TANZANIA VALUE CHAIN SYNTHESIS AND ANALYSIS

12th August 2009

This publication was produced for review by the United States Agency for International Development. It was prepared by Dexis Consulting Group.

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EXECUTIVE SUMMARY

The goal of this value chain synthesis is to recommend value chains and value chain segments in which USAID/TZ and can have the greatest marginal impact on poverty reduction and food security. All other considerations are subordinate to these overarching goals. For the purposes of this document, food security is defined as the ability to grow one's own food or the ability to grow cash crops, the revenue from which can be used to purchase food. Consequently, there is some overlap between food security and poverty reduction.

Given that poverty reduction and food security are, in and of themselves, too broad to be actionable metrics upon which to base value chain selection. Indeed, most improvements to the value chain will end up creating value for smallholder farmers either in the form of increased sales volume or in the form of higher prices per unit sold. In either case, food security and smallholder income are increased. Given this, an approach to value chain selection based on narrow and more specific criteria is both useful and appropriate.

This report used the following meta-criteria as its guide for selecting value chains, identifying cross-cutting interventions (typically across the same stage of the value chain), and maximizing opportunities for synergistic collaboration with other development entities:

- Scope of impact: number of people
  - Number of farmers effected
- Scope of impact: In the value chains
  - Value chain stage impact (ideally a stage with broad-based impact or multiple stages)
  - Value chain stage's openness to large numbers of smallholders and thinly capitalized individuals
  - Size of value chain stage's margins since those with higher margins are more desirable for targeted populations
- Synergies with existing programs (NGOs, Gov't of Tanzania, etc.)
- Timing, cost, and yield on effort for USAID

These meta-criteria were broken down into measurable sub-components and analyzed, scored, and ranked in a quantitative model on which the recommendations for interventions are based. See Appendix 1 for a summary of the model and the scored / ranked outputs.

SECTION I: THE FIRST CUT: WHAT IMPACTS HAVE HIGH-SCOPE IMPACTS

The first cut for this exercise was scope with a particular emphasis on the quantity and types of persons that could be affected by interventions in the proposed value chains. Interventions that might have a high economic impact but that are sharply limited to a small segment of the population are unlikely to achieve the goals of poverty alleviation and income generation. Within specific value chains in which large numbers of people participate at one stage or another (typically the beginning stages in Tanzania), an intervention in certain narrowly defined sectors may benefit many people; however, a value chain that does not involve large numbers of people suffering from poverty and food insecurity at some stage of that value chain will simply not have an acceptable impact. Thus, the team begins its analysis by identifying specific sectors with large numbers of participants at some stage of the value chain. This section is based on quantitative data but is not matrixed since participation data on the small sectors that were not selected are unreliable or, more typically, not available given their small sizes.

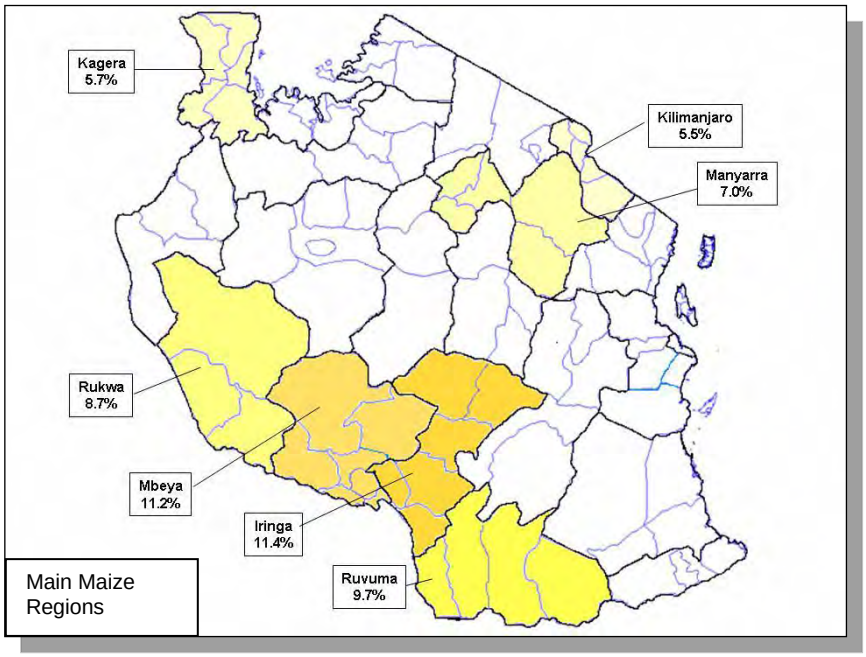
A brief demographic and economic overview of Tanzania and the Tanzanian agriculture sector is useful for understanding the subsequent analysis.

Tanzania occupies an area of 945,087 km2 and an estimated population of about 38 million. Agriculture is the mainstay of the Tanzanian economy accounting for about 45 percent of GDP. Maize is the main staple food. Other food products include meat (livestock and poultry), rice, wheat, root crops, sorghum/millet, bananas and pulses. Agriculture occupies a very important place in the lives of Tanzanians and in the national economy. It provides full time employment to over 70% of the population as well as the bulk of the food.

	Million ha
TOTAL LAND	94.5
Arable	44.0
Cultivated	10.1
Suitable for Irrigation	29.4
High Potential	2.3
Medium Potential	4.8
Low Potential	22.3
Under Medium/Large Scale farming	1.5
Rangelands*	50.0
Suitable for Livestock	26.0
Tsetse Infected Area	24.0

There are between 4 and 5 million small-scale and over 1,000 large-scale private sector agricultural operations. About 70% of small-scale farms are less than 2 ha. Of these, 64% are produce crops only, 35% are mixed farms (crops and livestock, including draft animals), and 1% specialize in livestock. Of the large-scale operations, 58% specialize in crops, 20% specialize in livestock and 22% are mixed farms. The average cropped area of a small-scale operation has declined since the 1970s, and is now just under 1 ha. Current numbers indicate that the average size of ‗medium and large scale' farms is about 1,200 ha.

Within this enormous sector of the Tanzanian economy, several sectors emerge as being particularly large both in terms of volume sold and the number of people involved. These sectors (or, more specifically, their value chains) are natural targets for USAID interventions and are maize, rice, and beans.



Sector 1: Maize

Maize is considered the most important food crop in Tanzania. It is grown on an astonishing 45% of total arable land. About 50% of rural incomes come from maize. (Though there is variation: in 2008 marketed maize averaged about US$100 per household producing maize: but the price in 2008 is double the _normal' price.) Official estimates suggest that in 2003 some 4 million households were growing maize on 3.7 million ha. Maize is dominated by smallholders and on average, the area under maize cultivation for the smallholder is typically less than 1.2 hectares (approximately three acres), and it is virtually all under rain-fed irrigation.

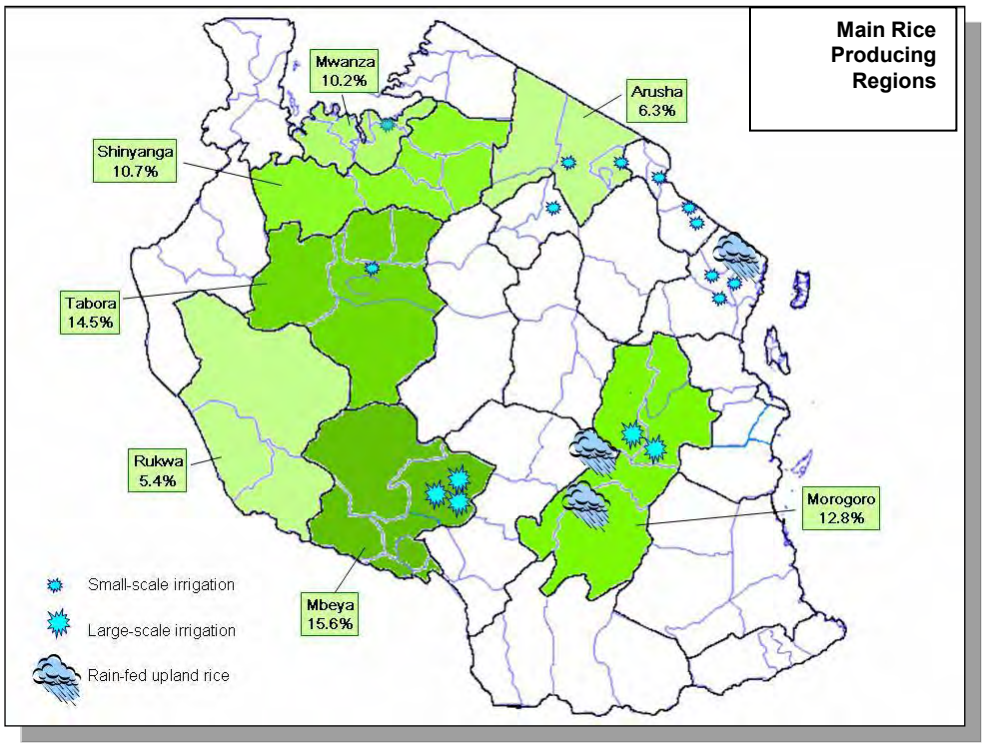
Maize is both consumed on farms by growers and sold into chains where it ends up consumed domestically and, despite episodic bans, exported. Ground maize is used to prepare the staple starch uglali.

Although maize is produced by farmers in almost all the 21 regions of the country, over half the national production comes from only a few regions. The most significant maize growing are generally in the southern half of the country: Iringa, Mbeya, Ruvuma and Rukwa are the highest producing regions but Arusha is also an important production region given its location in the bimodal (two crops/year) area. Good harvests in Arusha during the short season are important given the timely occurrence of the harvest – at a time in the year when stocks from the long season are beginning to deplete.

Given maize's great importance to both food security (in both the consumption and cash crop sense) and poverty alleviation (it is an important source of revenue for huge numbers of farmers) the maize value chain makes the first cut for suggested interventions.

Sector 2: Rice

Rice, like maize, is a foundational component of Tanzania's broader agriculture sector. Total annual rice production has increased from 192,000 MT in 1994 to about 900,000 MT in 2007. Estimates of the number of farmers growing rice vary from 642,000 to 966,000. The total cropped area is about 900,000 ha.



Rice is grown in almost all regions of the country and is mainly grown by small-scale farmers. Small traditional farmers typically cultivate 1-5 acres using traditional methods; small irrigation farmers grow about 2-2.5 of rice in an irrigation scheme often controlled by the government; larger irrigation farmers grow more than 5 hectares in an irrigation scheme, outsource plowing, and hire most of their labor. Large-scale commercial rice production is limited to few private firms who bought farms when large-scale irrigated National Agricultural and Food Corporation (NAFCO) schemes were privatized.

There are three large-scale rice irrigation schemes for rice in Mbarali District (Madibira 3,000 ha, Kapunga 3,000 ha and Mbarali 3,200 ha), and others at Kilombero and Mtibwa. There are small irrigation schemes in Manyara (Magugu), Moshi (Lower Moshi) Mwanza, and Tabora (Mwamapuli), Ndungu at Same, Lake Tatu at Usa River, Mto wa Mbu, Mombo, Korogwe, (2-3 schemes), Tivo at Lushoto, the Mkomazi Valley, and at Pawaga in Iringa. Elsewhere rice is rain fed (~~u~~pland") in the Usambaras, Udzungwas and Mahenge, or lowland rain fed in Lake Victoria, Tabora, Mwanza, Shinyanga, Dodoma and Kigoma.

Due to the high labor requirements, and the fact that it is a profitable cash crop, rice farmers are sometimes specialised in this crop. Prices are supported both by high international demand, as well as the potential for regional and international exports.

Statistics on rice are difficult to interpret as sources do not systematically differentiate between unprocessed rice (paddy or *_mpunga')* and processed rice *(mchele)*. The difference is substantial, as 1 MT of unprocessed paddy will mill down to 500 or 600 kg of processed rice.

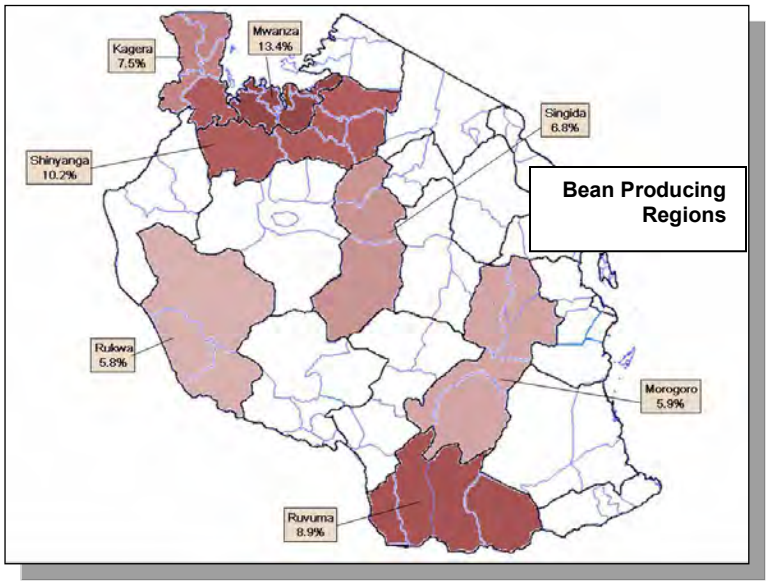
Like maize, rice, with the widespread participation of smallholders vulnerable to food insecurity and poverty at the beginning of its value chain, clears the –first cut" for inclusion in the value chain.

Sector 3: Beans and Pulses

FAO estimates that Tanzania produces about 13% of the entire African bean crop. Beans are grown in Tanzania wherever rainfall is sufficient, and are typically intercropped with maize. Less than 3% is irrigated. Beans are grown by small-scale farmers mainly for home consumption. There are some pure stands grown during the short rains. In 2003, 746,000 ha were planted to beans by over 1.2 million farmers. The Ministry of Agriculture estimates that about 30% of pulses are produced by large-scale farmers while the balance is produced by small-scale farmers, each farming an area ranging from 1 to 5 acres on average.

Accurate statistics on beans are often difficult to obtain as they are frequently amalgamated with other legumes under the heading of –pulses". In Tanzania, beans usually comprise about 80% of the overall pulse crop. Soya plants fall into the category of pulses. Statistics on the planted area are complicated by frequent intercropping.

MAFC figures indicate that total bean production increased from about 302,000 MT in 1995 to 708,000 MT in 2005. However, FAO provides slightly different data suggesting that from 1994 to 2001 total annual bean production has ranged between 374,200 to 689,951 MT. Approximately 4,000 MT of seed beans are produced annually by specialised large-scale farmers in Iringa, Arusha and Simanjiro. The seed beans are for export, mainly to Dutch seed houses. Irrigated seed beans in Iringa are giving an average yield of over 2 MT/ha.



It is believed that in low production areas like Lake Zone farmers retains about 45% of total bean produced. In a survey taken in 1991, only 37% of total beans produced in Tanzania were consumed at household level while 63% were for market. It is expected that domestic consumption of beans will increase in line with population growth.

The most important regions for bean production –each producing over 50,000 MT and together accounting for almost 60% of the national pulse production – are shown in the accompanying map.

Given the large number of bean farmers and its close relationship with the economically difficult corn value chain (bean plants have nitrogen fixing properties that are essential for successful corn cultivation; this mean that they might very well be cultivated whether they were profitable or not), beans clearly make the cut of large-scale participation and possible impact on poverty alleviation and food security.

Sector 4: Cassava

Cassava is one of the important food crops grown in Tanzania providing energy from its roots and protein, minerals and vitamins from leaves. Cassava plays an important role as famine reserve, rural food staple, cash crop, urban food staple; industrial raw material and livestock feed. The stems that are often used as planting materials, when dry are sometimes used as fire wood. What is more important for rural farmers, they can manage to produce cassava under conditions where other crops may fail. Cassava tolerates poor soil, adverse weather and can thrive well across a wider range of agro-ecological zones. The advantage of cassava over other staple food in Tanzania are tolerance to drought, capacity to provide yields in agro-ecologies and season where other crops would fail, low requirements for external inputs like fertilisers, flexibility in planting and harvesting, and convenient in-ground storability. The most important cassava producing areas in Tanzania include areas around Lakes Victoria, Tanganyika, and Nyasa; along the coastal strip of the Indian Ocean and along the Ruvuma valley (Msabaha and Rwenyagira, 1989). Cassava production in Tanzania is 6.8 million MT per year. According to National Sample Census of Agriculture (2006), cassava production is higher than any other roots or tuber crop in Tanzania with a total production of 2,102,838 tons representing 84.6 percent of the total root and tuber crop production. The number of households growing cassava during 2002/2003 cropping season was 1,213,958 representing 25 percent of the total crop growing households in Tanzania. The area planted with cassava is approximately 81 percent of all area under root and tuber crops. It is the only root and tuber crop that has increased its production over the period 1995 – 2000 (Table 27), whereas the production of other roots and tubers was stable over the 1994 to 2003 period. The average planted area of cassava is 0.52 ha per household.

Cassava is mainly consumed by low-income earners, both in rural and urban area. It is a cheap food which can be afforded by poor household budgets. There is no significant processing of cassava, (drying, making chips and pounding into flour takes place at farmer, trader or consumer level). Much of the consumers reported simple processing in the form of boiling and drying. The major form in which cassava is consumed is boiled fresh roots. This is mainly taken as breakfast. In some instances cassava is locally processed into dry makopa whose flour is mixed with either maize crops or sorghum/millet flour at a ratio of 25 percent cassava during periods of no food shortages and up 50 percent cassava during food shortages.

Considering cassava is relatively cheaper than cereals, and is available during drier years, it inevitably constitutes an important energy source of food for the low-income households. The major source of cassava for both urban and rural consumers is retailers entailing vendors (magenge) and hawkers. However, rural consumers manage to obtain cassava directly from producers (farmers). Due to underdeveloped storage and processing facilities, rural consumers prefer to access cassava direct from farmers so as to be assured that the produce is still fresh, avoiding loss of taste and nutritive value.
Given cassava's great importance to for food security and the fact that some 25% of crop growing households in Tanzania grow cassava, this product and its value chain is a natural to pass through to the second phase of evaluation.

Sector 5: Livestock (Beef and Leather)

The structure of the livestock sector in Tanzania is characterized by small keepers who account for about 80 percent of the total population. During the 2002/2003 agriculture year there were about 1.8 million livestock keeping households in Tanzania representing 37 percent of the total smallholder households. Cattle are the predominant species kept by smallholders with a current population of 18.5 million followed by goats (12.5 million), sheep (3.5 million), and pigs 1.2 million). In terms of numbers of households keeping livestock, goats are as important as cattle with 40 percent of households keeping goats and 37 percent rearing cattle. Livestock keeping households keep an average of 19 heads per household.

The livestock sector is dominated by an agro-pastoral system which contributes 80% of livestock products, 14% comes from pastoral system and the remaining 6% comes from small emerging commercial production systems. The sector contributes to the national food security through conversion of rangelands resources into products suitable for human consumption and is a source of cash incomes and inflation free store of value. Furthermore, the livestock sector provides a source of manure for the crop fields, draught animal power, and other socio – economic functions. Livestock production in Tanzania is mainly for the domestic market with little export of live animals or livestock products. 50% of the animals comprising the livestock sector are cattle, goats make up 35%, and pigs and sheep make up the balance.

Given the high numbers of livestock holding numbers and livestock's usefulness in both food security and poverty alleviation (animals can be rented as draft animals, slaughtered and sold, are a store of value in periods of inflation, etc.) this sector was selected for further analysis.

Sector 6: Horticulture (High-Value Export Vegetables or HVEV)

Over 95% of horticultural production comes from small-scale farmers who cultivate small plots of less than one acre. These small-scale farmers supply over 80% of fruits and 90% of vegetables consumed in the domestic market. Production occurs under both rain fed and furrow-irrigated systems. Utilization of improved inputs is low and average realized yields for most crops are 50% of achievable potential. One million rural households in Tanzania are currently producing vegetables commercially; however, high-

value export vegetables (specialty, exotic, organic, ‗Fair Trade', and convenience-packed vegetables for which some consumers are willing to pay a premium) are currently a very small share of aggregate vegetable production in Tanzania. The two large players (vertically integrated and in the later stages of the value chain) have taken up initiatives to involve more small- and medium-scale farmers as a way to increase their export volume and live up to export orders, but they are hampered by the investments that are required to make it work (especially for training, technical assistance and organization of farmers). It is estimated that more than 2600 people are either employed directly at the vegetable farms and pack houses or indirectly employed as contract farmers and/or out growers for these two companies.

Even though relatively few farmers would be able to tap into this value chain immediately (though many of them women since women are often the farmers that produce HVEV) this segment clears through to the next phase. It should be noted that this sector is not cleared through on numbers of people involved at this moment but, instead, the ease of entry into this value chain, the potentially large numbers that could enter this value chain quickly and easily, and the high percentage of women that would likely be involved.

Sector 7: Cashew Nuts

Cashew nuts are important to Tanzania's economy (they generate an average of USD 74m per year in foreign exchange earnings, serving as Tanzania's leading agricultural Export) and they are grown by 280,000 smallholder farmers who derive most of their livelihood from them. These growers are centered particularly in the southern regions of the country. There are about 42,000 cashew farmers in Tanga and Ruvuma.

Despite producing as much as 90,000 to 100,000 tons of cashews in a year, only 17% of the country's production is processed to add value in Tanzania. The rest is sold in raw form, to be processed and re-exported by India, the worlds' dominant cashew processor and exporter. Tanzania has lagged behind making in-roads into world processed cashews markets due to bottlenecks in its processing capacity. This signifies a lost economic opportunity to the Tanzanian economy and, by extension, to the farmers who inevitably get low net profits. Some progress has been made by small and medium scale processors in the past four years, but they still process very little. Growers also face challenges around aging cashew groves.

Cashew is included in the second phase of analysis because of the (relatively) large number of growers and their almost total dependence on sales of cashew nuts for income. In this sense, cashew interventions fall into the category of poverty alleviation and food security through increased income.

Sectors Considered But Not Selected For Ranking and Scoring

There are numerous sectors that the team considered but did not select for further analysis. The most significant were:

- Specific vegetables such as onions, tomatoes, etc. The team's research suggests that specific vegetables are too narrow a market segment to justify further analysis. While the impact on growers would likely be high (particularly in poverty alleviation and concomitant food security) the impact would be too narrow when compared to other options. Furthermore, interventions in the HVEV sector would capture not only the value of any specific sector / value chain but would also benefit other value chains, as well.

- Sorghum and Millet: Sorghum and millet have the advantage of being "low maintenance" and thus available to people with conditions such as HIV/AIDS. However, their limited scope means that ROI for investments and interventions in these areas are not as high as investments in other areas. Furthermore, other NGOs / Agencies are focused on this area meaning that opportunities for USAID to add value may be limited.

- Coffee and Tea: While important cash crops, growth and ownership is narrowly focused and well-capitalized. Interventions in these areas would not make sense.

- Sisal: The desired impact is too far out time-wise for USAID. One recent report concluded that sisal farming could be economically viable for smallholder farmer though the first yield will be after three years and break-even point after five years of production.

- Spices: Spices typically require a critical mass to cover transport costs that may be beyond the scope of this project. While interesting, their potential impact on food security and poverty alleviation is insufficient to merit further consideration.

SECTION II: CHOOSING AMONG HIGH IMPACT SECTORS

With the focus narrowed down to seven broad-based sectors likely to have sufficient impact scope to justify USAID interventions, the team constructed a scoring model to for a preliminary ranking and prioritization of the indicated sectors. A more qualitative analysis is then used to identify specific interventions within the sectors that scored highest.

The four scoring areas were as follows:

Poverty Reduction

Poverty reduction seeks to capture the contribution that each value chain makes to reduction in poverty through increased income from sales. The team used its knowledge

of the sector and interviews to answer this question, especially since the model does not specify which sections of the value chain the increased sales come from (please see supporting documents, especially the latest version of the ‗Marketing Supplements' documents for synthesized supporting research and analysis).

Factor Group	Topic Area	Description	Max Points	Notes
Poverty Reduction Score				
Pov. Red.	No. of rural household participating	Large numbers of smallholders = 10, smallholders and medium farmers = 6, mainly large farms = 5	**10**	Large farms will hire disproportionately higher amount of labor and probably at higher rates.
Pov. Red.	Marginal income potential	20% + = 11, 10-15% = 7, 5-10% = 4, <5% = 2	**15**	Marginal impact of working in this sector vs. continuing in present sector. (Assumed to be staples for horticulture, etc.)
Pov. Red.	Employment potential	Marginal labor hired: 10%+ = 3, 5-10% = 2, 0-5% = 1, <0% = -1 (for plausible value chain sectors; not just production)	**10**	Low point value because this is, to some extent, captured in number of households.
Pov. Red.	Women's income opportunities	What percentage of the income earned will accrue to women? 75-100% (13), 50-75% (10), 25-50% (7), 10-25% (6), 0-10% (2)	**10**	This captures the participation of women in this sector and the amount of marginal income from participation that will accrue to women.
Poverty Reduction Score			**45**	-

Food Security

Food security measures each segments contribution to food security. As mentioned above, poverty alleviation can contribute to food security through cash income which can be used to buy food. Hence, Food Security and Poverty Alleviation point values should not been as emphasizing the former over the latter; instead, they should be taken together as a joint score with the breakdown for the sake of convenience and clarity.

Factor Group	Topic Area	Description	Max Points	Notes
Food Security				
Food Sec.	Own-grown substitution	What percentage of labor must be taken away from existing cashcrop and or own-grown food to move into suggested area. 75-100% (1), 50-75% (3), 25-50% (5), 0-25% (7)	**8**	Captures risk of giving up current own-food and cash crop production. Goes to inevitable "ramp up time" when neither is productive.
Food Sec.	Market demand reliability	High = 10, Medium = 6, Low = 2, TBD = 2	**12**	Esp. important for those in cash crops. Includes timeliness of payment and likelihood to purchase year-on-year. Erratic or highly variable annual demand is penalized.
Food Security Score			**20**	**-**

Business Viability

Business viability is an essential for successful interventions in the value chain. This table measures the incremental business opportunities for each sector and can be thought of as a proxy for the ROI that USAID can expect to get on its investment in any particular value chain.

Factor Group	Topic Area	Description	Max Points	Notes
Business Viability				
Bus. Viability	Domestic Demand Elasticity	Less prince sensitivity results in higher point valuue.	**6**	Volume of demand in domestic market (for either TZ-produced or imported products).
Bus. Viability	Regional market potential	Incremental export potential greater than 50% (4); 30-50% (3); 20-30% (2); 1-20% (1)	**5**	Describes the size and potential of the E. African export market.
Bus. Viability	Global export market potential (less E. Africa region)	Incremental export potential greater than 50% (4); 30-50% (3); 20-30% (2); 1-20% (1)	**4**	Describes the size and potential of the global export market (less E. Africa)
Bus. Viability	Capital intensity	What capital requirements are there to move into this business or for vertical integration? High (0), Medium (3), Low (T7), Minimal (10)	**9**	Captial constraints are a major issue and may not be resolved in time for COMPETE to have an impact on capital-intensive industries.
Bus. Viability	Horizontal integration viability	Significant opportunites for horizontal integration (15); good but not large (10); narrow and geopgraphically constrained (5); very limited (0).	**15**	This can be goegraphic concentration of growers; intercropping with overlapping value chains (such as pulses and maize or other natural combinations); etc.
Bus. Viability	Potential for warehouse receipt system	Product requires advanced storage and suffers from price volatility; WRS not in place (10); product can be stored at home but has price volatility; WRS not in place (5); WRS of limited benefit to growers (0).	**10**	WRSs are widely regared as an essential element for increasing the income of rural farmers. Slightly lower because there are numerous interventions from other NGOs in this area right now.
Bus. Viability	Domestic consumer preference	Cosumer strongly prefers a Tanzanian product vs. imports (15); preferred product is domestic but produced in limited supply (10); consumers preference agnostic when choosing between Tanzanian product and import (5); Tanzanian's prefer imported product (0).	**15**	Domestic market preference for TZ product vs. imported goods.
Bus. Viability	Margins in targeted steps of value chain	Margins in next step up the value chain are: >15% (8), 10-15% (6), 5-10% (4), 0-5% (2).	**12**	This describes the margins available in subsequent steps of the value chain; these steps may or may not be limited to the first step after harvest.
Bus. Viability	Possibility of vertical inegration	Vertical integration is into fragmented segments of the value chain with low (non-financial) barriers to entry (12), moderate barriers to entry or otherwise restricted (6), limited to large farmers / investors (2)	**15**	By definition excludes capital intensiveness which is covered separately; this captures competitiveness of possible value chain segments targeted.
Business Viability Score			**85**	**-**

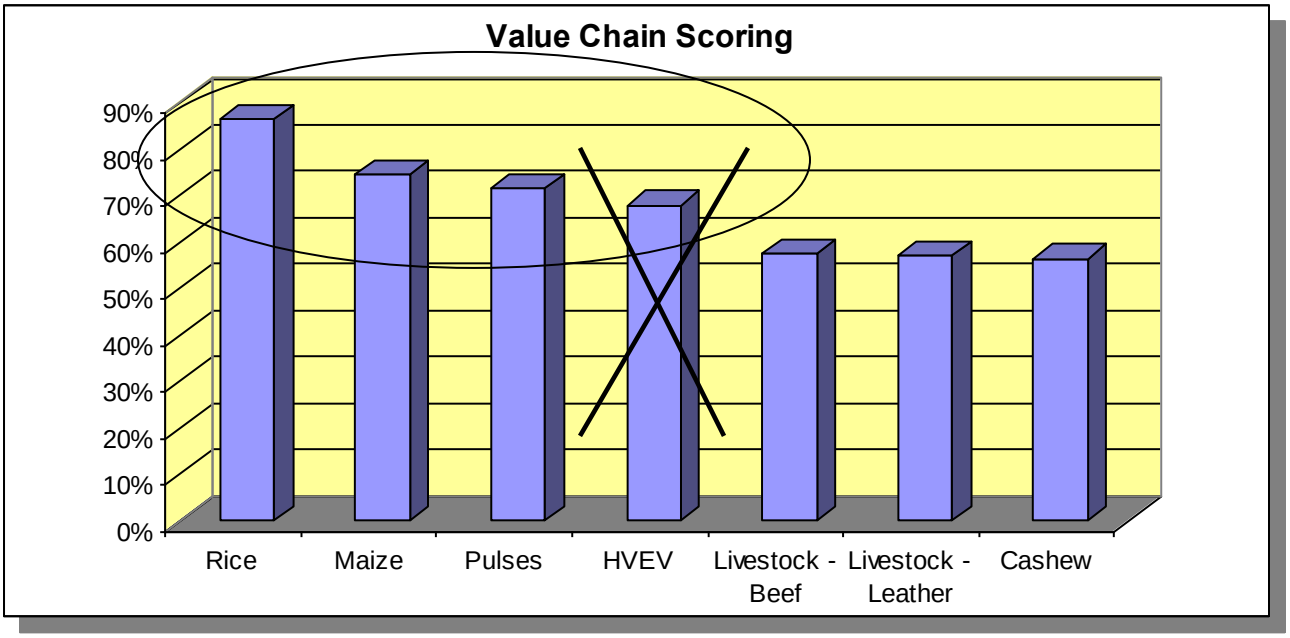
Externality Risk

Externality risk captures risks that are outside the value chain but still have a significant and measurable risk on actors in each sector. Externalities in this case are not things that (more or less) uniformly affect everyone (i.e., drought, nationalization of all agriculture,

the financial crisis, global economic recession, etc.) but are specific to a sector or will affect it disproportionately.

Factor Group	Topic Area	Description	Max Points	Notes
Externality Risk				
Ext. Risk	Political risk (domestic)	Market is unencumbered and export of product is never banned (10); product is subject to periodic government evaluation but bans and political interference are episodic and minimal (5); product subject to frequent export bans and/or price regulation; government actively intervenes in value chain (0).	**10**	Examples: maize export ban, risk of gov't establishing gov't-run competitors.
Ext. Risk	Political risk (international and export markets)	Low risk (10); medium risk (5); high risk (0).	**10**	Examples: bans on GM food, GLOBALGAP standards, etc.
Ext. Risk	Non-seasonal price volatility	Product pricing is extremely unpredictably volatile in international markets (NOTE: this does not include predictable and recurring price increases that come from declines in stocks in commodities such as maize, etc.). Built in: percentage exported and impact of international prices on domestic retail prices.	**10**	Highly volatile commodity markets create risk for relatively under-capitalized sellers (one reason: cannot afford storage and cannot afford to hedge against volatility).
Externality Risk Score			**30**	-

The scores of each sector are available in the appendix but the results of the scoring model are as follows:



The targeted areas are rice, maize, pulses, and high-value exported vegetables, all of which have scores greater than 60%. Livestock (beef), livestock (leather), and cashew are bunched at the bottom of the scale with nearly identical scores and were excluded from further consideration.

Despites its high score, high-value export vegetables (HVEV) are excluded from this analysis. First, the team concluded that, despite high scores, the population involved is comparatively too low; and, even though it is highly woman-centric, the opportunity cost of investing in this sector is too high in light of the goals of poverty alleviation and food security. Second, the greatest opportunity for poverty alleviation and food security is staple foods; HVEV, while an exciting area for a limited segment of the population, falls outside these qualifications. It could be argued that HVEV would alleviate food insecurity and poverty through generation of cash flow; but, the high cost of capital and the tendency of farmers in this area to be tapped by backward integrators in the supermarket or prepared food channels suggests that there is too much uncertainty and competition from other markets that could be used for this kind of project to justify inclusion.

SECTION III: TARGETING STAGES IN THE VALUE CHAIN AND IDENTIFYING PROPOSED INTERVENTIONS

Within the broad sectors of maize, rice, and pulses there are numerous opportunities for interventions of various kinds. The team evaluated and chose among possible interventions using the following main criteria:

- Impact on poverty alleviation and food security
- Return on Investment (ROI) to USAID, both immediate and long-term
- Cross-cutting impact across value chains / sectors which both decreases the number of required implementing mechanisms and increases the flexibility of the implementing mechanisms
- Impact of geography and concentration or diffusion of served persons and entities on the ROI of the intervention
- Synergy with other programs funded and/or operated by other development entities (both government and NGO) and the Government of Tanzania

Proposed interventions are divided into two groups:

- Cross cutting interventions
- Interventions that are expected to apply to one sector only

Cross-Cutting Interventions

The team approached the challenge of identifying cross-cutting interventions with a basic –obstacle" matrix. Obstacles to increased sales and obstacles to vertical integration (for any participant in any segment of the value chain) were identified and then commonalities –the target of the cross-cutting intervention– were identified.

The matrix that the team built is reproduced in part here. Please note that not all issues that the team identified as cross-cutting are reproduced in the matrix; instead, this matrix

reflects cross-cutting issues that the team believes are the most logical candidates for interventions.

Value Chain Segment	**Maize**	**Rice**	**Pulses**
Inputs	See Support: Extension	See Support: Extension	See Support: Extension
Planting	See Support: Extension	See Support: Extension	See Support: Extension
Harvesting	See Support: Extension	See Support: Extension	See Support: Extension
Storage	Maize is extremely susceptible to post-harvest losses; furthermore maize prices fluctuate and storage availability can swing a smallholder from unprofitable sales at the beginning of the post-harvest to profitable sales at the end of the post-harvest season.	While not as susceptible to pests of various kinds as maize, rice is subject to steadily increasing prices over the course of the season. Increased storage would increase sellers‘ ability to sell when prices are favorable.	
Transportation	Extremely fragmented sellers (almost exclusively smallholders) mean that transportation is a major issue; cost per transported unit is far higher than necessary.	Extremely fragmented sellers (almost exclusively smallholders) mean that transportation is a major issue; cost per transported unit is far higher than necessary.	Extremely fragmented sellers (almost exclusively smallholders) mean that transportation is a major issue; cost per transported unit is far higher than necessary.
Price Information	There are currently vectors through which information on commodity prices in Dar and other market wholesales markets is provided but they may not be sustainable. Price information is an essential tool for	There are currently vectors through which information on commodity prices in Dar and other market wholesales markets is provided but they may not be sustainable. Price information is an essential tool for	There are currently vectors through which information on commodity prices in Dar and other market wholesales markets is provided but they may not be sustainable. Price information is an essential tool for

	effective participation in the market.	effective participation in the market.	effective participation in the market.
Value Add Opp'tys	Corn syrup and various corn products are used for a variety of food, consumer product, and manufactured goods; this is almost certainly outside the scope of small farmers but may be a candidate for backwards integration on the part of a large international investor. Great care, of course, will have to be taken to ensure that appropriate profits are returned to the farmers; and, coordinating investments of this type may be outside the scope of this project.	Milling is the main "value add" for rice. There are two milling challenges: capital to invest in one and skill in using it effectively. There are obstacles in the area of product segmentation. A mixed bag of seed gets less value at sale than bags that are sorted and graded.	Limited opportunities for use of beans.
Support: PMGs, etc.	Interviews with experts make a convincing case that PMGs have poor management and are not "business-like." Lack of training in basic business skills to effect a shift in "mentality" (interviewee's words) are a major gap. Each value chain faces similar obstacles; as usual, maize and beans may have the same PMG since they are frequently inter-cropped.		
Support: Finance	There is an enormous need for access to capital, even working capital to enable smallholders to hold off on selling until market conditions improve as the season progresses.	There is an enormous need for access to capital, even working capital to enable smallholders to hold off on selling until market conditions improve as the season progresses.	There is an enormous need for access to capital, even working capital to enable smallholders to hold off on selling until market conditions improve as the season progresses.
Support: Extension	Extension services are underfunded and	Extension services are underfunded and	Extension services are underfunded and

Services	undermanned but could have a very significant impact on crop yield.	undermanned but could have a very significant impact on crop yield.	undermanned but could have a very significant impact on crop yield.
Support: Other			

Intervention 1 (Cross-Cutting): Supporting Producer Marketing Groups, SACCOs, and Farmer Associations (FAs)

Proposed Intervention Objective:

Support the further creation of PMGs, SACCOs, and Farmer Associations.

Why this Intervention?

Create entities that can purchase and / or rent subsidized storage price; enjoy reduced purchase prices for bulk inputs (e.g., fertilizers and seeds); collaborate to buy transport to markets; and other advantages of producer collaboration. Aside from its enormous impact in the areas noted in the justification and analysis section below, this intervention has enormous synergistic value in maximizing the value of other interventions in areas such as storage and price sharing. In other words, the team believes that SACCOS and other organizations of that type create access to finance by virtue of their purchasing power.

Supporting farmer associations and access to finance are the ultimate cross-cutting intervention.

Synergies:

There are extensive opportunities for synergies with RUDI (www.ruditz.org) which is doing outstanding work in the area of promoting farmer associations and SACCOS. RUDI is widely regarded as one of the best-run and most-effective development operations in Tanzania. RUDI is funded by a variety of public and private entities.

It is important to note that RUDI, in interviews with the team, has a unique perspective on farmer associations. They emphasized the need for not just more farmer associations but for better trained and more ―business-oriented" associations, a concern with which Geoffrey Kirenga, Assistant Director (Extension Services), in the Ministry of Agriculture Food Security and Cooperatives, wholeheartedly agreed.

Justification and Analysis:

There is really no area of pre- or post-harvest that would not be helped by greater numbers of and more effective associations but two are especially relevant to post-harvest:

- Bulk purchasing

- Vertically integrating into milling and processing

Fertilizer is the single largest cash expense for most smallholders. All farmers, without exception and regardless of size, report that fertilizers are their most significant cost driver – even with subsidies in place. IFDC reported that urea prices were up from a low of $277/ton (late 2ndQ/early3rdQ, 2007), to approximately $672/ton as of June 2008. For DAP, as of June 2008, the price had increased 5 times over the previous 15 months. The price went from $252/ton in January 2007 to $1,230/ton in June 2008.

Tanzania's fertilizer intensity is less than half that of the rest of sub-Saharan Africa, and is a mere 5% that of the rest of the world. The impact of this on growing and yield is enormous.

Collective buying, in collaboration with support to agro dealers discussed below, would make fertilizer available to farmers that cannot buy fertilizer now and increase the amount available to those who can. The impact on food security and poverty alleviation from higher yields and the replenishment of depleted soil does not need further explication.

As this table which focuses on the maize value demonstrates, there are huge margins to be made in vertical integration into milling, especially for small farmers.

Transaction point	**Production Costs/Buying price**		**Selling price**		**Value Added in percent [(2)-(1)/(1)*100]**	
	On season	**Off season**	**On season**	**Off season**	**On season**	**Off season**
Large/medium farmers	7,000	8,000	9,000	11,000	14.2 percent	22 percent
Small Farmers	4,500					
Small Traders	5,500	7,500	8,000	9,000	36 percent	12.5 percent
Large Traders/ SGR	7,500	9,000	10,000	12,500	20 percent	25 percent
millers	7,500	9,000	10,000	12,500	33 percent	25 percent

Even taking off an unlikely 500 shillings for administrative overhead, farmers would still be able to move from 5,000 shillings to 10,000 shillings, an enormous 100% increase in the value of their product. It is similarly worth noting that traders take margins in excess of 35% –the ultimate high-cost ―middle man."

Margins for rice are not as high but still strongly suggest vertical integration:

An overview of pricing and margins in the rice value chain.

Marketing Margins for Mbeya Produced Rice Sold in Dar es Salaam

Marketing agent	Farmer	Village Collector	Broker/wholesaler	Retailer	Consumer
Selling price (TAS/Kg.)	550	600	610	660	-
Buying price	-	550	600	610	660
Margin (TAS/Kg.)	-	50	10	50	-
Value added (percent)					

These data show that the largest mark-ups are taken by the village collector (50/550) at 9% while the retailer takes (50/660) slightly less at 8%. If the farmer sold directly to the consumer, according to this data he would take a mark up of 20%.

Another analysis (shown below) indicates 20% as a minimum but a much higher maximum, probably because these data are for larger miller traders that can afford to purchase from cash-strapped farmers, store the product, then sell at a much higher price.

Dollar Comparision with domestic price of rice for larger miller/trader (mill in Dar)

Cost ($/ton)	Ifakara
Purchase price (farm gate)	$ 100 - $145
Levy	$ 7
Labour (accommodation + commission)	$ 5.6
Transport to collect and take to depot	$ 5.9
Transport to Dar	$ 22
Bulk bags	$ 5
Milling cost	$ 16
Grading cost	$ 3
Packing cost	$ 9
Total landed, processed and packaged cost	$173.5 – 218.5 per ton TZS 173 – 218 /kg

In any case, all data suggest enormous opportunity in vertical integration, an effort best achieved by FAs and SACCOs.

Intervention 2 (Cross-Cutting): Warehousing and Storage

Proposed Intervention Objective:

Increase mid-value chain storage capacity for multiple staple foods in Tanzania. Invest in and strengthen WRS (warehouse receipt systems).

Why this Intervention?

Increase seller's ability to wait to sell at market peak; reduce losses from improperly stored grains; create a regional competitive advantage versus other countries in the region that also suffer from limited storage capacity, allowing Tanzania to sell into rising markets and reduce unnecessary transaction costs.

Synergies:

No direct action going on in this area by major NGOs and projects, though smaller operations and operations focused on value chains (e.g., TASP I and II) may be doing things here; this is an open area for USAID where it has the opportunity to capture "low-hanging fruit." It is important to note, however, that there are synergy opportunities in that the GOT owns and operates (or, in some cases, does not operate) existing warehouse infrastructure; there opportunities for synergistic collaboration with the federal government. At the municipal level, municipal markets are a logical choice for cooperation and collaboration since municipal markets often have storage and trading infrastructure.

Justification and Analysis:

Increasing warehousing and storage is a unique opportunity for USAID/TZ: not only is there pressing demand for more storage and significant opportunities for increased revenue generation and reduced loss from more and more effective storage, there is an enormous amount of storage capacity that is currently inactive and can be brought "on-line" without the time and cost of building from scratch. Increased storage capacity will result in poverty alleviation and increased food security not only for farmers but also all Tanzanians who will benefit from greater food availability and lower retail prices.

Storage capacity is a particularly desirable cross-cutting intervention because of the ease of switching between various grains. Installed capacity, in other words, is not value chain specific but can be re-allocated at no to minimal cost to the most economically viable ("highest and best use") value chain.

It is also important to note that even though maize is the most susceptible to pest losses, maize, rice, and beans all have sale prices that predictably vary over the course of the post-harvest season so all growers would benefit from the opportunity to sell when prices are higher.

Total storage capacity in Tanzania is estimated to be between 300,000 and 400,000 metric tons. Of this total maize buyer/ resellers own, lease or otherwise control approximately 60%. Data on who owns and controls the rest is not available but is probably mainly wheat and rice.

Limited storage capacity exists not only within Tanzania but more generally within the region. Limited storage capacity is a cause for much of the seasonal trading which takes place back and forth across the same borders in different directions over a 12 month period. This buying and selling reflects demand but it also reflects farmers' incurring unnecessary costs by exporting rather than selling domestically. In other words, greater storage capacity will allow Tanzanians to both purchase from and sell into domestic markets to the benefit of everyone.

It is worth noting that farmers provide some storage capacity on their own farms. This capacity, however, is limited and not well designed for long-term storage. After each harvest, farmers store produce in either their houses or homestead. The storage facilities differ in size, however, small-scale farmers usually have relatively small storage facilities of approximately 20-30m2 (i.e., only 4-6m x 5m).

Storage is also vital in the trading centers. Most traders prefer to store produce upcountry both because it removes product from –ecompetitive market view" and also because rental costs are much lower than in Dar and other larger cities. In the trading centers houses are rented by the traders, and these differ in size though they are usually low-density plot houses and may provide 150-200m2 of storage. It is worth noting that these are not huge installations either: only 10-15m x 10m. This suggests high throughput and –relatively low inventory, meaning that a relatively small structure is both useful and economically further affirming the desirability of an intervention in this area.

Of course, there are also large storage facilities. Large processors and traders also operate in the trading centers and upcountry towns. They have invested in go-downs and storage facilities specifically designed for maize storage, cleaning and fumigation, in all of the principle producing regions. These storage facilities typically offer more than 1000m2 of space. But, as noted above, installations of this size are not necessary for successful participation.

The Ministry of Agriculture owns 15 silos which are controlled through the Food Security Department as well as large warehouses, usually between 5-10,000 MT but some up to 20,000 MT. These are strategically throughout the country both in chronically food surplus and food deficit parts of the country. The silos operating under the Strategic Grain Reserve were established in 1977 and their use for various purposed directed by the Food Security Act No 10 of 1991. They were originally built with the goal of maintaining reserve stocks of up to 150,000 tons, which at the time was considered adequate to meet emergency food needs for three months—adequate time to negotiate and have delivered imported maize.

Since the 1990s the capacity of SGR to meet emergency needs has gradually eroded. Silos and warehouses under the control of the SGR have the rated capacity to store up to 241,000 tons. However, of this, 35,500 tons of capacity have been leased out and SGR is currently using less than 25% of the remaining capacity because they lack capacity and budget resources to have much of a significant impact in the local maize market. One

expert at the World Food Program told the team that the SGR this year (2009) will be 165,000MT—all of which will be maize.

Intervention 3 (Cross-Cutting): Supporting Delivery of Timely Market Pricing Information to Smallholders and Small Producer Groups

Proposed Intervention Objective:

Increase the negotiating power of smallholders through the provision of real-time or nearly real-time pricing information. Because the cost of each incremental data point is effectively zero, once a distribution channel is established data for multiple value chains and multiple markets can be delivered at very low cost. We would suggest an SMS-query system in which farmers or co-ops can send an SMS to a pre-defined number and automatically get pricing and other information. This information can then be shared with others.

Why this Intervention?

Smallholders are currently almost purely price takers for rice, maize, and pulses. Part of this has to do with seller fragmentation but a significant amount also has to do with their limited information on prices further along the value chain. A pricing information system corrects information asymmetry and empowers smallholder sellers.

Synergies:

Marker Partners, a small private company, currently provides price dissemination services; however, this vital function may not be economically viable without support. USAID has an opportunity to pick up funding of an important exercise that is already established and working well and help it to add new value chains and new types of information such as political updates on maize export bans, weather predictions, etc.

Justification and Analysis:

Every piece of research on the staple value chains points out that smallholders are price takers in every value chain into which they sell with the possible exception of sales to buyers in their village or immediate area (which, for the list below, is not considered a ―value chain" since no value is added and the buyer is typically the end-user). The maize value chain in this way is representative.
The maize marketing value chain in Tanzania is comprised of four main channels.

- The first channel entails the large traders/processors such as Mohamed Enterprise and Export Trading Co. They mostly buy directly form the large producers and integrate a number of the value chain functions (in other words, they are partially, but not completely, vertically integrated). These big companies not only trade in maize but also process and export maize. They operate both in the Southern and Northern areas of Tanzania and, due to their volume of trade, are price setters. They have a number

of buying posts in the town areas which are managed by their own staff but they also buy through networks of agents (who, in turn, may have agents of their own). Moreover, they own big go-downs that enable them to buy large quantities when the price is low (peak season) and store the same until the price improves (low season).

- The second channel is the Strategic Grain Reserve (SGR) and the World Food Programme (WFP) disaster fund. Prior to liberalization, SGR was one of the key players in the northern and southern regions of Tanzania. After liberalization its role has diminished due to competition and internal constraints like lack of funds and bureaucracy. WFP is a different story. They are buying maize for food relief elsewhere, either in the country or outside the country, and are a most preferred buyer by many of the (large) farmers. They pay a premium price for good-quality maize.

- The third channel is comprised of the agents, brokers and traders that are able to handle reasonably large quantities. They buy from large/medium farmers, either directly or from village collectors and small farmers, either directly or from village collectors and small wholesalers. Their outlets include millers, exporters, WFP and also the large traders.

- The last channel is a band of small producers selling their maize to village collectors and via brokers to larger traders. Mostly these farmers sell in small quantities and are therefore of less interest to the larger traders. Only the surplus maize is sold the rest is consumed by the household, often after processing it through the village posho mill. Part of this channel is also the small wholesalers who mainly buy from village collector. They provide the town posho shops and sometimes even sell to small exporters.

Maize buyers are characteristically small-scale operators, ranging from farmers selling a few kilos in village markets and urban dwellers buying for their household needs, through to traders buying truck loads for movement to towns. At the market, people buy by the debe (16-18kg) or kibaba/bakuli (approx 1.5kg). Farmers sell by the debe or bag. Some small traders are agents for the larger companies. Much of the maize marketing is done between June and October. The private sector is highly competitive with regard to purchasing and distributing food commodities.

Beans and pulses are often sold through the same value chains as maize since beans and pulses are typically intercropped with maize. The rice value chain has some variations (different milling patterns, etc.) but its imposition of prices on smallholders does not vary in the slightest from the maize value chain.

Intervention 4 (Cross-Cutting): Improve Extension Services

Proposed Intervention Objective:

Increase the technical skills and material resources (e.g., ~~–s~~tarter packs") available to smallholder farmers. The combination of improved skills and improved materials should

significantly improve these farmers' ability to produce crops of greater value and increase their incomes.

Why this Intervention?

Research and interviews both show that extension services are underfunded and undermanned. The impact of improving extension services, particularly through FAs and PMGs, would be enduring and significant. Farmers and interviewees indicate that extension services are and remain a major obstacle to poverty alleviation and food security.

Synergies:

There are two major synergy opportunities, one public and one private.

The public opportunity is to work through the existing extension service infrastructure and improve and fund it. The existence of this "knowledge sharing channel" is significant since it will save costs and strengthen the extension officers as well as the smallholder farmers.

The private synergy opportunity is to offer extension services through the FAs and PMGs that this document also proposes supporting. The opportunities for collaboration here are significant and present opportunities for maximizing ROI to USAID / TZ.

The chart below shows the weak penetration of NGOs and coops into this area.

Justification and Analysis:

The Government's extension network is undermanned. Officers have too much ground to cover and cannot adequately monitor farming practices in the village to which they are assigned.

Rural Agriculture Households Receiving/Adopting Extension Advise on Key Topics 2002/03

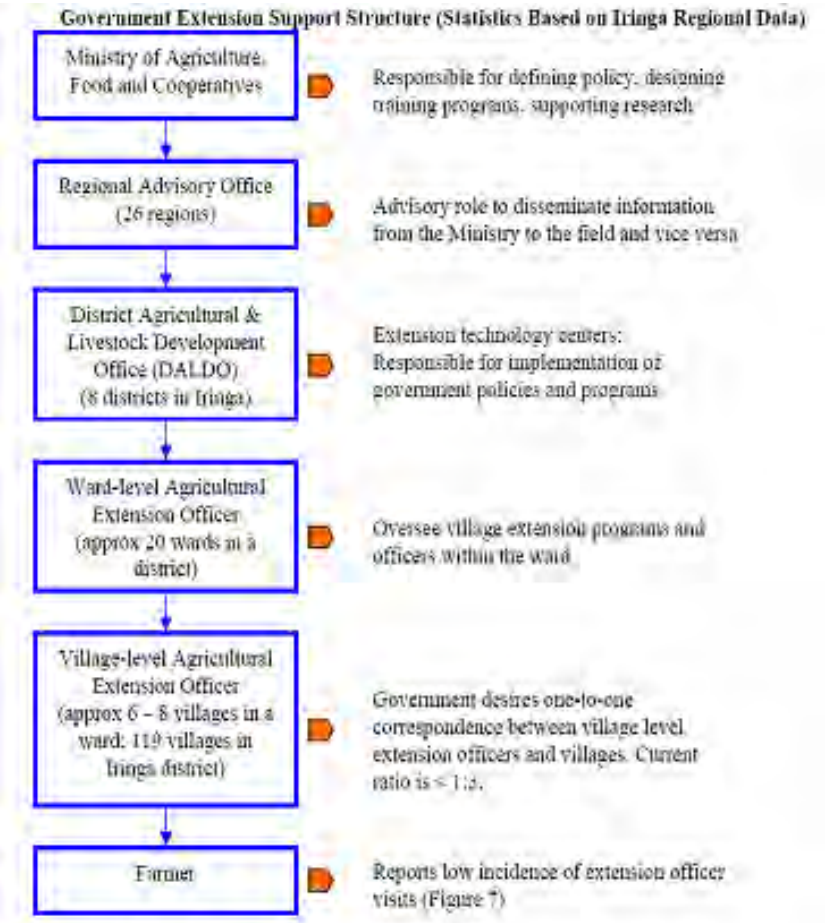
Topic	Source					Non Applicable	Total Receiving Advice	% of Total House-holds	Approx Advice Adoption Rate
	Govt	NGO / Dev't Project	Cooperative	Large Scale Farm	Other				
Crop Spacing	1,434,821	43,383	9,270	16,903	12,472	-	1,516,849	31	90
Agrochemical Use	807,356	52,561	8,535	10,663	8,632	-	887,747	18	54
Organic Fertilizer Use	1,048,524	58,984	6,404	15,023	10,092	-	1,139,027	23	61
Inorganic Fertilizer Use	692,333	54,276	11,328	12,962	9,877	98,587	839,333	17	50
Improved Seed Use	1,054,677	65,272	10,352	13,235	7,364	49,014	1,200,114	24	50
Mechanization / LST*	263,372	18,642	6,019	4,780	3,952	-	296,765	6	35
Irrigation Technology	394,452	30,197	3,690	6,708	5,964	-	443,011	9	52
Crop Storage	999,573	40,962	5,271	15,804	17,780	-	1,079,410	22	86
Vermin Control	543,255	20,827	3,246	18,071	8,086	-	593,485	12	83
Agro-progressing	556,476	32,046	6,754	21,411	20,998	-	637,286	13	92

* Labor Saving Technologies

Source: National Bureau of Statistics; National Sample Census of Agriculture, 2--2/2003

Compiled by Global Development Solutions, LLC

Transportation and accommodation issues limit the mobility of the extension officers. Officers typically cannot visit all of their assigned villages in a month, and they may visit only once in a period of two or three months. It is unlikely that the situation has changed much since two-thirds of farmers did not receive advice from an extension officer in 2002/03 when an official survey was conducted.



Source: Global Development Solutions, LLC

It is worth noting that, in addition to the Government, extension support emanates from other sources as well but they are far smaller than the government. The nearby table shows the breakdown of sources, what information was disseminated and approximately what percentage of the advice was adopted. It is worth noting that the highest percentage of households receiving extension advice is a very low 31%, showing an enormous opportunity to add value. The low contact rate for such high-yield improvements as crop storage (esp. for maize which can have a storage loss rate of more than 30%) and vermin control (which helps alleviate crop storage issues) emphasizes the size of this opportunity.

In the current paradigm, the center of technology for the extension services resides at the district level in the District Agricultural & Livestock Development Offices (DALDO). The Government, however, plans to eventually move the technology centers down to the ward level, and establish a one-to-one correspondence between extension officers and villages.

SECTION IV: INTERVENTION PRICING, FEASIBILITY, AND FUNDING SCENARIOS

Analysis of staple crops production and consumption indicates that seven regions (excluding Dar es Salaam) consistently experience food shortages: Kilimanjaro, Arusha, Manyara, Dodoma, Singida, Shinyanga, and Mwanza. A World Food Program study notes that of the six WFP Emergency Operations (EMOPs) from 1994 to 2008, Dodoma and Singida have received food aid in all six, while the others have had EMOPs in 5 out of 6. Therefore in a program with the objectives of food security, poverty reduction, employment and growth, these seven regions should be the focus. They have the added benefits of all being in the north and central zones of Tanzania and relatively close to USAID's office in Dar.

There are three funding and activity scenarios presented here:

High Impact, Consolidated: These are the four proposed interventions but with extension services not as a stand-alone intervention but integrated into each of the other three. This scenario also assumes that the interventions will focus on three districts per region and that the management office will be in Arusha. The high impact program would benefit 40,000 producer households and establish/support Warehouse Receipt Systems in 21 districts at a total cost of $7,320,000 over three and a half years through March 2013.

Medium Impact, Consolidated: These are the four proposed interventions but with extension services not as a stand-alone intervention but integrated into each of the other three. This scenario also assumes that the interventions will focus on two rather than three districts per region and that the management office will be in Dar es Salaam, to save costs. The medium impact program benefits 25,000 producer households and establishes 14 WRS costing $5,087,000. Both high and medium impact scenarios include market information networks.

High Impact, Not Consolidated: This treats each intervention as a stand-alone project and assumes management out of Arusha. In contrast to the two consolidated scenarios, it hives off extension training to FAs from the FA Training intervention to a stand-alone intervention. Furthermore, the WRS intervention will be reduced to management only; training on WRS will be incorporated into support for FAs. There are cost-savings for this scenario.

High Impact Program (Consolidated) for Seven Regions

Illustrative Annual Budgets

INTERVENTION 1: WRS

Item	**US$ per Region**	**Program Impact**
Initial assessment of storage capacity, quality of structures and logistics * Year 1 only	6,000	21,000 MT WRS storage capacity
Local Leaders Awareness and Training *		400 trained

	6,000	
Training of producers and business operators in WRS *	9,000	1000 trained
Warehouse Receipt Systems Management Training *	12,000	21 WRS managers fully trained
Warehouse repairs, maintenance, insurance, etc	12,000	21 warehouses Operated efficiently
Output Marketing Support – Information and Infrastructure	2,000	21 market centers
Communications and travel	9,000	WRS regular follow Up
Study Tours, Meetings, Workshops	6,000	Quarterly events
Local Administration, Secretarial, Accounting	12,000	WRS mgmt support
Monitoring and Evaluation	6,000	Annual M&E
Subtotal Year 1 Sub Total	80,000	

ESTIMATED TOTAL 40 MONTH WRS COST (7 Regions)…$1,382,000
Add contingencies and rounded…….$1,500,000

INTERVENTION 2: Supporting Farmer Associations and Producer Marketing Groups
(20 Farmer Apexes/PMGs with total membership of approximately 40,000)

Item	**US$ per Region**	**Program Impact**
Initial assessment of capacity, production & marketing constraints, and surveys * Year 1 only	5,000	Establish baseline In 21 districts
Local Pub and Prvt Sector Leaders Awareness & Training *	3,000	1000 trained
Business training of producers, local traders and processors	12,000	28,000 accumulated over LoP
Output Marketing Support—collaboration with E.A. Grain Council	6,000	210 FAs linked to WRS & mkt centers
Communications and travel		Support to DCo‘s

	12,000	
District Coordinators (Facilitation Fee)	15,000	Program targets met
Peer-to-peer training, Meetings, Workshops	6,000	588 events over LoP
Local Administration, Secretarial, Accounting	12,000	DCo's supported
Monitoring and Evaluation	6,000	Annual M&E
Subtotal Year 1 Sub Total	$77,000	
+ Extension Training for FAs subcontract (Staff…$10,000, Travel/transport…$7000, Operations…$3500 Equipment…$500, Extension/promotion materials…$4000)	*25,000*	*40,000 farmers trained 60,000 demo plots 80,000starter packs*
Subtotal Year 1	$102,000	

ESTIMATED TOTAL 40 MONTH FA * PMG COST (7 Regions)…$2,380,000
Add contingencies and rounded……..$2,620,000

INTERVENTION 3: Supporting Market Price Information to Producer Marketing Groups (subcontracted to a local private sector firm)

Item	**US$ program**	**Impact 7 Regions**
Training of Market Reporters * Year 1 only	25,000	25 mkt reporters Trained
Equipment: bicycles, phones and laptops and op costs *	50,000	
SMS daily reports $500 per tel per year	125,000	250 subscribers
Company overhead costs all inclusive	50,000	
Meetings and workshops	15,000	Annual Zonal links
Monitoring and Evaluation	5,000	Annual M&E
Subtotal Sub Total	$270,000	

ESTIMATED TOTAL 40 MONTH MARKET INFORMATION COST … $270,000
Add contingencies and rounded……$300,000

Contractor Management Budget: Average Monthly Costs

ACTIVITY	MONTHLY COST - US$
Program Management Staff • Country Coordinator • Zonal Operations Managers x 3 • Finance-Admin Manager • Program Admin Assistant • Drivers x 5 Sub-total	 *5,000* *9,000* *3,000* *1,000* *3,000* 21,000
Zonal Consultation and Support	6,000
Communications	5,000
Office Costs, Stationery and Rents incl Zone sub-off	8,000
Transport, travel allowances	15,000
Meetings and workshops	3,000
Contingencies	6,000
TOTAL	**$64,000**

ESTIMATED TOTAL 40 MONTH MANAGEMENT
COST…….$2,560,000

Plus initial equipment purchases
Vehicles 5 SUV @ $60,000…….300,000
Computers 27 laptops @ 1,000……..27,000
Other equipment: copiers, printers, phones, etc……13,000

MANAGEMENT + EQUIPMENT 40 MONTH
COST……..…$2,900,000

GRAND TOTAL HIGH IMPACT CONTRACTOR PROGRAM
TZ.....$7,320,000

Suggested Regions and Districts for High Impact Program

	ZONES/Regions	Districts
	ZONE 1	
1	Kilimanjaro	Same, Mwanga, Rombo
2	Arusha	Longido, Monduli, Ngorongoro
3	Manyara	Babati Rural, Simanjiro, Kiteto
	ZONE 2	
4	Dodoma	Kondoa, Bahi, Kongwa
5	Singida	Singida Rural, Manyoni, Iramba
	ZONE 3	

6	Shinyanaga	Maswa, Kishapu, Meatu
7	Mwanza	Misungwi, Kwimba, Magu

Medium Impact Program (Consolidated) for Seven Regions

Illustrative Annual Budgets

INTERVENTION 1: WRS

Item	**US$ per Region**	**Impact 7 Regions**
Initial assessment of storage capacity, quality of structures and logistics * Year 1 only	4,000	14,000 MT WRS storage capacity
Local Leaders Awareness and Training *	4,000	250 trained
Training of producers and business operators *	6,000	600 trained
Warehouse Receipt Systems Management Training *	9,000	14 WRS managers fully trained
Warehouse repairs, maintenance, insurance, etc	9,000	14 warehouses Operated efficiently
Output Marketing Support – Information and Infrastructure	1,000	14 market centers
Communications and travel	6,000	WRS regular follow Up
Study Tours, Meetings, Workshops	4,000	Quarterly events
Local Administration, Secretarial, Accounting	9,000	WRS mgmt support
Monitoring and Evaluation	4,000	Annual M&E
Subtotal Year 1 Sub Total	56,000	

ESTIMATED TOTAL 40 MONTH WRS COST (7 Regions)…...$970,000
Add contingencies and rounded…….$1,007,000

INTERVENTION 2: Supporting Farmer Associations and Producer Marketing Groups

(14 Farmer Apexes/PMGs with total membership of approximately 25,000)

Item	**US$ per Region**	**Impact 7 Regions**
Initial assessment of capacity, production & marketing constraints, and surveys * Year 1 only	3,000	Establish baseline In 14 districts
Local Leaders Awareness and Training *	2,000	1000 trained
Business training of producer, local traders and processors	9,000	28,000 accumulated over LoP
Output Marketing Support—collaboration with E.A. Grain Council	4,000	140 FAs linked to WRS & mkt centers
Communications and travel	9,000	Support to DCo's
District Coordinators (Facilitation Fee)	10,000	Program targets met
Peer-to-peer training, Meetings, Workshops	4,000	388 events over LoP
Local Administration, Secretarial, Accounting	9,000	DCo's supported
Monitoring and Evaluation	4,000	Annual M&E
Subtotal Year 1 Sub Total	$54,000	
+ Extension Training for FAs subcontract	*20,000*	
ESTIMATED ANNUAL COST	$74,000	

ESTIMATED TOTAL 40 MONTH FA * PMG COST (7 Regions)…$1,725,000
Add contingencies and rounded……..$1,900,000

INTERVENTION 3: Supporting Market Price Information to Producer Marketing Groups

Item	US$ program	Impact 7 Regions
Training of Market Reporters (20) * Year 1 only	20,000	20 mkt reporters trained
Equipment: bicycles, phones and laptops *	30,000	
SMS daily reports $500 per tel x 200 subscribers	100,000	200 subscribers
Company overhead costs all inclusive	35,000	
Meetings and workshops	10,000	Annual Zonal links
Monitoring and Evaluation	5,000	Annual M&E
Subtotal Year 1 Sub Total	$200,000	

ESTIMATED TOTAL 40 MONTH MARKET INFORMATION COST …$200,000
Add contingencies and rounded……$220,000

Contractor Management Budget: Average Monthly Costs

ACTIVITY	MONTHLY COST - US$
Contractor In-country Management Staff	
Zonal Operations Managers x 3	*9,000*
Zonal Admin Assistants x 3	*3,000*
Drivers x 3	*3,000*
Sub-total	15,000
Zonal Consultation and Support from HQ	4,000
Communications	3,000
Office Costs, Stationery and Rents incl Zone sub-off	6,000
Transport, travel allowances	10,000
Meetings and workshops	2,000
Contingencies	4,000
Monthly Subtotal	$44,000

ESTIMATED TOTAL 40 MONTH MANAGEMENT COST……$1,760,000
Plus initial equipment purchases
Vehicles 3 SUV @ $60,000…….180,000
Computers 20 laptops @ 1,000……..20,000

Other equipment: copiers, printers, phones, etc……10,000

MANAGEMENT + EQUIPMENT 40 MONTH
COST……..…$1,960,000

GRAND TOTAL MEDIUM IMPACT CONTRACTOR PROGRAM
TZ.....$5,087,000

Suggested Regions and Districts for Medium Impact Program

	ZONES/Regions	**Districts**
	ZONE 1	
1	Kilimanjaro	Same, Mwanga
2	Arusha	Longido, Monduli
3	Manyara	Simanjiro, Kiteto
	ZONE 2	
4	Dodoma	Kondoa, Bahi
5	Singida	Singida Rural, Manyoni
	ZONE 3	
6	Shinyanaga	Kishapu, Meatu
7	Mwanza	Kwimba, Magu

High Impact for Regions (Non-Consolidated)

Illustrative Annual Budgets

INTERVENTION 1: Farmer Associations and Producer Marketing Groups Support
(20 Farmer Apexes/PMGs with total membership of approximately 40,000)

Item	**US$ per Region**	**Program Impact**
Initial assessment of capacity, production & marketing constraints, and surveys * Year 1 only	5,000	Establish baseline In 21 districts
Local Pub and Prvt Sector Leaders Awareness & Training *	3,000	800 trained
Producers & business operators trained mktg, incl WRS *	9,000	1000 trained
District Coordinators (Facilitation Fee)	15,000	Program targets met
Communications and travel	12,000	Support to DCo‘s

Peer-to-peer training, Meetings, Workshops	6,000	588 events over LoP
Local Administration, Secretarial, Accounting	12,000	DCo's supported
Monitoring and Evaluation	6,000	Annual M&E
Subtotal Year 1 Sub Total	$77,000	

ESTIMATED TOTAL 40 MONTH FA * PMG COST (7 Regions)…$1,760,000
Add contingencies and rounded……..$1,940,000

INTERVENTION 2: Production and Extension Training and Support Subcontract

Item	US$ per Region	Program Impact
Staff	10,000	40,000 farmers trained 60,000 demo plots 80,000 starter packs
Travel/Transport	7,000	
Operations	3,500	
Equipment	500	
Extension/promotion materials	4,000	
Subtotal Year 1	25,000	

ESTIMATED TOTAL 40 MONTH PRODUCTION & EXTENSION (7 Regions)…$620,000

INTERVENTION 3: WRS Management Subcontract

Item	**US$ per Region**	**Program Impact**
Initial assessment of storage capacity, quality of structures and logistics * Year 1 only	6,000	21,000 MT WRS storage capacity
Warehouse Receipt Systems Management Training *	12,000	21 WRS managers fully trained
Warehouse repairs, maintenance, insurance, etc	12,000	21 warehouses secured for storage
WRS Mgmt, Admin, Communications, travel, and audits	30,000	WRS operated efficiently
Subtotal Year 1 Sub Total	60,000	

ESTIMATED TOTAL 40 MONTH WRS COST (7 Regions)…$1,115,000
Add contingencies and rounded…….$1,270,000

INTERVENTION 4: Market Information to Producer Marketing Groups Subcontract

Item	US$ program	Impact 7 Regions
Training of Market Reporters * Year 1 only	25,000	25 mkt reporters Trained
Equipment: bicycles, phones and laptops and op costs *	50,000	
SMS daily reports $500 per tel per year	125,000	250 subscribers
Company overhead costs all inclusive	50,000	
Meetings and workshops	15,000	Annual Zonal links
Monitoring and Evaluation	5,000	Annual M&E
Subtotal Sub Total	$270,000	

ESTIMATED TOTAL 40 MONTH MARKET INFORMATION COST … $270,000
Add contingencies and rounded……$300,000

Contractor Management Budget: Average Monthly Costs

ACTIVITY	MONTHLY COST - US$
Contractor Program Management Staff	
Country Coordinator	*5,000*
Zonal Operations Managers x 3	*9,000*
Finance-Admin Manager	*3,000*
Program Admin Assistant	*1,000*
Drivers x 5	*3,000*
Sub-total	21,000
Zonal Consultation and Support	6,000
Communications	5,000
Office Costs, Stationery and Rents incl Zone sub-off	8,000
Transport, travel allowances	15,000
Meetings and workshops	3,000
Contingencies	6,000
TOTAL	$64,000

ESTIMATED TOTAL 40 MONTH MANAGEMENT COST……$2,560,000

Plus initial equipment purchases
Vehicles 5 SUV @ $60,000…….300,000
Computers 27 laptops @ 1,000……..27,000
Other equipment: copiers, printers, phones, etc……13,000

MANAGEMENT + EQUIPMENT 40 MONTH
COST……..…$2,900,000

GRAND TOTAL HIGH IMPACT CONTRACTOR PROGRAM
TZ.....$7,030,000

SECTION V: OTHER ENTITIES INVOLVED IN AGRICULTURE DEVELOPMENT AND OPPORTUNITIES FOR SYNERGISTIC COLLABORATION

Due to its political stability and commitment to economic reforms, Tanzania is one of Africa's donor ~~"d~~arlings." In the middle of this decade, Tanzania received aid amounting to an impressive 10% of gross national income or $39 per capita.

Consequently, there are an enormous number of NGOs, government agencies, and private charities / foundations that have programs dedicated to Tanzania; and, there are many more that have multi-national and regional programs, part of whose funds go to Tanzania. Disentangling the funds exclusively for Tanzania from these multi-country funds would be nearly impossible and probably not particularly useful. Adding to the mix, the Government of Tanzania itself is also active through various direct interventions in the private sector and direct poverty alleviation and food security efforts.

In the face of this uncertainty, this section will give a cohesive overview of medium to large agricultural development activities in Tanzania. It is intended to be used by USAID / TZ to help identify opportunities for synergistic collaboration in the Tanzanian agriculture sector.

The team has observed that some aid interventions are delivered along value chain vectors but others are not. In some cases, the impact on any specific value chain will not be because it was targeted per se; instead, typically, value chains will be impacted because they are part of a larger group such as ~~"s~~taple foods" or because they are a beneficiary of something like increased access to finance, etc. Consequently, the team has chosen to group by cross-cutting intervention rather than by value chain or geography.

Aid Group One: Access to Finance

One of the most persistent obstacles to development is access to finance, an obstacle that is particularly challenging for two groups:

- Smallholder farmers, because of a lack of working and investment capital, often cannot afford essential inputs (e.g., fertilizer, improved seeds, etc.) and then are forced to sell at unfavorable times in the post-harvest season. This is often not a question of more or less profit; being forced to sell because of cash flow needs often keeps a small farmer in the read rather than in the black.

- Agro-dealers face even more draconian cash flow constraints. Not only do they have unpredictable buyers (i.e., they can get caught holding large amounts of inventory) but they are usually required to delay receiving payment from buyers.

Improving access to finance for these two groups would have an enormous impact on poverty alleviation and food security for a wide swath of the populations, both in and out of farming.

The largest and most recent effort in this area is the just-approved World Bank emergency recovery loan for an Accelerated Food Security Project. This loan of US$160 million seeks to contribute to higher food production and productivity in targeted areas by improving farmers' access to critical agricultural inputs. The team understands that some of this is expected to be given in the form of subsidy vouchers which will function as a sort of access to capital for farmers. For more information on this project, consult: http://www.reliefweb.int/rw/rwb.nsf/db900sid/AMMF-7T5QM2?OpenDocument

More direct intervention is coming through USAID-funded collaboration with the AfDB and CRDB bank for medium- and long-term loans to agriculture, though it is not clear that USAID has any role beyond funding.

List of Major Agricultural Development Activities in Tanzania (August, 2009)

Program Name	Focus	Website	Funder	Implementer
Accelerated Food Security Program	Irrigation; input subsidy voucher program; social safety net	www.worldbank.org	World Bank	Government of Tanzania (probably the same entities as the ASDP).
Agriculture Sector Development Programme	Flagship Tanzania agriculture sector development program.	–	Government of Tanzania	Government of Tanzania (Ministries and Prime Minister's Ofice)
ASARECA (Association for Agricultural Research in Eastern, Central, and East Africa)	Supports development of plants and farming practices to deal with three diseases of basic staples crops.	www.asareca.org	Various	Consortium of public, private, and civil society partners in ten countries.
Coastal Rural Support Programme	Strengthening rice, sesame, and cashew value chains in Lindi and Mtwara.	http://www.akdn.org/tanzania_rural.asp	Aga Khan Foundation	Aga Khan Foundation
CRSP (pron. crisp) Collaborative Research Support Program	Focuses the capabilities of U.S. land-grant universities to carry out international food and agriculture research. Segment focuses on integrated pest management of sorghum and millet.	www.crsps.org	USAID and others	Sokoine University of Agriculture; US land grant universities.
Eastern Africa Grain Council	Prepare, disseminate, and promote the exchange of information on matters affecting the regional grain industry.	www.eagc.org	Membership	East African Grain Council
Eastern Arc Mountains (EAM) Tree Crops Project	Integrates fruit tree production and land conservation activities in Southern highlands of Iringa and Mbeya.	–	USAID	Enterprise Works / VITA (EWV)
Enterprise Cluster Competitiveness Programme (a subcomponent of the Private Sector Competitiveness Project PSCP)	Improve the competitiveness of Tanzanian exports in regional and international markets.	www.worldbank.org	World Bank (and others)	Government of Tanzania (Min. of Finance)
Farmer to Farmer Program	Brings highly-qualified volunteers to work with farmers, rural organizations, agribusinesses, NGOs, market and trade associations, and government agencies.	http://www.usaid.gov/our_work/agriculture/farmer_to_farmer.htm	USAID	USAID
FEWSNET (Famine Early Warning System Network)	Early warning information on imminent hunger and food shortages; capacity building; joint preparation of the country's food security report.	www.fews.net	USAID	USAID
HEPAD (Higher Education Program for Agricultural Development)	Increase the number of individuals coming to the US for graduate degrees in agriculture.	http://ipa.osu.edu/HEPAD.html	USAID	Sokoine University of Agriculture; US universities.
Manyara Ranch	Adds value across the livestock chain: livestock operations, water management, rural value chain linkages.	http://www.awf.org/content/solution/detail/3505	African Wildlife Foundation	African Wildlife Foundation; Tanzania Land Conservation Trust.
MUVI	Rural MSME support program in Tanga, Iringa, Ruvuna, Pwani, Mwanza, Manyara.	–	IFAD and others	PWC
RATES (Regional Agricultural Trade Expansion Support)	Supported formation of the EAGC; disseminates pricing information on East African grains; provides capacity building to the Marketing Information Service department at the Ministry of Trade Industry and Marketing.	www.ratescenter.org	USAID	USAID
Rural Livelihood Development Company	AgroProcessing in Iringa.	www.rldc.co.tz	SDC	SDC
Smallholder Horticulture Outgrower Promotion (SHOP)	Strengthening smallholder horticulture export market linkages for high-value vegetables.	www.acdi-voca.org	USAID	ACDI / VOCA
Production, Incomes and Employment (PIE) program	Horticulture, livestock and oilseeds	–	SNV	SNV
Tanzania Agricultural Scale Up Programme (TASU)	Increase production and markets for rice, poultry and sisal in Shinyanga and Tanga regions.	http://www.oxfam.org.uk/resources/countries/tanzania.html	Oxfam	Oxfam
Tanzania Air-Freight Project (TAP)	Current problems in air-freight export capabilities of horticultural products out Kiliminjaro airport.	www.oxfam.org	Oxfam	Oxfam
Tanzania Trade Integration Strategy, 2009-2013	Trade integratoin	–	Government of Tanzania	Government of Tanzania
Trade and Agriculture Support Program 1 (TASP 1)	Greater access to productivity enhancing inputs and technologies through improved distribution system.	www.aec.msu.edu	AGRA	CNFA / TAGMARK
Trade and Agriculture Support Program 2 (TASP 2)	Strengthening whole value chains in an expanded number of subsectors.	www.aec.msu.edu	AGRA	CNFA / TAGMARK
USAID Partnership with AfDB and CRDB bank for medium- and long-term loans to agriculture.	Medium- and long-term loans to agriculture.	www.usaid.gov	USAID	AfDB and CRDB
WfT Tanzania program	Supporting the strengthening of a small number of Value Chains.	www.woodfamilytrust.org	Wood Family Trust	To be announced

Another bank that one might expect to be providing small loans to farmers and the like and that is the National Microfinance Bank (NMB); but, according to the team's research, the NMB is simply not making loans and is keeping their capital parked in high-yield bonds. Interviewees have explained that significant pressure was brought on NMB to make more loans this year but that NMB was able to stall until they got past the ~~"~~growers' loan window." It is not clear what will happen before the next growing season.

Finally, the Financial Sector Deepening Trust (FSDT) at $20+ million fund (mainly EU basket funding) is active. The Financial Sector Deepening Trust (FSDT) is a consortium of five development partners: CIDA, DANIDA, DFID, SIDA, and the Royal Netherlands Embassy. It was launched in October 2005.

FSDT is a channel development partner that supports the development of pro-poor financial markets in response to the Government's National Microfinance Policy and National Strategy for Growth and Poverty Reduction(MKUKUTA). The FSDT is essentially an investment fund of which the overall aim is to achieve greater access for more people to the financial sector in Tanzania. In practice, this means identifying and funding investments and other projects that promote this objective. In part, the Trust seeks to help smaller financial firms, especially microfinance institutions and small banks develop to the point where they are sustainable, credible and creditworthy partners for commercial banks and larger financial institutions.

The FSDT can use a range of funding instruments: for weaker clients and other instances where appropriate, we will provide grants; for more established financial institutions, the FSDT will opt for loans (senior and subordinated debt), debt-equity hybrids such as convertible debt, preference shares or some combination of these. The FSDT is not able to invest in common shareholders' equity.

The PASS program, which is funded mainly by Denmark, is also active.

Finally, the team has learned that the president of Tanzania has expressed interest in establishing a national agriculture bank, presumably dedicated to making loans to the agriculture sector, but it is not clear how or when this would happen and what the scope of the enterprise would be if it did. The team is of the strong opinion that the NMB is the proper vector through which to deliver loans to smallholders and agro dealers and that enormous pressure should be put on it before the establishment of an agricultural bank.

Aid Group Two: Choosing Value Chains on Which to Work

Several groups and organizations are in the process of identifying value chains on which to focus. These would, of course, be logical partners for USAID / TZ and its implementers, particularly if these donors are interested in working in staple foods.

- Enterprise Cluster Competitiveness Program: The ECCP will work with clusters of firms and build public-private partnerships to improve the competitiveness of

Tanzanian exports in regional and international markets. The $10 million project will benchmark eight subsectors, from which it will then focus on three, and run from 2009 to 2012.

- MUVI is a rural MSME support program working in 6 regions: Tanga, Iringa, Ruvuna, Pwani, Mwanza and Manyara. The current phase is focused on analysis -the aim is to identify one priority Value Chain for each region by September 2009– and then the implementation phase will begin in Q4 2009. MUVI is budged to have $20-25 million and will be implemented, at least in part, by PWC.

- The Woods Family Trust (WfT) is currently evaluating value chains for funding. It expects to work on ~~–a~~ small number of Value Chains."

- The TASP 2 (Tanzanian Agrodealers Strengthening Program - 2) program, which is expected to start in 2011, will focus on entire value chains though which value chains are not yet clear. (The goal of the Tanzania Agrodealers Strengthening Program - 1 is to transform Tanzania's fragmented input distribution system into an efficient, commercially viable input supply infrastructure, thus enabling smallholder farmers' greater access to productivity enhancing inputs and technologies. Under TASP 1 focus has been on strengthening Coffee and Tea Research, Trade policy and standards; http://www.cnfa.org/tasp).

Aid Group Three: Cutting Across Value Chains

There are a number of active programs that could be described as cross-cutting but not all of them are in the scope of this document. Those that are active in the areas of staple foods, broadly defined, are:

- The Coastal Rural Support Program (CRSP) is focused on improving livelihoods in Lindi and Mtwara through strengthening rice and sesame value chains. It is already underway (but only just) and is expected to receive a significant amount of funding.

- ASARECA (the Association for Agricultural Research in Eastern, Central, and East Africa), among other projects, supports development of plants as well as the implementation of farming practices that will help farmers deal with diseases that affect staple crops. Current funding is $6 million.

- The CRSP program is the Collaborative Research Support Program. It focuses the abilities of U.S. land-grant universities on carrying out international food and agriculture research. The segment focuses on integrated pest management of sorghum and millet.

- The East Africa Grain Council (EAGC) in contrast to most of the other operations is a largely private sector civil-society group. It, along with the government-sponsored FEWSNET, has an important role in disseminating pricing information to

smallholders farmers, an essential service that helps smallholder farmers avoid exploitation.

Aid Group Four: Major GOT Initiatives

The government of Tanzania's mammoth initiative in the area of agriculture development deserves a category of its own. The GOT has recently developed an Agricultural Sector Development Strategy (ASDS) and its operational program (ASDP), whose objectives are to achieve a sustained agricultural growth rate of 5 percent per annum, through the transformation from subsistence to commercial agriculture. The transformation is to be private sector led through an improved enabling environment for enhancing the productivity and profitability of agriculture, facilitated through public/private partnerships with participatory implementation of the District Agricultural Development Plans (DADPs).

The underlying themes of the ASDS is to create of a favorable environment for commercial activities; delineate public/private roles including continued public financing for core public (agricultural) services with increased private delivery (through contracting arrangements); decentralize service delivery responsibilities to local governments; and focus on the preparation and implementation of District Agriculture Development Plans (DADPs). The ASDP has five key components on which it seeks improvement: (i) the policy, regulatory and institutional arrangements; (ii) agricultural services (research, advisory and technical services, and training); (iii) investment through DADP implementation; (iv) private sector development, market development, and agricultural finance; and (v) cross-cutting and cross-sectoral issues.

SECTION VI: CONCLUSION

The team has been challenged by the numerous and pressing needs in the agriculture sector. That an intervention such as access to finance or rural roads was not recommended in this report does not mean that it was not considered. On the contrary, the team considered many worthy interventions in many worthy areas (e.g., millet and sorghum) but ultimately limited its recommendations to those that have the greatest fit with the purpose and focus of USAID's focus for this project and the greatest impact on food security and poverty alleviation.

It is the team's professional opinion that the interventions recommended in this report will bring the greatest value to and have the great impact on food security and poverty alleviation in Tanzania.

APPENDIX 1: VALUE CHAIN SCORING DETAILS

Poverty Reduction

Factor Group	Topic Area	Description	Maize	Rice	Pulses	Cashew	Livestock - Beef	Livestock - Leather	HVEV
Poverty Reduction Score									
Pov. Red.	No. of rural household participating	Large numbers of smallholders = 10, smallholders and medium farmers = 6, mainly large farms = 5	10	9	8	7	5	5	3
Pov. Red.	Marginal income potential	20% + = 11, 10-15% = 7, 5-10% = 4, <5% = 2	8	12	8	7	9	10	14
Pov. Red.	Employment potential	Marginal labor hired: 10%+ = 3, 5-10% = 2, 0-5% = 1, <0% = -1 (for plausible value chain sectors; not just production)	6	8	6	5	3	3	5
Pov. Red.	Women's income opportunities	What percentage of the income earned will accrue to women? 75-100% (13), 50-75% (10), 25-50% (7), 10-25% (6), 0-10% (2)	5	5	5	3	2	2	13
Poverty Reduction Score			**29**	**34**	**27**	**22**	**19**	**20**	**35**

Food Security:

Factor Group	Topic Area	Description	Maize	Rice	Pulses	Cashew	Livestock - Beef	Livestock - Leather	HVEV
Food Security									
Food Sec.	Own-grown substitution	What percentage of labor must be taken away from existing cashcrop and or own-grown food to move into suggested area. 75-100% (1), 50-75% (3), 25-50% (5), 0-25% (7)	8	8	8	8	7	7	4
Food Sec.	Market demand reliability	High = 10, Medium = 6, Low = 2, TBD = 2	12	12	12	4	11	9	9
Food Security Score			**20**	**20**	**20**	**12**	**18**	**16**	**13**

Business Viability:

Factor Group	Topic Area	Description	Maize	Rice	Pulses	Cashew	Livestock - Beef	Livestock - Leather	HVEV
Business Viability									
Bus. Viability	Domestic Demand Elasticity	Less prince sensitivity results in higher point valuue.	6	5	4	1	2	2	0
Bus. Viability	Regional market potential	Incremental export potential greater than 50% (4); 30-50% (3); 20-30% (2); 1-20% (1)	3	3	1	1	2	1	0
Bus. Viability	Global export market potential (less E. Africa region)	Incremental export potential greater than 50% (4); 30-50% (3); 20-30% (2); 1-20% (1)	2	4	4	3	4	4	4
Bus. Viability	Capital intensity	What capital requirements are there to move into this business or for vertical integration? High (0), Medium (3), Low (T7), Minimal (10)	6	7	8	5	3	3	8
Bus. Viability	Horizontal integration viability	Significant opportunites for horizontal integration (15); good but not large (10); narrow and geopgraphically constrained (5); very limited (0).	15	15	15	12	11	11	9
Bus. Viability	Potential for warehouse receipt system	Product requires advanced storage and suffers from price volatility; WRS not in place (10); product can be stored at home but has price volatility; WRS not in place (5); WRS of limited benefit to growers (0).	10	10	6	6	1	1	2

Business Viability (cont.):

Factor Group	Topic Area	Description	Maize	Rice	Pulses	Cashew	Livestock - Beef	Livestock - Leather	HVEV
Business Viability									
Bus. Viability	Domestic consumer preference	Cosumer strongly prefers a Tanzanian product vs. imports (15); preferred product is domestic but produced in limited supply (10); consumers preference agnostic when choosing between Tanzanian product and import (5); Tanzanian's prefer imported product (0).	5	10	5	5	5	5	5
Bus. Viability	Margins in targeted steps of value chain	Margins in next step up the value chain are: >15% (8), 10-15% (6), 5-10% (4), 0-5% (2).	11	15	8	10	5	5	12
Bus. Viability	Possibility of vertical inegration	Vertical integration is into fragmented segments of the value chain with low (non-financial) barriers to entry (12), moderate barriers to entry or otherwise restricted (6), limited to large farmers / investors (2)	13	13	7	8	5	7	11
Business Viability Score			**65**	**77**	**54**	**50**	**36**	**37**	**51**

Externality Risk:

Factor Group	Topic Area	Description	Maize	Rice	Pulses	Cashew	Livestock - Beef	Livestock - Leather	HVEV
Externality Risk									
Ext. Risk	Political risk (domestic)	Market is unencumbered and export of product is never banned (10); product is subject to periodic government evaluation but bans and political interference are episodic and minimal (5); product subject to frequent export bans and/or price regulation; government actively intervenes in value chain (0).	3	9	9	5	9	9	9
Ext. Risk	Political risk (international and export markets)	Low risk (10); medium risk (5); high risk (0).	7	5	5	8	6	7	8
Ext. Risk	Non-seasonal price volatility	Product pricing is extremely unpredictably volatile in international markets (NOTE: this does not include predictable and recurring price increases that come from declines in stocks in commodities such as maize, etc.). Built in: percentage exported and impact of international prices on domestic retail prices.	5	8	8	4	9	9	7
Externality Risk Score			**15**	**22**	**22**	**17**	**24**	**25**	**24**

Total Scores (scaled to percentages):

Factor Group	Topic Area	Description	Maize	Rice	Pulses	Cashew	Livestock - Beef	Livestock - Leather	HVEV
Combined Scores (Max 200)			**149**	**173**	**143**	**113**	**115**	**114**	**136**
Combined Scores as a Percentage of		**Max Possible**	**75%**	**87%**	**72%**	**57%**	**58%**	**57%**	**68%**

APPENDIX 2: STORAGE CAPACITY CENSUS (PRELIMINARY)

The three municipal markets in Dar have the following storage capacities (2003?):

Municipal Market	Estimated Number of Traders	Estimated Annual Sales	Storage Capacity	Location
Buguruni	350	300 million TS	2,000 tons	Dar
Tandale	560	910 million TS	7,000 tons	Dar
Mbagala.	300	300 million TS	2,000 tons	Dar

Maize Traders

Company	Estimated Volume of Maize Purchases (1000 tons)	Total Grain Storage Capacity (1000 tons)	Number of Grain Mill Facilities	Other Maize Processing / Use Assets
Mohammed Enterprises	14	20-25	5; all in Dar	27 Regional storage facilities
Export Trading	30	50-60	2; all in Dar	24 Regional storage facilities Operates cross boarder storage facilities in Zambia and Malawi

	Total storage capacity (tons)	Total storage capacity compared with annual sales (days)	Primary Locations
Integrated traders	50-60,000 tons	100 days	Major agro trade market such as DAR, Mwanza and Dodoma
Medium and small scale traders	5-10,000 tons	2-5 days	Both in upcountry markets and Municipal markets
Processors	20-25,000 tons	15 days	Major producer regions such as Mbeya, Dodoma, Kgoma and in the major agro-markets such as DAR
SGR	150,000 tons	Na	Major producer areas and major agro-markets

Third Party Warehousemen	10-15,000 tons	5-10 days	Major agro-markets
On farm	1-20,000 tons	Na	Rural areas in the producer regions such as Igoma

Company	**Number of Mills**	**Installed Processing Capacity Tons/ Day**	**Storage Capacity (Days Production)**	**Location**
E R Investments, Ltd	2	120	2-3	Dar es Salaam
Kizota Prime Products	1	60	5-6	Dodoma
Zainabu Grain Millers	1	60	3-4	Dar es Salaam
Coast Miller, Ltd	1	120	5-6	Dar es Salaam

A 2008 document reports: There are three grain silos in the country located in Dar es Salaam, Iringa and Arusha. These were property of the former National Milling Corporation but ownership was not transferred to the SGR at the time of privatization (1991) and none have since been used by the government (thus, the NFRA has never owned or operated these assets). Currently, the silo in Dar es Salaam is owned by Muhammad Enterprises, a private company, which uses the silo to store imported wheat. The silo in Arusha is leased to a private company and has some grain stored within, and the silo in Iringa is empty and in need of repairs. The Arusha and Iringa silos are for sale.

Figure 5: Locations of NFRA Storage Facilities

Source: Global Development Solutions, LLC