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Innovating pro-poor Strategies to safeguard Food Security using Technology and Knowledge Transfer

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**Institutional and policy analysis of
Food Value Chains in Tanzania: The
case of sunflower and edible-oils**

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Title

Introduction

Conditions for food value chain (FVC) development in SSA and within Tanzania are characterized by large variations in agro-ecological zones (AEZs), market access, and institutions as well as similarities. Most farming systems are characterized by small landholdings, weak integration to formal and higher value markets as well as a production focus on staple food crops using low-yielding traditional technologies. At the same time there is a growing segment of both small- and large-scale highly productive farms integrated into high-value markets using modern farm technologies (World Bank 2007). Likewise, the post-harvest sector in most countries is characterized by small-scale informal enterprises (trade, processing), while there is also a small sector of domestic and international large-scale enterprises producing higher quality products using improved technologies and know-how (Larsen et al 2009).

Improving the livelihoods of the rural poor necessitates raising productivity in these traditional FVCs while entering into larger more integrated high-value markets for traditional and new products. Yet, investments to upgrade FVCs are often not undertaken (including investments in input supply, farm/food standard systems, storage, handling and processing) due to market and coordination failures resulting in low-income rural areas (Kydd and Dorward, 2004; World Bank, 2007).

Developing horizontal and vertical linkages is often argued to be an effective organizational innovation in FVCs to overcome constraints for small-scale producers and traders to participate in high value markets (e.g. Biénabe, & Sautier, 2005; Kaganzi et al 2009). Horizontal linkage is a long-term cooperative social capital formed to accomplish common goals among farmers or agricultural traders/processors with beneficial interdependence, trust and resource pooling (USAID 2015; Berkes, 2002; Trienekens, 2011 and Faida, 2006). Vertical linkage is a social capital across non-competing actors – i.e. actors at different levels of the value chain (Ibid). For example, cooperation of producers (farmers) with processors is a vertical linkage since the two are not competing and are at different levels along the value chain.

Using Tanzania as case study, we analyze supportive and inhibitive policies and institutions for FVC development and horizontal and vertical linkages in Tanzania. We analyze the overall framework for FVCs in Tanzania and consider the specific case of sunflower and edible oil sub-sector.

The main objectives of the report are therefore the following:

- Understanding promoting and inhibiting factors for pro-poor FVC-development in Tanzania



- Identifying enhancing and constraining policies for sunflower and edible oil industry growth

We use an extensive literature review as well as insights from policy consultations and expert interviews conducted in January 2015.

The rest of the paper is organized as follows. The next chapter lays out the conceptual framework for analyzing the policy and institutional framework. This is followed by the overall review and analysis of institutions and policies influencing FVC developing in Tanzanian as well as a case study of sunflower and edible oil sector policies, institutional challenges and potential effects of different policy options and upgrading strategies. Finally, conclusions and policy implications are drawn.

Framework for analysis

Economic development and upgrading of traditional FVCs¹ in poor rural areas is characterized by many challenges including geographic dispersion, poverty, weak infrastructure (roads and communication), risks, lack of collateral, and weak contract enforcement, which result in underdeveloped markets for inputs, outputs, finance, and knowledge (Dorward et al 2001, 2005, Kydd & Dorward 2004, World Bank 2007). A major problem in this context is that investments at different FVC stages, even in potentially profitable supply chains, are not undertaken due to transaction risks resulting from (a) coordination risk as other complementary investments may not occur (e.g. investments in modern technologies by farmers may require investments downstream to absorb additional production), and (b) a risk of opportunism (e.g. monopsonic market situations; farmer loan default, sale of fake/sub-standard inputs or outputs) (Dorward et al 2001, Kydd and Dorward 2004). This results in a self-perpetuating vicious cycle of low-risk and low-return activities by farm and non-farm actors. Overcoming such a situation requires coordination, either (a) internally, e.g. by interlocking transactions of input, credit and output markets through contract farming or producer groups, or (b) externally through Government or NGO facilitation (Williamson 2000, Kaplinsky, 2000, Kydd and Dorward 2004). Internal coordination mechanisms have been more successful in high-value markets compared to staple or other low-value crops as high potential returns create more incentives for collective action, coordination and sticking to rules and standards (self-regulation) (ibid, Larsen et al 2009).

Governments face complex challenges of creating the necessary institutional environment for encouraging coordinated investments and cooperation among actors within and outside FVCs by lowering transaction and coordination costs and risks and raising expected returns. Demands for governments to regulate, coordinate and facilitate are even rising with new demands from urbanization, new competitors, and market access barriers (Dorward et al 2004, World Bank 2007, Larsen et al 2009). Supporting FVC development requires

¹ We define FVC upgrading here broadly in increasing returns of the poor (farm and non-farm) in traditional FVCs, which may simply involve (i) increasing productivity or (ii) moving up the chain, while also involving (iii) moving into higher value markets with the same or different crops (adopting new crops or finding new markets for existing produce) (source)



strengthening the regulatory environment (e.g. food safety regulations, input and product standards, intellectual property protection, macro-economic policies) and its enforcement (monitoring infrastructure). It also involves creating the environment to reduce transformation costs and increasing returns by investing in public infrastructure (e.g. by investing in roads, communication, R&D, extension and advisory services for pro-poor technologies), designing trade, subsidy or tax policies (Kydd and Dorward 2004, World Bank 2007). In addition, governments may directly facilitate collective action by supporting horizontal and vertical linkages (contract farming, farmer groups and cooperatives, processor associations or cluster) (Trienekens 2011, Berkes 2002, USAID 2014, Faida 2006), networks across different FVC stages and FVCs as well as public-private partnerships to address coordination challenges (e.g. Industry or Crop Boards, industry associations) (Kydd et al 2001, World Bank 2007, Larsen et al 2009).

A main controversy is to which extent governments should intervene in the market. Previously, governments often took over commercial activities throughout FVCs, while constraining the private sector (Birner and Resnick 2010, World Bank 2007). In most cases such interventions failed as Governments were ill informed, lacked implementation capacities and were often affected by rent-seeking and corruption, which benefited the better-off rather than the poor (ibid). Although structural adjustment eliminated many distorting policies that inhibited private initiatives (World Bank 2007), there continue to be widespread coordination failures due to underdeveloped institutions. For FVC development a main question is therefore, how to address coordination and market failures in the context of weak state capacities to design, implement and enforce policies.

The following analysis focuses on inhibiting and supportive institutions and policies for pro-poor FVC development in Tanzania in general and using a sunflower and edible oil case study. We review the institutional economics (Williamson 2000)² and development of institutional arrangements by stakeholders to overcome coordination problems (ibid, Dorward et al 2001). The review therefore focuses on (i) FVC specific policies affecting returns to different actors (trade policy, local tax policies, infrastructure), (ii) supportive institutions and organizations (FVC finance, R&D, extension, input supply systems) and (iii) support of collective action arrangements (horizontal and vertical linkages as well as networks).³

Agricultural trade policies have been used as state revenue source (e.g. taxing agricultural exports or domestic sales), to support domestic competitiveness (e.g. import tariffs, export promotion initiatives), or domestic consumption (e.g. waiving import tariffs). Imposing import tariffs to protect domestic industries (infant industry argument) have been popular among most nations (Dorward et al 2004), but have discussed controversially for potential negative incentive effects. FVC finance is usually constrained as providing it commercially is usually not profitable. Different institutional arrangements are discussed to overcome these problems, e.g. contract farming by interlinking output, input and credit markets, or

² The institutional environment therefore includes the “executive, legislative, judicial, and bureaucratic functions of government as well as the distribution of powers across different levels of government.” (ibid).

³ Kaplinsky (2000) differentiates between different chain governance tasks implemented internally or externally, including rules and regulation setting (legislative governance), ensuring monitoring and implementation (judicial governance) and supporting actors to adhere to rules and regulations.



microfinance and SACCOS. *Input supply policies and institutions:* After elimination of subsidies during structural adjustment, high prices of imported inputs and low input use, led Governments to reintroduce subsidies. The efficacy of input subsidies is a controversially debated. While operationally easy to implement, problems include financial sustainability, leakages (elite capture), and crowding-out of the private sector. *Horizontal/vertical linkages, networks:* Farmer organizations or business networks may play a central role to achieve economies of scale and to access inputs and access other services. Evidence suggests that farmer organizations have been more successful in high-value markets and sectors (Larsen et al., 2009). Contract farming is an often discussed strategy to link farmers to markets, with many showing positive effects on smallholder welfare. Enterprise clusters (UNIDO & GOT, 2012) have been central in developed countries for developing the SME sector (ibid. p.89, quoting Humphrey and Schmitz, 1996).

FVC institutions and policies in Tanzania

Historical background to FVC development

Farmer market participation in the export crop sector started before independence in many African countries. This led to formation of cooperatives, which played a central role in smallholder marketing in SSA (Bernard and Spielman 2009; Mruma, 2014; Puttermann, 1992). First cooperatives in Tanzania were established by smallholder coffee farmers in Kilimanjaro and spread to other regions covering a variety of cash crops (Puttermann, 1992; Mruma, 2014; Mrema & Ndikumana, 2013).⁴ Many of these cooperatives were involved not only in buying and selling crops, but also provided in-kind input loans to cooperative members and operated processing plants – thus supporting the entire value chain (Gibbon, 2001; Mrema & Ndikumana, 2013). In addition, cooperatives provided agricultural advisory services for both production and marketing, allowing farmers to fully participate in agricultural marketing. Cotton, coffee, tea and tobacco cooperatives in SSA were able to export their crops directly and this enhanced their farmers to capture premium prices.

The Tanzanian cooperative sector grew quickly and was considered to be the largest cooperative movement in Africa (Maghimbi, 2010). After independence in 1961, cooperatives were strongly promoted by the Government and by 1965, cooperatives were active in more than 20 crop sub-sectors controlling more than 80% of agricultural production and marketing (Birchall & Simmons, 2010; Mruma, 2014).⁵ Maghimbi (2010) observed that many cooperatives “made profit and huge surpluses” and contributed to strong positive trend in food production between 1954 and 1968. Cooperative leaders were democratically elected (Gibbon, 2001), which enhanced their downward accountability, and cooperative membership was voluntary (ibid.). Cooperatives were considered to be relatively successful in supporting smallholder production in SSA until the 1970s (Putterman, 1992; Mrema & Ndikumana, 2013; Maghimbi 2010; Mruma, 2014). However, cooperatives had also been increasingly encouraged by the Government in areas with low economic potentials and

⁴ These initial cooperatives tended to deal less with traditional food crops (Putterman, 1992)

⁵ Although cooperatives dominated the post-harvest system, international and family companies also played an important role (Mrema & Ndikumana, 2013).



where adequate local skills were lacking (Isinika et al., 2005). In addition, their rapid rise was often accompanied by problems of corruption, misuse of funds (Gibbon, 2001; Mruma, 2014), and elite capture of inputs (see e.g. Gibbon, 2001).⁶

However, the new independent SSA governments gradually increased state influence in the cooperatives and downward accountability of the cooperatives was eroded. Many countries established Crop Development Authorities (CDA) whose leaders were elected by central governments and imposed on the farmers. CDAs or other parastatal organizations were established for export crops, which oversaw production, marketing and export (Putterman, 1995; Cooksey, 2003). For non-export crops, other forms of government-controlled organizations were formed. In some countries – such as Tanzania – participation in cooperatives became compulsory (Wanyama 2013). Producer prices were determined by the government and were taxed directly and indirectly – resulting into smaller farmer prices. For example, for coffee and tobacco producer prices were only 23% and 15% of the international prices by mid-1980s, respectively (Barrett et al, 2005). Governments and donors also participated in the input market through distribution of subsidized or free fertilizer and/or seeds (Tripp and Rohbarch 2004; Langyintuo et al 2010). Development of a private input sector was hampered by these government interventions (Langyintuo et al 2010). The governments' heavy-handed intervention into cooperatives and their participation in input and output sectors led to system's collapse in the 1980s and 1990s and made the governments to rethink strategies for reviving the sector (Kwapong and Kyorugendo 2010a).

Eventually, many SSA countries introduced liberalization policies in the late 1980s to 1990s (Kherallah et al 2000; World Bank, 2007). Market-oriented reforms limited the role of the governments in input, farm and post-harvest sectors and output and input prices were decontrolled to allow development of a private agricultural trader and input sector (Beynon et al., 1992; World Bank, 2000; Putterman, 1995). However, the rapid withdrawal of governments in the marketing activities, input provision and control of cooperatives created a vacuum since the newly independent cooperatives and farmer groups did not have institutional and human capacity to efficiently operate economic activities (Develtere and Pollet 2008).

Efforts to revive the cooperatives have been implemented in several African countries and the number of independent cooperatives and cooperators has increased over the past 25 years (ibid.). A study covering 11 SSA countries showed that about 7% of the populations are members of about 150,000 cooperatives or cooperative-type organizations (Birchall and Ketilson 2009). However, just as the pre and post-independence cooperatives, cooperatives in many countries are increasingly becoming autonomous, voluntary but more diversified

⁶ A Presidential commission was installed in 1966 to investigate the problems, which criticized the shortage of skilled manpower, uninformed members, lack of democracy, and susceptibility to political interference (Mruma, 2014).



and group-based as they are increasingly reducing the role of apex bodies that characterized the unified cooperative structure in the Anglophone countries (Develtere and Pollet 2008).⁷

In Tanzania, after liberalization in the 1990s, the number of agricultural marketing cooperatives declined significantly, with many of them not being active (Maghimbi, 2014; Mruma, 2014). At the same time, the number of private traders and competition in some sectors increased (Cooksey, 2003; Government of Tanzania - GoT, 2008). Cooperatives remained relevant in some cash crop sectors, including tobacco, coffee, cotton, and cashew nuts in some regions (Mruma, 2014). However, overall markets in many regions of Tanzania remain weakly developed and most farmers remain without access to collective action to market their produce (GoT, 2005). Cooperative development therefore continues to play a major strategy for the Government to support collective marketing and market access among small-scale farmers in Tanzania (GoT, 2008; GoT, 2013; GoT, 2015).

Studies by Morrissey & Leyaro (2009) and Binswanger-Mkhize & Gautam (2010) show that the reforms since the 1980s reduced market distortions and led to higher producer prices, but they argue that the impact on farmer incentives has been lower compared to many other African countries. Morrissey & Leyaro (2009), for instance, found that certain crops, especially cash crops, have become less competitive as they face significant output and input market deficiencies. In addition, the two major food crops, maize and rice, continued facing high distortions (*ibid.*).

In terms of input access and adoption, elimination of fertilizer and input subsidies after liberalization led to a sharp increase in fertilizer and input prices and a decline in their use, especially in the more remote areas (Isinika et al. 2005, Morrissey & Leyaro 2009, Skarstein 2005). According to data quoted in Cooksey (2004), for example, fertilizer use for maize declined by 50%, but which had only limited production effect (less than 5%) as fertilizer use was unprofitable for most farmers even with subsidies.

Institutional and policy environment for FVC development

Overall sector policies, strategies and implementation

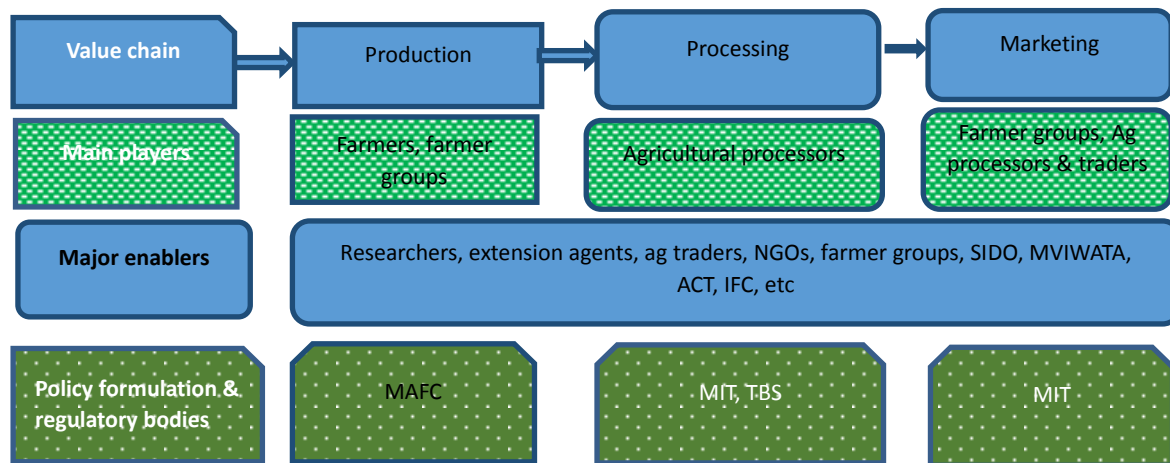
Policy formulation and regulation for crop FVCs in Tanzania is led by two major ministries: the Ministry of Agriculture and Food Security and Cooperatives (MAFC) as well as the Ministry of Industries, Trade and Marketing (MIT). In FVCs running from production to marketing, MAFC is largely involved in production-oriented policies and to a limited extent in processing policies. MIT is in the lead to formulate policies related to marketing, though the cooperatives department in MAFC also deals with the entire value chain of traditional cash crops. In addition, a number of Crop Boards have been established for traditional export crops (sugar, coffee, tea, cotton, tobacco), under the MAFC, which take up regulatory and supportive roles along the entire FVC (see below in more detail).

⁷ In many countries, they are also becoming cooperative market driven and responsive to new opportunities – especially the growing supermarkets (Reardon et al 2003) and urbanization, both of which require bulk supply of agricultural produce that cannot be provided by individual small-scale farmers.



The Tanzania Bureau of Standards (TBS), under the MIT, is charged with regulatory activities of agricultural product standards. The Tanzania Food and Drug Authority (TFDA), under the Ministry of Health, mandated to control issues affecting human health and is therefore also involved in standard formulation and enforcement. A number of institutions and departments play an important role in supporting FVCs in Tanzania. These include the research and extension services under MAFC, but which largely focus on production aspects. In addition, the Agricultural Research Institutions (ARIs) under the crop research department as well as Sokoine University of Agriculture play important roles in basic and applied crop-related research. NGOs and farmer organizations also play a key role in enhancing agricultural production, processing and marketing (**Figure 1**). At the processor and trader level, the Small Industries Development Organization (SIDO), under the MIT, plays an important role in improving capacities of SMEs in Tanzania.

Figure 1: Policy & institutional landscape of FVCs in Tanzania



Notes: MAFC = Ministry of agriculture, food security & Cooperatives; MIT = Ministry of Industries & Trade; TBS = Tanzania bureau of Standards; SIDO = Small Industries Development Organization; TFC = Tanzania Federation of Cooperatives; ACT = Agricultural Council of Tanzania

Agricultural marketing activities are only poorly supported in this framework. MIT deals with all marketing and trade activities with agriculture being only one of the many sectors the ministry handles. It is not surprising that MIT does not have robust agricultural marketing advisory services. The importance of improving agricultural marketing advisory services is recognized in recent national policies. The major policies including important agricultural marketing issues are the Agricultural Marketing Policy (2008) and the National Agricultural Policy (2013). Both stress the need for further market-oriented reforms of the sector and for providing a conducive environment for private sector-led value chain development.

Agriculture has been recognized in a number of policy documents as a key sector for growth and poverty reduction in Tanzania (e.g. MKUKUTA I and II, ASDS/ASDP, Kilimu Kwanza). In line with Tanzania’s commitment to CAADP, agricultural funding increased strongly since the mid-2000s (CAADP 2011). However, although total agricultural expenditure surpassed CAADP commitments between 2007-2009 it remained below these levels thereafter (FAO 2013),



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from almost 13% to 9% of total government spending (ibid). Agriculture-specific support shifted from general support to a focus on input subsidies. A review by FAO (2013) found that “the increase in direct transfers to producers has led to decreases in key areas such as extension services and general infrastructure for the sector, such as storage facilities and marketing infrastructure.” expenditures for specific commodities is only at 4%, with maize and rice (mainly through fertilizer subsidies) receiving as much as all remaining commodities (ibid). Another problem of sector support has been the lack of coordination across agencies and levels of governance (UNIDO & GOT, 2012, p.89). A good example, as mentioned, is agricultural marketing, which has often been reallocated between the Ministry of Agriculture (MAFC) and Ministry of Industry and Trade (MIT).

The draft-version of ASDP II attempts to address these shortcomings by departing from ASDP I and focusing public investments on a number of “priority commodities”. Priority commodities within each agro-ecological zone (AEZ) will function as growth poles to better channel service provision. ASDP II provides an increased focus on linking farmers to markets by attempting to strengthen farmer organizations, developing market infrastructure as well as supporting agribusinesses to link with farmers (ibid.).

Trade and market-oriented policies

Trade policies in Tanzania are formulated by the MIT (Ministry of Industry and Trade). After a period of import substitution (URT, 2013), Tanzania introduced trade reforms since the 1980s that influenced agriculture positively through elimination of export taxes, decontrolling the exchange rate and reducing import duties and taxes on most agricultural inputs (Binswanger-Mkhize & Gautam, 2010). According to Morrissey & Leyaro (2009) trade policy reforms had some beneficial effects as they led to a reduction of imports in share of GDP and increase in exports.

Tanzania’s trade policy is now largely determined by its East African Community (EAC) membership. EAC members have agreed on a Common External Tariff (CET) of not more than 25% for imports from outside the region as well as zero or reduced tariffs to member countries (MAFAP, 2013, p.63). Average tariffs declined from 28 percent early 1990s to 16% in 2000s (Morrissey and Leyaro, 2009). Yet, the main agricultural commodities have quite high import tariffs as they are considered sensitive products (ibid.). The government also continues to intervene in agricultural trade through “volatile trade policies” (MAFAP, 2013), including unpredictable import or export bans, import tariff changes as well as import licences. Temporal export bans, for example, have been used for maize and rice to safeguard food security; according to MAFAP (2013), it has been the only country in East Africa to do so. Such volatile and unpredictable ways of trade policy making have been major disincentives for farmers and businesses (World Bank, 2012). Moreover, it has led in many instances to inefficient outcomes; for example, importing food crops in some regions and exporting in others may be sometimes cheaper due to high domestic transport costs than import substitution (Puttman, 1995).

Moreover, trade has been negatively affected by numerous local taxes, licensing, road blocks, custom barriers and corruption (Binswanger-Mkhize & Gautam, 2010; Cooksey 2004). Some of this has been blamed on decentralization, which has been pursued to support local



development and bring service provision to the local level. The Local Government Act of 1999 empowered local governments to raise taxes and fees (Baregu and Hoogeveen 2009; see Mitchell & Baregu, 2011). Yet it also led to excessive local taxation of agriculture and bribes, a further disincentive for agricultural commercialization (Cooksey 2004, Mitchell & Baregu 2011). However, there have been significant improvements in the local taxation regimes. Isinika et al. (2005, 202) note that some 40 taxes had been abolished by 2003. Binswanger-Mkhize & Gautam (2010) found that local tax burden has declined for most commodities they studied to below 5% of profits, arguing that “the reform efforts in this area seem to have been fairly successful, making local taxation less of an issue today than in the first half of the last decade.” (p. 41). Yet, there are still some commodities with very high tax burden, e.g. local taxation for cashew is still over 25% of farm profits (ibid., Mitchell & Baregu, 2011).

Another major long-standing challenge for agricultural value chain development in Tanzania has been high domestic transport costs and overall infrastructure challenges (Isinika et al., 2005). High transport costs have been a major constraint affecting profitability of smallholder farmers, making it in some cases cheaper to import a commodity than sourcing it domestically (e.g. palm oil).

FVC standards, regulations and their enforcement

With a growing middle-class and increasing urbanization, consumer awareness for food safety and hygienic aspects is increasing in Tanzania, prompting the Government to strengthen their food safety and quality control system. Developing a strong quality system with strong enforcement is also essential for local farmers and businesses to access high value urban domestic and export markets.

The food processing industry is regulated by a number of general as well as industry specific laws and regulations that address issues of food safety and quality. The sector is highly regulated with at least 22 laws directed at the sector and 15 regulators governing it, including national level ministries as well as Local Government Authorities (LGAs) (CTI, 2013). Central Government bodies regulating foods and food products are the Tanzanian Food and Drugs Authority (TFDA) and the Tanzania Bureau of Standards (TBS). TFDA was established under the Ministry of Health to enforce the Tanzania Food, Drugs and Cosmetic Act of 2003. The Act and its related regulations (food registration, food hygiene, food labeling) regulate all issues of food safety and quality in Tanzania. The Act prohibits manufacturing, storage or distribution of food for sale unless the product is registered by TFDA to ensure food safety and quality. TFDA issues licenses for the specific food product and the premises used for operation. Food products are inspected in accordance with the relevant National Standard. Manufacturing premises and operations are inspected to ensure adherence to hygienic regulations and Good Management Practices. TFDA issues licenses and permits for manufacturing, whole sale and retail, as well as imports and exports. In order to control compliance with standards, TFDA conducts post-market surveillance tests of food businesses at processing plants and ports of entry. Foods are categorized in groups of high risks foods



(e.g. dairy products; meat & meat products) and low risk foods such as fats and oils or cereals. High risk foods require more frequent inspections.⁸

TBS is a government agency established under the MIT by the Standards Act of 1975. Its mandate is to undertake measures for quality control of products and promote standardization in industry and commerce for both local and export markets (TBS-website). It is the only body in Tanzania mandated to formulate, promulgate and implement national standards. National standards are formulated through multi-stakeholder technical committees. Standards dealing with products that can affect health or safety are established as compulsory standards; other standards are voluntary. The Minister may on recommendation of TBS declare any standard a compulsory standard, in which case a product to which the standard relates is not allowed to be sold unless it complies (Standard Act, 2009, P.17). TBS also conducts inspections among new applicants, routine inspections at ports and other import entry points, as well as inspections of existing 'tbs'-mark users.

A recent enterprise study of the food industry found that most businesses perceive the system to be over-regulated and bureaucratic (CTI, 2013). Enterprises complained about the multiplicity of regulatory authorities, duplications of their regulations and the high cost of compliance (ibid). For example, different regulating organizations are claimed to inspect often the same parameters, yet with each charging additional inspection fees and not sharing information (ibid). Both institutions, according to CTI (2013), appoint inspectors with almost identical functions (testing product safety and quality before registering). In addition, a number of other regulations that include food production sections, e.g. the Public Health Act of 2009 and Environmental Management act of 2004, require inspections of food production premises. The study also claims that most staff members of regulatory agencies have unsupportive attitudes towards private enterprises.

Overall adherence to TFDA and TBS standards is very low (Agricultural Marketing Policy – GoT, 2008). On the one hand, this is because enforcement capacities within regulatory bodies is very weak (SMED, 2003, p.9; GOT, 2008). A recent evaluation, for example, found that TFDA fails to inspect most processors in the country, while weak record-keeping at TFDA prohibits enforcing laws among non-compliant food processor (URT / NAU, 2014). The evaluation therefore concludes that TFDA “has not adequately fulfilled its objectives to control safety and quality of food in the country by conducting and managing food inspections.” (ibid., p.XX). Quality adherence is particularly a problem among SME. There is no regulatory body governing these informal food processors or vendors (CTI, 2013). The LGAs, for example, which could focus more on controlling and supporting the informal sector, concentrates on formal processors who are already controlled by TBS and TFDA (CTI, 2013, p.X). Weak communication between Health Officers at district level and national-level institutions contributes further to enforcement problems.⁹ The evaluations recommend better harmonizing regulatory functions of TBS, TFDA and other agencies and especially improving data sharing between these different institutions.

⁸ Personal communication at TFDA

⁹ Personal communication at TFDA



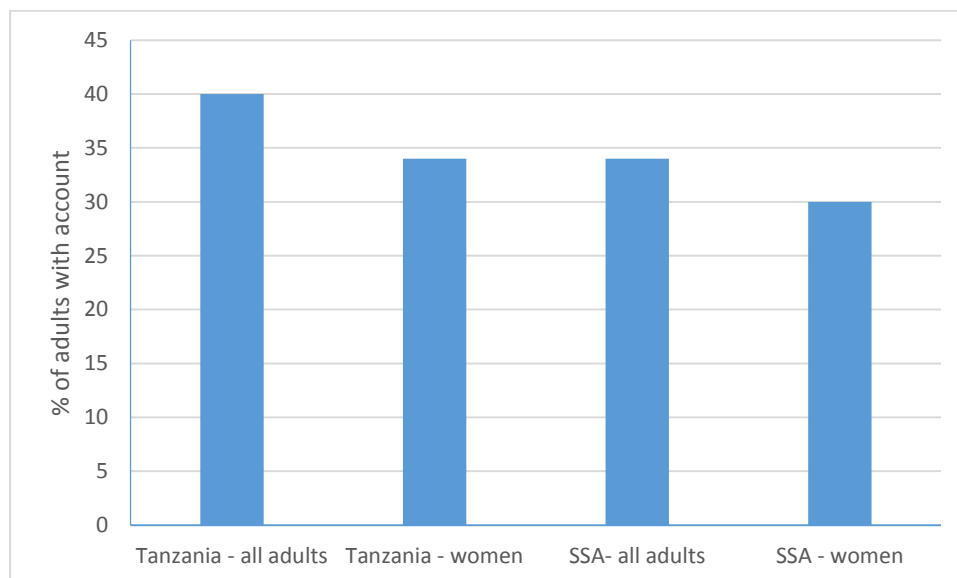
While improving the regulatory and enforcement environment is important, a greater challenge is to support informal processors and producers to adhere to food hygiene and safety standards, which also can provide access to higher value markets, while not overburdening the private sector with excessive unnecessary costs. In order to facilitate enterprises to comply with standards, there have been initiatives by the Small Industries Development Organization (SIDO) under the MIT and TBS. TBS and SIDO have schemes to train SMEs in safety and quality production issues and SMEs adhering to the standards receive TBS certification without paying any fee. Yet, only few enterprises have managed to get certified.¹⁰

FVC finance

During state-led period, some farmers and businesses had access to credit and input subsidies through state-owned banks and parastatals (Bryceson 1992). However, the financial system was highly unsustainable and eventually collapsed. Financial sector liberalization since the 1990s led to privatization of state-owned banks, including the then largest state-owned commercial bank (National Bank of Commerce), as well as liberalized interest rates, abolished state-controlled credit allocation and strengthened the Bank of Tanzania regulatory and supervisory capacity (World Bank 2012). This led to market entries of different private finance institutions, including commercial banks, insurance companies, MFIs or credit and savings groups (ibid.).

According to XXX-data, about 40% of all adults and 35% of women in Tanzania have an account, which is slightly higher than the SSA-average (Figure 2). Yet the agricultural sector is still underserved by the financial sector: only 15.4% of commercial bank lending in 2011 was agriculture-related (World Bank 2012); only 6.5% of agricultural households reported to have access to credit (NBS 2008).

Figure 2: Access to financial institutions in Tanzania and SSA



Source: ???.

¹⁰ Personal communication at TBS



There are a number of policies and strategies that have been implemented to promote traditional and innovative sources of finance for FVC-development in Tanzania:

Microfinance institutions (MFI): The MFI policy was designed in 2000 with a broad objective of providing financial services to low income population (BOT 2000). The Cooperative Societies Act of 2003 encouraged establishing Savings and Credit Cooperative Societies (SACCOS) as a financial inclusion strategy and in 2005 a Microfinance Regulation was passed to promote and regulate the MFI sector. According to the World Bank (2012, 27), there are 5,344 SACCOS in Tanzania, with a total of 911,873 members. Yet, many of these SACCOS are inactive (ibid). Moreover, difficulties of MFIs and SACCOS to finance larger investments, has made these sources often less interesting for FVC finance.

Subsidies and credit guarantees. A main instrument of the Government to provide access to inputs for small-scale farmers has been through the National Agricultural Input Voucher Subsidy (NAIVS) program. In 2009-11, Tanzania used an average of 46% of its agricultural budget on NAIVS (Jayne and Shahidur 2013). NAIVS has provided about 2.5 million farmers over 3 years period a 50% subsidy for seed and fertilizer inputs for one acre of maize or paddy (ASDP II, 2015, p.52). According to ASDP II (2015), NAIVS has reduced the gap between supply and demand. Yet the National Agricultural Policy (GoT 2013) recognizes that the NAIVS has hampered other important public investments. In addition, NAIVS has only focused on maize and rice, and to a limited extent on sorghum (ASARECA & KIT 2014). In its ASDP II (2015, 51), the Government thus outlines the NAIVS as a first step of strengthening value chain partnerships. The NAIVs will be phased out to give way to farmer organizations to provide input credit services.

As part of the strategy to implement the National policy on small and medium scale enterprises (SMEs), the Government of Tanzania initiated the Credit Guarantee Scheme (SME-CGS) in 2004 (BOT 2015). The major objective of SME-CGS is to enhance access to financial resources. One of the SME-CGS was the partial credit guarantees (PCG) which started in 2005 to provide a 50% loan guarantee, but which was suspended in 2008 due to its poor performance (Burg and Fuchs 2013). The major providers of credit guarantee schemes (CGS) in Tanzania include: Bank of Tanzania SME-CGS, Private Agricultural Sector Support (PASS) – funded by Government and Danida; and Rabobank Sustainable Agriculture Guarantee Fund (SAGF) (Hansen 2011).

Mobile banking and financial inclusion: SSA accounts for 53% of the live mobile money accounts in the world (Bouverot 2014). While only 2% of adults in the world above 15 years have a mobile money account, the corresponding share in SSA is 12% (World Bank 2015). For the case of Tanzania, a recent report by Villasenor et al (2015) showed that the country is one of 21 countries¹¹ with the highest policy commitment to enhance financial inclusion – i.e., provision of financial services to low-income and/or disadvantaged people at affordable costs (Cull et al 2014). Such success has come largely through the mobile phone financial services. About 63% of the Tanzania population has a mobile phone (World Bank 2014) and

¹¹ The countries are: Afghanistan, Bangladesh, Brazil, Chile, Colombia, Ethiopia, India, Indonesia, Kenya, Malawi, Mexico, Nigeria, Pakistan, Peru, Philippines, Rwanda, South Africa, Tanzania, Turkey, Uganda, and Zambia.



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about 35% of all adults have a mobile money account compared to only 12% in SSA (Demirguc-Kunt et al 2014). About 23% have received agricultural payments through mobile money account and only 4% through a financial institution (Demirguc-Kunt et al 2014). This shows the large potential of mobile banking to agricultural development. In response to the fast growth of mobile banking, Tanzania initiated a policy for monitoring and regulating digital financial services (Ibid). However, mobile money services are focused on providing money transfer and little development has taking place in providing savings and credit services.

The Warehouse Receipt System (WRS) was introduced in Tanzania under the Warehouse Receipts Act of 2005 and became operational in 2007. The WRS is regulated by the Tanzania Warehouse Licensing Board (TWLB), which belongs to the Ministry of Trade and Marketing. However, there have been only about 30 certified warehouses by 2012 (World Bank 2012, xvii). Establishing WRS is a central strategy in the ASDP II (2015, 73) implemented first through Big Results Now (BRN), which aims at constructing 275 collective warehouse marketing schemes (COWABAMA) for maize and 78 for rice and link them with large scale buyers for domestic and export markets, however primarily in the country's high potential areas (ibid). Experiences in Tanzania with WRS have been mixed so far (Booz Allen, 2010). In the cashew nuts sector, for example, it was made compulsory for farmers to operate through WRS, prohibiting private traders to purchase raw cashew nuts directly from farmers or primary societies, reintroducing a single market channel (ibid.). In addition, commercial banks providing loans through WRS received Government securities (ibid.). In sectors with less Government intervention, the program seems to have been more successful (e.g. in rice) (ibid.).

Promotion of *contract farming* has been a further strategy to increase credit access, which has been supported through tax incentives, energy tariffs and cost-sharing arrangements (ASDS 2001; 43). Yet, the system has been only limited to specific commodities and areas, where risks of side-selling are limited and buyers depend on timely raw material supply. In 2015, the *Tanzanian Agricultural Development Bank (TADB)* was also launched to support FVCs with an initial pledge of \$500 million as running capital (The Citizen 2015).

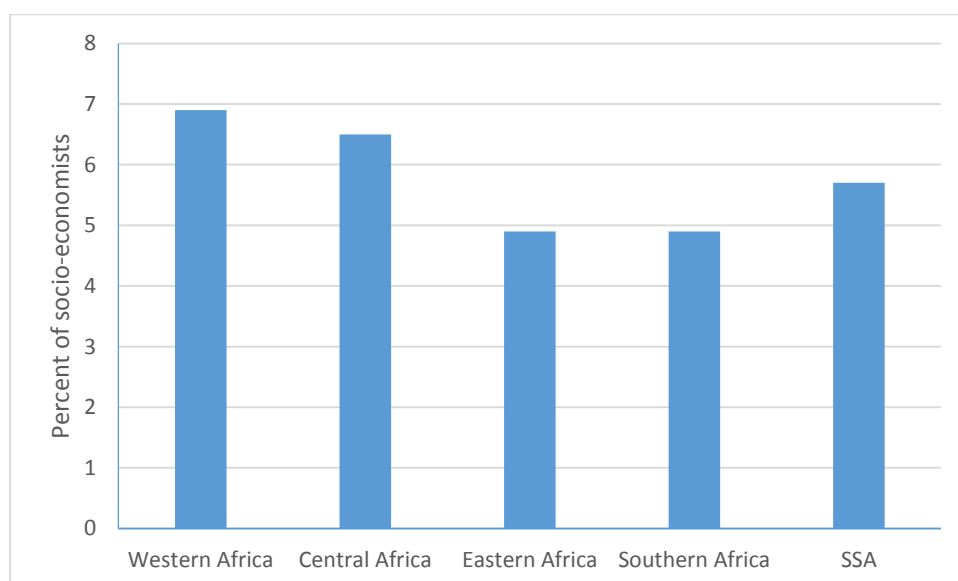
FVC research and advisory services

Since independence the agricultural research and extension system in Tanzania had a strong focus on food crops (Isinika et al., 2005). The extension structure was influenced by the aim of having one extension officer per ward and research for locally adopted technologies, leading to Agricultural research stations (ARIs) being spread across each AEZ (ibid.). Since independence, 17 new research stations had therefore been, often supported by donors (ibid.). A problem of the system has been the very thin distribution of resources, resulting in discontinuation of research programs as soon as donor funding ended (Isinika et al., 2003).

Regarding the allocation of research funds, a major problem in most SSA countries has been the lack of marketing-related and socio-economic research. Only 5.5% of full-time equivalent researchers in SSA are engaged in socio-economic research (Figure 3).



Figure 3: Share of socio-economic Full-time equivalent researchers in SSA



Source: ASTI raw data

The Tanzanian Agricultural Marketing Policy (AMP 2008) recognizes the inadequate provision of agricultural marketing information, market research and intelligence, which the policy aims at promoting through capacity building and PPPs. Yet, of the only 8% of farmers in Tanzania who received advisory services, 82% received advisory services related to production and only a third were advised on marketing aspects (Table 1). This underlines the low priority given to marketing and other socio-economics in SSA agricultural technology and dissemination efforts.

Table 1: Access to agricultural extension agents and type of advisory services offered

	Type of advisory service offered			
	Ag production	Agro-processing	Marketing	Livestock
	Percent			
Farmers receiving extension services				
• All farmers	7.8	1.4	3.1	2.1
• Extension service recipients ^a	82	14	33	22
Institutional affiliation of provider				
• Government	100	35	63	24
• NGO	100	35	63	24



• Cooperative	83	39	69	26
• Large scale farmers	83	39	69	26
• Other	81	1	25	8

^a Total adds more than 100% because farmers receive multiple types of advisory services

Source: NBS 2012

In terms of type of institutional affiliation, Table 2, shows only 0.7% of farmers receive agricultural marketing advisory services. MAFC and cooperatives reached the largest share of farmers, yet cooperatives focus currently only on few export cash crops. Apart from that, marketing advise is also provided by NGOs and other farmers. No farmer reported to have received services from MIT. The overall low advisory support, especially for marketing, underscores the major weakness of the current advisory services in Tanzania and SSA in general.

Table 2: Type of agricultural advisory services provided and institutional affiliation of provider

Institutional affiliation of provider	Any advisory service	Livestock production	Crop production	Ag processing	Ag marketing
Percent of farmers					
Farmer	0.7	0.1	0.6	0.1	0.2
NGO	0.7	0.1	0.7	0.2	0.4
MAFC	6.0	1.4	5.1	0.6	1.4
Cooperative	1.5	0.3	1.2	0.6	1.0
Other	1.6	0.2	1.1	0.0	0.5
Total	2.1	0.4	1.7	0.3	0.7

Source: NBS - National Panel Survey (NPS 2012-2013).

Seed supply system: seed availability and adoption

Of major relevance for FVC development is increasing farm-level productivity through enhancing access to modern technology, especially access to improved seeds. Yet use of improved seeds is very low in Tanzania as throughout SSA, with recent national data suggesting only 17% of farmers using improved seeds (NBS 2012). In order to increase use of improved seeds, a new Seed Act was formulated in 2003 (Plant Variety Protection Act) , which outlines the governance framework for the seed industry, including production and



trade of public and private varieties, import and export of seeds as well as seed certification and quality control. The Act led to the formation of the Tanzania Official Seed Certification Institute (TOSCI), a semi-autonomous organization tasked with certifying newly developed and imported varieties as well as enforcing quality standards. In addition, the Act established a National Seed Committee as advisory body to the Government regarding matters of seed sector development. The private sector is engaged in the Committee through the Tanzania Seed Trade Association. A new Plant Breeders Rights Act (2012) has been recently introduced, which aims at better protecting breeder rights as well as adjusting to International Seed Testing Association (ISTA) rules, considered necessary to also export domestically developed seeds (World Bank, 2012). In addition, the act allows public seed breeders to go into licensing arrangements with private companies to increase seed multiplication (ibid.).

In response to slow adoption of improved crop varieties after market liberalization, the Agricultural Seed Agency (ASA) was established in 2006 (ASARECA & KIT, 2014) a semi-autonomous agency under the MAFC with a mandate to produce and distribute both basic/foundation and certified seeds; promote private sector participation and expand improved seed production of particularly neglected food crops and for regions in remote areas (ASARECA & KIT, 2014; World Bank, 2012).

Private sector participation in the seed supply sector has increased to some extent. World Bank (2012) data suggested there to be around 52 active international and domestic seed companies in Tanzania. In addition, about 1,500 registered agro-dealers operate in Tanzania (ASARECA & KIT, 2014). Commercial seed availability has likewise nearly doubled between 2007/08 and 2011/12, from 16,000 to 30,000 tons (World Bank, 2012), with almost 80% of the commercial seed supplied by the private sector (ibid.). In addition, there has been an increase in domestically bred varieties and harmonization initiatives in the EAC that shortens the variety release process (ASARECA & KIT 2014). Nonetheless, the domestic seed research and production system is still underdeveloped, given that nearly 90% of all commercial seeds sold in the country are imported (World Bank, 2012, 10). Moreover, most certified seeds are for few crops, with maize accounting for 85% of all improved seed sold in 2010/11 (World Bank, 2012, 8). Seeds for smallholder farmers such as sorghum, OPV maize, oilseeds, and legumes are supplied by smaller domestic companies, but which have significantly lower production capacities (ASARECA & KIT, 2014).

A key bottleneck of availability of improved seeds in Tanzania relates to the amount and timeliness of early generation seed provision, which is considered to be highly inadequate, given the very old processing facilities and inadequate production planning at ASA (ASARECA / KIT, 2014). Private companies had been prohibited to produce their own foundation seeds of publicly bred varieties and therefore had to rely on ASA (ibid). A recent amendment to the seed law has allowed private companies directly go into licensing arrangements with ARIs for producing foundation seeds (World Bank, 2012; xiv). Strict licensing conditions and limited production capacities of domestic seed companies, however, continue to constrain seed production (World Bank, 2012). More generally, there are concerns about ASA's market



presence in some potentially profitable seed sub-sectors to crowd out the private sector in seed multiplication and marketing (ASARECA / KIT, 2014, iv; *ibid.*).

An initiative to increase supply of quality seeds is QDS (Quality Declared Seeds), which was first piloted into Tanzania in 1998. The Seed Act established a formal QDS certification process involving TOSCI and the local extension system (Ngwediagi, 2009). QDS involves farmers selected within communities to produce improved seeds on five acre or less. The seeds produced are sold to other farmers at affordable prices within their ward, usually at lower quality than certified seeds (ASARECA & KIT, 2014).¹² QDS is seen as a success in Tanzania in most areas where it has been introduced as it helps bridging formal and informal seed systems (ASARECA & KIT, 2014). However, its further expansion is still constrained by the costs of the system, challenges to enforce quality as well as regulations prohibiting QDS farmers to market their seeds outside their Ward (*ibid.*).

On the demand side, seed adoption is constrained by their low profitability in Tanzania. World Bank (2012) data, for example, shows that profitability of improved seeds is significantly lower than in other countries in the region, e.g. the seed-to-grain price ratio for maize in Tanzania was found to be 7:1 for OPVs and 10:1 for hybrids, compared to only 5:1 for hybrids in Kenya (World Bank, 2012; 12). The high ratio shows that either output prices are too low and/or seed production costs too high, suggesting inefficiencies in the seed supply system and farm produce marketing.

NAIVS has been a strategy to directly incentivize adoption of improved seeds among farmers in Tanzania. However, most farmers are failing to buy subsidized improved seeds due as the profitability remains low in spite of subsidies (ASARECA / KIT, 2014). Additionally, quality problems of improved seeds and fake seeds on the market are negatively affecting farmers' trust in improved seeds (World Bank, 2012; USAID, 2013; ASARECA & KIT, 2014; Tanzania AGRA-PASS MTR, 200X 201). Underlying causes are an inadequate monitoring of seed regulations by TOSCI due to limited human and financial resources, but also limited seed testing and storage facilities, which contributes to their lower quality (*ibid.*). The National Agricultural Policy (2013) formulates as a strategy to decentralize TOSCI's quality control services, which may also reduce costs and processes to start QDS production.

Vertical & horizontal linkages and FVC networks

Crop boards

Crop boards (CBs) are playing a central role in regulating and supporting traditional cash crop sectors, which replaced the CDAs in the early 2000s. CBs have received reduced mandates that focused primarily on regulatory and supportive functions. Yet as a transitional arrangement most also received powers to conduct commercial activities in situations of an underdeveloped private sector (World Bank, 2010). A number of authors have criticized these far reaching powers as in conflict with their regulatory functions and as distorting market development (Cooksey, 2003; World Bank, 2005; Binswanger-Mkhize & Gautam 2010). Moreover, CBs have been seen critically as they are insufficiently accountable to

¹² According to ASARECA / KIT (2014, 12) in 2007 more than 90 per cent of the districts in Tanzania decided to introduce QDS production.



stakeholders except to the Ministry, which appoints the majority of crop board directors, thus remaining vulnerable to patronage politics (ibid.). Ideas to reform Crop Boards include limiting their role to regulatory and supportive functions or making them independent industry-owned producer-support organizations (ASDS I 2001; Binswanger-Mkhize & Gautam 2010). A new law that has been formulated to reduce their discretionary powers, appears to give the CBs still too much power according to Binswanger-Mkhize & Gautam (2010).

A new CB was created by the Cereals and Other Produce Act (2009) and Regulation (2011) and became operative in 2015 with a mandate to regulate and support the “development of the cereals and other produce industry.” The Act empowers the CB to perform supportive and commercial functions. While supportive functions include facilitation of research, extension, input provision, marketing information and technology provision, and farmer group formation, the commercial functions give the board almost unlimited power to compete with the private sector by allowing to “perform any commercial function or hold interest in any undertaking or project associated with cereals and other produce under this Act” (ibid.). In addition, the CB has already inherited some of the cereal mills that formerly belonged to the National Milling Company (NMC). The CB is primarily accountable to the Government as the board’s chairman is appointed by the President, while all twelve board members are Minister appointees. A joint FAO and MAFC study notes (MAFAP, 2013) that “these are sweeping powers, which depending on how they are implemented may be used either to enhance private sector investment and development..., or alternatively, can discourage further private investment and private sector lead development.” By early 2015, the Board was awaiting budget allocations in order to purchase maize and had considerations to expand to other crops, including oils seeds.

Farmer horizontal linkages: cooperatives and other organizations

The Government of Tanzania recognizes farmer organizations (including cooperatives, associations, and groups) as an important mechanism to facilitate agricultural marketing capacities of smallholders (see NAMP - National Agricultural Marketing Policy, 2008) to improve their input access and to lobby for policy changes (see NAP - National Agricultural Policy, 2013). ASDP II (2015, p. 62) supports activities for strengthening farmer organizations as central component for the ASDP II plan of rural commercialization and value addition. ASDP II (2015, p. 59 ff) focuses strongly on providing improve capacity development of these organizations in terms of business skills, including financial management and marketing, which is necessary to develop strategies to enter high-value supply chains.

However, the Agricultural Marketing Policy recognizes that most existing farmer organizations “are weak managerially and financially and have limited capacity to attract professional staff, credit and related financial services” (AMP, 2008). As a result, most producer organizations are unable to support their members “in terms of provision of financial, advisory and marketing services and a common voice on issues of common interest.”¹³

¹³ In general, evidence suggests that farmer organizations have been more successful in high-value markets and sectors, where the high potential returns creates greater incentives for collective action (Larsen et al., 2009).



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Cooperative development continues to play a major strategy for the Government to support collective marketing and market access among small-scale farmers in Tanzania (GoT, 2008; GoT, 2013; GoT, 2015). While new policies and legislations were passed beginning of the 2000s¹⁴ in order to revive the cooperative movement in Tanzania and make them economic viable organizations managed by their members, many cooperatives still face major difficulty.

Many cooperatives continued to suffer from similar organizational problems as before liberalization, including expensive and inflexible structures, lack of leadership skills and qualified staff, mismanaged and misuse of funds by politically well-connective cooperative leaders and increasing indebtedness (Cooksey, 2003; Isinika et al., 2005, Mruma, 2014; URT, 2015). In addition, lack of access to credit and low working capital constrains their potential to service farmers, pushing many farmers to private traders who are often more able to make advance payments (ibid). Some have also argued that political interference into cooperatives continues, including government-guaranteed bank lending to certain cooperatives, reinstating cooperative monopolies, or bailing-out of indebted cooperatives, thereby creating disincentives for institutional change (Cooksey, 2003; Mitchell & Baregu, 2011). But as mentioned, cooperatives remain relevant and strong in some cash crop sectors, including tobacco, coffee, cotton, and cashew nuts in some regions (Mruma, 2014), which provides an important basis to build up on to increase farmer organizations in Tanzania more widely.

Vertical linkages: contract farming

Contract farming has been promoted in a number of statutes and strategies to enhance input and output market access (e.g. AMP, 2008, p.iv; NAP, 2013; ASDS, 2001; ASDP II, 2015).¹⁵ For example, ASDP II (2015, p.62), states that contract farming will be used to strengthen farmer organizations and demand-driven linkages with agribusiness partners for critical services such as input supply, output market and processing facilities. In spite of policy documents recognizing the potentials of contract farming, Government support policies and legislations have been largely lacking (NAP - National Agricultural Policy, 2013). Although some Crop Board Acts (sugar, tobacco, tea), for example, recognize contract farming and stipulate some specific rules (e.g. rules on registration of growers, grading, and quality control of outgrower production), regulations dealing with improving buyer-seller contractual relations are lacking. Though Tanzania has a general contract law, it has not been well implemented in the agricultural sector (MMA, 2006; Barrett, 2006). Establishing contract farming guidelines as done in other countries (especially establishing arbitration mechanisms) (FAO, 2000) may increase trust in contract farming (MMA, 2006). In this context, the NAP (2013) recognizes the need to develop coherent contract farming legislation.

SME clusters & vertical linkages to large enterprises

A number of policy documents recognize the crucial importance of developing the private sector through supporting large-scale enterprises as well as upgrading small and medium-

¹⁴ Cooperative Development Policy (2002), Cooperative Societies Act (2003), Cooperative Reform and Modernization Programme (CRMP) (2004)

¹⁵ In Tanzania, contract farming and outgrower schemes have been used for a number of decades in different traditional export crop sub-sectors (e.g. sugarcane, tobacco, tea, coffee) and more recently also in non-traditional export sectors (e.g. fish, flowers, vegetables) (MMA, 2006).



scale enterprises (SMEs), including enterprises in FVCs.¹⁶ Particularly the SME Development Policy of 2003 recognizes the role of this sector for industrialization in Tanzania and recognizes constraints facing the sector. One of Kilimo Kwanza's components is *Industrialization for Kilimo Kwanza*. Among other things, the government aims at supporting local agro-processors by providing incentives and other support measures through the Small Industries Development Organization (SIDO), such as promoting and expanding small scale agro-processing operations and reducing post-harvest losses.

SMEs are also being promoted through supporting clustering of interlinked firms. These include aggregation of input purchase, marketing services or collective use of work processes. Some examples of the enterprise clustering include Special Economic Zones for larger firms and the IIDS 2025, which aims at developing Micro Industrial Parks at district or village level, which organize and relocate scattered MMEs in one place and enhance business processes and eventually help formalization. ASDP II (2015) also aims at developing similar commodity clusters throughout the country.

Another strategy to upgrade the SME food-industry has been through establishing vertical linkages between small- and large-scale processors through outsourcing arrangements. The SME Development Policy of 2003 specifically aims at promoting business linkages between small and large enterprises (SMED, 2003, p.5). Yet, the policy recognizes that such linkages remain weak in Tanzania (ibid.).

The potential of the prevalent SME sector in Tanzania and elsewhere for agro-industrial development and developing linkages for agriculture to higher value markets continues to be highly constrained by a number of factors: limited entrepreneurial skills and human capital; inadequate working premises; lack of access to finance; underdeveloped business support services, including for entrepreneurship, marketing, technology development, but also unawareness; and bureaucratic and costly legal and regulatory framework (IIDS 2025, 2011; UNIOD & GOT, 2012; Yumkella et al., 2011). Especially, high costs of complying with regulations and standards, prohibits many SMEs to formalize and access more remunerative markets. In Tanzania, specifically the geographical spread or dispersion of markets and industries is assumed to be an additional constrain for developing a strong industrial sector (IIDS 2025, 2011).

FVC Networks

FVC networks, involving actors of different FVC stages or different FVCs to solve collective action problems, are increasingly being established and promoted in Tanzania. The ASDP II (2015) aims at establishing *Multi-stakeholder innovation platforms* as well as *District Crop Value Chain Stakeholder Platforms (DCP)* (ASDP II 2015). DCPs aim at establishing formal and informal mechanisms to improve FVC connection among private and with public actors in order to solve coordination problems and drive commercialization (ibid). ASDP II (2015) foresees DCPs to become "the vehicles for strategic alliances and business partnerships that will create better understanding of the requirements of producers and processors, transporters and storage businesses and traders and the market." (p. 62). Likewise, the

¹⁶ E.g Sustainable Industrial Development Policy (1996), SME development policy (2003), Integrated Industrial Development Strategy (IIDS) (2011)



Southern Agricultural Growth Corridor (SAGCOT) is being developed in order to establish “integrated agricultural production systems that include modern and commercialized agricultural production, backward linkages to production and supply of inputs and forward linkages to agro-processing, packaging and marketing” (Integrated Industrialization Strategy – MIT 2013, p.3)

Sunflower and edible vegetable oil case study

Background

Tanzania’s edible oil sector has been largely self-sufficient since independence (Mizunu and Mhede 2012). With market liberalization in the 1990s, the country began to increasingly import cheaper palm oil from Malaysia and Indonesia to meet the growing domestic edible oil demand. Palm oil imports have become the major source for edible oil in Tanzania, contributing to more than 50% of all edible oil consumed (FAOSTAT 2015). The import value of palm oil has reached around 248 million USD by 2012, making it the fourth largest import item (Table 3). The value of edible oil import is double the value of all fertilizer and pesticides imports combined from 2010-11.

Table 3: Tanzania edible oil importation (Million US\$)

	2013	Share	2012	Share	2011	Share
Petroleum	3,930	0.32	2,481	0.22	2,546	0.23
Transportation	943	0.08	942	0.08	706	0.06
Tubes, pipes & iron	511	0.05	238	0.03	276	0.03
Edible oil	262	0.02	343	0.03	381	0.03
Medicaments	260	0.02	241	0.02	233	0.02
Wheat	241	0.02	247	0.02	295	0.03

Notes: The recommended amount of edible oil & fat consumption per day per capita is 24 g (WHO 2010)

At the same time, there has been an increase in domestic edible oil production since the 2000s, mainly due to a sharp increase in sunflower oil production, which more than tripled between 2002 and 2012 to around 163,000 (FAOSTAT 2015). Sunflower oil is now by far the most important domestically produced edible oil, accounting for more than 50% of all produced vegetable oil (ibid).

This growth has been accompanied by a significant rise in sunflower seed production, increasing more than eight-fold from only 0.135 million tons in 2000 to more than one million tons in 2013 (Figure 4). Yet in spite of this increase, domestic production is much lower than demand for edible oil. Tanzania’s net import of edible oil is about 251,000 tons



(Table 4) – an amount that outstripped total sunflower oil production by 163,000 liters in 2012 (FAOSTAT 2015). However, the country is considered to have large potential to expand edible oil and sunflower production, which can be grown in various parts of the country (FAO-BEFS, 2010).¹⁷

Figure 4: Sunflower actual & potential yield, harvested area & production, Tanzania

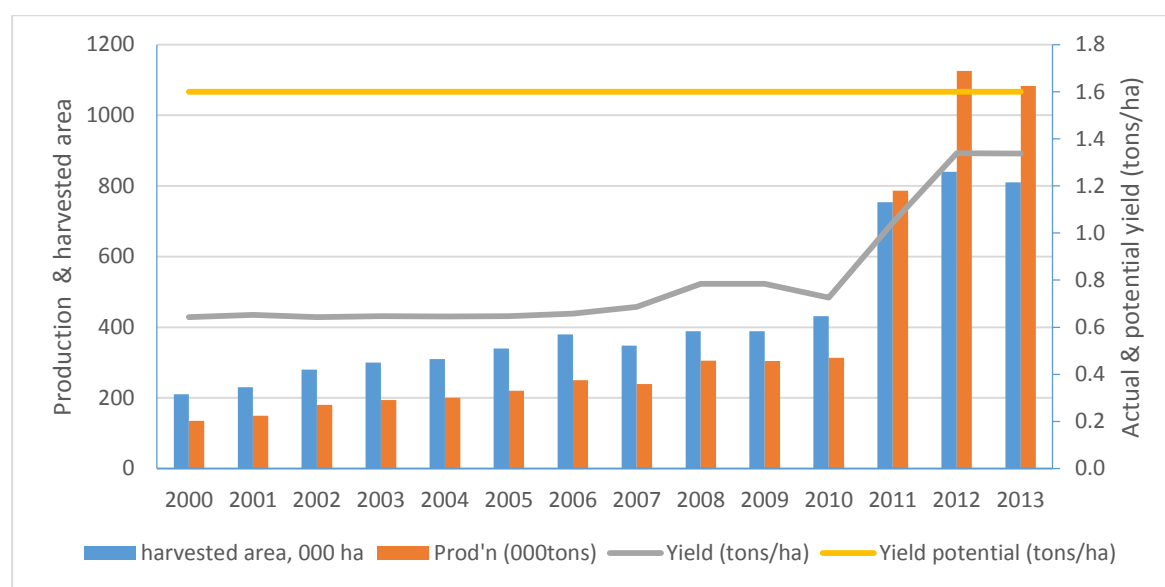


Table 4: Edible oil net import in Tanzania

Edible oil crop	Total consumption (Tons)
Linseed oil	843
Maize oil	456
Olive oil (virgin)	175
Palm Oil	217403
Soybean oil	14866
Sunflower oil	-8817
Vegetable oil	17301
Animal fats	8.0
Other edible oil	28
Total consumption	251079

Notes: with the exception of sunflower, edible oil crops with net export are not listed

¹⁷ FAO-BEFS (2010) estimated, for example, that through adoption of sustainable intensification through conservation agriculture and improved inputs, 100 million tons of sunflower seed and around 35 million tons of vegetable oil could be produced (FAO, 2010 cited in FAO-BEFS, p.2).



Source: FAOSTAT 2015

Situation analysis of Sunflower production, processing & marketing in Tanzania

Sunflower seed production & seed supply system

Sunflower grows in many parts of the country, including semi-arid and semi-humid areas, occupying in total an estimated 810,000 ha (FAOSTAT, 2015). But it is particularly important in what is called the Central Sunflower Corridor (Singida, Dodoma and Shinyanga), a mainly semi-arid zone with low and poorly distributed rainfall, suiting a relatively drought tolerant crop like sunflower (SNV, 2010). Sunflower production in Tanzania is largely small-scale, rainfed-based and commonly intercropped with staple food crops (NPS 2013, SIDO 2010). Most sunflower farmers lack knowledge of improved farming methods and access to modern technologies, particularly quality improved seeds (Gabagambi & George, 2010). As a result, average yields are very low yields. Gabagambi & George (2010), for example, found in the Central Zone average sunflower yield for local varieties of 0.87 tons per hectare; NPS data suggests even lower yields of around 0.4 tons per ha (NPS 2013). FAO data, in contrast, suggest sunflower yields to have increased over years (FAOSTAT 2015). Its averages from 2000 to 2010 were only 41% of its potential, whereas in recent years yields have increased more substantially to 1.2 tons/ha in 2011-14 or 78% of the potential (Figure 4).

Low adoption of improved varieties is linked to problems in seed research and supply and sunflower marketing. The responsibility for public sunflower seed research in Tanzania has been with ARI Ilonga Research Station since 1985. However, capacities for sunflower research are low. A recent sector analysis found that only three researchers are involved in sunflower-related research; the only breeder retired recently with no clear succession plan in place (source: World Bank-stakeholder analysis). In addition, external funding is low, with research depending completely on government funds (ibid.). Consequently, there is only one single improved sunflower variety (Record) that has been released before the 1950s (GoT 2009). Its oil content and yields are significantly higher than that of traditional varieties,¹⁸ but it still produces relatively modest oil content of 26%. Information from Kenya, suggest eleven improved sunflower varieties to have oil contents ranging from 37% to 43% (Thagana & Riungu 2015). Similarly, there are few improved private varieties registered in Tanzania with apparently higher oil content (GoT 2009), but they are not widely used. One new sunflower variety has been recently developed (codename PI364860), but has not yet been released. Research on other edible oils seeds, especially groundnuts and sesame, has been more successful with a number of new improved varieties recently released.

Adoption of existing improved varieties is also constrained by undersupply of improved seeds, linked to capacity constraints of ASA (see discussion above) (Gabagambi & George 2010). At the same time, marketing constraints negatively affect profitability of adopting improved sunflower technologies. Whereas in other countries, improved seeds can be often sold for a premium at the market due to their higher oil content, improved seeds are not yet

¹⁸ Adoption data of the few existing improved varieties suggests large potential yield improvements. Gabagambi & George (2010) report average yields of Record and Kenya Fedha of 1.63 tons per ha, while potentials yields of other varieties are even higher (GoT 2009).



provided a premium in Tanzania (Gabagambi & George, 2010). There is also no collective selling by sunflower farmers through producer groups or collection centers (SNV, 2010; SNV, 2013), which is more common for other edible-oil seeds and which would allow aggregating farmers' supply and negotiating for better prices.

Post-harvest processes & regulations

Post-harvest processes play a central role in the sunflower sector as most sunflower kernels are processed into edible oils. An important by-product is sunflower seedcake, which is often sold as animal feed. Sunflower oil production is conducted on small-, medium- as well as large-scale. The number of small-scale oil producers,¹⁹ especially in the Central Corridor, has increased significantly since the mid 2000s (IIDS 2010, Mizunu & Mhede 2012).²⁰ MIT estimates around 1,000 small and medium sunflower oil processors in the country (Infodev 2012). There are six large-scale edible oil producers in the country, including a recent new Chinese investment of 500 MT capacity (Infodev 2011, Iringo et al 2014). The largest two sunflower-oil milling companies are Mount Meru Millers, which relies entirely on domestically produced sunflower and Murzah, which imports 70% of its sunflower seed from Argentina and Ukraine.

TBS requires that sunflower oil produced for consumption has to be certified, covering rules for production premises, the production process and the final product. The TBS standard (TZS 50:2014/EAS 299:2013) defines two types of edible sunflower oil: virgin vegetable oil and non-virgin (refined) vegetable oils. Oil that is fortified has to be certified according to the recent fortified edible fats and oils specification, which includes requirements for fortification, such as labeling requiring a fortification logo by the TFDA for fortified products. While fortification has become law in other countries (e.g. Nigeria), it is not compulsory yet to fortify in Tanzania. However, the requirement for fortification is being debated.

Most small-scale processors produce crude sunflower oil, operating informally without TFDA or TBS licenses and under poor hygienic conditions, using poor packaging and product labeling. The sunflower oil is of minor quality and sold mainly within producing regions (Infodev, 2012). Small processors lack information on other higher value markets (Beerlandt et al., 2013). Most medium-scale processors also use relatively basic processing facilities (Iringo et al., 2014). Yet some are certified, have refinery equipment and oil under own brand names to regional export markets.

Large-scale processors produce refined edible oil (also called double-refined oil), a process by which sunflower seeds undergo a process of oil extraction via mechanical processing or chemical solvent extraction and further refinement, involving bleaching, dewaxing, and deodorization of the sunflower oil. Whereas traditional oil pressing leaves 17% of oil in the seed cake, large-scale mechanical operations reduce the level to around 7%, and modern solvent extractions to around 1% (FAO-BEFS citing Hammond et al., 2004). Refining makes the oil more stable and suitable for high-temperature cooking and increases the product's

¹⁹ Infodev (2012, p.36) defines small mills as 0.1-10 MT capacity per day, medium scale operating 10-50 MT and large scale with more than 50 MT per day.

²⁰ The increase has been attributed to growing promotion by LGAs of sunflower production as well as NGO efforts to support small-scale oil mills (IIDS, 2010; Mizunu & Mhede, 2012, Beerlandt et al., 2013)



shelf-life. Only refined oil is well suited to be exported and may therefore obtain higher prices.

The increasing processing capacity in Tanzania has not been met by sufficient supply of sunflower seeds. Consequently, most processors in Tanzania operate below capacity. It is estimated that capacity utilization is only at 25% on average for oilseed processing facilities in Tanzania (study cited in InfoDev 2012).²¹ Particularly small processors face difficulties to obtain sufficient seeds to operate their machinery throughout the year (Iringo et al., 2014; Beerlandt et al., 2013). Most small-scale processors lack working capital to access a sufficient number of seeds. In addition, seed collection from farmers is unorganized given the lack of collection centers, increasing transaction costs (Beerlandt et al. 2013). Competition from larger processors has also led to increasing prices at times in some regions (ibid.). Iringo et al. (2014), for example, argued the recent entry of a large Chinese processor increased seed prices significantly and competed about 100 small-scale processors out of the market. Many small processors therefore operate for less than six months per year and only provide extraction services to farmers to at least cover operative costs (ibid.). The few medium-scale processors have been more successful in utilizing their machinery capacity and raising efficiency, e.g. by establishing own collection centers for purchasing seeds in order to reduce transaction costs (Beerlandt et al. 2013).

Although demand for sunflower oil is increasing compared to palm oil, there is only a relatively small price premium for sunflower oil in the local market. Palm oil therefore drives the price of edible oil. The waiving of 10% import tariffs in 2009 for palm oil imports has been therefore a controversially debated issue as it is assumed to put an upper price limit on more expensive locally produced sunflower oil and has affected margins and incentives to increase production negatively. This has been one of the reasons why oil processors' have lobbied for reintroducing the import tariff which was waived in 2009.

Other factors negatively influencing factory productivity and costs are linked to costs of other inputs. Supply of spare parts for processing machinery has been a problem contributing to production halts and financial losses (Beerlandt et al., 2013). Few local mechanical companies produce spare parts for food processing and there are few technicians (ibid.). The imported spare parts are instead considered of poor quality (ibid.).

Edible oil policies and strategies in Tanzania

Overall sector policies

Despite the large edible oil imports and domestic production potentials, a Government strategies to strengthen the sunflower oil FVCs is lacking. Tanzania's agricultural policies and strategies have focused on traditional export crops as well as major staple food (maize and rice) production to achieve the country's self-sufficiency (MAFAP 2013). The country generally has a weak policy support for high-potential sub sectors such as edible oil seed crops. Yet different policy documents in recent years have recognized the potential of edible oil seed crop sectors. The Integrated Industrial Development Strategy (IIDS 2008) of the MIT,

²¹ A recent study on sunflower oil producers in Dodoma estimated slightly higher capacity utilization of around 40% (Iringo et al, 2014).



for example recognizes the edible oils sector as high potential growth sector. The draft version of the second phase Agricultural Sector Development Program (ASDP II) also identifies the edible-oil sector – with a focus on sunflower – as one of the country’s new focal crops. Additionally, the newly formed Cereal and Other Crops Board also has a mandate for crops not covered by existing Boards, which would include oil-seeds. However, the Board’s mandate includes commercial roles, facing the risk to crowd-out the private sector instead of supporting it (see discussion in previous section).

On the local level, a number of high potential areas have focused since mid-2000s on sunflower production as target crops and have invested in extensions via farmer-field schools and QDS (Iringo et al., 2013; Beerlandt et al., 2013). A number of donors started to support the sector (SNV, RDLC), yet often thinly spreading support of many clients and regions and have therefore had limited effect (Beerlandt et al., 2013, 110).

Trade policies

Tanzania usually has 25% and 10% tariff on imported refined and unrefined agricultural products, respectively, i.e. double-refined and semi-refined edible oil. However, tariffs on unrefined or semi-refined palm oil have been waived in 2009. Imported palm oil drives the market price of edible oil and local processors are lobbying for a higher tariff. However, there has not been a rigorous study to determine the domestic production of edible oil crops and capacity of local edible oil processors to produce enough quantities to meet the demand. This has led to the government hesitation to reintroduce a higher import tariff for unrefined edible oils. However, the Government has promised to provide supportive policy changes, including waiving VAT for edible oil processors who use local seeds, providing seed subsidies in some districts via local governments of up to 50%, as well as tax exemptions on imports of machinery for oil production and packaging material (Beerlandt et al 2013).

Strategies to upgrade sunflower oil products and processes

Policies and strategies for enhancing sunflower oil value chain have focused on supporting both large and medium scale sunflower oil milling companies. Some medium-scale processors have received donor support to acquire refinery equipment to fortify edible oil with vitamin A and D and to improve shelf-life of the oil and access to export markets (ibid.).

Small-scale oil processors are also receiving free training by TBS to improve sunflower oil quality (TBS 2015). Moreover, as transitional arrangement small-scale processors could until 2013 certify their sunflower oil free of charge (Beerlandt et al., 2013). However fewer than 5% of edible oil producer are TBS-certified (InfoDev 2012, Iringo et al 2014) and enforcement of standards among small-scale oil processors remains very weak.²² There is more monitoring of large-scale processors. TBS, MIT and SIDO are collaborating to raise awareness of the need to improve quality and small and medium processors increasingly seem to recognize the importance of fulfill quality standards (Beerlandt et al., 2013; p. 57).²³

²² Yet TFDA seems to increasingly enforce standards and has started to close down small-scale processing mills in Morogoro, who have not complied with TFDA-/TBS-standards (source: interview TFDA).

²³ One sunflower processing association has obtained a refinery plant, which would allow smaller oil producer members to link up with in order to increase the quality of their oil (Beerlandt et al., 2013).



Support of collective action among FVC actors

NGOs and Donor organizations – such as Rural Livelihood Development Company (RLDC) and SNV – are also supporting medium-scale processors to enhance product branding and collective lobbying (Beerlandt et al 2013). An oilseed multi-stakeholder forum (OMSF) was formed in 2006, which led to formation of a national level Tanzanian Edible Oilseeds Association (TEOSA) in 2009 and number of regional processor associations. TEOSA represents farmers, processors, CBOs and private sector, though focusing largely on the sunflower sub-sector (Beerlandt et al 2013). Beerlandt et al (2013) find that TEOSA has given small and medium scale oil processors a greater voice in policy making. For example, TEOSA has been involved in lobbying for reduction of taxes for imported spare parts, reintroducing palm oil import tariffs of 10% for palm oil. However, these organizations are still very weak. Recovering membership fees from members is difficult, leaving them without own operational funds (Iringo et al. 2013).²⁴ On association, which managed to acquire commercial bank loans for its members, faced problems loan repayments (ibid.). In addition, the organizations do not offer many collective services to their members yet.

A main weakness is that TEOSA mainly serves oil processors and has quite limited support to sunflower producers. No edible oil farmer association has yet been formed at regional or national level. Yet some sunflower farmer groups were formed as part of contract farming pilot schemes and have received some support through these schemes (see Beerlandt et al 2013).

There has been also some public support focusing on cluster formation aimed at increasing economies of scale and collective marketing among processing SMEs (Iringo et al 2015). The MIT, for example, through its implementation agency, SIDO, has initiated different cluster projects as outlined in the country's Integrated Industrial Development Strategy (IIDS 2008). Some processing organizations also started negotiating with SIDO and JICA on developing local refineries, either small-scale refineries for individual processors or a larger refinery for a cluster of processors (Beerlandt et al., 2013). Some medium-scale processors were also supported by RLDC in collective marketing by developing an own brand (TOP) (ibid.).

Contract farming

There have been a number of contract farming projects involving improved seed distribution facilitated by NGOs and SIDO. Yet, there is a lack of information of the sustainability and success of these contract farming arrangements in the sunflower sector so far.

Beerlandt et al. (2013) analyzed the SNV support to contract farming, which started in 2010 to support processors to link up with existing or newly formed producer groups. Ten processors were subsidized to introduce contract farming.²⁵ The arrangements included training conducted by LGAs and processors on improved seeds and farming methods, but did not oblige the processors to buy seeds. Most processors supplied groups with improved

²⁴ Yet one association received a grant from the District Agricultural Development Plan for setting up a local refinery, which may contribute to working capital of the association (Beerlandt et al., 2013).

²⁵ Most comprehensive contract farming arrangement is with Songela, who works with 50 informal farmer groups and provides pre-harvest credits, seeds on credit and follow-up visits. Another processor works with 25 groups; one works with 10 groups; and one with two groups (ibid.).



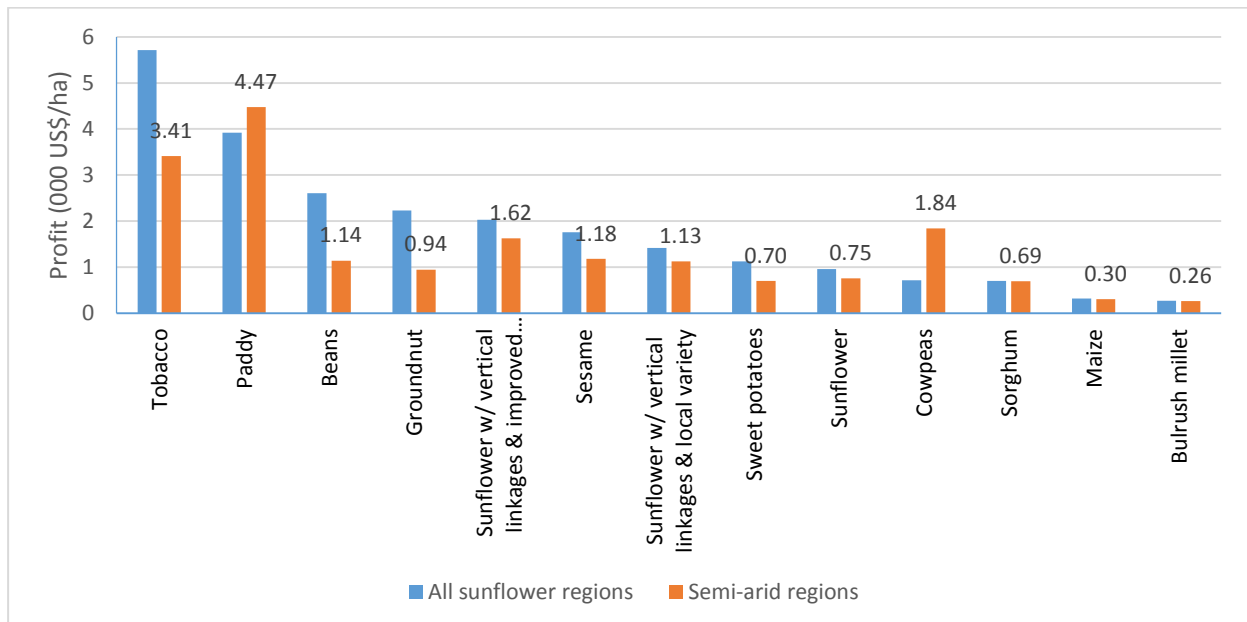
seeds for demonstrations on credit or cash, while some offer pre-harvest credit. Some of the groups introduced QDS.

The performances of the arrangements seemed to differ widely. Lack of trust seemed to be a major problem, involving contract breaching and side-selling (Beerlandt et al 2013, Iringo et al 2014). Still, most farmer groups sold to the processor, despite the fact that there were no obligations to do so and the buyer only offered the market price (p. 58). The authors also observed an expansion of contract farming, with four of the nine increasingly sourced from producer groups. Contract farming seems to have helped particularly medium-scale processor to increase their oil-production capacity compared to smaller processors (Beerlandt et al., 2013). However, most processors remain skeptical due to high transaction costs (reaching farmers, training, credit control, collecting seeds) and lack of capital to operate it without subsidies.

Impact of vertical/horizontal linkages in sunflower on comparative advantage

An important question is whether social capital will increase the comparative advantage of sunflower production over other commodities. Under its current low yield, sunflower is the ninth most profitable crops both across the entire country and in the semi-arid areas, where it is most grown (**Fehler! Verweisquelle konnte nicht gefunden werden.**).

Figure 5: Competitiveness of sunflower against other crops

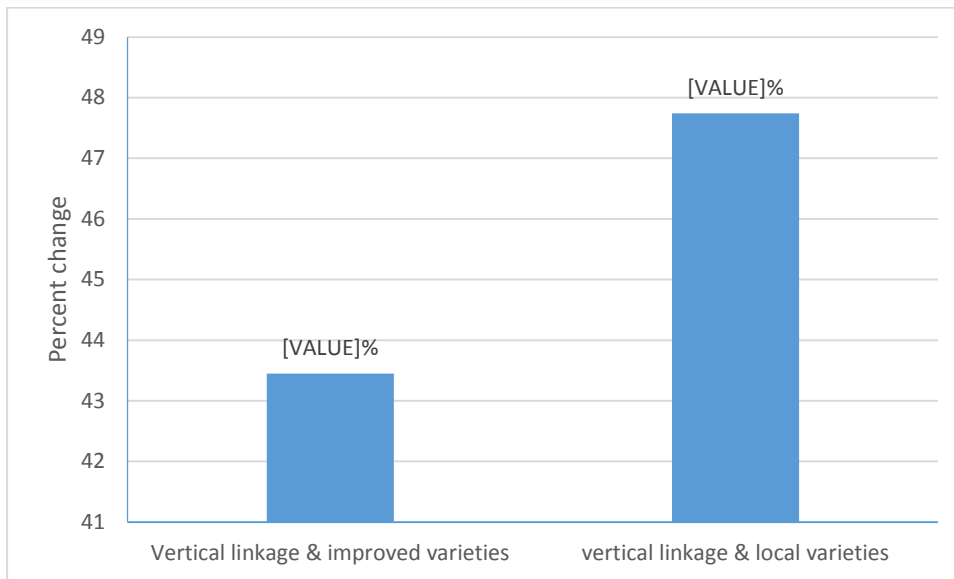


Sunflower profit increases by 43% and by 48% when farmers use improved and unimproved varieties respectively (**Fehler! Verweisquelle konnte nicht gefunden werden.**). Vertical linkage also changes the ranking of sunflower competitiveness from 11th to 5th position with improved varieties and to 7th position with local varieties (**Fehler! Verweisquelle konnte nicht gefunden werden.**). Sunflower competitiveness in the semi-arid regions is much higher



– 4th with improved variety and 6th with local varieties. The results underscore the importance of building the vertical linkage for sunflower production.

Figure 6: Impact of vertical linkage on sunflower profit – with and without improved variety



This shows the need to invest to build strong vertical linkages among agricultural traders in order to increase their business relationships with farmers.

Conclusions and policy implications

Tanzania is among many other sub-Saharan Africa (SSA) which are promoting inclusive FVC development. Policy reforms in many countries promoting cooperatives and private sector growth as well as growing supermarkets and urbanization are providing opportunities for linking small-scale farmers and traders through horizontal and vertical linkages. Studying FVC development in Tanzania and using sunflower as a case study, this report identified a number of general and sunflower sector specific policy and institutional issues promoting or slowing down inclusive FVC development in Tanzania.

On the research and input supply side, the analysis revealed constraints regarding research on improved sunflower varieties as well more general constraints of seed supply. At the same time, there are innovative approaches in Tanzania that proved to be effective to increase availability of improved seeds for small-scale farmers, such as Quality Declared Seeds (QDS). There is therefore a need of increasing research in edible oil in order to produce varieties with high yield and high oil content in order to take advantage of the growing processing sector. Additionally, there is need of developing a much efficient seed multiplication system by promoting participation of the private sector in order to overcome the current low production of domestically developed varieties. This requires removing the current restriction on private sector producing the locally bred varieties. Quality declared



seeds (QDS) initiatives will also greatly enhance seed production, if efficiency of implementation can be increased.

There is still not sufficient information on the effectiveness of existing contract farming arrangements in sunflower. The existing evidence from pilots suggests potential to increase production and adoption of improved technologies, but sustainability (i.e. operation without subsidies) seems to be the crucial problem. The viability of contract farming will also likely depend on local market conditions, since in some parts local competition between buyers, making side-selling a more serious issues. Additional strategies to establish sustainable producer-processor market relations may also focus on reducing transaction costs, e.g. by establishing collection centers.

An important part of improving sunflower production will be increasing collective action among farmers. Whereas collective action among processors has been significantly improved as a result of external support, future support would need to take farmer groups and organizations (including cooperatives) into consideration.

On the market side, unclear trade policies and particularly the waiving of tariffs on imported palm oil bias is likely to create disincentives for adopting improved technologies and therefore constrains further development of a domestic sunflower oil sector. The report also suggests the need for upgrading the quality and efficiency of post-harvest processes in Tanzania in order to reduce unit costs and expand markets. Especially small-scale processors are unlikely to be able to compete in future raising capacity utilization and improving processes. Recent initiatives to establish clusters of small- and medium-scale processors to improve economies of scale, product and process quality and marketing may be promising strategies.

In summary, there is a big opportunity for developing horizontal and vertical linkages and the result will greatly enhance efforts to reduce poverty – especially in dry areas where severity of poverty is high.

References

Almond, F.R. and Hainsworth, S.D. (Eds.) 2005. *Beyond Agriculture – making markets work for the poor: proceedings of an international seminar, 28 February–1 March 2005.*

Westminster, London, UK. Crop Post-Harvest Programme (CPHP), Natural Resources International Limited,

Aylesford, Kent and Practical Action, Bourton on Dunsmore, Warwickshire, UK. 176pp.

Barrett, C. B. (2008). Smallholder market participation: Concepts and evidence from eastern and southern Africa. *Food Policy*, 33(4), 299-317.

Bernard, T., & Spielman, D. J. (2009). Reaching the rural poor through rural producer organizations? A study of agricultural marketing cooperatives in Ethiopia. *Food Policy*, 34(1): 60-69.



- Berkes, F. (2002). Cross-scale institutional linkages: perspectives from the bottom up. *The drama of the commons*, 293-321.
- Besley, T. (1995). Property rights and investment incentives: Theory and evidence from Ghana. *Journal of Political Economy*, 103(5), 903–937.
- Boahene, K., Snijders, T. A. B., & Folmer, H. (1999). An integrated socioeconomic analysis of innovation adoption: The case of hybrid cocoa in Ghana. *Journal of Policy Modeling*, 21(2), 167–184.
- Best, R., Ferris, S., & Schiavone, A. (2005). Building linkages and enhancing trust between small-scale rural producers, buyers in growing markets and suppliers of critical inputs. In *Beyond Agriculture-making markets work for the poor: Proceedings of an international seminar* (Vol. 28, p. 176).
- Biénabe, E., & D. Sautier. (2005). The role of small scale producers' organizations to address market access. In *International Seminar Beyond Agriculture: Making Markets Work for the Poor, London, UK* (Vol. 28).
- Birchall, J. and L.H. Ketilson. 2009. Resilience of the cooperative business model in times of crisis. International Labour Office, Sustainable Enterprise Programme. - Geneva: ILO.
- BOT (Bank of Tanzania). 2015. Small and Medium Enterprises Credit Guarantee Schemes. Online at <https://www.bot-tz.org/FinancialMarkets/SME-CGS-english.htm>
- BOT. 2000. National Microfinance Policy. Ministry of Finance, Tanzania.
- Bouverot A. 2014. Mobile Financial Services for the Unbanked. State of the Industry, 2014.
- Cull R., T. Ehrbeck, and N. Holle. 2014. Financial Inclusion and Development: Recent Impact Evidence. Consultative Group to Assist the Poor (CGAP) Focus Note 92.
- Develtere, P., & I. Pollet. (2008). Renaissance of African Cooperatives in the 21st Century: Lessons from the Field. In Develtere, P., I. Pollet, and F. Wanyama (eds). "Cooperating out of poverty." The renaissance of the African cooperative movement. Geneva: ILO.
- Fischer, E., & Qaim, M. (2012). Linking smallholders to markets: determinants and impacts of farmer collective action in Kenya. *World Development*, 40(6), 1255-1268.
- Government of Tanzania (GoT). 2009. Country report on the state of plant genetic resources for food and agriculture. GoT, Dar es Salaam.
- Hansen A. 2011. Assessing Credit Guarantee Schemes for SME Finance in Africa. Evidence from Ghana, Kenya, Tanzania, and South Africa. Dalberg Global Development Advisors
- Iringo, R., Elias, P. and S. Majid (2014) CEZOSOPA – Processors Study Report 2014. Accessed at <http://lic.or.tz/wp/>.
- Jayne, T. S., & Rashid, S. (2013). Input subsidy programs in sub-Saharan Africa: a synthesis of recent evidence. *Agricultural economics*, 44(6), 547-562.



- Kherallah, M., Delgado, C. L., Gabre-Madhin, E., Minot, N., & Johnson, M. (2000). The road half traveled: Agricultural market reform in Sub-Saharan Africa. International Food Policy Research Institute.
- Demirguc-Kunt A., L. Klapper, D. Singer and P. Van Oudheusden. 2014. Measuring Financial Inclusion around the World. The Global Findex Database 2014. World Bank Policy Research Working Paper 7255
- Kwapong, N. A., & Korugyendo, P. L. (2010a). Revival of agricultural cooperatives in Uganda. International Food Policy Research Institute Policy Note, (10).
- Kwapong, N. A., & Korugyendo, P. L. (2010b). Why a few agricultural cooperatives survived the crisis in the cooperative movement in Uganda while many others collapsed. *International Food Policy Research Institute Policy Note*, (11).
- Langyintuo, A. S., Mwangi, W., Diallo, A. O., MacRobert, J., Dixon, J., & Bänziger, M. (2010). Challenges of the maize seed industry in eastern and southern Africa: A compelling case for private–public intervention to promote growth. *Food Policy*, 35(4), 323-331.
- MAFAP (2013). Review of food and agricultural policies in the United Republic of Tanzania. MAFAP Country Report Series, FAO, Rome, Italy.
- Match Maker Associates Limited (MMA) (2006) CONTRACT FARMING: STATUS AND PROSPECTS FOR TANZANIA – Final Report. Study commissioned by Ministry of Agriculture Food and Cooperatives (MAFC) - Participatory Agricultural Development and Empowerment Project (PADEP)
- Mizuno, Y. and E.P. Mhede (2012) Industrialization for Socio-economic Transformation in Tanzania. Research on Poverty Alleviation (REPOA). 17th ANNUAL RESEARCH WORKSHOP
- Musoke, C., Byaruhanga, J., Mwesigwa, P., Byarugaba, C., Kaganzi, E. and Best, R. 2004. Linking farmers to markets: the case of the Nyabyumba potato farmers in Uganda. Paper prepared for the Conference on Integrated Agriculture Research for Development. 1–4 September 2004. Entebbe, Uganda. National Agricultural Research Organisation (NARO), Kampala, Uganda (Mimeo, NARO).
- Faida, M. (2006). Chain empowerment: Supporting African farmers to develop markets. agris.fao.org.
- Francesconi, G. N., & Heerink, N. (2011). Ethiopian agricultural cooperatives in an era of global commodity exchange: Does organisational form matter? *Journal of African Economies*, 20(1), 153-177.
- Reardon, T., Timmer, C. P., Barrett, C. B., & Berdegue, J. (2003). The rise of supermarkets in Africa, Asia, and Latin America. *American journal of agricultural economics*, 85(5), 1140-1146.
- Villasenor J.D., D.M. West, and R.J. Lewis. 2015. Financial and Digital Inclusion Project Report. Measuring Progress on Financial Access and Usage Brookings Institute.



Thagana W.M. & T.C. Riungu. 2015. Make More Money Grow Sunflower. Kenya Agricultural and Livestock Research Organization. Online at <http://www.kalro.org/fileadmin/publications/brochuresl/MoneySFlower.pdf>. Accessed September 9, 2015.

WHO. 2010. Promoting a healthy diet for the WHO Eastern Mediterranean Region: user-friendly guide. Online at http://apps.who.int/iris/bitstream/10665/119951/1/emropub_2011_1274.pdf accessed on May 26, 2015.

Stepanek, J., Kelly, V., & Howard, J. (1999). From a Sasakawa Global 2000 Pilot Program to Sustained Increases in Agricultural Productivity: The Critical Role of Government Policy in Fostering the Ethiopian Transition. In Annual Meeting, August (Vol. 8, p. 11).

The Citizen. 2015. Kilimo bank in the offing, Saturday, January 31, 2015. Accessed at: <http://www.thecitizen.co.tz/News/Kilimo-bank-in-the-offing/-/1840392/2608248/-/1dakfyz/-/index.html>

Tripp, R., Rohrbach, D., 2001. Policies for African seed enterprise development. Food Policy 26:, 147–161.

USAID. 2015. Importance of Vertical and Horizontal Linkages to Foster Win-Win Relationships. Online at <https://www.microlinks.org/good-practice-center/value-chain-wiki/importance-vertical-and-horizontal-linkages-foster-win-win-r>

Wanyama, F. O. 2013. Some positive aspects of neo-liberalism for African development: The revival of solidarity in co-operatives. *International Journal of Arts and Commerce*, 2(1): 126-148.

World Bank. 2014. Mobile cellular subscriptions. Online data available at <http://data.worldbank.org/indicator/IT.CEL.SETS.P2>. Accessed September 4, 2015