td>Business Model</td>
<td>Chain Champion(s)</td>
<td>Immediate TAP intervention</td>
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<tr>
<td>----------</td>
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</tr>
</tbody>
</table>
| Mbeya Rural | Maize / EM | WRS / PMG | To be identified | Boost the strengthening of SACCOS and spread WRS / PMGs  
Facilitate access to business upgrading for millers |
| Mbeya Rural | Integrated channel aiming at local medium-high urban consumers | -Contract farming in surrounding districts | RAFA Group (large miller in Uyole). | Investigate interest of RAFA in the proposed approach and than do a feasibility study. |
| Mbara | Integrated channel aiming at local medium-high urban consumers | -Contract farming  
- AMCOS/WRS | MTENDA DISTRIBUTIONS LTD. | Bring together proposed chain actors (see Volume II); discuss findings of report and set-up action plan. |
| Mbara | Large scale led channel selling to institutional clients and/or export market – Kenya (Rice) | - Tenant model in combination with contract farming and/or WRS/AMCOS | Southern Highlands company and Export trading. | Investigate interest of KPL in the proposed (see Volume II) approach and than do a feasibility study. |
| Monduli | Integrated channel aiming at local medium-high urban consumers | WRS Contract farming | Magugu Brown Rice | Discuss interest of setting-up outgrower scheme with Magugu Brown Rice and if positive follow with feasibility study. |
| Meru | Maize / ULIC, IM, EM | WRS / PMGs | To be identified | Identify chain champion  
Strengthen SACCOS, WRS, PMGs |
| Meru | Maize / HIMIC, CFS | WRS / PMGs and CFS with miller | To be identified | Identify chain champion  
Strengthen SACCOS, WRS, PMGs |

**Table 5: Recommended entry points for each district**

An example of a high tech, bottom up supply chain project is **Drum Net**, which is based in Kenya. Drum Net applies cell phone technology and funds management via cell phone to coordinate and control on farm activities with off farm activities. It has
been growing gradually over the past 6 years and has assisted farmers from moving from low revenue yield markets to high revenue yield markets in which timely order deliver and fall sale quality controls are essential. See the box below. Projects like Drum Nets can be supported in Tanzania among both rice and maize farmers who would like to diversify their crop dependencies and at the same time begin to access high-end niche markets for their core production.

**Drum Net: A Donor Supported Electronic Supply Chain Project**

Rural farmers in central Kenya have been piloting a project, called Drum Net, that provides marketing, financial services and information to them using their mobile phones. The project's premise is that information on the market is one of the key elements that keep farmers from getting the full market value for their products. This lack of information also keeps the farmers in a disadvantageous financial position, so that it is difficult to get the financing and resources they need to grow their business.

Drum Net is currently moving from the pilot project in central Kenya to a beta phase project in western Kenya. The pilot phase was research on whether or not the concept of providing marketing, finance and information with the aid of cell phones was feasible. It was concluded that it was and they are now moving into a beta phase. For this next phase Drum Net has around 250 participating farmers planting around 150 acres of sunflower. They have not completed a full cycle with the current model, but since sunflower growing season is only 3 – 4 months they should see results fairly quickly.

Drum Net is part of Pride Africa, a US-based organization that has successfully implemented micro-enterprise urban loans for short-term capital in East and Southern Africa. With projects in Kenya, Tanzania, Uganda, Zambia and Malawi, Pride Africa has proven to be an economic development group that works. They work to create products that have a financial impact on the community and which can be taken over and run privately after they have been setup.

**Text Box 2: Example of Bottom Up supply chain development - DRUM NET**
The most effective mode for strengthening these supply chains from the bottom up should involve a competition among emerging chains for technical development resources. Accordingly, TAP together with donors, would invite emerging chains and their chain champion to apply for a grant, which could be, use to provide additional technical assistance for chain development. In an initial round, the champion integrator of each emergent and pre-qualified chain would be provided with instruction concerning the development of a business plan for chain development.

A second pre-requisite for grant funding would be a letter of commitment from the ranking district officer representing the Mixed Crop Regulatory Board. In this letter the
local officer would pledge his formal support and commit to assist the chain in removing specific obstacles, which the chain champion had identified as mission critical.

A large hurdle, which no amount of investment in chain strengthening can overcome, is conflict, which may exist between the prevailing economic infrastructure and the limited capabilities of chain champions. Champions typically have limited amount of management time for solving government compliance problems and the limited financial resources available to fund chain-strengthening activities are dissipated when champions find themselves hamstrung by slow paced government approvals.

This fundamental disconnect can cause business systems of various kinds to fail. However, chain incubators and the start-ups, which they breed, are particularly susceptible to the risks, which multiply in inhospitable business ecosystems.

On the basis of these two criteria and others TAP would select a limited number of chain strengthening projects for funding annually. Each year for several years’ comparable competitions would be conducted. Graduated beneficiaries would not be allowed to compete again for several years. At the end of the program efforts would be made to evaluate what forms of technical assistance worked best, which business models most effectively linked farmers to specific niche markets, etc.

4.3 NICHE MARKETS

The bottom up initiatives described in the previous section originates at the supply end of chains. However, other complementary projects can just as usefully originate at the demand end. Such projects would involve linking sellers who sell into specific niche markets with farm level producers of quality-differentiated products, which were appropriately matched, with the needs of each niche.

The primary niche markets in Tanzania relevant to rice and maize producers are those which are led by emerging supermarkets e.g. Shoprite, Shoppers Plaza, Shirjees, etc, through the branded and packaged products which they allow onto their shelves and by animal feed millers, through the branded and packaged products which they sell into specific animal production markets, e.g. broilers, dairy, egg producers, etc. In order to secure long-term access to these niche markets some investment in intermediate supply chain infrastructure such as storage and assembly facilities, inspection stations, etc. is typically required. Importantly, in both market segments, supermarkets and animal feed, significant economies of scale apply. In any case, in depth requirements analysis undertaken on a niche-by-niche basis through the new Mixed Crop Regulatory Board is a necessary first step in gaining access to these niches.

Other niches require less front-end investment. However, these have broader implications are well for the future direction of rice and maize marketing efforts in Tanzania because the resource requirements associated with pursuing them are significantly One important set of these nice markets includes one, which are distinguished by local geographic brand or quality certification. An entry point for geographic brand differentiation is institutions whose objective is to develop, secure and activate intellectual property rights for distinctive varieties of food products.

This set of value enhancing activities, which is preliminary to entering this set of niches, entails the prior creation and sharing of intangible assets in the form of geographical indicators. A geographical indicator (GI) is a name (or an iconic sign),
which is used to distinguish certain products, which share a specific geographical origin (e.g. a village, district, or country). It is like a trademark. It can act as a certification that the product possesses specific qualities, or enjoys a certain reputation, due to its geographical origin.

It the food source can be appropriately protected as intellectual property, IPs can provide farm groups with a sustainable source of competitive advantage. In most countries the protection afforded to geographical indications by law is similar to the protection afforded to trademarks. Much of the successful application of IPs to agro-industrial development has taken place to date in Europe. In the past ten years, however, IP based strategies for agro-industrial developments have begun to take place in Asia and Africa as well as in other parts of the world outside Europe.

Other forms of certification are controlled and applied, not by local farm groups, but rather by global brand managers, like the Rainforest Alliance, Fair Trade, the China Green Food Certification Centre, the Islamic Consumer Food Group, which certified Halal, etc. It is incumbent on farm level organizations to comply with the certification procedures mandated by these several authorities in order to gain access to the specialized niche markets which they control. Typically certification takes place through local authorized affiliates of the global brand manager and requires training, a compliance inspection, as well as subsequent annual or semi annual recertification inspections.
4.3.1 REGIONAL MARKETS

Tanzania’s comparative advantage in agriculture has not yet been exploited, despite the costly and heroic efforts and multiple government programs implemented over the last 20 years, productivity in both rice and maize lag behind that of other EAC countries. In spite of this disappointing performance, knowledgeable observers all agree that the country’s abundant and dormant arable land, its heavy rain fall, its abundant lake and river waters for irrigation and its superior coastal location, adjacent to six rapidly growing regional economies, afford a sustainable basis for exporting food staples to the region in significant volumes. What have been missing to date have been strong supply chains which coordinate on farm and off farm activities and supportive trade policies.

Unfortunately improving competitiveness in food marketing has not been a major policy pursuit to date. Most previous government programs dealt instead primarily with the challenge of improving food security. The challenge of making farming commercially viable and trading in food staples a profitable undertaking has taken a back seat. In the future coordination between public and private partners and synergy among different programs points to the way forward.

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Text Box 5: SCAN – Sustainable Commodity Assistance Network

SCAN

One potentially useful program, which assists farm groups organize around IPs, is called SCAN (Sustainable Commodity Assistance Network). SCAN provides training to producer groups interested in developing certifications in the area of sustainability (Rainforest Alliance, Fair Trade, Organic, etc.) through participating networks in southern countries. SCAN has developed a toolkit, which contains a useful series of training modules.

The use of GI’s can provide a means for distinguishing named products from others and allowing these named products to complete on a basis other than lowest cost. In general, geographical indicators distinguish product quality, highlight brand identity, and preserve cultural traditions. Examples include Jamaican Blue Mountain Coffee, Vidalia Onions, Vermont Maple Syrup and New Zealand Lamb.

The collective ownership and use of geographical indicators can define the boundary line around a farm level organization and its partial ownership may be used to define participation in the farm organization. The use of the IP allows producers to gain market recognition, to open new distribution channels and with market recognition command a premium price. With the increased internationalization of food and product markets, geographical indications have become key mechanisms for defining niche markets and for limiting access to them. Geographical indicators are associated as well with non-monetary benefits, such as the protection of specialized product knowledge and community rights.

Products associated with an IP name normally possess specific qualities that derive from the geographic region and specific production process used. Thus, the protection of the name—through registration-- helps prevent the development of a generic association thereby preserving the ability of the product to be made in a traditional manner.

Networks of individual companies or organizations have developed over the past two decades to facilitate the development, protection and commercial use of GIs. One of these networks is “ORIGIN,” which is designed to provide producers with a voice in international discussions concerning the protection of agricultural property rights. Another is “Slow Food.” “Slow Food” is a loosely organized international group of consumers and food producers who are interested in air loom foods and the preservation of traditional food tastes.
The development of regional markets requires close coordination and cooperation with respect to not only to long-term strategies but also to short term tactics between government policy makers and regional traders based in Tanzania. For example, trade strategy should be discussed and agree between official repetitive who participate in regional trade negotiations within the EAC and other forums and Tanzania’s private sector which is active in selling rice and maize across the country’s borders. Companies with such interests, whom the project team interviewed, include Export Trading, Bakhresa, Bugaloo, etc.

The primary concern of these companies is with the stability and predictability of government trade policies. They would like to be given notice of any changes in trade restrictions which might apply with respect to these two commodities 60 days before they are implemented and they further requested advanced notices of internet to change trade conditions be extended to all market participants at the same time.

In addition, they requested that other trading partners within the region apply the same advanced warning prohibitions within their own markets. Over time as the regional market becomes more open and more accessible the application of advanced notification should be progressively extended.

**4.4 SUPPORTIVE GOVERNMENT POLICIES**

A supportive policy and regulatory environment has been evolving only gradually in Tanzania. The result has been a markedly low level of foreign direct investment in the country’s agribusiness sector. Alarmingly, several initiatives have been launched recently which appear to be somewhat dissonant, if not outright conflicting with the goal of strengthening private sector commitments to the rice and maize sub-sectors. The effects of these emerging policies have yet to be determined.

The Ministry of Agriculture Food Security and Cooperatives recently compiled a draft Rice Development Strategy, which is about to be implemented if resource can be secured to do so. If implemented well, the policy promises to change the rice sub sector both in Tanzania and in the region in positive ways. For example, the strategy calls for putting together comprehensive promotional package of services such that it would result in doubling rice production by year 2018.

By the end of 2010, the new Mixed Crop Board is expected to become an important player in the marketing of both rice and maize. The manner in which the board intervenes in local markets for rice and maize has yet to be ascertained. However, an approach which is collaborative, open, even-handed, transparent, contestable and which regulates the two sectors indirectly through incentives provided to private companies, has much to recommend as contrasted with alternative approaches which are unilateral, closed to external discussion or accountability, unequal in their distribution of benefits and in their availing of opportunities, opaque, non contested and which regulate companies directly via fiat.

As noted above a great deal depends on the ways in which the new chairman of the Mixed Crop Board and the new director of the Mixed Crop Authority interpret and apply their new, precedent setting powers. The new tandem Mixed Crop Authorities are expected to play a significant role in defining the future for the two subsectors.

Little progress in supply chain formation and/or in market strengthening can be gained from over regulating the two subsectors. In the mean time until the new authorities are up and running a lack of clarity with respect to future regulatory
directions has greatly increased risk for potential private sector investors in the two subsectors. The sooner the new bodies clarify their preferred means and modes of regulation and market intervention the better for reducing perceptions of risk among potential investors.

Government allocation of budgetary resources to the Agricultural sector has been increasing gradually but from a very low base (over 7% of total government expenditures and an increase of over 30% in 2010 compared to the previous year). Government funds have not been able to make up the deficit of private capital commitments to the sector. However, even as they have been increased in recent years budgetary resource commitments still remain far below ideal levels. Moreover, resource commitments have made almost exclusively for on-farm activities disregarding completely the demand end of farm to market chains. Neither market institutional development nor supply chain development receive any funding from government.

The Kilimo Kwanza project is the notable exception. Kilimo Kwanza is gaining momentum slowly and value chain development for selected commodities afford opportunities to further leverage this initiative, by identifying the main sources of growth and by critical interventions which can help Tanzania embark on a commercialisation agenda. However, supply chain development entails much more than a one off program launch. To have a real and sustainable economic impact, supply chains development initiatives must operate in an environment in which business and government institutions play mutually supportive roles. Government and business community leaders need to interact in ways, which are mutually beneficial, and cooperate in ways, which improve the business environment.

Ideally, in such environments the problems of start-up chains need to be quickly identified and even more quickly solved. In such a supportive environment trust and joint action are fundamentally important. Unfortunately, opportunities for mutual problem solving and for open discussion and resolution between public and private sector leaders are limited in Tanzania.

A good place to start is to deal with issues, which are mutually beneficial, and without contention, to start building trust and reciprocity by dealing first with called “low hanging fruit.” Some of these low hanging fruit issues include the following:

**Quality and Standards enforcement:** Trading in maize and rice in Tanzania is generally based on unstructured transactions that are more driven by business relationships than market institutions. Spot transactions dominate in this environment and asymmetries with respect to information, capital access and trading network coverage are the source of large speculative gains. The existing trading environment is powered by the expectation than gains, which exceed the cost of capital, are available annually to speculators who buy during the peak harvest season and sell during the supply short season immediately before the next harvest. Tanzania has not yet managed to set up and mechanisms for pricing, managing or selling these risks so they continue to be retained within traditional distribution channels. Though standards have been set by TFDA for food safety and hygiene and TBS for cereal quality standards, most actors in the sub sectors do not observe them. Standard weights and measures have also been formally defined. However, most chain actors do not follow the legislations. In general enforcement by relevant government bodies is spotty and penalties are rarely enforced. Standards need to be set from within relevant trades, enforced by lending institutions, which advance credits against
inventories, applied strenuously within specific market niches and enforced in each and every transaction. This is the only way forward from unstructured trade to rule based structured trade. Government needs to focus more on building institutions in the private sector, which can do this work, and less on trying to enforce market terms on its own.

Infrastructure constraints greatly inhibit the competitiveness of Tanzania farm products. Technical infrastructure (electricity, roads etc); On-farm (infield irrigation); off farm (feeder roads, out-grower schemes); and other agricultural support infrastructure (storage, wholesale markets, mills and processing facilities) are inadequate for the mission of driving down supply chain costs. Imported rice, for instance, is much cheaper and far superior in quality than domestic rice not because of any substantial differences in agronomics or plant science but rather because of differences in post harvest storage, processing and transport all compromised in Tanzania by poor infrastructure. Infrastructure constraints significantly limit the size of the market, which Tanzanian farmers can access economically. Under the current cost structure, it is difficult to export profitably to neighbouring states although their demand remains unmet. Under the new regulatory board plans need to be set for each district which establish priorities for infrastructure investments based on their impact in terms of improving market access and increasing commercial farming viability.

Input applications in Tanzania fall far below optimal levels. FAO and World Bank studies both confirm that the application of fertilizer in Tanzania is among the lowest in the continent. The rate at which mineral fertilizers are being applied falls far below the rate at which soil nutrients are being depleted. Moreover, optimal fertilizer applications and optimal fertilizer application timing differ widely with the variety of the seeds being used and most maize and rice farmers’ account for these considerations. The result, not surprisingly, is a secular decline in productivity. Post harvest losses remain quite high, as well. Government input subsidy programs have made only a marginal difference, including the Fertiliser Fast Track Programme within ACT, the Agro dealers support programmes etc. In spite of these efforts access to and effective utilization of agricultural inputs remains low. The way forward is to internalize the cost of inputs within supply chains in ways, which assures that optimal levels will be financed and applied based on agricultural best practices. The key to improving input applications is building strong and economically viable supply chains, not subsidizing input costs. Within such chains, integrators have a strong incentive to finance optimum applications of farm inputs.

Trade Policy: The East African Custom Union and the common market, which is taking shape under it is the provides the greatest opportunity and the strongest incentive for private investment in chains which can competitively link Tanzanian farmers to consumers in Nairobi, Kampala, and Kigali. Common External Tariffs are yet to be harmonised and other trade barriers are yet to be removed. One case in point is “rice” to which Tanzania applies a 75% import duty, while Kenya applies one of 45%. Other neighbouring countries Zambia, DRC, Mozambique, Comoro, Madagascar, etc. whose demand for rice and maize is high also need to be brought under more favourable trade terms with Tanzania.
4.5 THE ROLES OF DONORS IN ROLLING OUT SUPPLY CHAIN DEVELOPMENT PLANS

The division of responsibility among donors, private investors and governments with respect to supply chain development needs to be clarified in the context of efforts to implement the new Mixed Crop Regulatory Board. This division should relate to defining mutually distinct domains for investing in private goods, public goods and for coordinating and delivering information regarding best global practices, technologies and methods of supply chain integration.

To this end, an agreement needs to be worked out as quickly as possible between TAP and the new Board Chairman and the Executive Director of the new Authority under which TAP would provide technical assistance, and professional support to both organizations as they work out their modes of operation, procedures for rule making, modes of consultative interaction with the private sector, means and modes for incentivizing private sector investment and market development initiative, etc.

At the same time TAP needs to lead a program of experimentation and testing of new agro industrial structures, which may evolve into sustainable supply and value chains. These demonstration projects should include a diversified portfolio of both bottom up and top down demonstration projects as discussed earlier in this chapter.

In the scaling up of larger programme for Maize and Rice careful attention and detailed documentation need to be taken with rest to what works best and what works least well. It is information with respect to commercial viability, which is most needed in Tanzania’s agribusiness sector, and it is precisely this information, which needs to be gleaned carefully for the demonstration projects, which are undertaken. The same lesson should not be paid for more than once, and the diversity of projects from which lessons are extracted should be broad enough to cover most creditable commercial strategies, supply chain structures and entry points for most categories of potential investor

To these ends, the following immediate action items need to be considered for implementation:

a) **Launching VCD for Rice & maize in different districts:**

TAP should prepare itself with necessary skills & approach to be able to kick starts VC of Supply chain improvements that have been recommended by doing the following:

- Organise work planning sessions with identified chain champions in each district to agree on how they would go about mobilising interested farmers and agree on the roles / contracts etc that would govern the chain initiation. This would require special facilitation skills (neutral but at the same time acceptable to the private sector)

- TAP should initiate district based Cereal Growers platform that could start involving a cross section of stakeholders relevant to lobby for a favourable enabling environment. In some districts MVIWATA has a similar initiative and this could be further strengthened or emulated.
b) Policy & Regulatory environment:
The main focus for ACT initially should be to lobby with upcoming Mixed Crop Board / Authority that the voices of key stakeholders are heard. In the report we have written the dangers of market distortion and discouragement of further investments. The other issue to lobby for is on the export ban processes, which are counter productive and not the solution for food security.

c) Deepening linkages with Institutional markets (WFP- P4P and NFRA and other major public institutions)
We have recommended relevant supply chains to these markets and TAP should play an active role to see them materialise and in their follow-up.

d) Assessment/ Feasibility analysis of the Feed meal/Poultry Industry
Our study was not focused on this sector, but for impact sake the linkage should be proactively pursued. TAP in collaboration with SAGCOT should analyse and facilitate promotion of FDI in this area and the approach of AREIT business model may be needed here.

e) Strengthening of Farmer Organisations
TAP should link capacity building of farmer organisation to focus on gaps they have in playing agreed-upon roles on supply chains and not the generic trainings, which is now common. TAP should achieve these though operational partners such as RUDI, TAGRODE, NADO and others.

f) Market Intelligence
Tanzania is lagging behind in setting up a commodity exchange, but also market information dissemination systems are generally ineffective, too localized, too superficial, etc. Some of the market information systems include Districts and Regions’ market data collection and dissemination systems, MVIWATA Agricultural market information system, systems operated by phone companies and newspapers. TAP should review and advise how to improve them.

g) WRS
WRS implementation in Tanzania has had a lot of flops. TAP should commission a review of lessons learnt and facilitate incorporation of best practices, as it is one of the most common business model currently advocated for.

h) Land issue
ACT should closely work with Tanzanian Investment Centre (Land banks) & Govt programme on formalisation now active in assisting villages to survey and offer title deeds, to come up in each district where TAP is present with a land use overview + status of infrastructure.
The following is a summary of recommended generic interventions in order to enhance subsector’s growth and competitiveness:

<table>
<thead>
<tr>
<th>Strategic Issue</th>
<th>Proposed Leverage Interventions</th>
<th>Potential collaborating Actor(s)</th>
</tr>
</thead>
</table>
| Enabling policy and regulatory environment for grains & cereals sub sectors need further strengthening | • Government to ensure that the Mixed Crop Board and Authority become functional  
• Ensure the regulatory framework creates a room for the private sector views and interest to be heard.  
• Government should speed up the implementation of the Rice Development strategy (improved variety /seed system, input supply, irrigations & water control, Post harvest and marketing, R&D and Agricultural Credit)  
• Promote Tanzania Agricultural Commodity Exchange for effective market information & intelligence to supply chains actors, emulating the experiences of Kenya and Uganda  
• Food Security Policy implementation should follow best practices e.g. Brazil who uses voucher schemes. | MAFC, LGAs, PMO-RALG, Private service Providers, ACT, R&D Institutions, Farmer Organisations. MAFC, ACT MAFC, ACT MAFC, ACT |
| Government budget allocation is inadequate to trigger agricultural sub sector commercialisation | • Increase government budget allocation to Agriculture in particular address specific supply chain hindrances in Rice and Maize growing areas.  
• Support government to enhance data collection and processing to reliability and benchmarking. | MAFC, ACT |
| Quality and standards enforcement is missing | • Ensure sanctions are effectively implemented for non adherence to standards by strengthening capacity of respective institutions  
• Facilitate value chain partners to adapt standards and quality incentives and self regulating mechanisms | TFDA, TBS, WMA  
Private Sector Value Chain Actors, ACT |
<p>| Infrastructure upgrading which is lagging behind in strategic areas is key to Tanzania’s competitiveness | • Government to increase investment in priority infrastructure upgrading projects geared at enhancing competitiveness | MOF, MAFC and Development Partners, TAP-SAGCOT, FAO – SHFS Project. |</p>
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<th>Strategic Issue</th>
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<th>Potential collaborating Actor(s)</th>
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</table>
| Comprehensive incentives for increased private sector investment are missing. This is needed to position Tanzania’s commercialisation agenda | • Agricultural investment opportunities should be elaborated and profiles promoted to potential investors e.g. within the SAGCOT Blue Print  
• Agricultural land bank should be operationalised  
• Private Sector Investment Protection measures should be ensured  
• Agricultural Financial Services enhanced  
• Promotion of Large-scale investments in the Animal feed industry to enhance linkages with the cereal sub sectors. | TIC, MAFC, TAP, SAGCOT  
TIC  
TIC  
BOT, Financial Institutions.  
TAP, SAGCOT, FAO-SHFS |
| East African Customs Union an opportunity for market deepening but also a shared strategy in Tanzania not yet developed | • Step up identification and analysis of Tanzania’s comparative & competitive advantages  
• Follow up internalisation and rationalisation of EAC opportunities & disseminate relevant information  
• Promote private sector to take advantages of customs and common market opportunities in the region | ACT, TPSF, EAC Ministry  
Ministry of EAC, ACT  
TIC, ACT |
| Low Productivity across the board & high post harvest losses is reducing farmers incomes substantially | • Ensure comprehensive agricultural productivity enhancing packages is promoted in the extension services  
• Facilitate access to inputs and technologies for post harvest management  
• Promote business models that enhance productivity and win-win benefits to chain actors e.g. Contract farming/ out grower schemes, WRS. | MAFC, LGAs, NGOs implementing relevant projects (TAP, CNFA, JICA, RLDC, ASA, FERT, TAGRODE, ASF, RUDI etc |
| Coordination and synergy among sub sector support agencies is sub optimal | • Set up or revive public-private forum/platform for Cereals development or Mixed Crops (start with Rice & Maize) for policy dialogue and coordination | ACT, Mixed Crop Authority |

Nb: The underlined actors are earmarked to take a leading role

Table 6: Strategic issues, proposed leverage interventions and potential collaborating actors
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### ANNEXES

#### 6.1 LIST OF PARTICIPANTS TO THE VALIDATION WORKSHOP

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<th>District</th>
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<td>19.</td>
<td>Dar</td>
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<td>23.</td>
<td>Dar</td>
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<tr>
<td>25.</td>
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<td>Mr. Marc Keller</td>
<td>MMA Consultant</td>
<td></td>
<td><a href="mailto:marc@mma-ltd.com">marc@mma-ltd.com</a></td>
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<tr>
<td>26.</td>
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<td></td>
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</tr>
</tbody>
</table>
6.2 DISTRICT OVERVIEWS

This annex gives an overview of the main findings in the district. The tables show the number of actors or an indication of it, followed by the main dynamics in the regions and lastly based on these parameters a star diagram indicates the availability of the critical business services in the different districts. The comparison is done within the Tanzanian context.

6.2.1 KILOMBERO DISTRICT OVERVIEW

<table>
<thead>
<tr>
<th>Stage/ VC</th>
<th>Inputs</th>
<th>Production</th>
<th>Post-harvest</th>
<th>Trading</th>
<th>Processing</th>
<th>Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevant participants</td>
<td>Input traders (fertilizer, seed chemicals and machinery agents)</td>
<td>Farmers (large/medium), Farmers - small</td>
<td>Primary traders, Warehousing</td>
<td>Secondary traders, foreign buyers, Transporters</td>
<td>Processors: manufacturers, other milling/ equipment manufactures,</td>
<td>Supermarkets, Consumers, Border agents, Retail, kiosks, Transporters</td>
</tr>
<tr>
<td>Numbers of players</td>
<td>40-50</td>
<td>75,000</td>
<td>23 stores in Kilombero District (capacity varies 120-250)</td>
<td>Estimated more than 100 traders</td>
<td>576 Milling Machines, majority are low capacity machines.</td>
<td></td>
</tr>
</tbody>
</table>

Dynamics along the chain. Only 50% of the available land in Kilombero is utilised. Yield in irrigated areas is steadily rising, partly due to several initiated schemes (Mkule and Njagi). However the rain-fed paddy growers have not managed to increase their yields in the last several years. Even though the government subsides some inputs, it has had a limited effect. Mostly as it only reached a small number of farmers and even with the subsidies some farmers could not purchase the inputs.

The number of agro-dealers is insufficient and does not service remote areas. Thus farmers need to travel substantial distances to purchase inputs.

MWAPU SACCOS follows a successful approach of close monitoring, providing input packages (instead of money) and additional credit with 9% interest. The SACCO started its activities in rice in 2008 and with support of TIB they invested almost TZS 400 million in Kilombero area (2010). Production in 2009 was 95,415 (184,107 planned) tons from 38, 166 (73,642 planned) hectares according to DALDO.

Most farmers are not breaking even especially when their own labour is included. Only when farmers (cross-cutting for the three ecological zones) produce at least 20 bags/acre and sell in December-March can modest margins be reached.

Kilombero High Quality Rice Growers has 36 associations with a total of 5200 farmers. Although it still relies on the NGO RUDI and the district for support, it managed to set up a WRS, train 4000 farmers and generate income from members’ revenues and membership. The District is investing substantially in irrigation schemes.

Low yields are caused by seed saving, low use of fertiliser, shortage of water, ineffective herbicide and pesticide use and insufficient financial means to purchase many inputs.

However, high usage of improved seed variety SARO 5, as KATRIN started introducing the improved seeds first in Eastern growing area.
The Quality Declared Seeds (QDS) farmers are not (yet) producing the high quality seeds, even though it is monitored by TOSCI. Insufficient power tillers, tractors and other machines, especially during high season. Little private investors but currently the company private (US-based company) KPL and some Indonesian investors were said to be in a far stadium of being large-scale producers.

Table 7: Kilombero District Overview

A summary of Business Environment in Kilombero District

![Business Environment in Kilombero District](image)

Figure 4: Business Environment in Kilombero District

Key: 1 = Very weak, 2 = Weak, 3 = Strong, 4 = Fairly strong, 5 = Very strong

The producers can access loans through NMB (office in Kilombero and Ifikara), CRDB (office in Kilombero), local SACCOS and TPAWU SACCOS Kilombero Ltd (with 3 branches in farm producing areas) but a wider network is needed to reach more farmers. Storages are not sufficient although some are now revitalized with government support. The local government is active in increasing storage capacity, irrigation systems, encouraging keeping livestock in combination with rice and other activities. The main rice growing area, Ifikara, can only be reach on a few hours drive on a rough road. This increases the transport costs and accessibility.
Amount of stockiest is average but most are not available in less accessible area’s, which drives up costs for producers to buy inputs.

### 6.2.2 RICE – KYELA DISTRICT OVERVIEW

<table>
<thead>
<tr>
<th>Stage in Value chain</th>
<th>Inputs</th>
<th>Production</th>
<th>Post-harvest</th>
<th>Trading</th>
<th>Processing</th>
<th>Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevant participants</td>
<td>Input traders (fertiliser, seed chemicals and machinery agents)</td>
<td>Farmers - large/medium</td>
<td>-</td>
<td>Primary traders Warehousing</td>
<td>Secondary traders foreign buyers</td>
<td>Processors: manufacturers, other milling/ equipment manufactures</td>
</tr>
<tr>
<td>Estimated Numbers of private sector players</td>
<td>25 input suppliers</td>
<td>Large farmers (10-50 acre) are 35-40 and smallholders are 54,000</td>
<td>Government has 10 (min. 100 tons) stores and over 30 smaller ones (less than 100 tons), the cooperative union has more than 20 stores (min. 100 tons). All millers (20) have storage of 100-200 tons capacity.</td>
<td>150 petty traders, 20-40 regional traders and 20-30 big national traders (Congo, Pemba, Dar es Salaam).</td>
<td>There are 20 millers in Kyela town and an estimated 5 in the surroundings. 10 out of the 20 are trading and milling.</td>
<td>Supermarkets Consumers Border agents Retail kiosks Transporters</td>
</tr>
</tbody>
</table>

Dynamics along the chain

Great potential of irrigation as there are a lot of water sources, mostly rivers are used for irrigation.

Six traditional irrigation system were improved by DALDO (2010) for over TZS 400 million.

The district has 20 power tillers and tractors to rent out to the farmers from the 2010-2011 season. Currently 10 tractors are owned by individual farmers.

In three years (2006/2007 – 2009/2010) the DALDO budget has risen by 50%, to TZS 600 million TZS.

Insufficient extension officers: 49 extension workers in 101 villages, also their knowledge and motivation is often lacking.

Increasing population pressure: in seven years the district grew from 174,000 (2002) to 208,000 (2009) and is likely to increase in the same speed.

From 2010 (July) a WRS started with KYECU (cooperative union) and supported by NMB.

There is a lively cross border trade with Malawi, Zambia and Congo.

Current attempts to setup WRS with SACCO, PAKATI, is not successful, mostly due to lack of money. Moreover it has outstanding loans (TZS 20 million) at the financial institution PRIDE.

The improved seed SARO5 is unknown to many farmers and others are just started to run trials with it. In the coming season it should be implemented on a bigger scale, like in Kilombero.

Lack of agro-economic knowledge, mixing of seeds, insufficient use of inputs.

Monopoly of agro-dealer association does not make it a level playing field and can drive up prices. Moreover some parts of Kyela District (i.e.
Matema beach) do not have agro-dealers. Presence of river, which can be used for irrigation, and presence of fertile un-harvested land. Important interdependences of cocoa and rice. Rice is used for food consumption and covering large household expenses (hospital, school fees etc.) as it generates a lump sum after harvesting. Cocoa gives income throughout the year. Most farmers have cocoa and rice farms, while some also grow palm.  
A lot of woman are doing seasonal work in the rice fields during land preparation, planting and harvesting. 
Due to changeable local climate, it proved to be hard to determine when to plant, causing high costs. 
Cooperative union and WRS systems are both weak and in need of rejuvenation.  
A big outgrower scheme of 3000 farmers, lead by Mtenda Distributors Ltd buys and collects it in Kyela, mills it in Mbeya, (at Wela Millers) and sells it to its retail shops (2) and to local wholesalers both in Dar es Salaam.

Table 8: Kyela District Overview
A summary of Business Environment in Kyela District

<table>
<thead>
<tr>
<th>Financial services</th>
<th>Transport</th>
<th>stockist</th>
<th>Local government</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 5: Kyela Business Development Services
Key: 1 = Very weak, 2 = Weak, 3= Strong, 4= Fairly strong, 5= Very strong

The following financial institutions are active in Kyela: Tujijenge Microfinance (TMF), NMB, CRDB, PRIDE and several SACCOS. Besides the SACCOS all of them have their offices in Kyela town. Transport from Kyela to main markets in Dar es Salaam and Zanzibar is relative longer than most others districts. Local governments are increasing their efforts on rice as it is one of the districts priority crops but there is lack of extension officers and other services. Amount of stores is insufficient but efforts are undertaken to increase the capacity. There are sufficient stockiest in and around Kyela town but not in the less accessible places.
### 6.2.3 RICE – MBOZI DISTRICT OVERVIEW

<table>
<thead>
<tr>
<th>Stage in Value</th>
<th>Inputs</th>
<th>Production</th>
<th>Post-harvest</th>
<th>Trading</th>
<th>Processing</th>
<th>Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevant participants</td>
<td>Input traders (fertiliser, seed chemicals and machinery agents)</td>
<td>Farmers large/medium</td>
<td>Primary traders Warehousing</td>
<td>Secondary traders, foreign buyers</td>
<td>Processors: manufacturers, other milling equipment manufactures</td>
<td>Supermarkets Consumers Border agents Retail kiosks Transporters</td>
</tr>
<tr>
<td>Estimated Numbers of private sector players</td>
<td>155 agro dealers but only few focus on rice.</td>
<td>11,732 rice growing households</td>
<td>An estimated 20-30 stores (incl stores of millers). Capacity varies between 100-200 and two WRS (incl stores).</td>
<td>150 Mbeya (regional) traders</td>
<td>20 rice millers.</td>
<td>Most consumers buy locally from the farm or traders and a bit from the market.</td>
</tr>
</tbody>
</table>

**Dynamics along the chain**

Traders are said to like rice from Mbozi as it is known to be organic. Yield is currently 13.5 bags per acre (average), but the reliance on rain-fed agriculture means that it is difficult to get (consistent) higher yields. Therefore focus of government to expand irrigation schemes.

One big scheme, 1,500 hectares, should be irrigated in 18 months (November 2011), and is costing TZS 4.2 billion. Other irrigation schemes are also established.

17 power tillers are now offered to farmers’ groups; government subsidises 80% of the cost.

Although in the upland there are around 100 stores all used for coffee or maize. In the rice growing lowlands only a hand full stores are available. There is potential for more stores in the villages, one per ward.

There are 11,732 rice growing households and 130,043 focussing on maize. But rice is a cash crop and is traded to a greater extent than maize, which is consumed in the household.

In the lowlands there are not enough rice input suppliers.

Productivity is slowly going down, so the need for fertilisers is growing.

Due to government subsidies many agro-dealers started but they have limited distribution.

Not enough seed was supplied from ASA last season and a similar situation is expected this year. Moreover, no QDS are used and there have been no significant private investments.

Traders dominate the price due to lack of market information.

Congo and Zambia are buying rice from the border district of Mbozi.

DALDO have noticed an substantial increased budget due to Kilimo Kwanza, DADPs budget has gone from 78,328,045 TZS (2004/2005) to 1,185,795,000 TZS (2009/2010).
Every district has its priority crops: for Mbozi it is first coffee than rice and lastly maize. TZS 300-400 million has been identified for DIDF projects direct from MAFC. Irrigation scheme for paddy 400 million and 189 million for maize. Currently there are 21 FFS in the districts, but they want to expand to 42.

Table 9: Mbozi District Overviews
A summary of Business Environment in Mbozi District

Figure 6: Mbozi Business Development Services
The financial services are offered by NMB and CRDB (both have an office in the district capital) and some SACCOS are offering local services throughout the districts. ((EXACT AMOUNT OF SACCOS I DON’T KNOW, FIND OUT FOR ALL DISTRICTS!?) Although it is a long (900 km) journey to main market Dar es Salaam and Zanzibar but the road is all tarmac. Unfortunately the main rice growing areas are relative distant (50-100 km) to this main road. The priority crops in Mbozi are Coffee and Maize, therefore less efforts/funds go into rice. Only a few stores are available for rice growers, most storage is provided by the millers. Similarly stockiest are also prioritizing on coffee and maize producers and only one or two are providing some specific rice inputs
### 6.2.4 RICE – MBEYA DISTRICT OVERVIEW

#### Table 10: Mbeya District Overview

A summary of Business Environment in Mbeya R. District

<table>
<thead>
<tr>
<th>Stage in Value chain</th>
<th>Inputs</th>
<th>Production</th>
<th>Post-harvest</th>
<th>Trading</th>
<th>Processing</th>
<th>Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevant participants</td>
<td>Input traders (fertiliser, seed chemicals and machinery agents)</td>
<td>Farmers: large/medium</td>
<td>Primary traders: Warehousing</td>
<td>Secondary traders: foreign buyers</td>
<td>Processors: manufacturers, other milling/ equipment manufacturers</td>
<td>Supermarkets: Consumers Border agents Retail kiosks Transporters</td>
</tr>
<tr>
<td>Estimated Numbers of private sector players</td>
<td>5 agro-dealers near Mbarali district</td>
<td>~50-100 rice farmers</td>
<td>10-20 big stores of 200-1000 tons and 100-200 small millers with storage of 50-200 tons</td>
<td>~300-500 regional rice traders.</td>
<td>5-10 big millers and 100-200 small millers</td>
<td>Sales to local retail shops are minimal, most transported to Dar es Salaam, Zanzibar and other urban areas.</td>
</tr>
</tbody>
</table>

#### Dynamics along the chain

- Smallholders mostly produce maize instead of paddy but a lot of rice millers and traders are situated in Mbeya.
- Large number of (micro) finance institutions in Mbeya: i.e. Postal Bank, NMB, CRDB, PRIDE and others.
- Concentration of some big millers like RAFA and WELA who are using high quality machines with capacity of half to several tons per hour.
- Many NGOs (active in rice) are represented in Mbeya. Therefore, the spin-off is stronger in districts in the vicinity, especially Mbarali.
- Regional traders are mostly buying from within the region but in 2010 many bought from Malawi and then mixed it with local varieties.
- Moreover regional traders in Mbeya are also buying from Rukwa or even Ruvuma.
- The trade relationships between the actors are rather ad-hoc, however the big millers are working closely with regional traders by supplying them credit and splitting the profit.
- Buyers from Zanzibar, Congo and Dar es Salaam are contacting the millers or big traders, placing orders and collecting the rice from Mbeya. Or the trader/miller can make arrangements to transport to them. Buyers need to pay up-front and trust the seller to fulfill the contract. Both parties have built up longer-term relationships or use brokers.
- Usage of brokers to arrange trucks for transport to Dar es Salaam or other destinations is very common.
- Selling price of rice is often twice or more the price of paddy.
- There are sufficient agro-dealers for the few farmers in Mbeya Rural.
- There are ongoing improvements being made to irrigation.
First of all Mbeya R. is not a main rice growing area, it’s more a trading and processing hub. As the regional capital a lot of MFI are present here. For example, NMB, CRDB, Postal bank, Pride, Tujijenge Microfinance (TMF) and others. Although it is an 800 kilometre journey to Dar es Salaam and longer to Zanzibar, the town is well located for exports to Zambia and Congo. Local district government is prioritizing other crops, like maize but on regional level rice is an priority crop. Relative to other districts there are a lot of stores available as it is a trading and milling hub. For the few rice producers there are sufficient stockiest available.

**6.2.5 MBARALI DISTRICT OVERVIEW**

<table>
<thead>
<tr>
<th>Stage chain</th>
<th>Value Inputs</th>
<th>Production</th>
<th>Post-harvest</th>
<th>Trading</th>
<th>Processing</th>
<th>Marketing</th>
</tr>
</thead>
</table>

---

**Figure 7: Mbeya Rural Business Development Services**

Key: 1 = Very weak, 2 = Weak, 3 = Strong, 4 = Fairly strong, 5 = Very strong
### Relevant participants

<table>
<thead>
<tr>
<th>Input traders (fertiliser, seed chemicals and machinery agents)</th>
<th>Farmers - large/medium</th>
<th>Primary traders</th>
<th>Secondary traders, foreign buyers</th>
<th>Processors: manufacturers, other milling/ equipment manufactures</th>
<th>Supermarkets</th>
<th>Consumers</th>
<th>Border agents</th>
<th>Transporters</th>
</tr>
</thead>
</table>

- **Input traders**
  - Input traders are offering inputs on credit, mostly 6 month loans. During the harvest the farmers have to pay the loans back, which makes it difficult for them to store until December. Agro-dealers need money to maintain cash flow and can only get up to TZS 20 million in bank lending. With support of CNFA an expansion of the overdraft should be possible and than the input loans to agro-dealers can be extended to a year.

- **Farmers**
  - Some progressive agro-dealers are providing inputs on credit to rice farmers, offer extension services and even help with land preparation.
  - Input dealers are offering inputs on credit, mostly 6 month loans. During the harvest the farmers have to pay the loans back, which makes it difficult for them to store until December. Agro-dealers need money to maintain cash flow and can only get up to TZS 20 million in bank lending. With support of CNFA an expansion of the overdraft should be possible and than the input loans to agro-dealers can be extended to a year.
  - With support of CNFA an expansion of the overdraft should be possible and than the input loans to agro-dealers can be extended to a year.

- **Primary traders**
  - Farmers - small
  - Farmers - large/medium

- **Secondary traders**
  - Foreign buyers

- **Processors**
  - Manufacturers, other milling/ equipment manufactures

- **Supermarkets**
  - Consumers

- **Consumers**
  - Border agents
  - Retail kiosks
  - Transporters

### Estimated Numbers of private sector players

<table>
<thead>
<tr>
<th>52 organised in association and 12 outside</th>
<th>25000 households dealing with rice. n</th>
</tr>
</thead>
</table>

- **Farmers**
  - 3 big rice millers have stores of 1000 - 2000 tons, 143 small millers have storage of 50-100 tons and an estimated 20-30 (100-200 tons) other stores.

- **Secondary traders**
  - 3 big rice millers and 143 small millers

### Dynamics along the chain

- **Some progressive agro-dealers are providing inputs on credit to rice farmers, offer extension services and even help with land preparation.**
  - Input dealers are offering inputs on credit, mostly 6 month loans. During the harvest the farmers have to pay the loans back, which makes it difficult for them to store until December. Agro-dealers need money to maintain cash flow and can only get up to TZS 20 million in bank lending. With support of CNFA an expansion of the overdraft should be possible and than the input loans to agro-dealers can be extended to a year.

- **Enough tractors, ox-ploughs and power tillers as well as more advanced machines are now introduced; they are in that respect ahead of the other districts in Mbeya.**
  - Currently the district is introducing rice transplanters (3-5 machines per farmer group), which should reduce labour costs. The district is also looking to promote combine harvesters.
  - JICA is very active in training farm groups in Mbarali (together with ARI and DALDO) and other regions to increase their productivity.
  - Accessibility of agro-dealers is generally good and they are even selling machines, ox-ploughs and some seeds.
  - There are 81 extension workers in 99 villages, which is close to the national target of one officer per village.
  - JICA together with DALDO is very active in delivering comprehensive training on increasing productivity of farmers’ group in Mbarali.
  - Agro-dealers are trained by CNFA together with DALDO.
  - Irrigation is only used between November and May, as at other times it is needed for hydro-dams.
  - Amount of stores was not investigated in Mbarali and the exact number is unknown.
  - Currently 568 power tillers, 155 tractors, 5,000 ox-ploughs and 5 rice transplanters are present.
  - DALDO is planning to invest TZS 1.5 billion to set up a big market centre (Mbarali-Igorusi): including stores, processing plants and an auction platform. Moreover 5 market centres are now improved.
  - Target is to increase the area under irrigated agriculture from 37,287 Ha to 45,000 Ha by July 2013.
  - The district will start working with 15 designated farmers to produce QDS, which should make the improved seeds (SARO 5) more widely available: an estimated 26 tons will be produced.

- **NMB is the most important microfinance organization in Mbarali and is supporting WRS (4) and agro-dealers (overdraft of max TZS 30 million) and**
individual entrepreneurs. They have an increasing interest to finance farmers’ group in the irrigated areas but want to work closely with SACCOS, AMCOS, village councils and DALDOs to reduce the risk of default.

Table 11: Mbarali District Overview
A summary of Business Environment in Mbarali District

Mbarali

Figure 8: Mbarali Business Development Services
### 6.2.6 MONDULI DISTRICT OVERVIEW

<table>
<thead>
<tr>
<th>Stage in production</th>
<th>Input</th>
<th>Production</th>
<th>Post Harvest</th>
<th>Trading</th>
<th>Processing</th>
<th>Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>Agro input dealers</td>
<td>Only in Mto wa mbu and Selela</td>
<td>Warehouses</td>
<td>Magulios</td>
<td>Few millers in Mto wa mbu</td>
<td>Traders</td>
</tr>
<tr>
<td>Estimated number of actors</td>
<td>Few stockists (2 in Monduli town) 20 others registered</td>
<td>Few farmers in Mahande Rice Model Scheme</td>
<td>6 not used for rice</td>
<td>About 6 in the district</td>
<td></td>
<td>Hardly any trade in rice with other regions or districts</td>
</tr>
</tbody>
</table>

**Monduli District Dynamics**

80% of the population are Masais, whose main preoccupation is cattle rearing. As such, rice growing is only done in lowland areas of Mto wa Umbu and Selela. 6,000 acres is potentially irrigable. However only 324 hectares have been irrigated in 2009.

There is high water loss due to inefficiency and poorly constructed canals.

Weekly markets (Mnada/ Magulios), which exist in every ward is the meeting point between buyers and sellers of produce.

No system of standard weights and measures in use. Traders use volumes (usually buckets, basins tins) to buy produce.

There is no system to disseminate market information. An attempt at disseminating market information using billboards was done under MSDP but the program closed.

Traditional Masai system (Lomoni) fills the gap for disseminating market information.

One storage facility in Monduli town built by AMSDP, which TAP refurbished and about 5 others.

Main Financial services include, National Agriculture input trust fund, accessible through DALDO’s office, about 20 SACCOS in the district, National Microfinance Bank (NMB) and WEDAC (Women Development and Empowerment Company)

Models of contract farming schemes exists in flower farming, where Multiflower contracted farmers to grow flower seeds, and in Barley farming, whereby, Tanzania Breweries contracted farmers in Monduli Juu. Nothing in place yet for Rice.

Traders: Rice produced in Monduli is consumed in Monduli. Therefore, there are no traders coming from other regions to buy rice in Monduli. Monduli is not a surplus producer of rice.

In the last two production seasons, the district has been implementing the voucher system whereby farmers are subsidized to acquire inputs from some registered agro input dealers.

Table 12: District overview Monduli
Key: 1 = Very weak, 2 = Weak, 3 = Strong, 4 = Fairly strong, 5 = Very strong

NMB, SACCOS and sometimes NGO’s are (financially) supporting woman groups are offering financial services. Rice is transported on a rough road but distances to markets are not so far. The local government priority is livestock, as 80% of the people are livestock keepers (Masaai), and thus rice (as a crop) has a lower priority. There are six potential warehouses ready to be used, although not yet used. Stockist in Monduli are also focused on livestock and hence farmers have to travel far for their rice inputs.

Figure 9: Monduli District Business Development Services
## MERU DISTRICT OVERVIEW

<table>
<thead>
<tr>
<th>Stage in production</th>
<th>Input</th>
<th>Production</th>
<th>Post Harvest</th>
<th>Trading</th>
<th>Processing</th>
<th>Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>Agro input dealers</td>
<td>Farmers</td>
<td>Farmers</td>
<td>Farmers and some traders</td>
<td>A handful of rice milling machines</td>
<td>Weekly markets</td>
</tr>
<tr>
<td>Estimated number of actors</td>
<td>75 stockists, 50 used in the implementation of the voucher system</td>
<td>Average acreage is 0.5 to about 3 acres</td>
<td>Home Storage</td>
<td>Locally done and a few traders are involved</td>
<td>Less than 10 milling machines in Usa River</td>
<td>Up to 8 weekly markets take place in the district</td>
</tr>
</tbody>
</table>

### Meru District Council Dynamics

Production: Production is mainly in Lekitatu irrigation scheme, where about 1,000 hectares is used for rice production. Yield is averagely 5 tons per acre, and rice is planted twice a year. Potential acreage which can be irrigated is not clear, but there are other smaller irrigable lands spread all over the district.

Markets: At moment, rice from Meru is consumed within Meru. A group of women in Usa buy rice from the neighbourhood, mill and then sell rice to household consumers around Usa River.

Storage facility: there are 9 warehouses in Meru District, which are publicly owned with capacity varying from 300 to 800 tons. The warehouses are managed by local (Village) authorities.

Most of the warehouses need repair. The district authority, TAP and FERT each have plans to renovate one warehouse. Next season there will be 4 functioning warehouses.

Business Financing: Financial services are provided by SACCOS, VICOBA (Village Community Banks) and the National Agriculture Input Trust Fund, which commercial farmers can access through the office of the DALDO.

Business Models: There is an upcoming initiative to use Ware House Receipting System (WRS) for rice production and marketing especially with the group in Lekitatu.

TAP has supported farmers in the district by putting in place demonstration plots and organizing farmer field days. In 2009, there were 1,444 demonstration plots, 38 of them were mother plots.

CNFA has also organized farmer field days and 15 demonstration plots in the district.

FERT (French Farmer Organization) is working in the district, establishing SACCOS and in Kingori, FERT has supported rehabilitation of one warehouse and a pilot of the WRS last year.

1,000 hectares is currently under rice production.

Average acreage per household ranges between 0.5 to 2 acres, A few households grow rice on 5 acres of land.

Rice grown in Meru (especially Lekitatu) is mainly consumed within Meru.

Table 13: Meru District Overview
A summary of Business Environment in Meru District

Although there are no big MFI, there is one strong SACCO, other smaller SACCOS and village banks. The rice producers are well located, close to the main road towards Moshi or Arusha. In Meru districts the focus is on crop and there several initiatives on rice have been initiated. One warehouse is ready for uses and four more warehouses should be ready in 2011. There are over 50 stockists around and the producers are close the market places, were inputs are sold.

Figure 10: Meru Business Environment

<table>
<thead>
<tr>
<th>Stage in production</th>
<th>Input</th>
<th>Production</th>
<th>Post Harvest</th>
<th>Trading</th>
<th>Storage</th>
<th>Processing</th>
<th>Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>Agro input dealers (fertilizers, seeds, pesticides) Prod: trad. seeds)</td>
<td>Small holder farmers</td>
<td>Farmers</td>
<td>Local brokers, traders (&amp; agents), store keepers</td>
<td>Farmers, traders, large-scale commodity traders, Few rice millers, village maize mills Urban miller(s) in Songea</td>
<td>Weekly markets, households, town</td>
<td></td>
</tr>
</tbody>
</table>
Namtumbo District

Some traders provide “input-loans” at different rates (usually high). Agro-dealers benefit from the CNFA – TAGMARK subsidy programme through training sessions, loans, increasing of sales.

Production: There are only 5 tractors in the whole District and few power-tillers. Maize is planted in most wards. The yields for maize range from 1.2 to 3.5 Tons/Ha, rice from 630 to 3,150 Kg/Acre (GAP). There is in average 1 extension officer for 4 villages. They don’t have working means and they are not given clear orientations. They are used for other purposes than for support to agricultural development. District Council and TAP are promoting FFS to spread improved seeds and practices.

Areas planted with maize range from 1 to 4 Acre). Area planted with rice range from 0.5 to 2 Acre. Paddy is planted mostly in Mchomoro, Kitanda (and a third village) mainly with 6 – 700 Ha of irrigation scheme. There is also rain fed paddy. Paddy is not aromatic or is not valorised as such. Namtumbo District with DADPs funds and South Corridor Project rehabilitate / improve water schemes for rice production. Farmers only plant one cycle of rice (dry season) because the irrigation schemes are not in good condition.

Market: Much produce is sold at households or during weekly markets. WRS (3) are being developed with the support of TAP. Some storage is done at processors’ unit in Songea for maize and paddy. Large-scale commodity traders and NFRA also buy and store but are not considered as favourable market outlets by the farmers who complain about the prices and procedures. Much maize and paddy is sent to Masasi, Mtwara and Lindi.

National Road from Njombe to Tunduru is being up-graded into asphalt. Secondary roads are being improved.

Storage: the village warehouses are often used for Tobacco or are not in good condition and need maintenance. TAP & District are renovating warehouses in 3 localities (Namtumbo, Mchomoro and Mandepwende for implementation of WRS with a capacity of 350 Tons).

Financial institutions: Namtumbo SACCOS (K 100 Millions), NMB, CRDB with Namtumbo SACCOS. Level of viability and effectiveness of SACCOS un-even. Dunduliza stopped working with Namtumbo SACCOS. RFSP will phase out.

TAP / DADPs / etc.: Support to WRS, demonstration plots, support for rice processing, renovation and construction of irrigation scheme for rice production. Business Models: WRS, Farmers who store crops at millers’

<table>
<thead>
<tr>
<th>Estimated nb of actors</th>
<th>15 to 25</th>
<th>32000 Hh &amp; ~148,000 farmers</th>
<th>15 – 20 Traders</th>
<th>3 store keepers</th>
<th>NFRA in Songea</th>
<th>1 maize mill / village</th>
<th>5 – 10 paddy mills</th>
</tr>
</thead>
</table>

Table 14: Namtumbo District Overview
Figure 11: Namtumbo Business Environment
SONGEA DISTRICT OVERVIEW

<table>
<thead>
<tr>
<th>Stage in production</th>
<th>Input</th>
<th>Production</th>
<th>Trading</th>
<th>Storage</th>
<th>Processing</th>
<th>Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>Agro-input dealers</td>
<td>Small farmers</td>
<td>Local traders, brokers, store keepers</td>
<td>Farmers, store keepers &amp; processors</td>
<td>Several urban millers for rice and maize</td>
<td>Weekly markets, sale at households, Sodeco</td>
</tr>
<tr>
<td>Estimated nb of actors</td>
<td>~ 25</td>
<td>~ 33,000</td>
<td>50 – 100 traders (local and regional range of action)</td>
<td>Abundant in Town. Scarce in villages.</td>
<td>Town: 25 - 30 maize mills, ~ 15 rice mills</td>
<td>SODECO, NFRA, Export Trading and other large-scale commodity traders</td>
</tr>
<tr>
<td>Dynamics along the chain</td>
<td>Agro-dealers are getting organized at regional level with support of CNFA/TAGMARK. Sales of fertilizers increased (X3) between 2009 and 2010. There are large input marketing companies that ease the access to agro-inputs. RFSP supports SACCOS and WRS (but prevision of 6 months without support up to mid 2011). NMB and CRDB are planning to increase their presence. Most SHF produce maize. They also produce rice where low-lands offer good conditions (naturally or through construction of irrigation schemes). LGAs are investing into Irrigation schemes (District funds with the objective of passing from 2,112 to 2,262 Ha by 2013). Amongst farmers met, area for agriculture ranges from 1 to 21 Acres (maize 1 to 20 Acres, paddy 0.25 to 1 Acre). Around 5% only of “large farmers” with up to 20 Acres. Storage in the villages is scarce. There are abundant private storage facilities in Songea Town and at least a part is not properly used. D/C provided a mill to a group of farmers but the mill has not been cautiously installed and was not operating. Not many NGOs intervene in support to Agriculture in Songea. Extension agents are not sufficient. Attempts from the District to facilitate coordination between development actions at District level. Trade: Maize and Rice much sent to Mtwara and Lindi and also to Njombe and further cities on that side. SODECO Market is very useful for traders from other district and regions to bulk the requested load. Agro-dealers supported to contribute in the improvement of the trade of crops (locally). Urban processors (Mtazamo, others) implement some local integration. They offer storage facilities to producers who manage to bring their crops to town. But even then, trade relationship is mostly informal. NFRA is buying in Songea but never filled the storage facilities. Prices, buying procedures and deductions constitute disagreement points between NFRA and farmers. Export Trading is operating in Songea District. Transport is an issue: few trucks come to Songea with commodities and can be used to take the commodities out of the area at lower cost. Traders have to organize their truck (more expensive). Songea is remote from main consumption centres (East to Mtwara, West to Njombe and beyond). Power-tillers distributed up to now are used for transport rather than for ploughing. Power-tillers distributed are used for transport. They are given to the farmers with no spare parts and apparently no training concerning its profitability or the management procedures required.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 15: Songea District Overview

Figure 12: Songea Business Environment
### 6.2.10 NJOMBE DISTRICT OVERVIEW

<table>
<thead>
<tr>
<th>Stage in production</th>
<th>Input</th>
<th>Production</th>
<th>Post Harvest</th>
<th>Trading</th>
<th>Storage</th>
<th>Processing</th>
<th>Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Large Input Supply Companies</td>
<td></td>
<td></td>
<td></td>
<td>Rural: scarce</td>
<td>Urban mills</td>
<td>Makambako is a main market for maize and cereals</td>
</tr>
<tr>
<td>Estimated nb of actors</td>
<td>24 agro-dealers (2003) 2 large companies</td>
<td>~100,000 ha planted with maize / 165,000 T in 2006 86,986 Hh / 365,872</td>
<td>Over 100 traders in Njombe and Makambako 56 go-downs for most of them in good condition 3 – 4 large maize processors (Njombe, Igwachanya, Makambako) &gt; 500 rural mills</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Njombe District

Agro-dealers not yet organized at District Level. Supply improved with the intervention of CNFA/TAGMARK. There are complaints about the procedures utilized for the attribution of the vouchers in the villages and for the attribution of villages to the agro-dealers (from agro-dealers’ side).

There are almost exclusively SHF. Larger experience of use of fertilizers and oxen ploughing. Complains about decreasing yields and soil exhaustion. NADO / TAP / CNFA – TAGMARK / ADDA / DALDO are supporting the farmers with WRS, FFS, and QDS and for organization. Several NGOs intervene but not always in a well coordinated way. ADDA is collaborating with NADO. District agricultural extension officers are not yet sufficient. Rice is reserved for the lower lowlands due to temperature issues. Maize is present in most of the District. Farmers met plant between 3 and 10 Acres in total. Maize covers 2 to 5 acres for each.

The financing of agriculture is still insufficient. SACCOS, NMB, NBC, CRDB don’t cover the needs yet. There seem to be important track records in Njombe District that slow down the expansion of the commercial banks. NADO is about to set up a SACCOS covering several wards. Many farmers misunderstood the procedures and the opportunities of DADPs and this led to its under-utilization. The procedure has not been properly explained to the farmers.

Statistics about storage facilities are positive but in the villages, farmers mostly store at their place.

The evolution of the Njombe District into a region may allow the improvement of the means dedicated to agriculture.

Maize from Njombe doesn’t have a good reputation for milling as it doesn’t always reach a stage of maturity that allows good processing rates. Combined with higher transportation costs, maize from Njombe doesn’t easily reach Dar es Salaam and is rather consumed locally or sold processed into flour. There are three medium to large-scale millers who operate in Njombe District and send their flour to Dar es Salaam, Mtwara and Lindi.

Trade is much operated by small traders who transport some bags every day by bicycle to Makambako. There are also larger traders operating. Transportation from the villages to the main road during the rainy season can be hectic as quite some the feeder roads are difficult to pass then.
Power-tillers are ready to be distributed to the farmers but many farmers are sceptical about the way to use this equipment and its profitability.

Table 16: Njombe District Overview

<table>
<thead>
<tr>
<th>Stage in production</th>
<th>Input participants</th>
<th>Production participants</th>
<th>Trading participants</th>
<th>Storage participants</th>
<th>Processing participants</th>
<th>Marketing participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>Agro-dealers</td>
<td>Small farmers</td>
<td>Small and medium traders</td>
<td>Traders</td>
<td>Small and medium size mills</td>
<td>Retailers on the market and millers</td>
</tr>
<tr>
<td>Estimated nb of actors</td>
<td>115 ha under irrigation</td>
<td>20 – 30 urban traders</td>
<td>49 rural go-downs</td>
<td>~ 115 rural mills</td>
<td>5 – 10 urban mills</td>
<td>20 – 30 retailers</td>
</tr>
</tbody>
</table>

Figure 13: Njombe Business Environment

6.2.11 MUFINDI DISTRICT OVERVIEW

Mufindi District

- The potential for irrigation is 3,840 ha (compared to 115 ha currently utilized). Maize is produced on 173,240 ha that provide (strangely) 174,240 Tons.
- In 2008, the District was affected by a shortfall of ~ 40% compared to the needs of fertilizers and 94% for the needs of insecticides. The CNFA / TAGMARK / TAP / District input subsidy programme is supporting Agro-dealers to improve the access to inputs but needs are still far to be
covered. There are few tractors / mechanized farmers. Owen ploughing is present but only for some farmers (2 oxenization training centres). INCOMET is supporting the District for extension purposes.

Several SACCOS and MUCOBA are partly providing for farmers’ and traders’ needs of loans. MUCOBA is trying to bridge the gap between the SACCOS and the commercial banks. NMB is also getting positioned in support to Micro-finance needs.

There were 68 extension agents in 2006 (1 for 837). The District is trying to improve its presence alongside the farmers but there are still many villages without proper presence.

Locally in Mufindi District, there is an important market for maize flour and rice in the tea, wood, etc. as Estates and factories employ many people that cannot farm and buy crop locally. The prices are levelling with the prices in Dar and this also influences the prices in some villages. Processors get supply in further areas and –as much as possible – directly from farmers. They also invest in branding and target markets where they can get better prices (Dar HIMIC, Comoro, Mtwar, Kilombero Sugar, etc.).

Mafinga is also a processing platform for paddy from Madibira (Mbeya region) that produces aromatic rice. There are several processing units that connect the small paddy traders to the rice traders. This is where “Madibira rice” becomes “Kyela Rice”. Some actors (who also brand their maize flour) try to brand rice and to facilitate farmers’ vertical integration up to the supply of the paddy mill.

Table 17: Mufindi District Overview

<table>
<thead>
<tr>
<th>Financial services</th>
<th>Stockists</th>
<th>Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Figure 14: Mufindi Business Environment
### 6.2.12 IRINGA DISTRICT OVERVIEW

<table>
<thead>
<tr>
<th>Stage in production</th>
<th>Input</th>
<th>Production</th>
<th>Post Harvest</th>
<th>Trading</th>
<th>Storage</th>
<th>Processing</th>
<th>Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>Agro-dealers, Large Input Companies</td>
<td>Small farmers</td>
<td>Farmers</td>
<td>Local and regional traders</td>
<td>Farmers, traders in town, large-scale commodity traders, NFRA</td>
<td>Rural millers and urban millers in Iringa (maize and paddy)</td>
<td>Weekly markets, trade of maize, Retail and wholesale of maize flour</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Estimated nb of actors</th>
<th>Agro-dealers</th>
<th>Large-scale companies</th>
<th>traders</th>
<th>Large-scale farmers</th>
<th>storage capacity</th>
<th>Medium to large urban mills</th>
<th>~ 520 rural mills</th>
</tr>
</thead>
<tbody>
<tr>
<td>54</td>
<td>2</td>
<td>50 – 100</td>
<td>37 go rural godowns</td>
<td>Large urban</td>
<td>15 to 20 medium to large urban mills</td>
<td>Weekly markets, trade of maize, Retail and wholesale of maize flour</td>
<td></td>
</tr>
<tr>
<td>3 – 5</td>
<td>100 traders</td>
<td>37 go rural godowns</td>
<td>15 to 20 medium to large urban mills</td>
<td>15 to 20 medium to large urban mills</td>
<td>15 to 20 medium to large urban mills</td>
<td>Weekly markets, trade of maize, Retail and wholesale of maize flour</td>
<td></td>
</tr>
</tbody>
</table>

**Iringa District**

CNFA / TAGMARK / TAP + District are up-grading and up-scaling the input subsidy programme. Agro-dealers are being trained to improve the farmers’ access to inputs.

There are several SACCOS (54) and saving & Credit societies (10), women credit groups (24) operating and organizations supporting SACCOS and WRS. Commercial banks are slowly penetrating the rural areas. There is still a large margin of progression... Several projects (ASF, TAP, TAGRODE, RUDI, etc.) are promoting WRS. Climate seems to evolve towards more aridity. Soils seem to get more and more exhausted. Projects – together with District Authorities – are supporting the construction of irrigation schemes (ASF – CARITAS and ...) and farmers’ processing units.

Mechanization or oxen ploughing are not yet sufficiently introduced. ASF / CARITAS is implementing an interesting project of agricultural training centre that gives trainees a real kick-start into improved agriculture. There are two large-scale farms involved into maize production and there is an opportunity for the small farmers’ vertical integration through these farmers, especially Rutuba farm that is setting up a mill and needs to complete supply.

Spearheading experiences have been conduced in Iringa District concerning land tenure clarification with the District and TAGRODE. There is a concentration of millers in Iringa Town for both rice and maize. Crops are processed for local consumption and also to be sent to further urban markets (Dar es Salaam) and to areas that are structurally under-supplied (Ifakara, Mtwara).

**Table 18: Iringa Rural District Overview**
6.2.13 MOROGORO RURAL DISTRICT OVERVIEW

<table>
<thead>
<tr>
<th>Stage in production</th>
<th>Input</th>
<th>Production</th>
<th>Post Harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>Agro-dealers, large companies, TFA</td>
<td>Small farmers</td>
<td></td>
</tr>
</tbody>
</table>

| Estimated nb of actors | > 50 agro-dealers in the district |

<table>
<thead>
<tr>
<th>Trading</th>
<th>Storage</th>
<th>Processing</th>
<th>Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traders, large-scale commodity traders, NFRA, Morogoro central cereal market</td>
<td>NFRA, traders, large-scale traders</td>
<td>Rural village millers for maize. Urban millers with different scales of intervention</td>
<td>Morogoro town, Dodoma and Dar es Salaam are important market outlets</td>
</tr>
</tbody>
</table>

| 20 – 50 urban traders, Village go-downs | NFRA, Large-scale commodity traders | > 59 rural mills. | ~50 urban mills |

**Morogoro Rural**

Agro-dealers have created an apex organization at regional level and some of them are involved in the creation of a company aimed at improving the supply to the members of the regional union (grouped purchase, etc). Agro-dealers who were concentrated in Morogoro town are starting to
District

establish permanent selling points in the villages (Kiroka, Mikese, etc) under the influence of CNFA/TAGMARK, District, and TAP. They are intensively involved in the input subsidy scheme. They are getting organized to provide loans and market outlets to the farmers.

Yields are dramatically low in some areas (less than 1 ton/ha) and the use of fertilizers is still very limited. Agricultural practices still have to be improved. Even though the market for maize is present (Morogoro, Dar es Salaam) farmers still don’t consider that market outlets are good.

Access to credit is still mainly provided by SACCOS. SACCOS are organized into a regional union that can help to get access to additional funds. Commercial banks (CRDB, NMB, etc.) are in the process of penetrating the rural areas but they still struggle with the farmers’ lack of guarantees. PASS has been collaborating with commercial banks to provide guarantees and support for the access of entrepreneurs to loans.

Rural storage capacity is not clearly identified. TAP with Districts are supporting the improvement of go-downs to develop WRS in partnership with SACCOS (and sometimes agro-dealers).

Many projects intervene in support to protection of environment, promotion of conservative agriculture, but still extension capacities are insufficient compared to the needs. Some areas are of easy access but others are very remote (direction of Kisaki). There is a land pressure in the agricultural areas surrounding Morogoro due to the presence of large sisal estates. Rice is produced in some irrigation schemes under construction (Kiroka).

Due to the proximity of Morogoro and Dar es Salaam, many maize producers are tempted to sell green maize (that pays much more) rather than grains but this activity is severely controlled for food security purposes.

Table 19: Morogoro Rural District Overview