

UNITED REPUBLIC OF TANZANIA



AGRICULTURAL SECTOR DEVELOPMENT STRATEGY - II
2015/2016 – 2024/2025

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Rationale of the Strategy

Agricultural Sector Development Strategy is an important guiding tool for implementation of the sectoral policies for the next ten years (2015/16 – 2024/25). It aims at operationalizing transformation of the agricultural sector into modern, commercial, highly productive, resilient, competitive in the national and international market which leads to achieving food security and poverty reduction, contributing to realization of *Tanzania Development Vision 2025 (TDV)* that envisages raising the general standard of living of Tanzanians to the level of a typical medium-income developing country by 2025.

After the launching of the Agricultural Sector Development Strategy (ASDS I, 2001), this Strategy is a revision of ASDS I based on the review of implementation of the Agriculture Sector Development Program (2006-2014) and other various development efforts during the past period. In practical terms, the Strategy clarifies the issues that constrain the performance of agricultural sector and provides effective guidance on the public interventions that will coincide with private sector development to meet the sector development goals by 2015.

1.2 National Guiding Policies

For realization of TDV, both the Long Term Perspective Plan (2011-2025) and the First Five Year Development Plan (2011-2015) provide guidelines and targets to be achieved by the agricultural sector in its contribution to the overall development plans of the country. The second phase of the National Strategy for Growth and Reduction of Poverty (NSGRP II), popularly known as MKUKUTA II, also provides the targets up to 2015.

The LTPP provides guiding principles that include: (i) developing strong forward and backward linkages between agriculture sector and other sectors in the economy; (ii) creating favorable environments for the private sector to engage profitably in activities in the sector; (iii) developing effective training and research programmes to benefit key stakeholders; (iv) ensuring sustainable production based on available resources

and the environment; and (v) good governance of resources, and especially land, water and forests.

For the country to reach a middle-income status by 2025, agriculture must achieve annual GDP growth rate of six percent as described in FFYD, MKUKUTA II, and the Comprehensive Africa Agriculture Development Program (CAADP). High level of productivity and growth in key economic sectors are paramount factors for a strong and competitive economy. The FYDP I focuses on potential growth drivers including agriculture because of their overriding importance in terms of comparative and competitive advantages, significant impact on poverty reduction and strong synergies with other key sectors in the development process. The FYDP I sets the goal as *modernization, commercialization, and productivity enhancement* and targets of GDP growth 5.6 percent for agriculture, 5.0 percent for livestock, and 7.0 percent for fishery by 2015.

1.3 Background of the Sector Development up to 2015

At sector level efforts, the Government of Tanzania embarked the Agricultural Sector Development Strategy (ASDS) in 2001 to address the constraints and challenges in the sector in a holistic manner. The overall goal of the ASDS was to achieve an agricultural growth rate of at least 5 percent by 2007, with the five strategic areas of: (i) strengthening the institutional framework; (ii) creating a favorable environment for commercial activities; (iii) enhancing public–private roles in improving supporting services; (iv) strengthening marketing efficiency for inputs and outputs; and (v) mainstreaming planning for agricultural development in other sectors.

In 2006, the GoT established a basket fund, called the Agricultural Sector Development Programme (ASDP) aiming to coordinate development partner funding in the pursuit of the objectives laid out in the ASDS. This seven year commitment initially targeted two objectives; (i) to enable farmers to have better access to, and use of, agricultural knowledge, technologies, marketing systems and infrastructure, all of which contribute to higher productivity, profitability, and farm incomes; (ii) to promote private investment based on an improved regulatory and policy environment. In line with the GoT’s commitment to decentralization, the ASDP provided two levels of programming: (i) National Level Support and (ii) Local Level Support – through District Agricultural Development Plan (DADP).

Notable achievements have been realized in pursuit of the vision of the ASDS, which was to have a modernized agricultural sector by year 2025. These include improvement in crop and livestock production and productivity in certain areas, expanded small scale irrigation projects, livestock dipping, charco dams, shallow

wells and feeder roads. Other positive interventions recorded include strengthening of extension services (e.g. farmer field schools, Ward Agricultural Resource Centres), supply of farm power, small scale agro-processing, and building human capacity among farmers, farmer organizations, private sector service providers, extension personnel and national level staff.

In addition, a number of policy and institutional changes have taken place recently in the agricultural sector and sub-sectors. There is a multiplicity of agricultural projects outside, but congruent with the ASDP. These include: the Feed the Future programme (USAID), the Bread Basket Initiative (AGRA), and the Marketing Infrastructure Value Addition and Rural Finance Support Programme (IFAD). For livestock sector, the Livestock Sector Development Programme has been in place since 2008 aiming at improving the livelihoods of the livestock farmers (including pastoralists) by enhancing delivery of livestock inputs and services to livestock farmers and by improving its marketing systems for livestock products. Furthermore, the Government of Tanzania endorsed initiatives that specifically link agriculture with food and nutrition security so that further progress can be made in addressing the challenges of under-nutrition (e.g. joining the Scaling Up Nutrition (SUN) Movement, endorsement of National Nutrition Strategy with an Implementation plan). However, most development partners are still funding unique sets of projects, some through government channels and some outside the government. There are a growing number of non-governmental organizations with funding for their own special projects. Meanwhile, the basket fund underlying the original ASDP is closing: a new framework for the coordination of public sector investment and better coordinating the multiplicity of project funding in the sector is needed.

One foundation point for this new coordination framework is the Tanzania Agriculture and Food Security Investment Plan (TAFSIP) launched in November 2011 in the context of the Comprehensive Africa Agriculture Development Programme (CAADP). The TAFSIP identifies seven Thematic Program Areas for priority investment and has a strong emphasis on involving private sector in agricultural investment and policy reform. The Government of Tanzania also recently embarked on the implementation of Big Results Now (BRN) initiatives in 2013/14 to transform the economy aimed at achieving sustainable economic growth and inclusive wealth creation. Agricultural BRN aims at the delivery of: (i) improvement of smallholder irrigation schemes; (ii) improvement of collective warehouse based maize marketing system; and (iii) promotion of commercial farming.

1.4 Implementation arrangement

Agriculture sector is defined in this strategy as the sub-sectors that include crop, livestock, and fishery. The implementation of the strategy will be the responsibility of all Agricultural Sector Lead Ministries (ASLMs)¹ at the national level, while the PMO-RALG will oversee the implementation at local level and the rest of the ASLMs extend advisory and backstopping role to local level. The involvement of all (ASLMs) requires coordinated direction from the Inter-Ministerial Coordinating Committee (ICC) for multi-sectoral involvement in implementation of the Strategy with particular emphasis on creating environments conducive to participation of the private sectors. The private sector is expected to provide feedback through established forums to the public sector on the issues that hinder effective transformation to commercialized agriculture in the country.

Considering the various ongoing programmes and initiatives described above, all these important interventions in the agricultural sector need stronger national coordination in order to maximize the outcomes and results, minimize any overlaps and duplications, and use the limited resources towards achieving the sector goals. They also need stricter prioritization to assure a critical mass of resources is committed to meet key sectoral goals. The required coordinated framework involves the ASLMs and other related ministries, local government authorities, private sector, civil societies, community-based organizations and all types of donors, with a clear monitoring and evaluation.

¹ The responsible ministries are called “Agriculture Sector Lead Ministries (ASLMs)” that include the Ministry of Agriculture Food Security and Cooperatives(MAFC), the Ministry of Livestock and Fisheries Development(MLFD), the Ministry of Industry and Trade(MIT), and the Prime Minister’s Office- Regional Administration and Local Governments (PMO-RALG).

CHAPTER TWO

2.0 SITUATION ANALYSIS

2.1 Key Features of the Sector

Tanzania has a rich natural resources for agricultural development. The country has 94.5 million hectares of land of which 44 million hectares are classified as arable, but only 24% of the arable land is under cultivation. Of the 50 million hectares, suitable for livestock, only 26 million hectares is under use while the rest cannot be accessed mainly due to tsetse fly infestation². It has the third largest livestock population in Africa after Sudan and Ethiopia.

About 29.4 million hectares are assessed as potential for irrigation, of which 2.3 and 4.8 million hectares are regarded as high and medium potential, respectively. Although it has been on the increase and has doubled over the past 10 years, the area under irrigation by 2013 was 450,392 hectares which is less than 20 percent of the high potential area for irrigation and less than five percent of the cultivated land.

Though the country is well endowed with a high potential base for agriculture development, there is only a small quantity of large-scale commercial farms in the sector. Agricultural production is dominated by smallholders. They represent most of the rural families, however notably, half of them are commercial, not subsistence, in that they sell from a minimum of one-quarter of their output to typically half or more in the local community.

Fetching good market prices of the agricultural product, i.e. farm gate prices, is crucial for the smallholders. However, most of the agricultural products fetch low market prices due to low quality resulting from low adoption of improved technology including improved variety, nutrients (fertilizer), pest management, and under-recognition of market requirements. Limited amount of production mainly due to low productivity and limited cultivated area also significantly affects the farm gate prices offered by middle-men at the farm gate. Weak mechanism for accreditation, testing, quality monitoring, grades and standards of agricultural products also affects the price determination.

² These data are from ASDS1. The sources are (i) URT/WB. Tanzania Agriculture: Performance and Strategies for Sustainable Growth, February 2000. (ii) MWLD. Livestock Subsector Memorandum, 2000.

Value addition through processing of agricultural crops would not only create more employment opportunities and income but also reduce rural-urban migration, especially if processing industries are established in rural areas. However, agro-processing industries in Tanzania are underdeveloped, as result of multiple effects of inadequate availability and accessibility such as rural roads, electrification, water, communication, rural finance and market infrastructure.

2.2 Economic Contribution of the Sector

Sector Growth

The agricultural sector on average contributes about 24 per cent of GDP compared to about 30 percent a decade ago; and it contributes about 24 percent of exports, down from about 45 percent ten years earlier, mostly due to the growth of alternative foreign exchange earning opportunities from minerals and tourism services.

The sector has generally registered slower growth rate, at about 4.2 percent than the targeted 6 percent, which was considered necessary to adequately propel the national economy to a growth trajectory of above 8 percent per annum. Consequently, the economy grew at average of 6.4 percent, amidst external shocks emanating from the fuel price hikes and global financial crisis in 2008, which affected both import from other countries and export of Tanzanian goods and services.

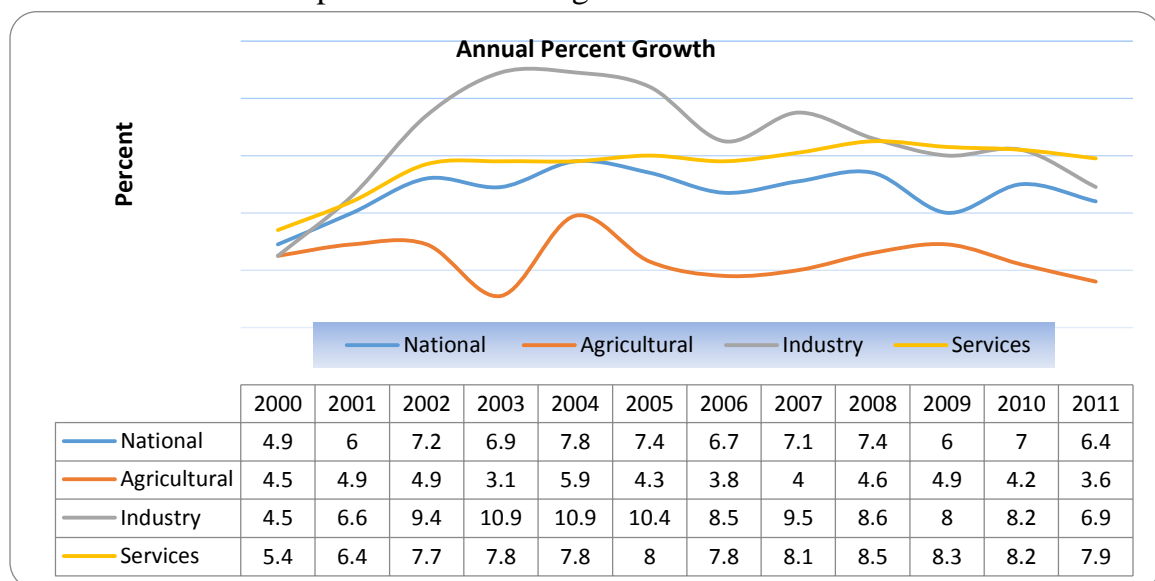


Figure 1: Economic Growth (GDP) by Sector

Source: MOF, 2009 and 2011.

Performance of Agricultural Sub-sectors

Sector performance between 2001 and 2011 varied between sub-sectors, with all crops contributing up to 71 percent to agricultural GDP, and growing at a rate of 4.6 percent per annum, whereas livestock sub-sector growth rate averaged 3.2 percent (against 4.2 percent for the whole sector). Cattle population increased at an average rate of 1.4 percent. Poultry recorded an impressive growth rate of 9.6 percent to reach 58 million chickens.

The relative contribution to agricultural GDP by crop, livestock, forestry and hunting, and fisheries in recent years averaged 18, 5, 3 and 1.4 percent, respectively.

Among crops, the best performance was recorded in export crops such as sugar, tea and tobacco, which have recorded growth rates of almost 10 percent per annum. However, these crops are concentrated in specific regions and amongst commercial large scale farmers. Although they occupy only about 10 percent of cultivated land, they contribute 70 percent of export earnings. Fisheries have been growing at around 5 percent per annum.

Poverty, Prices and Food Production

The low performance of the agriculture sector has impeded efforts to increase household incomes and their livelihoods such that the incidence of rural poverty was only marginally reduced from 35.7 percent in 2001 to 34.4 percent in 2007³. It has declined somewhat more rapidly since then to 28.2 percent in 2012.

The country had fared well in containing headline inflation rate, which was around 5 percent for most part between 2000 and 2007. Unfortunately, the sudden surge in fuel prices in 2007-08, which was immediately followed by the Global Financial and Economic Crises, forced inflation rate to rise above 10 percent such that by mid-2011 it had reached 19 percent, before stabilizing and gradually reducing towards 10 percent mark by the end of 2012, then to around six percent in 2014.

Despite the food self-sufficiency ratio being within the comfort zone which is beyond 110 percent over a decade, there is a group of 50-60 districts scattered across more than 10 regions of Tanzania Mainland, which regularly report food shortages even in years of overall surplus in the country, mainly due to adverse climatic conditions,

³ The most recent poverty headcount of 28.2% based on the 2011/12 HBS cannot be compared to the previous series due to differences in the underlying poverty estimation methodology and survey instrument. However, re-estimation of the 2007 poverty figures using a methodology that is more comparable to 2011/12 delivers a poverty headcount estimate of approximately 34.4% in 2007.

cultivation of unsuitable crops in the respective agro-ecological zones, poor husbandry practices, among other factors.

2.3 Status of Growth Drivers in the Sector

The ASDS I (2001) has identified the followings as required specific interventions: improving water supply management and irrigation, introducing farm mechanization, use of improved seeds, fertilizers, vaccines and agro-chemicals, rangeland management. Some of the required facilitating factors include market information, marketing infrastructure, research and extension, private sector business environment, and financial services. The sector's constant growth rate of about 4.2 percent per annum over the past ten years appears to have been driven mainly by area expansion rather than by productivity increase in response to increasing demand for food and non-traditional cash crops. The following sections explain about the current status of the key-subsectors and issues.

2.3.1. Water Resource Management and Irrigation

In terms of irrigation potential, there are about 7.1 million hectares classified as high (2.3 million ha) and medium (4.8 million ha) along numerous rivers, lakes, wetlands and aquifers. Out of the 2.3 million hectares classified as high potential, the irrigated area with improved irrigation infrastructure reached to 450,392 hectares by 2013 (with average annual increase of 15,000 to 25,000 hectares), which is less than five percent of the cultivated land. Only 40% of rangelands is currently available for livestock grazing, the rest is inaccessible due to tsetse fly infestation or lack of adequate water resources. The continued shrinking of land for grazing due to population pressure and conversion of traditional grazing areas to other land uses greatly constrain the sustainability of extensive livestock production system.

In terms of productivity from the irrigated farms, the average yield of paddy in irrigated areas is about 2.0-3.8 tons per hectare, compared to about 1.8 hectares in non-irrigated areas.

Although the implementation of irrigation development at local is well-structured through ASDP I, the local capacity, especially that of Irrigators Organizations requires significant improvement. Environmental and social management also requires more awareness among the stakeholders and further assistance from Zonal Irrigation Technical Service Units of MAFC.

(i) **Extension Service**

Tanzanian farmers use only 9 kg/ha of fertilizer while the average for SADC countries is 16 kg/ha (China is 279 kg/ha). Likewise, the annual supply of improved seeds is around 12,000 tons or 10 percent of total estimated requirements of 120,000 tons per year.

Since 2008/9, approximately TSh480 billion has been invested in the National Agricultural Input Voucher System (NAIVS) programme. A joint study was conducted by MAFC, REPOA and the World Bank to establish whether NAIVS met its intended goals. The impact evaluation suggests that the NAIVS program did improve productivity. It contributed approximately 2.5million tonnes of additional maize and paddy to national food supplies over the 2009/10-2012/13 period. Participating farmers achieved an average yield gain of 433kg per acre for maize and 263kg per acre for paddy. This also helped Tanzania maintain food self-sufficiency even in the face of regional drought. There was also some long-term improvement in the adoption rate of improved seeds and fertilizers. Of those who had not previously tried inputs prior to NAIVS, 47 percent bought improved seed and 19 percent fertilizer after they graduated from the NAIVS. There are also associated effects of strengthened agro-dealers network in the country. Furthermore, fertilizer business is becoming more active than before, i.e. various demonstrations are being done by private companies, smaller bags of fertilizers (e.g. 5 kg, 25 kg apart from usual 50kg) which are affordable and easy to start for many small holders are now available in the market.

2.3.2. Mechanization

The level of farm mechanization is still low that majority of the implements found on farming households on the Mainland are hand hoes (97.8%) and swords (93.5%). Relatively a small number of households used other farming implements such as ox-plough (14.4%), castrated bulls (13.7%), hand sprayers (11.7%) and cows (10.2 %). Other farm machinery (tractors, power-tillers) are nearly 1 %⁴. Farm mechanization, especially for land preparation, planting and harvesting, is one of the elements for commercialization of the sector.

The Government' efforts for promoting mechanization include tax exemption for importation of farm machinery and spare parts. In response, the business by private companies engaged in agricultural machinery is steadily increasing. The public finance from AGITF and TIB-Agricultural window and commercial banks are

⁴ National Sample Census of Agriculture 2007-08

extending loans for purchase of tractor, power-tiller, and combine-harvester. There are also active SACCOS that provide loans to its members for purchasing agricultural machinery.

2.3.3. Rural Road and Electrification

Rural road development including feeder road is the responsibility of PMO-RALG. Direct investment from agriculture sector is very limited. The Road Fund has been established. However, the budget allocation for rural road, especially its development budget (only 10% allocation for new construction), is extremely inadequate. The actual achievement of 2013/14 was total maintenance of 30,575km and construction of 108km new rural road and 5 bridges. The investment efforts require further acceleration.

The Rural Energy Agency (REA) has also made some progress in extending electric power to rural areas. However, rural electrification is still very low as household lighting and cooking by electricity is only 20.7% and 1.7%, respectively⁵.

2.3.4. Research and Extension Service

Agricultural growth, or increased productivity, is based on application of improved technologies. This is a continuous cycle that involves technology renovation and adoption. In this sense, research and extension service play major roles to increase the productivities.

(ii) Research

The government has worked closely with development partners to revive research stations and research activities, which were drastically scaled down during the 1980s and 1990s. The country's 16 agriculture research stations are strategically located and spread across the country based on agro-ecological zones to cater for different farming systems. Some of the research centres such as Ukiliguru and Uyolet are multi-enterprises focused, while some dedicated to a single enterprise such as tea (TRIT), coffee (TACRI), and tobacco (TORITA), which have performed better than those dealing with multiple commodities. There are several livestock research centers, e.g. Tanzania Livestock Research Institute, Tanzania Veterinary Livestock Agency, and Tanzania Fisheries Research Institute for fisheries. There are also many local institutions such as the Livestock Training Agency, and Fisheries Training Agency. Among the key successes in the coffee sector by TACRI is the replacement of most of

⁵ Population and Housing Census 2012

the coffee trees with new high yielding cultivars in the coffee growing areas. Uyole Centre also succeeded to produce two different varieties of Irish potatoes, one for cooking and another for fried chips, such that it is among the thriving commercial crops in Iringa, Njombe and Mbeya, whose combined surplus constitute 60 percent of potatoes in the market⁶.

(iii) **Extension Service**

The Government has pursued efforts to improve the ratio of extension agents to farmers through recruitment and training of new extension officers. The extension service policy aims at least one extension agent per village and there are 9,139 field extension officers spread across the country in 168 LGAs in 2014. Due to this accelerated assignment, there are some certificate holders as well as diploma holders among the existing extension agents. Therefore, continuous technical backstopping and upgrading of these extension agents is an urgent and important task of ASLMs. To provide more effective extension services, approaches such as farmer field schools (FFS)⁷, farmer-to-farmer extension, study tours and utilization of Ward Agricultural Resource Centers (WARC) have been promoted.

Toward commercialized agriculture, there is a shortage of specialized extension agents for marketing and value chain approach so as to advise farmers on business skills (business planning, market survey, negotiations, etc.), market demand (production volume, timing, quality, etc.) among others.

2.3.5. Financial Services

The number of commercial banks is increasing and now is over 50. Some of them extend services to agricultural sector and agro-processing. Agricultural financing (including livestock) from commercial banks in terms outstanding lending is gradually increasing and equivalent to 10% of the total, reaching to 1 trillion TSh. The public financial service includes TIB-agricultural window and AGTIF under MAFC. The Government is also in process of operationalizing the Tanzania Agricultural Development Bank. Private Agriculture Sector Support (PASS) Trust established in 2000 and funded by DANIDA through CRDB Bank Ltd. has been providing support for business planning and guarantees.

Formal and informal MFIs, financing to SACCOS, also support the agricultural economy of the smallholders in rural areas. The initiative of National Financial

⁶ ESRF, 2011. Njombe Region Bankable Projects and Socio-Economic Profile.

⁷ 64,460 FFS were established. MAFSC, 2011. Evaluation of the performance and achievements of ASDP. June 2011

Inclusion Framework by MOF intends an implementation plan targeting 50% of adult population to have access to formal financial services by 2016.

2.3.6. Private Sector development and trade

Private investment has the potential to generate employment, raise productivity, transfer skills and technology, increase competitiveness, enhance exports and contribute to the long-term economic development of the country. However, the FDI to agricultural sector remains low despite its huge potential; inflow of FDI to agricultural sector was 21.2mUS\$ in 2008 and 31.4mUS\$ in 2011 equivalent to 2-3% of the total FDI⁸.

Rapid urbanization and rising incomes have been contributing to increased demand for value added products such as cheese, butter, etc. However, on the supply side, underdeveloped agro-processing industry has so far failed to provide import substitution for urban food market. The mismatch between demand and supply for value added food products has resulted in an increased import of food commodities. The food import bill has nearly tripled from \$ 273.9 million in 2006 to \$963.9 million in 2013. There needs to be concerted efforts to create enabling environment for private sector to invest in agriculture including agro-processing.

The pattern of growth of the economy is influenced by the transformation of the agricultural sector through value addition of primary products, thereby influencing investments in industry and service sectors. Following improvement in business environment, the number of plants for processing hides and skins (blue wet stage) increased from 3 to 6 between 2001 and 2009, with the capacity to meet 52 percent of the total production. The number of tanneries processing plants has increased from 5 in 2001 with the capacity of 38.3 million square feet to 7 in 2009 with the capacity of 48.2 million square feet per year. In 2006/2007, hides and skins worth TZS 16.2 billion were exported, but its value dropped to TZS 12.8 billion in 2008/2009 due to the global financial crisis.

In meat processing, the government has supported the private sector to invest in modern abattoirs and slaughter houses in Sumbawanga, Dodoma, Arusha, Morogoro and Coast regions; and has sold some of its shares in previously wholly government owned companies such as NARCO and Dodoma Abattoir. Milk processing plants increased from 22 in 2001/2002 to 39 in 2008/2009. There is also resumption of milk processing through private companies in Musoma, Arusha, Tanga, Dar es Salaam, Morogoro, Iringa, Mbeya and Njombe. There is still a huge potential to expand the

⁸ Tanzania Investment Report 2012

industry given that out of 1.3 billion litres of milk produced per year, only 20 percent is collected and processed.

In fisheries, the industry is dependent on natural waters (lakes and the Indian Ocean). Fisheries product from Lake Victoria, especially Nile perch, is exported widely to international markets and the export earning is increasing. Total export value of fish and fisheries product is over 150 million US\$ in 2013. For commercial fish farming, very little is undertaken currently.

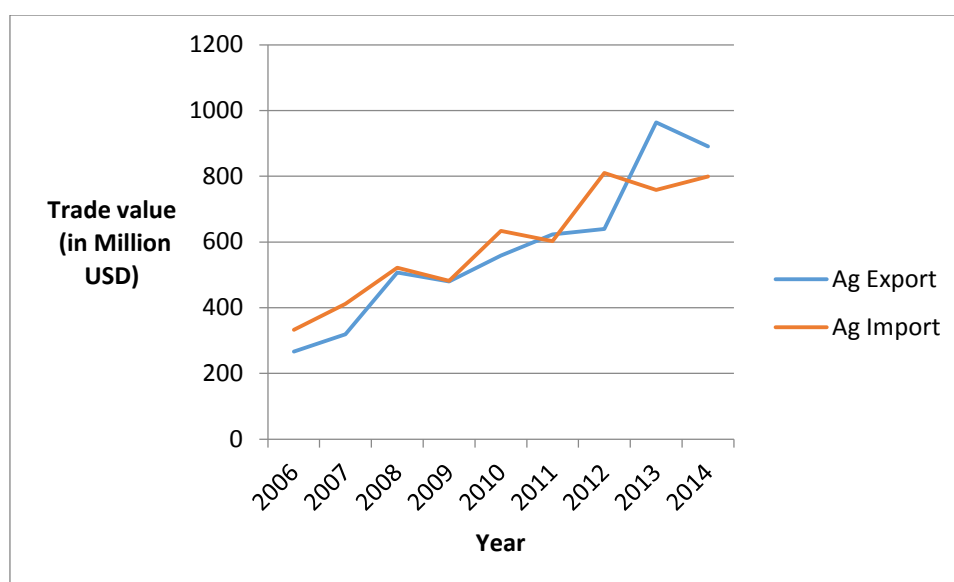


Figure : Trends in agricultural export and import revenue

Source: BOT Quarterly Economic Report

2.3.7. Markets and Marketing Infrastructure

The adoption of the Agricultural Marketing Policy (AMP) in 2008 paved the way to collaboration between public and private sector (such as Tanzania National Network for Small Farmers Groups (MVIWATA), MUVI and the Rural Livelihood Development Company (RLDC)) to empower producers and enhance market linkages. There have been several programmes in recent years in support of agricultural marketing improvement: the largest being the Marketing Infrastructure, Value Addition and Rural Finance (MIVARF). Other programmes in support of market development include PADEP, DADIP, and some other projects supported by NGOs.

The government is in the process of establishing International Markets at Segera (horticulture) in Tanga and Makambako (grain) in Njombe regions. Border markets are expected to support farmers in terms of price stabilization as market facilities will be available at one point for all traders and farmers.

The main marketing infrastructures for livestock marketing include stock routes including night camps, holding grounds and dipping facilities. Both primary and secondary markets are equipped with auction rings, purchase pens and weigh bridges. About 300 primary livestock markets are administered by the Local Government Authorities (LGAs) and supply animals for local markets and for onward transfer to

secondary and terminal markets located at Themti (Arusha), Weruweru (Moshi), Korogwe (Tanga), Lumecha (Songea) and Pugu (Dar es Salaam) which then supply to urban and export markets served by 10 border markets.

Since its inception in 2007, the Warehouse Receipt System has played an important role in improved marketing for some agricultural products (cotton, coffee, cashew, maize, rice, sunflower, sesame). A Commodity Exchange System is in preparation under the coordination of the Capital Market Security Authority (CMSA).

2.4 Agricultural Sector's SWOT Analysis

2.4.1. Strengths and Opportunities

Domestic market

With 45 million populations and 2.7% of annual increase rate, Tanzania has a huge domestic demand for agricultural products including livestock and fishery products. The national economy has been growing steadily at around six percent for more than a decade.

Regional market

In addition to the domestic market, the East African Community (EAC) which includes Kenya, Uganda, Rwanda, Burundi and Tanzania with population of more than 100 million offers a huge market opportunity for producers and investors. Beyond the EAC, the Southern African Development Community (SADC) with its 215 million consumers is also another market. Staples and food commodities have higher potential for intra-regional trade as most countries in EAC and SADC are net importers of food commodities.

Trade initiatives by developed countries

The trade promotion initiatives such as Everything But Arms (EBA) for EU and the African Growth and Opportunity Act (AGOA) for USA have been opportunity for exporting Tanzanian products.

Newly discovered gas resource

The recent discovery of natural gas reserves in the south of the country presents new opportunities in near future, most directly stable power distribution in the country which is one of the preconditions of attracting new investments including agriculture. Gas revenue could help to enhance fiscal balance and reduce dependency on external financing of infrastructure such as rural roads and irrigation systems.

Large crop production and irrigation development

Higher agricultural productions for some commodities (rice, cassava, maize, cashew, etc.) in Tanzania among the region and the continent are the strength of Tanzanian agriculture. Relatively stable and favorable rainfall and well organized irrigation development which support paddy production in Tanzania is strength.

Capacity of Local Government Authorities

The enhanced capacity of Local Government Authorities together with well-established DADP system through implementation of ASDP I will be a firm basis for expanding public and private investment in the sector.

2.4.2. Weaknesses and Threats

Low productivity

The most common weakness for almost all the commodities is the slow pace of productivity increase. Productivity is a result of multiple factors starting from seed, input like fertilizer and pesticide, watering, harvesting, drying and other processing by farmers themselves and other stakeholders including traders and processors.

Low investment in service delivery

Agricultural service delivery through public research, extension, and training are still inadequate both in terms of manpower and budget allocation despite of Government's effort. This leads to low access to new knowledge and technology by farmers, and poor adoption rate of improved technology.

Weak rural infrastructures

Weak rural infrastructures including rural road, electrification, market facilities and others have discouraged investments in agricultural production and agro-industries by private sector.

Policy environment for export and import

As agricultural production continues to increase, export market, especially to regional one, needs to be explored. Despite of these circumstances, the stakeholders in the sector have been suffering from unpredictable and unclear policy environment especially on export and import as well as its enforcement capacity. Coherent and predictable policies are crucial for sustainable sector development.

Data availability

Reliable and timely data availability have been one of the major shortcomings of the sector. According to the Agricultural Statistics Strategic Plan (2014), National Sample Census of Agriculture, Annual Agricultural Sample Survey, and routine data collection systems need to be improved toward the evidence-based decision-making.

Degradation of natural environment

As the development and human activity enhances, degradation of natural environment such as land degradation, siltation in the river, change of river course, eventually affect the agricultural activities. Observation of environmental laws and regulations at local level is generally weak.

Increasing resource competition

Along with climate changes, water demand by multiple sectors (agriculture, energy, human life consumption, watershed and wildlife conservation, etc.) is becoming more and more competitive. There is no assurance of continuous water allocation for agricultural sector that is the largest user of water resources.

Increasing human and livestock populations are putting pressure on land use. Increasing conflicts between farmers and livestock keepers is a hindrance to the sector development. Promotion of land use plans and their enforcement is critical for sustainability of the sector.

Emerging oil and gas

Tanzania is estimated to have over 45 trillion cubic meters of natural gas that could generate over \$25 billion revenue, annually. Tanzania also has coal and iron reserve that could earn the country \$1.7 billion annually on export. Massive export of natural resources could make the economy vulnerable to the “Dutch disease” and hence render the agricultural sector uncompetitive. The Dutch disease is characterized by appreciation of the local currency emanating from increased inflow of foreign currency. Unless policies are in place to sterilize the export revenue boom, agriculture could become uncompetitive.

CHAPTER THREE

3.0 VISION, MISSION AND GOAL

3.1 VISION (of the Agriculture Sector)

As an important contribution to realization of TDV (2025), the ASDS II envisages an agricultural sector in the year 2025 being modernized, commercial, market-oriented, highly productive and profitable, resilient, utilizing natural resources in an sustainable manner, securing food security throughout the country, expanding its export to regional and international markets and contributing to improved livelihood in rural and urban area of the country.

3.2 MISSION (of the Agriculture Sector Ministries)

The mission of agricultural sector ministries, within their mandates, will be to facilitate the growth and development of the agricultural sector to meet the medium- and long-term targets. This will enable the sector to contribute fully to ensure food security and poverty reduction through increased volume of competitive crops and livestock products, increased income especially of smallholder farmers who are more commercial and involved in agricultural market.

3.3 SECTOR GOAL AND OBJECTIVE

3.3.1 Sector Goal

Contribute to Tanzania's national economic growth and poverty reduction (Vision 2025/LTPP) by:

- Promoting inclusive and sustainable agricultural growth (at a rate of 6 percent per annum);
- Reducing rural poverty (i.e. reduce the percent of rural population below the poverty line from 33.3% in 2011/12 to 24% by 2025/26);
- Improving food and nutrition security (e.g, reduce % of rural HHs below food poverty line: 11.3% in 2011/2012 to 5 % by 2025/26).

3.3.2 Strategic Objectives

- i. Create enabling policy and institutional environment for enhancing modernized, commercial, competitive and value-added agriculture sector, driven by inclusive and strengthened private sector participation;
- ii. Achieve sustainable increases in production, productivity, profitability and competitive value chain development in the agricultural sector (crops, livestock, fisheries), driven by smallholders; and
- iii. Strengthen institutional performance and effective coordination of relevant public and private sector institutions in the agriculture sector at national and local levels, enabled by strengthened resilience.

3.3.4 Summary of Agricultural Sector Constraints

- i. Inadequate policy environment and uneven policy implementation for achieving sustained and inclusive agricultural growth targets
- ii. Low productivity levels and growth trends, including inadequate and sustainable access to key inputs (especially fertilizers and seeds, animal AI, fingerlings)
- iii. Weak delivery of agricultural services (for crops, livestock, fisheries), coupled by inadequate public and private resources
- iv. Inadequate and lack of prioritized and quality public investments, and low private sector investments, reflecting the early stages of private sector development; this includes inadequate rural infrastructure (e.g., irrigation, rural roads, storage facilities, rural energy)
- v. Constraints to efficient and competitive agricultural marketing, including limited value-chain development
- vi. Limited access to sustainable rural finance
- vii. Weak capacities to respond to climate change challenges
- viii. Weak institutional and human resource capacities and inadequate coordination among diverse stakeholders, at national and local levels, including weak agricultural statistical system

3.3.5 Strategic “Drivers” of Inclusive Agric. Growth and Reduced Rural Poverty

- i. Policy and Regulatory Framework: Promoting the effective multi-stakeholder formulation, consensus and effective implementation of key policy reforms which can enable key productivity and value chain drivers of the sector transformation process, especially expanded access to and efficient utilization of improved seeds, fertilizer (organic and inorganic), complying with sound phytosanitary/zoosanitary grades and standards for ensuring competitive exports, marketing policies and regulations, enhanced value chain development, sustainable incentive structure, consistent with Tanzania’s market and competitive advantage;
- ii. Production/Productivity and Trade: Increasing sustainable productivity of crop, livestock and export commodities which would improve household nutrition

and food security, especially of smallholder families, and vulnerable rural families; this would be enabled by productivity-enhancing technology research and extension coverage, facilitated through strengthened research-extension linkages, effective extension models, responsive to climate change trends; expanded and inclusive private sector role, and stronger and more effective farmer cooperatives and organizations' which also would support and incentivize expanded marketed production, enabled by expanded and sustainable access to rural finance;

- iii. Private Sector: Stimulating expanded and inclusive private sector-driven value chain development and integration, facilitated by expanded models of land-use and effective and viable public-private partnerships, and expanded rural infrastructure (especially small-scale irrigation, post-harvest facilities and rural feeder roads); this would contribute to much needed expanded off-farm employment opportunities;
- iv. Institutional Capacities and Coordination: Strengthening institutional development and effectiveness, including: results-focused capacity development of key actors at central and local levels; more efficient, responsive transparent and accountable decentralization of key agricultural services and implementation; more effective and evidenced-based planning, budgetary and M&E systems at various levels, enhanced nutrition and food security support services; and enhanced processes and mechanisms for more effective coordination within Agricultural Sector Lead Ministries (ASLMs), other sector Ministries/agencies, private sector and other key stakeholders

CHAPTER FOUR

4.0 ASDS II – STRATEGIES

Chapter Four is divided into two parts.

Sub-chapter 4.1 treats five strategic areas for intervention based on the Strategic Objectives -SO (articulating the LTPP, TAFSIP) listed in Chapter Three. The SO are broken further into Intermediate Results (IR). They are all essential and require actions from ASLMs, often with participation of the private sector. They aim at stimulating forward and backward linkages to enhance economic activities and income generation necessary for poverty reduction and the several other objectives in the vision for agriculture. The described efforts will need to be prioritized among the ASLMs along with the increased budget allocation to agriculture sector towards the ten percent target. Even after achieving the ten percent, a major task of setting priorities within these strategic areas will be required.

Sub-chapter 4.2 focuses on a small set of priorities chosen to ensure that the targeted six percent growth rate is achieved quickly and maintained. A few of those priorities will have immediate impact, some will continue to have impact on the growth rate. Others need to start being developed, given their long gestation periods, so that they will come into force as the first elements are declining in their impact.

It must be clear, in the context of a focus on priorities for achieving the six percent growth rate, that the six percent growth rate is only a means to the ends of agricultural development as stated in Chapter Three and its statement of vision, mission, and goals. This indicates that a significant shortfall from the six percent growth rate will make it virtually impossible to ensure attainment of that vision, mission and goals. That is why CAADP focuses on that growth rate.

4.1 Strategic Areas for Intervention

SO1: Expanded Sustainable Water and Land Use Management

Appropriate use of natural resources that includes land, water and forest would enhance productivity and profitability in the agricultural sector as well as conserve the environment. Despite having numerous and diverse water resources in the form of rivers, lakes, wetlands and aquifers, the country still faces challenges in attaining good management and utilization of the resources for sustainable agriculture. Furthermore, land degradation is substantial, due to inappropriate farming and grazing methods, and most importantly, lack of comprehensive land use plans and demarcation and associated laws to adequately protect land and water resources.

IR 1.1 Water Use for Irrigation, Livestock and Fishery Made More Efficient and Inclusive

The following strategic interventions are therefore expected during the next 10 years, with some innovations suggested to do business differently:

- a) Mobilize resources for investment in irrigation (including new development, expansion, rehabilitation) to increase productivity by targeting the prioritized areas where high return is expected through double or triple cropping, high value cash crop production.
- b) Strengthen Irrigators Organizations as functional farmers' organizations for better operation and management of the constructed irrigation infrastructures. Required capacity development includes organizational management, financial management, water management, minor maintenance skills among others.
- c) Further improve the established institutional structure of irrigation development at all level, especially in focus of backstopping services for LGAs and IOs.
- d) Implement coordinated water resource planning and management, targeting water catchment and wetlands and enforcing national guidelines on water and wetlands management through better coordination with the relevant ministries and authorities.
- e) Enhance efficiency of water utilization by diversifying from the over reliance on surface river water abstractions for gravity-fed irrigation schemes, ensuring adequate investments in water storage infrastructure and improving drainage system.
- f) Encourage private sector to invest in irrigation development so as to reduce the burden of government funding for every project including sub-contracting of scheme surveys, architectural plans and construction supervision.

- g) Enact and enforce laws and regulations which protect irrigation potential and irrigation developed areas; coupled with rewards and penalties for observing regulations.
- h) Continued efforts to ensure sustainable water resources management and utilization are required through the following interventions:
 - a) Enhance observation of the existing ESMF and implementing capacity of formulated ESMPs by IOs that will include measures to prevent or minimize degradation of both surface and ground water resources.
 - b) Build capacity at national and local levels on watershed management.
 - c) Improve coordination of Integrated Water Resources Planning among different sector ministries and local level governance structures including possible water use by multi-sectors at local level.

IR 1.2 Land Use Planning and Watershed Management Improved

This strategic area requires multi-stakeholder approach for sustainable land use that includes pasture and rangeland:

- a) Sound National and Village Level Plans
 - ASLMs will continue to collaborate with Ministry of Land, Housing and Settlements (MLHS) and Office of the Vice-President's (Environmental), PMO-RALG and donors to roll out the land use planning and management throughout the country.
 - Work closely with Tanzania Investment Centre (TIC) to establish a land bank for investors and pilot land for equity as PPP between investors and villages.
- b) Sustainable Pasture and Range Management
 - Enhance observation of the existing ESMF and implementing capacity of formulated ESMPs by farmers and livestock keepers that will include measures to prevent or minimize land degradation and desertification.
 - Set up and strengthen a mechanism for resolving land use disputes between stakeholders, especially between crop farmers and livestock keepers.
- c) Soil Fertility Management
 - Promote proper tillage of land and use of fertilizers and other chemicals so as to safeguard soil health.
 - Enhance collection of soil analysis data focusing on the prioritized areas for better selection of fertilizer application.
- d) Fish Farming

Enhance, integrate and sustain inland aquaculture as part intensified farming systems

IR 1.3 Climate Change Mitigation and Adaptation Increased

In response to a growing threat of climate change, the ASLMs will collaborate with the related ministries and take mitigation and adaptation measures without delay.

The required interventions include:

- a) Undertake research and exchange information with other research institutions (regional and international) on introduction of new crops/varieties and farming systems that have characteristics such as drought-resistance, short-maturity, heat tolerance.
- b) Improve water use efficiency (irrigation and others) by improving water distribution planning, drainage system, reducing conveyance loss, rainwater harvesting facility, on-farm water storage, and by introducing new technology like drip irrigation in places where feasible.
- c) Promote water catchment management, and land and soil management (including monitoring of salinity) through coordinated efforts from both crop and livestock sectors.
- d) Enhance observation of the existing ESMF and implementing capacity of formulated ESMPs by farmers and livestock keepers that will include measures to prevent or minimize land degradation and desertification in catchment areas.
- e) Develop and coordinate a campaign using ICT to raise awareness and disseminate targeted climate and weather information to the stakeholders.

SO 2 Improved Agricultural Productivity and Profitability

This strategy aims to increase and sustain productivity of priority commodities (crops, livestock and fishery). The priority should be to enhance agricultural productivity growth rate in the small commercial farmer sub-sector, which for the past decade has been sluggish for most of the commodities. The increased productivity is a prerequisite for food security and agricultural commercialization. There is a need to accelerate the adoption of yield-enhancing technologies such as fertilizer and improved seeds, improve access to credit, reduce on-farm and post-harvest losses, improve livestock health services and increase the pace of mechanization.

IR 2.1 Agricultural Research Improved

- a) Improve technology generation delivery systems responsive to farmer needs and market requirements which will contribute to increased and sustained production and productivity of priority commodities (crops, livestock, fishery)
- b) Improve technology dissemination delivery systems which will contribute to increased and sustained production and productivity of priority commodities (crops, livestock, fishery)

IR 2.2 Agricultural Extension Service Improved

The services including extension, research, and training play pivotal roles in linking farmers to new technologies, information and knowledge that are central in enhancing agricultural productivity.

The required public interventions include:

- a) To assign at least one agricultural extension worker per village and provide necessary working tools for extension services.
- b) Employ diverse and lower cost extension methodologies by village and ward agricultural extension workers with supports from district extension workers and subject matter specialists.
- c) Enhance effective utilization of Ward Agricultural Resource Centres (WARC).
- d) Enhance technical backstopping to local level extension workers from MATIs, academic institutions, and central ministries to upgrade their knowledge and skills and to assure the quality of provided services.
- e) Continue to improve extension methodologies including participatory approaches, gender mainstreaming, commodity-specific extension service.

- f) Build capacity of research institutes in human and financial resources, infrastructure and equipment.
- g) Continue participatory research and enhance participation of a wide spectrum of stakeholders in identifying research priorities.
- h) Enhance collaboration with foreign research institutes including CGIAR and private sector to upgrade the level of research and researchers as well as raising fund.
- i) Enhance linkage between research and extension through effective mechanism at all levels.

IR 2.3 Access to Farm Inputs Increased

Increased Fertilizer and Improved Seed Application

Introduction of improved seeds or improved variety which is more responsive to fertilizer application is a proved approach for achieving higher productivity. The Government's effort through NAIVS for increased use of improved seed and fertilizer and for increased network of agro-dealers at local level has succeeded in some aspects and requires follow-up. The required interventions include:

- a) Provide smart input subsidy to enhance utilization of improved seeds and fertilizer by smallholders.
- b) Design agricultural credit package appropriate to smallholder farmers
- c) Facilitate private traders and agro-dealers to enhance the business network so that access to input by smallholders is improved in the rural areas.
- d) Implement effective extension services and trainings that will accelerate adoption of new technology in focus of improved seed and fertilizer.
- e) Enhance use of organic fertilizer along with livestock activity, especially in the areas where mixed husbandry is in place.
- f) Strengthen the national seed system that includes all the stakeholders, i.e., Agricultural Research Institutes, ASA, TOSCI, private seed producers and distributors, QDS producers, including enhancement of breeding capacity of Agricultural Research Institutes.

Promoted Artificial Insemination and Other Livestock Technologies

- a) Increased access to Artificial Insemination for upgrading of local breeds
- b) Improving animal health through interventions for controlling and eradicating diseases and pests. Activities include strengthening existing and increasing veterinary check points along marketing routes, and surveillance and control of

communicable diseases. Establishment of border markets and disease free zone for the export markets.

- c) Improving livestock marketing infrastructure such as trekking routes, holding grounds, night camps, primary and secondary markets, cattle dips and spray races, etc
- d) Improving rangeland such as seed dissemination for improved pasture varieties, controlled burning for eradication of pests, prevention of erosion, etc.
- e) Institutional strengthening would entail capacity building to local government in managing livestock infrastructure and administration of livestock revenue.

Enhanced Aquaculture and Access to Fingerlings

Productivity could be enhanced by:

- a) supporting research on certified fingerlings and feed production,
- b) establishing public–private partnerships in fish seed and feed production,
- c) developing an aquaculture policy and legislation,
- d) developing an aquaculture master plan and investment plan, and
- e) supporting fisheries participatory extension services.
- f) Promoting fish quality assurance and safety, value addition and access to markets

IR 2.4 Access to Agricultural Mechanization Service Increased

The mechanization issue is treated more fully in Sub-chapter 4.2. In the longer run, increased mechanization will break labor bottlenecks and contribute to increased labor use. The mechanisms for realizing this are complex. Private sectors dealing with agricultural machinery needs to be grown in small towns and farmers should take up mechanization only when it is profitable. These also require adequate credit so some farmers can purchase machinery and hire it out to others, grouping farmers for joint ownership. The required interventions include:

- a) Collaborate with private sector on promotion of mechanization through demonstrations of modern technology (tractors, power-tillers, harvesters, etc.).
- b) Collaborate with private sector on promotion of simple farming implements and tools such as weeder, seed-distributor, etc.
- c) Facilitate agricultural financing services for agricultural mechanization.
- d) Facilitate with educational institutes for producing qualified mechanical engineers needed in the sector.
- e) Create favorable business environment for importing agricultural machinery and spare-parts and for domestic marketing.

SO 3 Strengthened and Competitive Value Chain t

IR 3.1 Farmer Organizations Empowered

Group formation and adoption of collective approach are indispensable steps for realizing agricultural commercialization. The capacity of farmers organizations, as a key private sector player, requires significant improvements from the current status.

The required public interventions include:

- a) Continue to build organizational and technical capacity of farmers organizations through public extension and training services and collaboration with private services including the supports from non-state actors.
- b) Enhance entrepreneurship and competitiveness of farmers organizations through capacity building in organizational management, leadership, financial management, basic business skills (e.g. business planning, market survey, contracting, access to finance service).
- c) Promote wide-ranged participation among women and young farmers into farmers organizations.
- d) Provide a clear framework for establishment and operation of farmers organizations.

SO 3.2 Agribusiness and Value Addition Promoted

Value Addition

Agro-processing and value addition are important elements of increased agricultural commercialization. These activities can generate additional employment in rural areas. They also have strong forward linkages such use of by-product in agro-processing for animal feed.

The required public interventions include:

- a) Promote agro-processing for reducing post-harvest loss.
- b) Promote agro-processing for value addition such as grading, milling, canned, juiced, etc. For livestock, promote dairy industry (milk, yogurt, cheese) including cold chain, meat processing, especially in focus of small commercial farmers in the rural areas.
- c) Promote improvement on packaging, handling, transporting agricultural products.
- d) Ensure that agro-processing undertakes an environmentally responsible technology and hygiene measures based on the relevant laws and regulations.

- e) Create favorable business environment for needed medium- and long-term investment including import of agro-processing equipment and spare-parts.

Agribusiness and Private Sector Development

A diverse, competitive and robust private sector to spearhead the development of the agricultural sector is envisaged by way of increased flows of private investment and services in the sector. This will be achieved with the improved conditions and systems in which the private sector operates.

The required interventions include:

- a) Promote private sector investment to agriculture sector especially through on-going efforts of SAGCOT initiative and commercial farm component of the Agricultural Big Result Now while assuring the participation of smallholders in the investment areas.
- b) Continue improvement of business environment including trade policy, procedures and regulations on export and import, investment, taxation, and other related issues in collaboration with relevant organizations such as TIC.
- c) Establish and strengthen dialogue forum among the key stakeholders from public and private sectors to discuss on the improvement of business environment.
- d) Expand agricultural finance services through TIB-Agricultural window, AGTIF, Tanzania Agricultural Development Bank and commercial banks for medium and long-term investment in the sector.
- e) Continue current efforts to improve infrastructure such as feeder roads, electricity, and communication network as well as technical support to smallholders in the area through extension services and trainings.

IR 3.3 Access to Markets and Rural Infrastructure Improved

Market Access

Marketing of the agricultural products requires efficient and well regulated marketing systems. The ASLMs will therefore collaborate with various stakeholders to implement policies, enforce laws and regulations, and create a favourable environment for marketing activities.

The required interventions include:

- a) Establish and operationalize the Agricultural Commodity Exchange to further facilitate the trade on the selected commodities, targeting higher prices for primary producers.
- b) Capacity building among producers and traders, and raise their awareness on the required standards and quality as demanded by domestic, regional and international markets.
- c) Oversee the implementation of recommended grading and standard protocols for different commodities to enable penetration to domestic, regional and international markets.
- d) Continue to review and improve the existing legal and regulatory framework of agricultural marketing system for domestic and export market.
- e) Widely publish renewed legal and regulatory framework including removal of trade barriers (administrative and taxes/charges) which limit market access, especially with the regional market.
- f) Improve the market information system (including price) and promote awareness among stakeholders on its utilization to support commercial decision-making by producers, processors and traders.
- g) Strengthen the systems for enforcing food safety controls based on traceability and proper handling along the value chains of crops, fish and animal products.
- h) Promote the introduction of barcodes for both domestic and exported agricultural products to enhance accountability and traceability.
- i) Innovatively prepare a programme for training and awareness creation among law enforcement agents (the police, immigration and magistrates) on the regulations and procedures for appropriate treatment of agricultural traders and transporters to minimize non-tariff barriers.

Trade: Domestic, Regional and International

The government will continue to promote domestic, regional and international trade for agricultural commodities including a market for food commodities in the EAC and SADC trading blocks.

The required interventions include:

- a) Promote internal and external trade under the Tanzania Trade Development Authority (TANTRADE).
- b) Promote local products by campaign to use “Made in Tanzania” products such as cooking oil (sun flower oil, sesame oil) sugar, milk and other dairy products, meat and other meat processed product, and fruit juices and wines/liquor.

- c) Further strengthen the key traditional cash crop exports including tobacco, coffee, tea, cashew nut, cotton. Increasing the proportion of processed commodity like cashew nut, cotton, tobacco are the key issues among others.
- d) Further promote recently increasing export of fish and horticulture. In addition, promote strategically export of maize and rice whose production has been increasing in recent years and the demand from neighboring countries are continuously high.
- e) Expand well-functioning export processing zones in the prioritized regions, especially those along the border so as to take advantage of the proximity to regional markets.
- f) Reinforce the current system of regular consultations with private sector stakeholders, through best utilization of commodity-specific stakeholder associations, to identify and remove constraints related to unfavorable taxes, tariffs and interest rates, and other related procedures and regulations which have implications on trade benefits and profitability.

Rural and Marketing Infrastructure

Rural infrastructure, in the form of rural roads, marketing infrastructure, private and public storage facilities, telecommunication networks and electricity, are indispensable for agricultural products produced in rural areas to flow into the market, i.e., domestic, regional and international market. They are also the preconditions and provide incentives for setting up of businesses such as agro-industries, trade and transportation, thus creating employment opportunities.

Government, through the ASLMs, will work closely with private sector and the development partners to continue its efforts to undertake the followings:

(1) Rural Roads:

- a) Work closely with the responsible ministries and authorities to improve transportation infrastructure, specifically linking rural roads to district roads.
- b) Take measures to strengthen the management of the Rural Roads Fund and improve the system for allocation of funds for new investment and maintenance.
- c) Strategically link rural roads to feed into existing railway system such as the Tanzania-Zambia Railway and the Central line.
- d) Promote private investment by providing tax incentive for private companies to invest in rural road maintenance in their areas of operations as tea and sugarcane production companies in Amani and Kilombero have been doing.

(2) *Warehouses and Storage*

- a) Roll out the operations of Warehouse Receipt System for appropriate commodities by empowering farmers organizations and collaborating with commercial banks and financial institutes.
- b) Support increasing storage capacity for grains along with promotion of WRS.
- c) Promote improved household level and village level storage of grains (e.g. granaries and mini-silos) to minimize post-harvest loss.
- d) Support establishment of network of milk collections and cooling centres, building on already registered successes in Tanga, Iringa, Kibaha and Musoma.
- e) Support increasing the number and capacity of cold storage and cold chain to service dairy and fish products, building on successes such as that Lake Victoria through the Lake Victoria Fisheries Organization (LVFO) for fresh water products.

(3) *Rural Electricity:*

Although the provision of electricity is not under the direct jurisdiction of the ASLMs, the ASLMs will work closely with the Ministry responsible for energy and the Rural Energy Agency (REA).

(4) *Market Facilities*

- a) Establish and improve market facilities at village, ward and district level after going through consultation with all the stakeholders and clarifying the responsibilities of the parties.
- b) Strengthen the wholesale markets in the country that require strategic locations and commodity-specific interventions in view of smooth distribution within domestic market and accelerated export of strategic commodities.
- c) Establish border market places to encourage trade with neighboring countries.
- d) Complete the construction of international produce market places at Kibaigwa (maize, sorghum and beef), Segera (horticultural products) and Makambako (multi-purpose).
- e) Strengthen the support for management and operation of the market facilities through extension services and trainings (e.g. setting up rules and regulations, financial management).

(5) *Veterinary Services*

- a) Strengthen existing plans to establish more Veterinary Service Centres to cater for types of livestock suitable in each administrative division.
- b) Encourage investments by the private sector, by innovative use of tax incentives and special grants, to complement government's efforts in providing livestock husbandry and veterinary services at ward and village level so as to

increase the number of cattle dips, artificial insemination centres, vaccination facilities and hatcheries (poultry).

- c) Promote the establishment of Community Cells to share facilities for poultry hatcheries, sharing of improved bulls, and also maintenance of cattle dips, insemination and vaccination facilities.

IR 3.4 Access to Agricultural Finance Expanded

Inadequate financial service for small commercial farmers is a major constraint to agricultural growth. Sub-chapter 4.2 treats these issues in the priorities context.

The required public interventions include:

- a) Promote services of existing community banks and start-up of new ones at local level.
- b) Provide support to establish stronger and well capitalized grassroots-level micro-finance institutions such as SACCOS and Village Community Banks (VICOBA) as first-line of financial service for small commercial farmers.
- c) Update the National Micro-Finance Policy in collaboration with other ministries to take into account recent developments in technology such as the use of mobile banking, pension schemes and insurance schemes, which are useful to rural households entering into commercial farming.
- d) Strengthen overseeing functions of the Cooperative Department at local level as part of promotion of MFIs.
- e) Accelerate efforts to expand agricultural finance services through TIB-Agricultural window, AGTIF, the establishment of the Tanzania Agricultural Development Bank, for medium and long-term investment in production and processing.
- f) Promote agricultural lending from commercial banks.

SO4 Strengthened Institutions, Enablers and Coordination Framework

IR 4.1 Policy, Regulatory and Institutional Framework Enhanced

Effective policy formulation and institutional reforms necessary for policy implementation are the foundations for realizing the Strategic Objectives 4.1 to 4.6 described in the above. It is also one of the most important functions of the Government.

The required interventions include the followings:

- a) Whilst Tanzania's policy framework for agricultural and rural development is comprehensive and stable, there are a number of areas where reviews, adjustments, and refinements may be beneficial. The ASLMs in collaboration with relevant ministries will work on the improvements of policies assuring participation of stakeholders.
- b) Considering the diverse stakeholders involved in the sector activities including private sector, sector coordination needs to be strengthened as important part of institutional arrangement. Coordination includes (i) sharing the sector goals and its priorities in the implementation program, (ii) joint monitoring (evidence based), and (iii) enhanced stakeholder dialogue for reviewing the sector performance against the set goal and discussing prioritized issues including policy reforms.
- c) For this, the ASLMs will strengthen its thematic working groups in the selected important thematic areas in the capacity of planning, monitoring and supervision, analysis, policy formulation among others. Thematic working groups will also coordinate with the corresponding stakeholder groups.

IR 4.2 Institutional Capacity Building and Coordination

Agriculture is the major occupation for the majority of Tanzania's population and accounts for about a quarter of GDP. The sector therefore involves many stakeholders and institutions at national and Local Government Authorities (LGAs) to deliver various services required by farmers. Therefore, it is imperative to ensure coordination to avoid duplication of effort and wastage of resources. Capacity building of various institutions is also important to ensure efficient and effective in service delivery. To strengthen institutional capacity and coordination, the following activities would be implemented:

- a) Strengthen the capacity of LGAs in overseeing implementation of agricultural activities including improvement of Public Financial Management (PFM).
- b) Enhance coordination of activities at National and Local Government level by enhancing engagement of Regional Administration as a link between the Ministry and LGAs

- c) Restructure some of the institutions for improved coordination, efficiency and effectiveness of service delivery in agriculture
- d) Strengthen public–private partnerships in agriculture investment and service delivery such as greater engagement of private sector in extension service
- e) Build the capacity of human resource in Agriculture Sector Line Ministries (ASLM) through short courses, coaching and mentoring.
- f) Leverage ICT and mobile phone technology to improve administration and management of human resource and activities

IR 4.3 Food and Nutrition Security Improved

Food security aims at promoting sustainable food availability and accessibility to all people at all levels throughout the year. This will be achieved through ensuring food production, stocks and trade, improved market and market structures, and adaptive measures against negative effects of climate change.

Food Security

Policy measures to mitigate effects of possible food price spikes and food insecurity for vulnerable segments of the society will be increasingly important for stable social and economic development.

The government will collaborate with different stakeholders to adopt some of the possible measures to improve food accessibility.

The required interventions include:

- a) Strengthen and improve the quality of Crop Forecast and Early Warning systems including the associated periodical surveys through supports from Development Partners within the overall framework of agricultural statistics.
- b) Strengthen food reserve and distribution system by the National Food Reserve Agency including expansion and improvement of storage facilities while effectively working with the private sector.
- c) Regulate according to necessity food imports including its tariff with careful considerations on the food demand and supply.
- d) Establish an active link with member countries in the EAC and SADC for monitoring regional food security situation given that Tanzania’s food would be traded or distributed as emergency operation in the region.

Nutrition Security

The prevalence of stunting, wasting, high infant and under five mortality rates, and maternal malnutrition affects negatively the consequent educational achievement and improved productivity in adulthood. Therefore, malnutrition is often inherited from one generation to next. The effects of malnutrition are also magnified by unsafe drinking water, poor hygiene, and lack of information and education on good nutrition and sanitation. Achieving nutrition security requires concerted multi-sector efforts.

The required interventions include:

- a) Promote awareness among rural households, especially focusing on child and maternal malnutrition (including increased attention to “1,000 days” of pregnancy and lactating period), on good nutrition and sanitation through collaborative activities with related sector ministries.
- b) Particular attention is on more effective use of Nutrition Officers at local level who can be part of agricultural extension service and training on nutrition aspect under the District Facilitation Teams.
- c) Enhance collaboration with related ministries to strengthen and scale up food fortification of micronutrient.
- d) Provide effective social safety net programmes for vulnerable groups who are chronically weak and require protection against shocks, especially draught, including such as food for work, conditional cash transfers and micro-finance are necessary for such populations left out of the market. Programs such as TASAF (Tanzania Social Action Fund) need to be aligned with agricultural interventions for sustainability.
- e) Enhance collaboration with related ministries on the school feeding programme in rural areas where such assistance is needed.

IR 4.4 Disaster Management and Resilience Improved

Natural disasters in the country include drought, heavy rain followed by flood, migration of disease and pests for crops and livestock, deforestation, soil degradation, among others. As a consequence, crop and livestock production are directly affected and negative impact on social and economic activities are evident. This will easily bring down majority of smallholders into acute and/or chronic food insecurity and poverty. Climate change is already in place and expected to become more significant in the future. Therefore, immediate actions are required toward increased resilience in agriculture.

To respond to natural disaster described in the above, the ASLMs will collaborate with the related ministries to improve the quality of disaster management.

The required interventions include:

- a) Improve the Crop Forecast and Early Warning system as well as pest and disease surveillance system for early detection of disasters.
- b) Coordinate with the country's meteorological information collection and sharing system
- c) Respond effectively to the warnings by providing appropriate guidance to the stakeholders (especially farmers) through improved communication.
- d) Improve the preparedness for emergency disasters and act effectively through better coordination with related ministries and agencies.
- e) On migratory diseases and pests from neighboring countries, strengthen the collaboration with relevant organizations in UN, regional organizations, and neighboring countries for early detection of disasters, and respond effectively in a coordinated manner.

IR 4.5 Monitoring and Evaluation and Agricultural Statistics Strengthened

- a) Monitoring and Evaluation: Strengthen M&E so as to enhance evidence based strategy development and design of programs and projects
- b) Agriculture Statistics: Improve the quality, cost effectiveness and timeliness of agriculture statistics

4.2 Key Priorities among the Strategic Areas of Intervention

This Sub-chapter delineates a small number of priorities among the Strategic Objectives described in the previous Sub-chapter 4.1, requiring special attention and contributing a major share to the overall priority of a six percent agricultural growth rate.

The Government's growth priority for the agricultural sector is a *six percent growth rate*. That is at least a 50 percent increase from the current growth rate. It is probably larger for the small commercial farmers who will have to provide the bulk of that increased growth rate. The six percent growth rate is also the CAADP target for all African countries. The CAADP target was developed through an intensive process of analysis on the requirements to reach overall objectives for the agricultural sector and the feasibility of that target. It was set as an essential means of reaching the overall objectives.

There is a broad implementation priority of increased government expenditure on agriculture to reach the CAADP stated *ten percent share* of overall Government expenditure on agriculture. Agriculture expenditure as a percent of total Government expenditure (using the African Union definitions⁹) was 3.0 percent in 2013/14 and averaged 4.6 for the preceding five years. That share of expenditure has been steadily declining from a low base over the past five years. From the 3.0 percent in 2013/14, the expenditure as a proportion of total expenditure should increase by well over three times. Showing serious commitment appears to be very challenging. However, the base is so small that it should not be difficult to reach.

Table 4.1: Agriculture expenditure as a share in total expenditure

	2009/10	2010/11	2011/12	2012/13	2013/14
Agriculture expenditure as a share in total expenditure, %	6.4	5.9	3.6	4.0	3.0

(Source: Rapid Budget Analysis 2013/14 – Agriculture)

⁹ That definition is consistent with the intent in CAADP and counts all the expenditure of ministries directly concerned with agriculture and partial expenditures for Ministries with a broader charge, and excludes multi-purpose expenditures such as rural health.) It does count fertilizer subsidies which are large at present (23 percent of government expenditure on agriculture and a doubtful expenditure for agricultural growth. Fertilizer subsidies are essentially to compensate for lack of expenditure on rural roads and other multi-purpose elements that raise the rate of return to fertilizer to a normal level. Thus this measure, for the purposes of this analysis, overstates the proportion of expenditure on agriculture.

It is notable that 75 percent of the development expenditure in the agriculture budget is from foreign assistance – and that excludes many large off-budget expenditures, such as the USAID Feed the Future.

The set of priorities stated in this chapter is built on recognition, as in CAADP, that rapid agricultural growth is based on modern scientific advances adapted to Tanzania's agriculture and applied by massive numbers of small commercial farmers. There is therefore an immediate priority to national science and technology capacity. That requires *a large increase in expenditure on research and extension and a large absolute increase in the annual rate of increase in fertilizer and improved seed application*. These will provide the core of the six percent growth rate for the first several years of the effort. Longer run priorities, with possible delays in impact due to the need for institutional building, are stated for agricultural finance for the small commercial farmer, irrigation, mechanization, and marketing.

A priority is stated to the *small commercial farmer* who produces 75 percent of output. A regional priority needs to be given to the high rainfall potential areas. The livestock sector is large enough initially and the potentials for growth sufficient that it receives a priority that will increase greatly over time. In the long run, the livestock sector will grow to provide the largest component to a high agricultural growth rate. Each of these priorities is discussed in some detail below while the monitoring of those priorities is discussed in the next chapter.

It must be clear that setting priorities is a positive exercise- a statement of a small number of items requiring special attention. It is not an exercise in stating or implying items that are unimportant or unnecessary. As will be stated more fully below, the Ministries covering the crop and livestock sector have many departments, each of which has an important role to play. It is an important task for the Ministries to prioritize the budget amongst those activities. That exercise is based on detailed analyses of the role of each department. The increase of budget share to agriculture will offer ample opportunity to enhance the role of each of these departments with the priorities decided on within the Ministries. The priorities stated here have a special role over the next five to ten years and every effort must be made to ensure, through budget, institutional building, personnel development, and policy that they fully play the role specified with detailed monitoring and consequent adjustment of their development and impact.

The growth objective for the sector is to achieve the *six percent growth rate* specified in various Government and CAADP documents. That objective has been closely examined and found important in its impact and achievable in Tanzania. All the

components of the strategy are appropriately judged by their contribution to achieving that growth rate. In each case, *the question must be asked – what share of the six percent growth rate will be provided by that effort* and then the effort continuously monitored and evaluated from that point of view. It is important to recognize that several objectives of agricultural development are most efficiently pursued under the heading of the six percent growth rate. That is why the Government and CAADP could focus so clearly on that growth objective.

4.2.1 Important Considerations for Selecting Priorities

4.2.1.1 Poverty Reduction and Improved Nutrition

Whenever countries have achieved a six percent growth rate, the poverty level has declined sharply. It is agricultural growth that has the dominant role in rural poverty reduction. One should expect a six percent growth rate in 10 to 15 years to take 15 percentage points or more from the proportion of the rural population under the World Bank \$1.25 per day poverty line. That will bring rural poverty down to a hardcore that requires explicit treatment beyond the growth efforts.

For the 30 percent of the rural population under the poverty line, calorie deficiency is the most important nutrition problem. The six percent growth rate should result in a three to four percent annual rate of increase in calorie consumption. In a ten year period, that should remove the bulk of calorie deficiency amongst the poor, opening the potentials for improvement of other components of good nutrition. The increased income allows diversion of small amounts of land to a home garden and income potentials for purchase of components of good nutrition.

4.2.1.2 Women and Youth Participation in Modernization

Rapid agricultural growth requires technological change in agriculture, based on modern science and technology. That process principally derives from extension and demonstrations. Those can be organized in a manner that women participate broadly in those processes, thereby strengthening their role in farm family decision making and opening opportunities for rural leadership positions. A special effort is required to make this happen. Explicitly including female headed households and farmers wives in demonstrations of modern science based agriculture ushers them into the modern world and opportunities to be influential not only in the family but for some more broadly in their rural life and leadership in various institutions as well.

Obviously major expansion in employment is helpful to young people as well as old. However, there is a special problem for rural youth employment - they tend to have primary and perhaps secondary education¹⁰. It appears that considerable expenditure from rising farm income is spent on services with an education component. Transport has a particularly high income elasticity of demand in rural areas and that requires bus drivers, bus conductors, and repair station operators with formal education. Similarly, market towns boom when agricultural incomes grow rapidly with large numbers of jobs created in retail establishments also requiring education. There is some evidence that in the context of rising expenditure on the rural non-farm sector, employment of people with lower levels of formal education is elastic (grows faster than overall employment) with respect to the overall employment growth rate.

4.2.1.3 Climate Change

The two most important elements of agricultural adaptation to climate change are research and irrigation. They are also priority elements of a high growth rate, so the one reinforces the potentials for the other. In addition, adjustment to climate change will be easier from the higher farm income base that accompanies the six percent growth rate.

4.2.1.4 Current Growth Rate

For the last several years, agriculture has been growing at about 4.2 percent. However, the proportion of the rural population under the poverty line has only declined marginally as in the below Table 4.2. Normally, a 4.2 percent growth rate in agriculture would cause a much larger decline in poverty.

¹⁰ The improvement in the education attainment levels was observed from 2002 to 2012 Censuses. The proportion of population that had attained secondary education (urban and rural) increased from 9.7 percent to 14.4 percent and for primary school decreased from 88.5 percent to 81.7 percent.

Table 4.2: Incidence of Poverty in Tanzania (poverty headcount index)

Incidence of poverty					
	Year	Dar es Salaam	Other Urban Areas	Rural Areas	Mainland Tanzania
Food					
	2000/01	7.5	13.2	20.4	18.7
	2007	7.4	12.9	18.4	16.6
	2011/12	1.0	8.7	11.3	9.7
Basic Needs					
	2000/01	17.6	25.8	38.7	35.7
	2007	16.4	24.1	37.6	33.6
	2011/12	4.2	21.7	33.3	28.2

Source: URT, NBS, Household Budget Survey 2000/01, 2007, and 2011/12 Key Findings¹¹.

Part of the explanation is that the production increase has been almost entirely due to area expansion with yield growth stagnant. It may also be that the area growth has been disproportionately on the large scale commercial farms that (as explained below) have very little impact on poverty levels, or perhaps it is concentrated in the low population density areas with a small proportion of the population and of the poverty, in other words, poverty persists where poor population is large and increasing at the same time.

It is important to diagnose the details of the area expansion to properly assess the sources of future growth. In any case, the magnitude of the requirements for reaching the six percent target is such that yield increase will have to play a major role.¹² That has to happen on a very low base of present growth in yields. That is the requirements and the challenges to reach the growth target that are even more substantial than implied by the 50 percent increase in the growth rate. Much more is going wrong at present than implied by the 4.2 percent current growth rate.

4.2.1.5 Farm Size Classes

In setting the priorities and the details of those priorities, it is essential to understand the prime target for those efforts. There are three size classes of farms relevant to the growth rate – small commercial farms, large commercial farms, and the rural non-farm population with very small holdings. For reaching the six percent growth target, the focus is on the small commercial farmer.

¹¹ The most recent poverty headcount of 28.2% based on the 2011/12 HBS cannot be compared to the previous series due to differences in the underlying poverty estimation methodology and survey instrument. However, re-estimation of the 2007 poverty figures using a methodology that is more comparable to 2011/12 delivers a poverty headcount estimate of approximately 34.4% (instead of 33.6%) in 2007.

¹² The June 2014 issue of the journal Food Policy documents that in much of Africa, and that certainly includes Tanzania, rapid future growth in agricultural production will have to come largely from increased yields in the higher potential agricultural areas.

i) The Small Commercial Farmer

The small commercial farmer (SCF) of 1.26 to 5 hectares farms 69 percent of agricultural land and a significantly larger share of output (Table 4.3.) They are also the drivers of poverty reduction (see below.) Large commercial farmers farm another 15 percent of the land. Thus, the two commercial groups produce 84 percent of agricultural output. Tanzanian farming is not subsistence. It is commercial and dominated by the small commercial farmer. The six percent target cannot be reached without the bulk of that increase coming from the small commercial farmer. No other group is large enough.

Table 4.3: Agricultural Households and Cultivated Area, by Size of Holding 2007/2008, Tanzania Mainland

Size of holding –Ha	Households	Percent	Hectares land (Ha)	Percent	Hectares per HH (Ha/HH)
0.01 - 0.50	713,441	14	178,360	2	0.25
0.50 - 1.00	1,035,677	20	787,115	8	0.76
1.01- 1.26	494,978	10	623,673	6	1.26
1.26 – 1.50	494,978	10	623,673	6	1.26
1.51- 2.00	640,058	12	1,126,502	12	1.76
2.01 -2.50	779,749	15	1,754,435	19	2.25
2.51- 3.00	257,639	5	711,084	7	2.76
3.01- 4.00	351,613	7	850,454	9	2.42
4.00 – 5.00	368,581	7	1,566,469	16	4.25
Above 5.00	15,000	-	1,500,000	15	100
TOTAL	5,151,714	100	9,721,765	100	1.89

Source: National Sample Census of Agriculture 2007/08

Note: Households in size class 1.01-1.50 divided in half to make two classes in this table; number of households over 5 hectares estimated (error in reported number); hectares land estimated by taking the mid-point in the range and multiplying by the number of farmers.

The small commercial farmers are large in number, close to 3 million families, and 56 percent of rural farming households. Their attitudinal, risk bearing, and investment characteristics are quite different to those with smaller holdings less than 1.26 hectares. At the lower end, these small commercial farmers have sufficient land and agriculture production to lift them above the poverty line. At the lower end, they sell 30 percent of what they produce and on average the small commercial farmers sell three-quarters

of what they produce. They are not poor and they look for opportunities to increase their farm income. The small commercial farmer differs from those with less land in being more focused on farming, requiring far more credit - for larger quantities of fertilizer and even farm machinery - they can take some risk, and they are very much profit oriented. Most are probably cautious about trying untested ideas. Of course, some among them are leaders and some followers.

An important feature is that they spend half of incremental income on the rural non-farm sector - for example, improving their house, local furniture, some local clothing, a wide range of services, retail stores, and transport¹³. It is that expenditure on labor intensive goods and services for which the market is entirely local (called non-tradable) that increases employment, the incomes of the rural non-farm families, and the basis for increasing calorie consumption and food security of the poor in the rural area.

ii) Large Commercial Farmers

The large commercial farmers, defined as those with over 5 hectares produce about 15 percent of total output. Some of these farmers are small commercial farmers, but the bulk of the land is in large holdings. They had little impact on poverty reduction. That is because they are more urban oriented, often living in cities and their expenditure patterns are more towards capital-intensive and import intensive goods and service and less towards the rural produced non-tradable. In general, they can provide much of the support services required for productive agriculture, in contrast to the small commercial farmer who requires substantial support from government institutional structures in order to grow and prosper. When that support for the small commercial farmer is lacking, as in contemporary Tanzania, then the growth will be concentrated with the large scale farms.

iii) Rural Non-Farm Population

Those with less than 1.26 hectares cannot reach the poverty line on agricultural production alone, more so as the size of holdings declines to half, and one quarter and less hectares of land. They produce only 16 percent of agricultural output, even though they represent 44%, nearly half of all rural farming households. In agriculture, they are subsistence farmers, producing less than they consume. They are focused on off-farm employment (including on-farm labor for small commercial farmers) and less on increasing farm production (on their own land). Much of their employment comes from labor intensive, non-tradable activities for which the market comes from expenditures by the small commercial farmer. The focus on rural non-farm activities

¹³ There is a large literature corroborating these expenditures and quantifying them. For a recent paper reviewing that expenditure and providing a wide range of references, see Dorosh and Mellor 2012

leads to calling them rural non-farm families even though many of them do farm for a portion of their income.

Farming improvements can contribute to some increase in income especially for those with half to one and a quarter hectares of land but it requires a far more intensive extension effort with a somewhat different package than for the small commercial farmer. They have less capital to invest and less capacity to take risk compared to the small commercial farmers. Their contribution to the six percent growth rate is small.

4.2.1.6 Government Expenditure on Agriculture

There are only two consequential numbers in CAADP - the six percent growth rate and the ten percent of government expenditure on agriculture. These are both key numbers in the Governments thinking about agricultural growth. On the latter, there is an implied categorization of expenditure items - those with direct impact on agricultural growth, not those that are as much for other purposes as agriculture. By that accounting, Tanzania allocates about three percent of government expenditure on agriculture. The CAADP target was very carefully thought out in principle and in quantity. Meeting that target is a show of commitment¹⁴.

In principle the ten percent target is based on the assumption that farming is a private sector activity, but of relatively small firms (farms) that cannot provide many critical services, particularly research and extension themselves and thus must rely on the Government. Of course, the private sector provides many services, but the critical core for technological advance comes from the Government sector. The focus on an aggregate national target (the six percent) of agriculture growth rate, spread over large areas, and the large numbers involved (three million small commercial farmers) requires that Government provides a few key services and monitor the coverage by the private sector. Agriculture is the epitome of private public partnership - the small commercial farmer is private, the Government provides a few critical services, and especially in the early stages of modernization of agriculture monitors and from that assists or supplements the private sectors servicing in agriculture. The heavy burden on the Government to provide essential services means that it must constantly avoid taking on activities that will be efficiently and competitively provided by the private sector.

4.2.2 Key Priorities

The following sections state a small number of priorities for intensive attention, financing, and institutional development. The first set of priorities is to the science and

¹⁴ For example, Ethiopia has consistently met the CAADP target, at times exceeding it to 15 percent. Rwanda has traditionally been well under but has recently exceeded the target.

technology system including research and extension and the second is to achieving a fast build-up in the base of fertilizer use by the small commercial farmer and then rapid growth from that base. An integral part of the fertilizer priority is massive expansion of the improved seed production capability - but fertilizer alone will have to carry the growth rate for the first few years as the seed capacity is built. These three priorities will define achievement of the six percent growth rate in the next five years and will remain important throughout. However, as fertilizer use moves up to the level of more advanced countries, a set of further priorities will be required and the base must be developed immediately for their rapid growth and large impact. These are irrigation, finance, mechanization, and marketing.¹⁵

4.2.2.1 The Role of Science and Technology and Consequent Priority

Rapid agricultural growth is based on application of a steady stream of new science based innovations. It is a constant process, not a once and for all shot. Because agriculture faces a fixed land constraint, rapid agricultural growth comes largely from increased yields¹⁶. At a slow growth rate, farmers themselves come up with a steady flow of small innovations, but to have the rapid six percent growth rate, systematic analysis based on scientific principles and institutional structures are required on a large scale.

Because of the overriding importance of science and technology in achieving the six percent agricultural growth rate the first priority is to the research and extension system. They are taken up separately below but they must operate as a completely integrated unit and so the most important institutional issue is how that integration should be brought about.

(i) Research

The research system in Tanzania is grossly underfunded. A good rule of thumb is 3 percent of agricultural production. A low target of one percent calls for a tripling of the research budget.

Agriculture is based on highly diverse land resources to which biological innovation must be adapted. That is particularly true of Tanzania – a very diverse set of agricultural conditions represented by seven agro-ecological zones. The potential for transfer across large areas is very limited. Thus, the extent of pulling of research results from elsewhere depends on the size of the national and regional systems. The

¹⁵ This document is deficient in many details for lack of necessary statistical information. Some of that deficiency will be pointed out in the following text. However, as pursuit of the priorities proceeds, the effort must be accompanied by systematic development of facts on each element of the effort. That requires large expansion of the statistics gathering functions.

¹⁶ See the special issue of Food Policy, June 2014 on this point.

national and the international are complements not substitutes for each other. The national researchers will see the innovations from outside and the outsiders, e.g. the CGIAR will inevitably put in more effort where there are national researchers to work with in adaptation and application and even basic science.

Tanzania needs a larger than average size research system because of the diversity of its physical conditions and the potential for a wide range of commodities. Research will tend to be somewhat specialized and limited in breadth so strong research leads to some reduction in the range of commodities produced but Tanzania will still produce a wider than average range of commodities. That will be particularly true as the horticultural sector rises.

A wide range of conditions for agriculture calls for a system of a central station and a set of field stations. Tanzania now has 16 public Agricultural Research Institutes and several autonomous and private institutions. They cover geographic diversity in production conditions and regionally specialized crops. As the system expands, the need for additional sub-stations will require regular attention.

There are two salient criticisms of the current research system. First, that it is insufficiently integrated with the farmer stakeholders. That is best solved by full integration of research and extension, which is discussed below. The second is that the researchers and research systems are ineffective for reasons other than lack of financial support. That can only be diagnosed and solved when the support budgets are adequate. They are now completely inadequate.

(ii) **Extension**

Science adapted to the needs of farmers requires institutionalized means of bringing farmer problems to the attention of researchers and testing of research results under farm conditions. That inevitably calls for an extension system that not only carries research results to farmers but farmer problems back to research.

The extension system in Tanzania is in a state of flux, with decentralization not yet fully worked out, and interaction with research still inadequate including the administrative and institutional structures to facilitate that. Tanzania also is experimenting with various approaches to farmer training. There may be economies in that effort. It needs to be analyzed with emphasis on demonstrations on farmers' fields, the organizational structure to bring farmers to those demonstrations, and integration with the extension agents and with researchers.

Because of geographic diversity and the need for organized farmer input, most successful countries decentralize extension down to the lowest administrative unit. At present the concept is to place the extension agents at the village level. There are on the order of 15,000 villages. One extension agent per village would call for nearly doubling the current number of extension agents. Given the desirability of

specialization among extension agents – crops, livestock, soil management and fertility etc., it might be sensible to group four or five extension agents together for extension and administrative purposes and have them cover a set of four or five villages, most probably at ward level. That would still be a small enough unit to allow visits by walking or cycling to farms reducing the cost of transport. The complex process of working out the appropriate institutional structure requires immediate and intensive analysis and action.

The objective of decentralization is to get the agents into close interaction with farmers - as pointed out above that is with the small commercial farmer. It is likely that in the initial stages of decentralization, it is to a political unit that may not be strongly based on the small commercial farmer. Therefore, attention must be given to the issue of how to organize farmers so they can be the dominant stakeholders in the extension system.

The discussion above suggests that the optimal solution to extension institutionalization will call for increased expenditure on the system.

4.2.2.2 Fertilizer Use by the Small Commercial Farmers

The current level of inorganic fertilizer use, at 200,000 tons is a solid base for accelerating growth. A 15 percent rate of increase at a reasonable ten to one ratio of cereal equivalent output to fertilizer input would add 300,000 tons of cereal equivalent production per year. In a context of 60 percent of production growth from yield increase and 40 percent from area expansion - a reasonable division for Tanzania that would account for 70 percent of the yield growth needed to reach the six percent growth target. That share of growth would increase with increasing the size of the base in the next several years. It is the rate of growth in inorganic fertilizer use that will provide the bulk of the six percent growth rate and is the monitor of the extent to which that growth rate is being achieved.

Not too long ago, the environmental movement leadership was concerned that high rates of fertilizer use were bad for the environment. The production increase can no longer come largely by expanding the farmed area into biologically fragile areas. Growth must come from yield increase and that requires raising the nutrient level of soils and replacing nutrients that are extracted. Inorganic fertilizer and organics are complements and so increase in the one increases the returns and hence the input of the other.

Having said this, it is important to recognize that farmers and the larger society both benefit when inorganic fertilizer is used in an environmentally sound manner. That requires a major emphasis on increasing the productivity and use of organic matter. Organic matter is a complement to inorganic fertilizers that increases their productivity and reduces the amount needed for a given level of output. There also

needs to be intensive extension efforts aimed at the timing and placement of fertilizer. A large extension push on fertilizer needs to have a large component dealing with effective use of fertilizer.

Three warnings are in order as the fertilizer growth is prioritized:

- (1) First, the impact from fertilizer is not a return to fertilizer alone. The supply of seed of improved varieties, hybrid for maize and open pollinated for most crops must be increased rapidly. Perhaps for a year or two, the growth in fertilizer use and impact can come with existing varieties, which are mostly at least somewhat improved varieties, but soon it will be necessary for large scale increase in improved seed. From the beginning, rapid uptake requires a vigorous program of extension pressure, touching the bulk of the three million small commercial farmers. In only a few years, credit will be a major constraining impediment to continuous rapid growth in fertilizer use.
- (2) Second is that the key target is the small commercial farmer and perhaps the base of use amongst them is very small. Assuming one million hectares of land in the large commercial farms and that they use 0.2 tons per hectare, all the fertilizer would be used in those farms. Approached from the small commercial farmer side, apparently only five percent of the area in small commercial farmer is receiving fertilizer. At 0.2 tons per hectare that would take only 65,000 tons. Perhaps, they are only using half that level per hectare. If that is the base, their needs to be a big push to get started on fertilizer. Perhaps, a target of annual additions to use of 50,000 tons to the small commercial farmers. At 0.2 tons per hectare and an average size of fertilizer responsive crops of two hectares that requires reaching 250,000 hectares, or 125,000 farmers each year. This is of course notional, perhaps they would start with only 0.1 tons per hectare and so 250,000 farmers have to be reached each year. That of course must be cumulative, year after year. Any way of looking at it this is an immense task for which there is no substitute for reaching the six percent growth target.
- (3) Third, the preceding analysis raises question how able is the existing distribution system to reach these large numbers of small commercial farmers. A priority is to analyze the role and working of the private distributors to find out why they are not selling more fertilizer to small commercial farmers when it is clear that fertilizer is profitable to those farmers. Perhaps from that point of view, there needs to be an initial regional and commodity focus - assured rainfall and emphasis on maize. These are all difficult questions that call for a pragmatic approach based on gathering of facts.

Three major steps are necessary to meet a target of an additional 50,000 tons of fertilizer per year.

- (a) To immediately form within the MAFC a fertilizer (or fertilizer and seed) growth unit with a modest staff, perhaps half a dozen professionals and strong leadership to develop a statistical base by geographic area and commodity, and monitor all aspects of the fertilizer chain from imports, to wholesale distribution, to the adequacy of retail outlets and all aspects of farmer use and the extension service and the out-grower schemes and from that to diagnose immediate actions and pragmatically determined follow-up needed to achieve the growth target. This unit would work out the details of the program to achieve the fertilizer growth target, monitor it and act pragmatically to respond to new knowledge.
- (b) To perform an immediate analysis of the distribution network for inorganic fertilizer. Presumably, this is primarily the private sector. Are there dealers in all the market towns of at least the maize producing areas and all the moderately high rainfall areas? If not, ascertain immediately how to rectify the problem. Are the manufacturers or wholesale distributors mounting demonstrations? If not, why not? What can be done to improve the distribution system? Likewise for hybrid maize seed in maize areas and open pollinated seed in non-maize areas.
- (c) To organize the extension system to focus on fertilizer use, including a massive number of demonstrations.

4.2.2.3 A Set of Further Priorities

A set of further priorities below will be required as gradually achieving improved research and extension, and enhanced use of improved seed and fertilizer.

(i) Irrigation

At only 450,000 hectares, or nearly five percent of the agricultural area, the base of irrigation is yet 1.25 million hectares within a several year period. At present, the institutional base for analyzing the details of irrigation expansion, for example, the weight of small scale compared to large scale schemes, and the institutional system of managing large scale projects and providing credit, complementary inputs and knowledge for small scale schemes is quite deficient. Thus, it may be difficult to reach the short term target in time. However, reaching the fertilizer target over the next five to ten years will make it difficult to maintain that growth rate and its large share in output growth. At the outset, acceleration of the irrigation growth rate will be helpful to meeting the other input targets. In the not distant future, irrigation will become the dominant factor in constituting the high growth rate.

Four measures are necessary to be taken;

- (a) There is already an institutional structure for expanding the irrigation system in size and composition. That needs to be re-examined in the context of the overall expansion of the agriculture related Ministries and the growing and soon

dominant role of irrigation in the growth rate. Particular attention must be given to the institutional structure for growth in watershed management and other small and medium scale irrigation investments.

- (b) In that context, continue and monitor the several efforts such as Big Results Now that have a major irrigation component. They contribute substantially to reaching the targets and have important lessons to teach about how to proceed.
- (c) Greatly increase analysis of the various types of irrigation and planning of the relative expansion targets. It is likely that small scale irrigation schemes and watershed-size schemes will be of considerable importance. Each requires somewhat different approaches to planning and implementation.
- (d) Ensure that development of the agricultural finance system is ready to accommodate large scale lending to farmers for intensifying production with irrigation and for financing small and medium scale projects.

(ii) **Finance**

The small commercial farmer, the backbone for achieving the six percent growth target, is completely lacking in access to agriculture finance.

The large commercial farmers have access to commercial banks. All studies of agricultural finance show that ease of access to agricultural finance is the number one requirement of small commercial farmers. That in effect requires a very large number of branches - in Tanzanian terms that probably means a branch for each half dozen villages. That is more than 2000 branches. At one for a dozen villages, a bit too large an areas, it is over 1000 branches. Commercial banks are reluctant to open such a massive number of branches.

Micro credit institutions have been successful at operating the large number of branches required, however, their loans are small compared to the needs of small commercial farmers. They may lend to the lower size limit of the small commercial farmers e.g. farms of one to one and half hectares, but rarely larger than that. More importantly, the means of ensuring high repayment rates, intimate organization of small numbers of relatively homogenous participants, tied to savings of a size comparable to the loans and group guarantees work less well with the small commercial farmers and the much larger size loans. There should be reluctance to convert micro credit institutions into lending to the larger small commercial farmers since that will lead them away from their present task of lending to the poor.

Tanzania is committed at present to introducing the Tanzania Agricultural Development Bank. Such a bank is normally oriented towards the small commercial farmer, thereby solving the problem of their present lack of coverage. However, establishing such a bank at the scale and geographic coverage necessary will be difficult.

Almost all high income countries have such a bank and the experience is universally good. Repayment rates are high and loan losses low. In contemporary Asian countries the experience has-been mixed. They have been subject to some abuse by political systems that have reduced discipline on repayment. More importantly, they have expanded very rapidly with consequently loose supervising of loans. There is a great deal to learn from these perspectives¹⁷. Tanzania needs a commission to asses this information as it presses ahead. In that context, it could examine the potential for collaboration with commercial banks.

However, several points are clear from the existing record.

- (a) Branches must be numerous to be convenient.
- (b) Branches must have a loan officer who understands not only accounting and lending procedures but technical agriculture as well to ensure that profitable loans are made. When agricultural development banks are expanding, they are a dominant employer of graduates of agricultural higher education. This helps solve the problem of educated unemployed.
- (c) The record for repayment of profitable loans is very high. The volume of deposits to be mobilized in rural areas is very high and that activity increases the volume needed to make a branch profitable.

As a final note, from the current base of fertilizer use, the small commercial farmer can sustain several years of six percent growth in agricultural output without a major source of agricultural finance. Thus, there is time to set up the system properly and to expand at a rate that maintains discipline in the system including collateral issues that are related to land title, Customary Certificate of Right of Occupancy, and movable collaterals.

(iii) **Mechanization**

At present 63 percent to the land is cultivated by hoe agriculture - most of the rest is cultivated by animal power. No more than five percent of the small commercial farms use tractors. As the years of six percent growth accumulate, labor bottlenecks will become increasingly important. That is particularly true in the context of hoe based agriculture. Concerns with poverty reduction focus on the labor saving and employment reducing aspect of mechanization. But increased timeliness of operation will become more important as sensitive high yielding varieties are adopted and high levels of nutrients taken up. In that context, breaking a labor bottleneck to greater timeliness may increase employment at other seasons of the year.

Mechanization is complex in terms of what operations to mechanize and how the mechanization is to occur. Although research needs to be done in this area, the

¹⁷ For example, see Desai and Mellor 1993 for a review of several hundred research reports on these systems.

capacity is yet low. Particularly in such circumstances, it is best to leave it to well operating markets to determine the extent and the pattern of mechanization.

If well operating markets are to rule, then, the constraints to expansion of mechanization at all levels need to be removed. The most substantial constraint is of course large scale finance to small commercial farmers. There are some arguments for large scale rental companies providing mechanization. But it may be that the larger of the small commercial farmers will most efficiently provide mechanization for neighbors, buying machinery, using it on their own farm and then doing custom work for neighboring farmers. For that to occur, there must be a financing institution readily available to make large loans. Thus, the first requisite of optimal mechanization is an agricultural development bank with broad lending power and of course discipline on repayment.

At present, the institutional systems of research and extension are small relative to the long term need. Researches on the optimal mechanization schemes for the small commercial farmer are needed and complementary systems of extension education. Farm machinery suppliers would be an efficient part of that system and should be taken into account by the research system.

Government department must monitor the mechanization situation of the small commercial farmer with good data sets. The research system needs to expand research in this area and integrate it with extension. The agricultural development bank needs to monitor the situation geographically and prepare to make substantial loans where mechanization of the small commercial farmer is beginning to take off. The farm machinery importers and producers need to diagnose the geographic areas where the small commercial farmer is ready to mechanize.

(iv) **Agro-Processing and Improved Access to Markets**

In the short run, the critical problem with respect to value added industries is the poor physical infrastructure, particularly roads, but also electricity.

At present the dominant commodities for marketing are cereals. They are non-perishable and normally the private traders are competitive. However, when roads are poor there tends to be only one trader with high costs due to the poor road and no competition leading to even higher margins. Thus, the most important priority for improved marketing is the rural road expenditure. IFPRI studies are clear that it is all weather roads that make the big difference.

Competition can also be increased by market centers that bring together traders in a competitive context. That involves expenditure on physical facilities, being sure to involve traders in the planning of location and the physical facilities. Such centers often go wrong because of inappropriate choice of location.

In the longer run, there are major opportunities for adding value to agricultural production, important in itself, and also increasing the incentives for agricultural production by better prices. The institutional support services take time and thought to be provided and so the effort needs to start now. Most of these activities will be provided by private sector firms - diagnosing opportunities, making investments, managing. Shift to high value perishables with export potential requires new marketing channels and technical assistance to the private sector.

Following four measures are necessary to be taken;

- (a) First, a yearly target that will bring the bulk of villages onto all-weather roads in a ten year period. Inadequate expenditure on roads is not only neglecting farmers, but the constantly growing, dominant rural population for social services, medical clinics and education.
- (b) Second, for the value added areas, there needs to be large scale finance available.
- (c) Third, the private sector will move more rapidly if substantial investments are made on research to diagnose what value added activities are coming up, diagnosing how to meet them, and publicizing the results.
- (d) Fourth, analysis of the needs and potentials and timeframe for bringing rural electrification to at least all the high productivity, high population density villages.

Throughout, it is critical that government agencies concentrate on increasing competition, research and analysis, and infrastructure investment. If all that is done well the private sector will become competitive, perform, and expand.

(v) BIG RESULTS NOW (BRN) and Southern Agricultural Growth Corridor of Tanzania (SAGCOT)

The Government has a special program titled Big Results Now(BRN). It is a large effort designed to have aggregate impact. The following points place it in the larger perspective.

- (a) Increased Public Support for Agricultural Growth:
Success for BRN will have high visibility and will help convince the majority of the country who are basically farmers that agriculture can grow radically and that the small commercial farmer can play a significant role in that process.
- (b) BRN, although largely is still a pilot project, can play an important role in testing on a substantial-scale some critical areas discussed above as priorities, particularly with respect to extension methods (out-growers) and irrigation.
- (c) It would be useful to calculate the impact that success would have on achieving the six percent growth rate. The increase in output, year by year, would represent what percent of the incremental six percent targeted overall. It is of

course not a substitute to the broad based approach through the small commercial farmers.

- (d) SAGCOT: There is complementarity between BRN and SAGCOT in terms of approach (public-private-partnership), value chain and geographical prioritization. Both initiatives have plans for scaling up and replication based on the successes from the initial (pilot) interventions.

CHAPTER FIVE

5.0 MONITORING AND EVALUATION

There will be a need to emphasize that the primary objective of any M&E system is to enable the beneficiaries, starting with private sector operators (farmers, processors, and traders) and the administration of LGAs appreciate the progress made in realizing agreed development goals. This means stakeholders, in practical headed by ASLMs, shall have to work closely, prepare reports indicating the progress made and agreed remedial measures where implementation is slow, and share such information widely among the sector stakeholders. The M&E of the sector-wide programmes (ASDP II) will employ and strengthen the existing systems used to monitor and evaluate sector performance.

The first section of the treatment of monitoring and evaluation deals with the small set of growth priorities. These are the keys to reaching and maintaining the six percent growth rate and are monitored and equated in terms of their reaching targets that in turn reach that growth rate. The second section deals with the full set of activities defined by the seven strategic areas. The priorities in the first section comprise a sub-set of the seven strategic areas and reflect priority to a small sub-set of the components of the strategic areas. These strategic areas include detailed components among which short term priorities will have to be set as to their sequencing.

5.1 Monitoring and Evaluation of the Growth Priorities

The overarching objective of the growth priorities is the six percent growth rate. That is the same growth rate stated by CAADP. In CAADP, the target for the Government is ten percent of government expenditures to be allocated to the agricultural sector. Following the overarching priorities are a whole set priorities for inputs, institutions and output. They are all treated in Chapter Four. The following treats the measurement of success (or failure) and the diagnosing of improvements.

5.1.1 Six Percent Rate of Growth of Agricultural Output

Monitoring the six percent growth rate is conceptually straight forward. The National Bureau of Statistics calculates the agricultural GDP from various data including the

level of production. The data must be analyzed and interpreted using both linear regressions to obtain trends and the Sen Method that at least in part helps manage weather fluctuations. The underlying problem is that annual weather fluctuations are large compared to the difference in growth rates to be detected. With care in analysis and well informed judgments, the production growth for the preceding year should give a rough idea of the progress and certainly the trends for five years and to some extent even for three years will be reasonably representative. Thus, data are required annually. Analysis must be done by commodity or groups of commodities and judgments made as to the extent to which targets are reached. That provides the basis for evaluating correctives.

5.1.2 Ten Percent of Government Expenditure on Agriculture

Monitoring the annual increase of the agriculture expenditures by the government is straight forward. The African Union's definitions of agricultural expenditure should be used for these estimates. Evaluation should provide judgments as to the effectiveness of the expansion of the various activities receiving the increments, with judgments as to deficiencies, including those of leadership and effective action taken.

Presumably, the Ministry of Finance will monitor this objective with due attention to the speed with which absorptive capacity is developed. However, slowness in reaching this objective will be the most important cause of missing on the growth target. Certainly, the doubling of the government outlay share from the current base should be achieved in five years or less¹⁸. The basic structures for absorbing that are largely there. It is important to note that until that target is reached one cannot expect to achieve the six percent growth rate.

5.1.3 Targeted Expansion of the Agricultural Research System

The targeted rate of growth is simply monitored by expenditure on research. The problem here as in the overall expenditure is the speed with which absorptive capacity is increased. Initially, a large increase can be managed given the tremendous rehabilitation of research stations and equipment that is needed. As for the overall agriculture budget, the funding should expand by 25 percent per year with evaluation of the effectiveness of the expenditure with remedial action to increase effectiveness.

¹⁸ A moderate and realistic expenditure increase of 12 percent per year will triple it in ten years.

The measure of output should be the pace of adoption of new technology. That will be an on-farm measure from sample surveys of farmer adoption.

5.1.4 Targeted Expansion of the Agricultural Extension and Farmer Training Systems

The decision has to be made about the mix of extension agents and farmer training programs and the relation between them. Once that decision is made, the first monitoring should be on those numbers. The previous chapter recommended in effect a doubling of the number of extension agents - a 15 percent growth rate. That could occur over a five year period and, monitored as such. If that number is reduced in favor of farmer training, the substitution effect needs to be measured and monitored for effectiveness.

The impact on farmer up-take of innovations determined from sample surveys as above is the ultimate objective. However, intermediate objectives should be demonstration numbers and descriptions of the process from experiment station down to large scale demonstrations. Targets need to be set for demonstrations.

5.1.5 Growth Rate of Fertilizer Use

Monitoring fertilizer growth rate is important not only for evaluating progress on that priority and diagnosing needs for change, but it is also the most important single indicator of the growth rate of output – whether or not the six percent target is met. Increased fertilizer use will account for some 75 percent of the yield growth.

The small unit in the MAFC specified for fertilizer (or fertilizer/seed) must analyze imports, stocks and from that annual utilization. Given the substantial number of different fertilizers used in Tanzania, the measure should be in nutrient terms, not amount of fertilizer that analysis must be monitored against the target figure - set initially at 50,000 tons per year. Any shortfall needs to be evaluated in terms of estimates of the geographic and commodity utilization and from that diagnosis of actions including government actions. The analysis by this unit should utilize appropriate data from the National Bureau of Statistics, the Tanzania Revenue Authority, and the expanded Economic Analysis unit in the Research System,

Those data will facilitate evaluation of the progress and provide the basis for finding lagging areas and crops and from those recommendations for dealing with shortfalls in meeting the growth target.

Part of the monitoring of fertilizer should be by critical complements to fertilizer, particularly improved seed. The output from seed companies should be monitored with division into hybrid and open pollinated. The latter will be more difficult to monitor because of the large number of small efforts. The extension system can be mobilized to help in this monitoring.

5.1.6 Growth Rate of Irrigation

Irrigated area, by type and region, must be included in the national sample survey. The data will show yield by irrigated and not irrigated as well as the irrigated area by region and crop. From those data will come not only the extent to which targets are reached, but also the composition of irrigated area and its impact on yields. However, in the next five years, the most important monitoring will be of the institutional development for which analysis will be required of what types of expansion are occurring and what are the bottlenecks constraining each type of system with ameliorative actions recommended. The rapid growth in irrigated area will come later.

5.1.7 Mechanization

The annual sample survey should also get information on plots analyzed as to the type of mechanization if any carried out. Initially that will be so small as to be unreliable given sample size, but as mechanization increases the basis for evaluation will be available.

5.1.8 Big Results Now

BRN has its own monitoring and evaluation processes that should be integrated into the overall picture.

5.1.9 A Cautionary Note on Monitoring

The monitoring stated here is sensible and modest in total requirements. Nevertheless in a context of scarce institutional and personnel capacity, there may be conflict between capacity to carry out the priority tasks and the monitoring. That should of course be resolved in favor of the directly productive priority activities. The real purpose of monitoring and evaluation is to adapt to changing conditions.

5.2 Monitoring and Evaluation of the Seven Strategic Areas

The results framework in Annex 1 outlines the activities and outcomes that are expected under each of the seven strategic objectives (SOs) during the implementation of ASDP II. It includes some milestone indicators, which can be used to monitor progress towards each of the objectives. These indicators will be embedded in the M&E systems. The scope of the ASDP II M&E frameworks will be expanded to accommodate other stakeholders (linked Ministries/institutions, private sector, non-state actors, civil societies) to become a sector-wide M&E system which tracks performance of entire agriculture sector that is the aggregated results of various efforts from various stakeholders in the sector.

5.2.1 Major instruments of monitoring and evaluation

The ASLMs will closely collaborate with NBS to improve the Agricultural Statics under the Agricultural Statistics Strategic Plan within the framework of the Tanzania Statistical Master Plan. Major instruments for monitoring and evaluation include the followings:

5.2.1.1 National Sample Census of Agriculture

Basic data for designing, monitoring and evaluation of agricultural development policies and programmes including production data is collected every five years by NBS and ASLMs. This will continue to be most important agricultural statistics. The data produced is at regional level.

5.2.1.2 Annual Agricultural Sample Survey

Introduction of this Annual Agricultural Sample Survey (AASS) is underway. Annual data on major crop area, yield and livestock inventory for monitoring food security and results of agricultural development programmes are expected to be collected. The annual data collected through this survey will be an important monitoring of ASDS II achievement. The critical indicators described in the above sections need to be incorporated in the framework of the AASS. The data produced will be at regional level.

5.2.1.3 Routine Data Collections

Routine data collections such as the Agricultural Routine Data System (ARDS), surveys for Crop Forecast and Early Warning, Animal Disease surveys are also important part of sector monitoring. Since these data are at district and ward level, correlation between the above statistical surveys and these routine data are to be examined to enhance the utilization of each other. These routine data collections will be improved within the entire framework of Agricultural Statistics.

5.2.1.4 Joint Sector Review

The sector has been conducted the Agricultural Sector Review and Public Expenditure Review under ASDP. This will be improved as Joint Sector Review promoted by CAADP. The review will cover the progress of entire sector performance under ASDS II. Some data will be obtained for the review from the above mentioned statistical surveys and routine data collections. The Joint Sector Review will also serve as a forum for policy dialogue among the wide range of sector stakeholders.

CHAPTER SIX

6.0 COST ESTIMATES

6.1 Cost Estimates for Priorities

Table 6.1 shows the base expenditure by the Government on agriculture during the ten years under ASDS II. An annual increase of 15 percent per in the expenditure is expected for the first five years, which doubles the expenditure, and then followed by 12 percent increase per year thereafter which leads to 3.5 times of the size of expenditure by the end the ten years. The expenditure in the sector is expected to increase from TZS 247 billion in the original year to TZS 878 billion at the end of ten year period of ASDS II.

The spending on the research system is also shown in Table 6.1 since it is one of the important growth driver in the ASDS II. It is expected to increase 20% annually for the first 5 years and then 12% for the rest of the period. Eventually, the share of research expenditure is expected to increase up to 15.5 percent.

Table 6.1. Cost Estimates - Government Expenditure on Agriculture
(Millions Tanzanian Schillings)

Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Gov'tAgEx,p										
Base	247,770	329,534	438,277	582,908	775,268	852,795	938,074	1,031,882	1,135,070	1,248,577
Increment	81,764	108,746	144,631	192,360	77,527	85,279	93,807	103,188	113,507	124,858
Total	329,534	438,280	582,908	775,268	852,795	938,074	1,031,882	1,135,070	1,248,577	1,373,435
Cumulative Increment	81,764	190,510	335,142	527,501	605,028	690,308	784,115	887,303	1,000,810	1,125,668
Research										
Exp Base	26,087	34,696	46,046	61,241	82,440	109,645	145,828	193,951	257,955	343,080
Increment	8,609	11,450	15,195	20,210	27,205	36,183	48,123	64,004	85,125	113,217
Total	34,696	46,146	61,241	81,451	109,645	145,828	193,951	257,955	343,080	456,297
Cumulative Increment	8,609	20,058	35,254	55,463	82,668	118,851	166,974	230,978	316,103	429,320

Source: ASLMs

Alternative

Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Gov't Ag Exp										
Exp Base(mTSh)	247,770	284,936	327,676	376,827	433,351	498,354	558,156	625,135	700,151	784,170
Increment(%)	15	15	15	15	15	12	12	12	12	12
Increment(mTSh)	37,166	42,740	49,151	56,524	65,003	59,802	66,979	75,016	84,018	94,100
Total(mTSh)	284,936	327,676	376,827	433,351	498,354	558,156	625,135	700,151	784,170	878,270
Cumulative Increment(mTSh)	37,166	79,906	129,057	185,581	250,584	310,386	377,365	452,381	536,400	630,500
Research										
Exp Base(mTSh)	26,087	30,000	34,500	39,675	45,626	52,470	58,767	65,819	73,717	82,563
Increment(%)	20	20	20	20	20	16	16	16	16	16
Increment(mTSh)	5,217	6,261	7,513	9,016	10,819	10,386	12,048	13,975	16,212	18,805
Total(mTSh)	31,304	37,565	45,078	54,094	64,913	75,299	87,347	101,322	117,534	136,339
Cumulative Increment(mTSh)	5,217	11,478	18,991	28,007	38,826	49,212	61,260	75,235	91,447	110,252
Share of Research(%)	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5

6.2 Sources of Funds

The financing of agricultural activities in Tanzania will continue to be through a variety of sources with the Government traditionally being the main source of funds, supplemented by Development Partners who have been supporting mostly the development budget of the sector.

In the ASDS II, there will be a mixture of funding through Basket Fund type financial support (non-ear-marked and ear-marked), Sector Budget Support, and stand-alone projects/program (on-budget and off-budget). The challenges for the Government is (i) to capture the entire picture of on- and off-budget supports from the stakeholders and (ii) to allocate the budget where needed (scarce support from the stakeholders) by fully utilizing its own source, (iii) to promote private investment (including contributions from farmers organizations) and create a better complementary with public investments (thus, reducing public spending), and (iv) to avoid overlap and congestion of supports in specific themes, commodities, and/or geographical areas through better coordination and consultation.

CHAPTER SEVEN

7.0 IMPLEMENTATION ARRANGEMENT

7.1 Institution Framework

The involvement of many Ministries requires Permanent Secretary and Cabinet level responsibility for the implementation of ASDS II. Toward the goals of the ASDS II, the Government (central, regional and local) will be coordinating its efforts with various stakeholders such as Development Partners, Non-state Actors, Researchers from academic society and international organizations like the CGIAR who extend their supports through different programmes, projects, researches, studies that are on- and off-budget, area-focused and non-area-focused, commodity-specific and non-commodity-specific, and so forth.

The specific roles of the public sector, private sector, communities and non-state actors could be broadly defined as follows:

- a) The public sector (ASLMs, PDB, other MDAs, Regional Administration and LGAs) will be responsible for creating an enabling environment for agricultural sector development, policy formulation, the legal and regulatory framework, and for managing public investments in infrastructure, facilities and services.
- b) The private sector will actively identify and provide feedback through established forums to public sector on factors that hinder effective participation in the rural economy. This should allow the private sector to effectively mobilize resources and invest in commercial activities and support services either individually or through PPPs.
- c) Communities will participate in planning, implementing and monitoring community activities supported by government and other actors.
- d) Non-state actors and civil society organizations will play a key role in poverty reduction by building local capacity and empowering communities to take responsibility for their own affairs. They will also participate in the sector dialogue from different angles of viewpoints.

7.1.1 Coordination of ASDS

- a) At the central level, the program will be coordinated and implemented by the ASLMs and other Ministries responsible for Natural Resources and Tourism, Land and Housing Infrastructure, Finance, Energy, Labour, Gender and Children Affairs, and Health and Social Affairs.
- b) At regional level, under the supervision of PMO-RALG, the Regional Secretariats will facilitate coordination between the sectoral Ministries and the LGAs. The Regional Secretariats will have four basic functions: (i) creating an enabling environment for LGAs to operate efficiently; (ii) assisting LGAs in capacity building; (iii) providing technical support to LGAs; and (iv) monitoring the performance of LGAs.
- c) At local level, LGAs have a critical role of undertaking all development initiatives through the DADPs. The DADP is a key instrument in agricultural and rural development employed by ASDP and will remain so under the ASDS II. The LGAs will be responsible for; (i) designing and implementing DADPs; (ii) promoting social and economic development; (iii) supervising the implementation according to laws and regulations relevant to the sector; (iv) supervising the delivery of extension services; (v) mobilizing resources for local development programmes; (vi) improving administration of villages for the purpose of stimulating sustained development; and (vii) improving land administration and land use planning for effective and sustainable land utilization.

7.1.2 Implementation Organs of ASDS

- a) Annual National Coordination Meeting will be held once a year by wider participation for the sector stakeholders. The meeting will be used to assess the agricultural sector's overall performance, including the key indicators of sector performance, and to identify policy and other constraints for immediate action. The National Coordination Meeting will also be used to set funding priorities for subsequent year's activities.
- b) The Inter-Ministerial Coordinating Committee (ICC) will include the Permanent Secretaries of the ASLMs and other related Ministries.
- c) The Technical Committee of Directors (TCD) will meet periodically as an advisory arm of the ICC. The TCD will comprise of Directors of ASLMs with responsibility for preparing annual work plans and budgets for all the public investments. The TCD will be chaired by the Director of Policy and Planning, MAFC, supported by the sectoral Programme Technical Working Groups (P-TWGs). The existing ASDP TWGs will be expanded to integrate the seven

strategic areas of ASDS II. The P-TWGs will draw members from the key institutions implementing the seven programme areas. The current TCD will be expanded for quarterly meeting to accommodate private sector and other non-state actors as well as representatives of other stakeholders.

- d) Development Partners' Agriculture Working Group (A-WG) of the Development Partners Group (DPG) will coordinate the allocation of donor resources for the implementation of ASDS. The various DPs are expected to continue using a range of aid modalities including general budget support, sectoral basket funding, earmarked funding, discrete projects, and off-budget activities. However, the projects and programmes that are funded through these modalities will all be aligned and integrated with the ASDS II. The development partners will also work towards a harmonized set of operational procedures, including joint design and review missions, reporting procedures, and sharing of information.

7.2 Roles of Actors

7.2.1 Planning Commission

The President's Office- Planning Commission (PO-PC) is mandated to oversee nationally coordinated medium and long term development plans and resource allocation as instruments to realizing the Tanzania Development Vision 2025 goals. It provides targets to be achieved by each sector based on the projected resource environment and desired sector transformations. The institution will have to continue reforming the way resources are allocated and provided to implementing agencies based on national priorities. This includes ensuring that the CAADP target of allocating at least 10 percent of the annual national budget to the agricultural sector and setting aside one percent of the national GDP to supporting research and development for the various sectors.

7.2.2 Agricultural Sector Lead Ministries (ASLMs)

The Agricultural Sector Lead Ministries (ASLMs) being the key ministries responsible for policy and strategy development will have to strengthen their coordinated actions with the country's administrative regions, which were more than 25 in 2012 after the creation of new regions, all of which are divided into districts as centres for a decentralized local government system linked to Ward Development

Councils and Village Assemblies, which in practice are responsible for the implementation of agricultural plans and policies. The ASLMs are coordinated by the Ministry of Agriculture Food Security and Cooperatives, which has a considerable influence in policy formation and commitment to overseeing reforms in the Agriculture Sector. ASLMs will also collaborate with other related Ministries responsible for land, water, energy, transport, natural resources and tourism.

7.2.3 Regional Secretariats

Regional Secretariats receive directives from PS PMO-RALG and pass them to LGAs. They give advice and provide monitoring and evaluation to all activities implemented by LGAs. Although the structure of the Regional Secretariat is well defined and the staff generally have a clear vision on what they are required to deliver, they are usually under-utilized by the LGAs due to lack of resources to deploy their advisory services.

7.2.4 Local Government Authorities

The LGAs are supposed to be epicenter of planning and implementation of agricultural development programmes. Local Government usually ensures rules, regulations and Acts prevailing in the districts are implemented accordingly. However, some of local government authorities usually suffer from a number of problems related mainly to (i) uncoordinated actions by ASLMs, development partners, private sector and civil society operating outside the ASDS planning framework, leading to accountability problems and disjointed results at the grass roots (ii) limited local sources of tax and non-tax revenue to finance development programmes (iii) delayed and inadequate deployment of funds from approved national budgets. These weaknesses are known and the need to be addressed.

7.2.5 Commodity Boards and Other Parastatals

Crop Boards of traditional crops are responsible for regulating the industry, advice the government on the policies, strategies and all other matters relating to the development of the industry, provide for licensing of persons engaged in the marketing and processing of products, assist directly or through financial support research and development and extension services, protect the interests of farmers against syndicate of buyers, regulate and control the quality of the product, collect, refine, maintain or disseminate information or data relating to the industry, represent

the government in all international matters. The need to empower stakeholders in the governance of Commodity Boards and Parastatals was listed in the ASDS 2001 and it is still stands valid to date. A new board to deal with Cereal and Other Produce Board has been created.

7.2.6 Civil Society, Farmer Organizations and Cooperatives

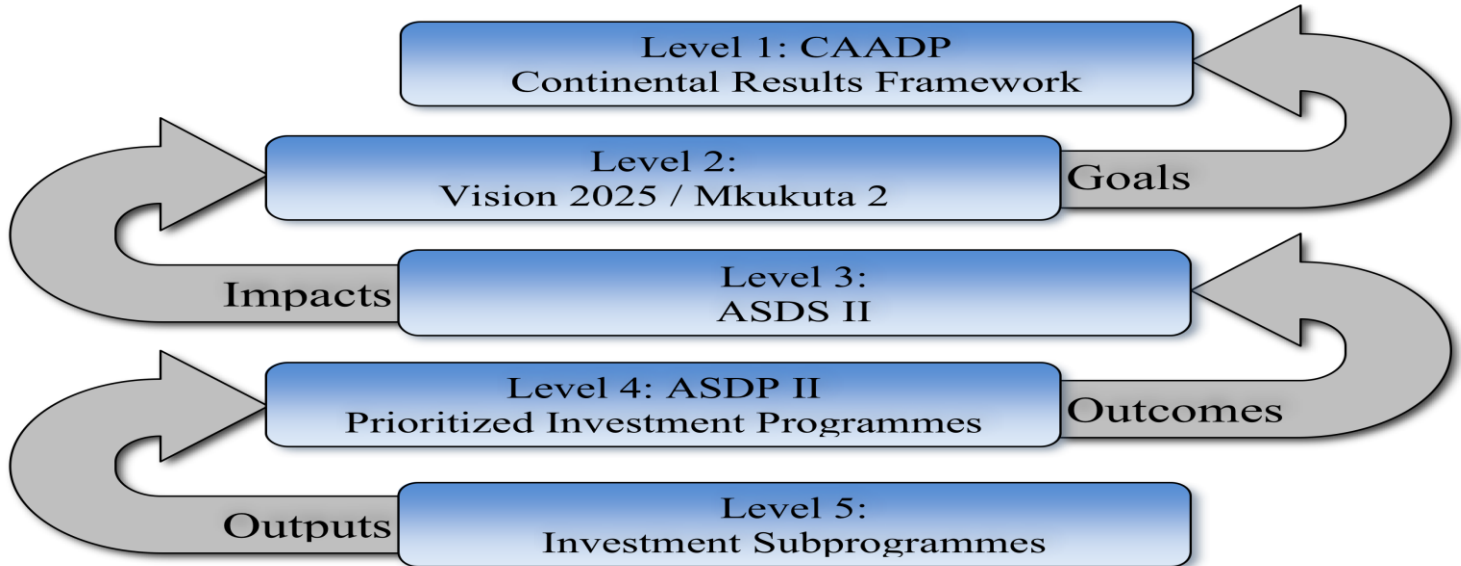
The Agricultural Council of Tanzania (ACT) and the National Network of Farmers Groups in Tanzania also known in Kiswahili as “Mtandao wa Vikundi vya Wakulima Tanzania” (MVIWATA) as well as the Non-State Actors Forum (ANSAF) are emerging as national bodies for advocacy in the agricultural sector. These bodies and other farmer institutions/organizations especially farmer cooperatives and farmers Savings and Credit Cooperatives Societies (SACCOS) require support for capacity-building to respond to the needs of their members and undertake advocacy and policy dialogue. New services are appearing through farmer associations, professional organizations, the private sector and rural microfinance institutions (MFIs). These organizations also need to be supported in the creation of networks at the district and national levels.

7.2.7 Development Partners

The contribution by Development Partners in modernizing and commercialization of the agricultural sector will still be needed in the foreseeable future.

Annex 1: Results Framework

ASDS II SUMMARY OF RESULTS FRAMEWORK ACCORDING TO MAJOR LEVELS



Goal: Contribute to Tanzania's national economic growth and poverty reduction (Vision 2025/LTPP) through contributing (by 2025/26):

- inclusive and sustainable agricultural growth (6% pa);
- reduced rural poverty (% of rural population below the poverty line from 33.3% in 2011/12 to 24% by 2025/26;
- enhanced food and nutrition security (e.g, % of rural HHs below food poverty line: 11.3% in 2011/2012 to 5 % by 2025/26.

Strategic Objectives:

- 1) Create enabling policy and institutional environment for enhancing modernized, commercial, competitive and value-added agriculture sector, driven by inclusive and strengthened private sector participation;
- 2) Achieve sustainable increases in production, productivity, profitability and competitive value chain development in the agricultural sector (crops, livestock, fisheries), driven by smallholders; and
- 3) Strengthen institutional performance and effective coordination of relevant public and private sector institutions in the agriculture sector at national and local levels, enabled by strengthened resilience.

Strategic Thematic Areas (STA) and Policy alignment	Key Results for ASDS-II			Policy and Institutional Considerations
	Strategic Objectives (SO)	Outcome that the ASDS-II is Expected to Influence	Milestone Indicators ¹ Showing Progress Towards Objectives	
SO-1: Expanded Sustainable Water and Land Use Management Aligned with: <ul style="list-style-type: none"> • CAADP Pillar I • Vision 2025 • MKUKUTA II • Kilimo Kwanza • ASDS Irrigation Policy and Strategy • Rural Development Policy and Strategy 	IR 1.1 Water use for irrigation, livestock and fishery made more efficient and inclusive	<ul style="list-style-type: none"> • Improved agricultural productivity • Sustainable and responsible natural resource management 	<ul style="list-style-type: none"> • Additional area under(improved) irrigation • Cropping intensity for irrigated crops (rice, horticulture) • Number of water-points for livestock • Number of fish ponds under aquaculture 	<ul style="list-style-type: none"> • Need to understand trade-offs between long term policy on natural resource base and productivity • Develop farming systems which are both more productive and more sustainable

Strategic Thematic Areas (STA) and Policy alignment	Key Results for ASDS-II			Policy and Institutional Considerations
	Strategic Objectives (SO)	Outcome that the ASDS-II is Expected to Influence	Milestone Indicators ¹ Showing Progress Towards Objectives	
<ul style="list-style-type: none"> Agriculture Policy Draft 				
	IR 1.2 Land use planning and watershed management improved	<ul style="list-style-type: none"> - Improved and sustainable resource management (land and water) for crops, livestock and fisheries - Improved and sustainable access of livestock to water and pasture/rangeland 	<ul style="list-style-type: none"> • % of land under land use plan • Ha of improved pasture/management • Measures of land degradation, deforestation, correct use of agro-chemicals, water use etc • % farmers adopted integrate soil management methods 	<ul style="list-style-type: none"> •
	IR1.3 Climate change mitigation and adaptation increased	<ul style="list-style-type: none"> • Strengthen the adoption of sustainable environmental practices, including effective adaptation to climate change. 	<ul style="list-style-type: none"> • % of farmers adopting climate adaptation methods (draught resistant • Diversification of integrated farming systems 	<ul style="list-style-type: none"> •
STA-2: Improved Agricultural Productivity and Profitability Aligned with: <ul style="list-style-type: none"> • CAADP Pillar I • Vision 2025 • LTPP 2012-2025 • MKUKUTA II • Kilimo Kwanza • TAFSIP 	IR2.1 Accelerated productivity rate of growth and commercial agriculture	<ul style="list-style-type: none"> • At least 6% per annum growth of agricultural sector output 	<ul style="list-style-type: none"> • Agricultural sector GDP growth rate (including rural GDP per capita) 	<ul style="list-style-type: none"> • Aligning central budget allocation to sector policy in order to reach stated outcomes • Need to stimulate private sector investments to achieve target growth rate
		<ul style="list-style-type: none"> • Improved agricultural productivity 	<ul style="list-style-type: none"> • Total Factor Productivity of the agricultural sector • Value of production per unit of land and labour • Average annual yields for priority crops • Total annual 	<ul style="list-style-type: none"> • Balance needed between investments in high versus low potential areas

Strategic Thematic Areas (STA) and Policy alignment	Key Results for ASDS-II			Policy and Institutional Considerations
	Strategic Objectives (SO)	Outcome that the ASDS-II is Expected to Influence	Milestone Indicators ¹ Showing Progress Towards Objectives	
<ul style="list-style-type: none"> • Sustainable Industrial Development Policy • Irrigation Policy and Strategy • Rural Development Policy and Strategy • Agriculture Policy Draft • Land Policy • Population Policy • Fisheries Policy and Strategy • Water Policy • PPP Policy • Forest Policy • EAC Ag and Rural Development Policy 		<ul style="list-style-type: none"> • Smallholder sub-sector catch up with commercial productivity levels • Increased investment in agriculture and agro-industrial enterprises • Increased value addition of agricultural products • Improved off-farm rural employment opportunities • Increased incomes through more efficient utilization of labour 	<ul style="list-style-type: none"> • Productivity of smallholder sub-sector relative to commercial • No of smallholders engaged in commercial farming • No of enterprises engaged in high value activities along value chain • Net value added attributable to the agricultural sector • No of people employed in off-farm rural enterprises • No of businesses and people employed in rural agro-industries (including biofuels) • Gross margin per labour day 	<ul style="list-style-type: none"> • Targeting smallholders to engage in commercial enterprise through incentives, training etc • Develop instruments to encourage private investment in commercial agriculture • Agribusiness investment policy – inclusive at higher end of value chain • Financial services, commodity agreements, contract farming needs review
		<ul style="list-style-type: none"> • Continuing growth of commercial agricultural sub-sector 	<ul style="list-style-type: none"> • Amount of production from commercial sub-sector 	<ul style="list-style-type: none"> • Encourage out-grower, block farming, and contract farming arrangements with smallholders
		<ul style="list-style-type: none"> • Research responsive to farmer needs 	<ul style="list-style-type: none"> • Farmers engaged in research prioritization and on-farm adaptive trials 	<ul style="list-style-type: none"> • Develop effective mechanisms for farmer engagement and knowledge sharing
	IR2.1 Agricultural research Improved	<ul style="list-style-type: none"> • Adoption of new technologies 		<ul style="list-style-type: none"> •

Strategic Thematic Areas (STA) and Policy alignment	Key Results for ASDS-II			Policy and Institutional Considerations
	Strategic Objectives (SO)	Outcome that the ASDS-II is Expected to Influence	Milestone Indicators ¹ Showing Progress Towards Objectives	
	IR2.2 Extension services improved	<ul style="list-style-type: none"> Increased access to new technologies from NARS and extension service 	<ul style="list-style-type: none"> % of farmers visited by extension workers % of farmers satisfied by extension service 	<ul style="list-style-type: none">
		<ul style="list-style-type: none"> More effective and affordable extension services 	<ul style="list-style-type: none"> Increased rates of technology adoption 	<ul style="list-style-type: none"> Restructuring of extension services based on alternative low-cost outreach methodologies
	IR2.3 Access to farm inputs increased	<ul style="list-style-type: none"> Increased use of farm inputs 	<ul style="list-style-type: none"> % of farmers using improved seed and fertilizer Area under improved technology 	<ul style="list-style-type: none">
		<ul style="list-style-type: none"> Artificial insemination and other livestock technologies 	<ul style="list-style-type: none"> % of livestock keepers accessing AI 	<ul style="list-style-type: none">
		<ul style="list-style-type: none"> Aquaculture and access to fingerlings 	<ul style="list-style-type: none"> % of fish farmers accessing fingerlings 	<ul style="list-style-type: none">
	IR3.4 Access to agricultural mechanization increased	<ul style="list-style-type: none"> Increased use of animal draft power and mechanized farm power 	<ul style="list-style-type: none"> % of crop area mechanized % farmers adopting mechanization 	<ul style="list-style-type: none">

Strategic Thematic Areas (STA) and Policy alignment	Key Results for ASDS-II			Policy and Institutional Considerations
	Strategic Objectives (SO)	Outcome that the ASDS-II is Expected to Influence	Milestone Indicators ¹ Showing Progress Towards Objectives	
<p>SO3 Strengthened, and Competitive Value Chain</p> <p>Aligned with:</p> <ul style="list-style-type: none"> • CAADP Pillar II • Trade Policy • Employment Policy • Empowerment Policy • Investment Promotion Policy • Micro Finance Policy • Rural Development Policy and Strategy • Information and Communication Technology Policy • SME Development Policy • Agricultural Marketing Policy and Strategy 	<p>IR3.1 Farmer's organizations empowered</p>	<ul style="list-style-type: none"> • Increased number of farmer's organization • Increased membership of farmers' organizations • Increased access to services through farmers organizations • Improved governance of farmers organizations (registered organizations, organizations with constitutions, women in leadership positions, democratic elections in the organization) 	<ul style="list-style-type: none"> • % of farmers enrolled in farmers' organization • % of farmers accessing services in their organizations • Volume and % of crops marketed through farmer organization • % Organizations improved in the governance index 	<ul style="list-style-type: none"> • Improved regulatory framework for efficient, effective and accountable farmer' organizations including cooperatives
	<p>IR3.2 Agribusiness and Value Promoted</p>	<ul style="list-style-type: none"> • Greater private sector participation in agricultural production and marketing 	<ul style="list-style-type: none"> • No of private stakeholders active in rural commercial enterprises • FDI flow to agricultural sector • Number and value of new investment 	<ul style="list-style-type: none"> • Enabling environment conducive to private investment • Financial services available to support private investment (Agricultural Bank)

Strategic Thematic Areas (STA) and Policy alignment	Key Results for ASDS-II			Policy and Institutional Considerations
	Strategic Objectives (SO)	Outcome that the ASDS-II is Expected to Influence	Milestone Indicators ¹ Showing Progress Towards Objectives	
			<ul style="list-style-type: none"> in agriculture • % of crops/livestock produce processed (value added) • Number of new jobs created in the agribusiness 	
	IR3.3 Access to markets and rural infrastructure improved	<ul style="list-style-type: none"> • Lower transport costs • Increased competitiveness of products in all level markets • Expanded rural market structures • Improved net forex balance • Increased profitability in the agricultural sector • Improved trade facilitation services and utilities • Increased farm-gate prices of agricultural commodities • Improved and expanded rural market infrastructure and storage facilities in rural areas • Improved quality and food safety of agricultural 	<ul style="list-style-type: none"> • Real farm-gate prices reported by farmers • Volume and value of exports • Domestic market share • No of smallholders actively engaged in rural markets • Certification of commodities for export • Market share of domestic food items in supermarkets • Terms of trade for agricultural commodities (ratio between prices of outputs and inputs) • % of crops marketed • % of farmers selling surplus to the market • % change in marketable surplus for priority value chain • % increase in gross margin per ha • Number of market linkages established 	<ul style="list-style-type: none"> • Policy on growth corridors harmonized with agricultural sector policy • Competitive trade policy taking into account international standards re sanitary and phyto-sanitary standards, certification procedures etc • Operationalization of food safety polices through effective legal and regulatory systems • Macroeconomic policy considerations including inflation, interest rates, exchange rates, taxes etc

Strategic Thematic Areas (STA) and Policy alignment	Key Results for ASDS-II			Policy and Institutional Considerations
	Strategic Objectives (SO)	Outcome that the ASDS-II is Expected to Influence	Milestone Indicators ¹ Showing Progress Towards Objectives	
		commodities		
	IR3.4 Access to agricultural finance expanded	<ul style="list-style-type: none"> Enhanced access to financial services in agriculture 	<ul style="list-style-type: none"> % of farmers accessing formal financial services % of lending by financial sector going to agricultural sector 	<ul style="list-style-type: none">
<p>SO4: Strengthened Institutional, Enablers and Coordination Framework</p> <p>Aligned with:</p> <ul style="list-style-type: none"> CAADP Pillar II I and IV National Empowerment Policy Cooperatives Development policy Local Government Reform Policy Food and Nutrition Policy and Strategy Community Development Policy National Disaster Management Policy (Draft) 	IR4.1 Policy, regulatory and institutional framework enhanced	<ul style="list-style-type: none"> Consistent sector-wide policy, regulatory and legal framework 	<ul style="list-style-type: none"> All sectoral ministries and institutions working towards agreed ASDS objectives Harmonization of all development initiatives in the sector within the ASDS framework 	<ul style="list-style-type: none"> Improved coordination and harmonization of agricultural development initiatives within and outside the ASDP and TAFSIP frameworks Agricultural donor working group should continue to engage in policy dialogue and harmonization Need for ongoing review of policy and legal framework

Strategic Thematic Areas (STA) and Policy alignment	Key Results for ASDS-II			Policy and Institutional Considerations
	Strategic Objectives (SO)	Outcome that the ASDS-II is Expected to Influence	Milestone Indicators ¹ Showing Progress Towards Objectives	
	IR4.2 Institutional capacity and coordination enhanced	<ul style="list-style-type: none"> Capacities of public and private sector institutions in the agricultural sector An effective M&E system to track and document developments 	<ul style="list-style-type: none"> Need for appropriate balance between capital and recurrent budget allocations Enhance capacity to monitor and evaluate at sectoral level Leadership, management and supervision of implementation at national and local levels 	<ul style="list-style-type: none">
		Human and other resources allocated to research	<ul style="list-style-type: none"> Allocate adequate resources to training of researchers and provide incentives to retain trained personnel 	<ul style="list-style-type: none">
		<ul style="list-style-type: none"> More effective and affordable extension services 	<ul style="list-style-type: none"> Increased rates of technology adoption 	<ul style="list-style-type: none"> Restructuring of extension services based on alternative low-cost outreach methodologies
	IR4.3 Food and nutrition security improved	<ul style="list-style-type: none"> Improved national food self-sufficiency ratio Increased calorie availability per rural household Reduced prevalence of micronutrient deficiencies Improved food 	<ul style="list-style-type: none"> % of national food requirements supplied by domestic production No. of rural households with calorie availability < xxx/person/day % of low birth weights and stunted children under five years % of households 	<ul style="list-style-type: none"> TNFC is currently finalizing the National Food and Nutrition Policy No specific food and nutrition policy for the mainland Food security policy is integrated into the ASDP Better integration of dietary diversification and nutrition behavior change into agricultural sector programmes Possible conflict between specialization/commercializati

Strategic Thematic Areas (STA) and Policy alignment	Key Results for ASDS-II			Policy and Institutional Considerations
	Strategic Objectives (SO)	Outcome that the ASDS-II is Expected to Influence	Milestone Indicators ¹ Showing Progress Towards Objectives	
		<p>quality, diversity, and reduced prevalence of malnutrition</p> <ul style="list-style-type: none"> • Reduced vulnerability to acute food shortages • Diversification of farming systems for improved diets 	<p>eating < 2 meals/day</p> <ul style="list-style-type: none"> • % of population with anemia, vitamin A and iodine deficiency • % of pregnant women and children under 5 with specific nutrient/micro-nutrient deficiencies • % of districts reporting food shortages • % of land used for crops of high nutritional value 	<p>on and diversification of farming systems and diets</p> <ul style="list-style-type: none"> • Food safety and quality policy needed • Need to maintain adequate food reserves at national level and adequate distribution systems in times of crisis • Develop policies and procedures for dealing with food price spikes • Promote awareness of dietary diversity
	IR4.4 Disaster management and resilience improved	<ul style="list-style-type: none"> • Adapt to effects and mitigate causes of climate change 	<ul style="list-style-type: none"> • No of households potentially requiring emergency assistance • % of affected households receiving assistance 	<ul style="list-style-type: none"> • Uncertainties about the nature and magnitude of changing climate and appropriate responses • Technologies need to be considered in order to avoid increased costs for farmers
		<ul style="list-style-type: none"> • Better preparation and response to natural disasters • 	<ul style="list-style-type: none"> • No of households potentially requiring emergency assistance • % of affected households receiving assistance • 	<ul style="list-style-type: none"> • Balance investments between disaster prevention/mitigation and emergency response capacity
	IR4.5 M&E and agricultural statistics strengthened	<ul style="list-style-type: none"> • Enhance institutional capacity to effectively plan, implement and 	<ul style="list-style-type: none"> • Results based performance, participation and accountability by key actors • %DADP that meet 	<ul style="list-style-type: none"> •

Strategic Thematic Areas (STA) and Policy alignment	Key Results for ASDS-II			Policy and Institutional Considerations
	Strategic Objectives (SO)	Outcome that the ASDS-II is Expected to Influence	Milestone Indicators ¹ Showing Progress Towards Objectives	
		monitor initiatives in the sector. • Improved efficiency and effectiveness of ASLMs and LGAs in delivering services	revised assessment criteria • LGAs submitting quarterly ASDP reports • LGAs with clean financial audit reports for agriculture expenditure	
Crosscutting Issues – to be addressed in all thematic areas				
<ul style="list-style-type: none"> • Balanced and equitable participation men and women in agricultural development • Sustainable and responsible management of natural resources • Reduce the spread of HIV/AIDS and mitigate its impact • Improve governance and accountability 				

Note: ¹Indicators to be gender disaggregated where appropriate and possible

Annex 2: Policy Gap Analysis

Policy	Strengths	Policy gaps/Weaknesses	Proposed areas of improvements
National Policy Framework			
<ul style="list-style-type: none"> • National Agriculture Policy (2013) 	<ul style="list-style-type: none"> • The Policy recognizes the low capacity for irrigation; the need for improving rural infrastructure; and supports strengthening of agricultural support services. 	<ul style="list-style-type: none"> • Inadequate coordination of sectoral policies in formulation and in implementation. • Weak involvement of private sector in policy implementation. • Poor linkage with infrastructural development. 	<ul style="list-style-type: none"> • Strengthening coordination of implementation of agricultural policies through greater sectoral linkages and enhancing private sector involvement. • Strengthening institutional collaboration for the exploitation of high potential areas. • Linking rural roads, electrification, communication and agricultural markets to the regional networks.
<ul style="list-style-type: none"> • National Livestock Policy (2006) 	<ul style="list-style-type: none"> • The Policy promotes protection of water catchments areas and supports construction and maintenance of water sources for livestock and the role of the livestock sector in national food and nutrition security. 	<ul style="list-style-type: none"> • The Policy is weak in promoting trade facilitating infrastructure and services especially in rural areas caused by poor feeder roads, limited livestock haulage and holding facilities as well as underdeveloped market chain for livestock and livestock products. 	<ul style="list-style-type: none"> • Proposed interventions include making policy provisions for improving rural and urban infrastructure and trade-related capacities for improved livestock market access as well as developing livestock and livestock products and related commodity value chains
<ul style="list-style-type: none"> • National 	<ul style="list-style-type: none"> • The policy 	<ul style="list-style-type: none"> • Insufficient 	<ul style="list-style-type: none"> • Expand the network of

Policy	Strengths	Policy gaps/Weaknesses	Proposed areas of improvements
Fisheries Sector Policy and Strategy Statement	recognizes the potential of the fisheries sector including fish farming in contribution to the food supply and high quality protein and other nutrients; and the potential for employment creation	programmes to address issues of declining stock and endangered aquatic species. • Lack of proper legal frameworks to combat illegal, unregulated and unreported fishing.	fisheries products by investing in infrastructure to support deep sea fishing for local investors. • Improving fishing techniques for artisanal fishers to reduce post harvest losses. • Strengthening regulatory frameworks in the fisheries sector.
• The National Irrigation Policy (2010)	• The Policy recognizes the potential of irrigation to promote agricultural productivity, increase food security and stimulate economic growth.	• Inadequate integration of water resources management systems and limited material, financial and technical support services for irrigators.	• Developing integrated water resources management systems for agricultural production. • Providing backup support for small-scale and commercial private irrigation developers including promotional activities, guidelines, regulation, standards, design and manuals, and technical assistance. • Providing private leverage/equity fund for investment in irrigation.
• Sustainable Industrial Development Policy (1996)	• The policy recognizes human development and creation of	• Weak in addressing globalization issues.	• Prioritization of investments in agro-industries development to enhance backward and forward linkages between

Policy	Strengths	Policy gaps/Weaknesses	Proposed areas of improvements
	employment opportunities to contribute to economic transformation and sustainable economic growth.		agricultural and industrial sectors.
<ul style="list-style-type: none"> • Cooperative Development Policy (2002) 	<ul style="list-style-type: none"> • The policy recognizes cooperatives as people owned and controlled institutions for development in the agricultural sector. 	<ul style="list-style-type: none"> • Poor resource base for developing cooperatives into viable business entities. 	<ul style="list-style-type: none"> • Reorganize cooperatives into economically viable and service oriented entities. • Institute risks protection instruments as confidence building measures for members.
<ul style="list-style-type: none"> • SME Policy (2003) 	<ul style="list-style-type: none"> • The policy recognize the need for development of infrastructure such as road, cold rooms, warehouses, power, water and communication on SMEs, 	<ul style="list-style-type: none"> • The commercial farming activities are not recognized as part of SMEs 	<ul style="list-style-type: none"> • SMEs support services should be improved and extended to cover all commercial agricultural operators. • The business environment should be improved to foster profitability of SME operations in agriculture.
<ul style="list-style-type: none"> • National Trade Policy 2003 	<ul style="list-style-type: none"> • The policy recognizes the need for harmonization of trade 	<ul style="list-style-type: none"> • Weak implementation of the policy especially in participation in 	<ul style="list-style-type: none"> • Streamlining the trade regime to address agricultural commodity trading locally and internationally.

Policy	Strengths	Policy gaps/Weaknesses	Proposed areas of improvements
	policies and the importance of value addition to promote competitiveness in agriculture.	regional and international trade.	<ul style="list-style-type: none"> • Providing trade facilitation services in areas of transport, communication and technology transfer.
<ul style="list-style-type: none"> • National Investment Promotion Policy (1996) 	<ul style="list-style-type: none"> • It recognizes the importance of fostering research and development, encourage adoption of new production technology, improving extension services etc. for the agricultural sector. 	<ul style="list-style-type: none"> • The policy is silent on the promotion of rural power investments such as electricity and other sources of energy. 	<ul style="list-style-type: none"> • Extend promotion of investment of other infrastructure such as rural electrification given that only 12 percent of the population has access to power.
<ul style="list-style-type: none"> • National Forest Policy (1998) 	<ul style="list-style-type: none"> • The policy recognizes the need to ensure ecosystem stability through conservation of forest biodiversity, water catchments and soil 	<ul style="list-style-type: none"> • Agro-forestry issues are not addressed as important practices for soil and water conservation. 	<ul style="list-style-type: none"> • Incorporate agro-forestry as an important practice in conserving soil moisture, weed control and improving soil fertility.

Policy	Strengths	Policy gaps/Weaknesses	Proposed areas of improvements
	fertility.		
<ul style="list-style-type: none"> • National Environment Policy (1997) 	<ul style="list-style-type: none"> • The policy advocates the need for improving land husbandry through control of soil erosion and improvement of soil fertility. 	<ul style="list-style-type: none"> • Trends and impacts of climate change are not well articulated in the policy. 	<ul style="list-style-type: none"> • Monitoring climate change and variability in terrestrial and aquatic ecosystems.
<ul style="list-style-type: none"> • The National Public Private Partnership (PPP) Policy (draft) 	<ul style="list-style-type: none"> • It addresses issue of broadening investment opportunities in innovations and technology transfer. 		<ul style="list-style-type: none"> • The ongoing inclusive process for policy formulation should ensure that stakeholders from the private sector have equal opportunities as the public sector in defining modalities for implementation.
<ul style="list-style-type: none"> • The National Water Policy (2002) 	<ul style="list-style-type: none"> • The policy recognizes the development of equal and fair procedures in conservation, access, allocation and utilization of water resources so that all social and economical 	<ul style="list-style-type: none"> • Issue of water management plan not clearly addressed and there are insufficient technical and financial resources for implementation of the policy. 	<ul style="list-style-type: none"> • Increase resources (technical and financial) mobilization for implementation of the water policy with increased focus on institutional strengthening for sustainable utilization and management of water resources.

Policy	Strengths	Policy gaps/Weaknesses	Proposed areas of improvements
	activities are able to maximize their capacities.		
<ul style="list-style-type: none"> • Agricultural Marketing Policy (2008) 	<ul style="list-style-type: none"> • The Policy provides guidelines and directives addressing constraints and challenges facing the agricultural marketing systems. 	<ul style="list-style-type: none"> • Implementation framework not in place and further hampered by the unfavorable and inconsistent legal and regulatory framework. 	<ul style="list-style-type: none"> • Prepare policy implementation framework including developing strategies, programme and action plan and reviewing the Acts, rules and regulations for operationalisation of the policy.
<ul style="list-style-type: none"> • HIV and AIDS Policy (2001) 	<ul style="list-style-type: none"> • The policy recognizes the threat posed by the epidemic to the agricultural sector and to poverty. 	<ul style="list-style-type: none"> • Inadequacy of a comprehensive approach to social protection of people living with HIV and AIDS. 	<ul style="list-style-type: none"> • Provide comprehensive approach to social protection of people living with HIV and AIDS and strengthen implementation of HIV and AIDS strategy for the agricultural sector.
<ul style="list-style-type: none"> • National Microfinance Policy (2000) 	<ul style="list-style-type: none"> • The Policy provides a guide for coordinated interventions in the microfinance system. 	<ul style="list-style-type: none"> • The policy does not provide incentives to offset the high cost of delivering financial services to rural areas especially to farm communities. 	<ul style="list-style-type: none"> • Strengthening the implementation of the policy in the context of the Tanzania Rural Financial Services Strategy.
<ul style="list-style-type: none"> • Land Policy (1997) 	<ul style="list-style-type: none"> • The Policy recognizes the rights of Tanzanians to access land 	<ul style="list-style-type: none"> • The land policy does not provide for agricultural land demarcation at all levels and 	<ul style="list-style-type: none"> • Strengthen governance in land distribution to avoid land disputes and increase public awareness of land laws especially in rural

Policy	Strengths	Policy gaps/Weaknesses	Proposed areas of improvements
	and have security of land tenure and the promotion of equitable distribution of land.	there is poor follow up of the implementation of the policy	areas,
<ul style="list-style-type: none"> • Food and Nutrition Policy (1992) 	<ul style="list-style-type: none"> • The policy raises the importance of food and nutrition in social wellbeing and national development. 	<ul style="list-style-type: none"> • The policy does not capture emerging food and nutritional problems due to changing lifestyles in rural and urban areas. • The policy is outdated. 	<ul style="list-style-type: none"> • The policy needs to be updated to take into account current food security and nutrition problems including the changing population dynamics in rural and urban areas.
<ul style="list-style-type: none"> • Education and Training Policy (1995) 	<ul style="list-style-type: none"> • The Policy allows for equitable access to education for boys and girls, and for the poor in rural and urban areas. 	<ul style="list-style-type: none"> • Inadequate investment to fully implement the policy. 	<ul style="list-style-type: none"> • Review the policy to incorporate issues raised in education reforms and programmes including primary school feeding.
Policies Specific to Zanzibar			
Regional Policies			
<ul style="list-style-type: none"> • Policy for Managing Migrant Pests and Larger Grain Borer in the 	<ul style="list-style-type: none"> • The Policy promotes improved research into use of low risk pesticides. 	<ul style="list-style-type: none"> • Member States are silent in policy implementation. 	<ul style="list-style-type: none"> • Needs to be reviewed and incorporated in the Regional Agriculture Policy which is being developed.

Policy	Strengths	Policy gaps/Weaknesses	Proposed areas of improvements
SADC Region, 2004			
<ul style="list-style-type: none"> • The East African Community Agriculture and Rural Development Policy (2006) 	<ul style="list-style-type: none"> • The policy has taken care of achieving food security in the EAC and improves the standards of nutrition by increasing output, quality and availability of food. 	<ul style="list-style-type: none"> • Slow pace of implementation. 	<ul style="list-style-type: none"> • Need to be reviewed in line with Partner States new changes.

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