

THE UNITED REPUBLIC OF TANZANIA



AGRICULTURAL SECTOR DEVELOPMENT PROGRAMME PHASE TWO (ASDP II)

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Acronyms

AASS	Annual Agricultural Sample Survey
AEZ	Agro-ecological zone
AfDB	African Development Bank
AR4D	Agricultural research for development
ARDS	Agricultural Routine Data System
ASA	Agricultural Seed Agency
ASDP	Agricultural Sector Development Programme (first and second phases)
ASDS	Agricultural Sector Development Strategy (first and second phase)
ASLMs	Agriculture sector lead ministries
ASR	Agriculture Sector Review
ASSP	Agricultural Statistics Strategic Plan
ATI	Agricultural training institute
BRN	Big Results Now
CAADP	Comprehensive Africa Agriculture Development Programme
CKM	Communication and knowledge management
CMT	Coordination and Management Team
CVC	Commodity value chain
DADG	District Agriculture Development Grant
DADP	District Agricultural Development Plan
DAICO	District Agricultural, Irrigation and Cooperative Officer
DCP	District CVC platform
DED	District Executive Director
DLFO	District Livestock and Fisheries Officer
EAAPP	East Africa Agricultural Productivity Project
FAO	Food and Agriculture Organization of the United Nations
FFS	Farmers field school
FTC	Farmer Training Centre
ICT	Information and Communication Technologies
IFAD	International Fund for Agricultural Development
IPM	Integrated Pest Management
JICA	Japan International Cooperation Agency
JSR	Joint Sector Review
LGAs	Local government authorities
LITA	Livestock Training Agency
LITI	Livestock Training Institute
MAFC	Ministry of Agriculture Food Security and Cooperatives
M&E	Monitoring and evaluation
MLFD	Ministry of Livestock and Fisheries Development
MIVARF	Marketing Infrastructure Value Addition and Rural Finance
NASSM	National Agricultural Sector Stakeholders Meeting
NAIVS	National Agricultural Input Voucher Scheme
NEPAD	New Partnership for Africa's Development
NSCA	National Sample Census of Agriculture and Livestock
PER	Public Expenditure Review
PPP	Public Private Partnership
PO-RALG	President's Office - Regional Administration and Local Government
PMO-RALG	Prime Minister's Office- Regional Administration and Local Government
PSP	Private Service Providers
RAS	Regional Administrative Secretariat
SACCOS	Savings and Credit Cooperative Society
SADC	Southern Africa Development Community
SAGCOT	Southern Agriculture Growth Corridor of Tanzania

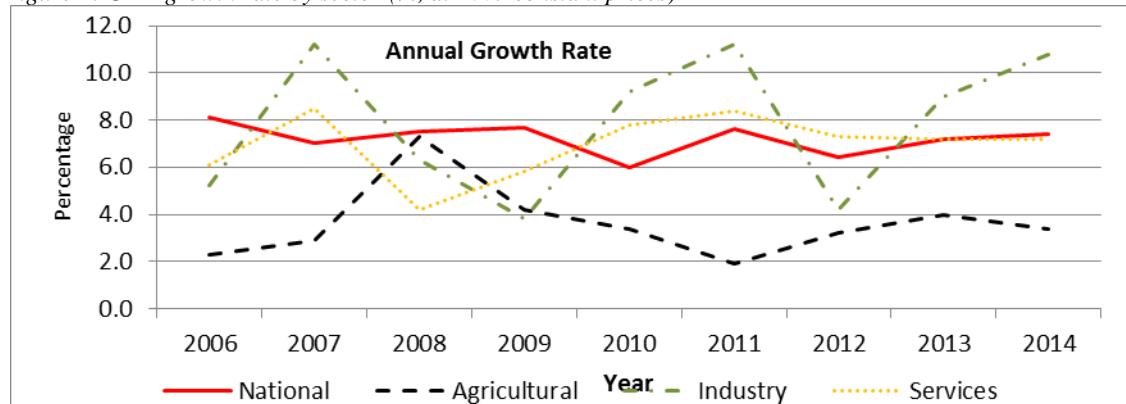
SWAp	Sector Wide Approach
TAFSIP	Tanzania Agriculture and Food Security Investment Plan
TALIRI	Tanzania Livestock Research Institute
TARI	Tanzania Agricultural Research Institute
TCD	Technical Committee of Directors
TOSCI	Tanzania Official Seed Certification Institute
TTPU	Technology Transfer and Partnership Units
USAID	United States Agency for International Development
VAEO	Village Agricultural Extension Officer
WAEAO	Ward Agricultural Extension Officer
WARC	Ward Agricultural Resource Centre

I. BACKGROUND¹

A. Macroeconomic Indicators and Agriculture²

1. Tanzania's macroeconomic indicators showed robust growth in Gross Domestic Product (GDP) before and during implementation of the first phase of the Agricultural Sector Development Programme (ASDP-1) which started in 2006. In recent years, GDP growth rate was between 6.0% and 8.1% between 2006 and 2014 at 2007 constant prices. These levels of GDP growth happened at a time when agriculture sector growth, except for 2008, was far below GDP growth (see Figure 1)³. On average, the service and industry sectors exhibited stronger growth rates than agriculture. The average growth rate for the agriculture sector during the period 2006–2014 was 3.9% per annum, and that of the service and industry sectors was respectively 8% and 7.8% for the same period. From 2006 to 2012, the share of the agriculture sector in total GDP decreased from 27.7% to 23.2%, while the shares of industry and service sectors increased from 20% to 22%, and from 46% to 49% respectively during this period⁴.

Figure 1: GDP growth rate by sector (%), at 2007 constant prices)



Source: Bank of Tanzania. Quarterly economic review, May 2015

2. Given the decline in the agriculture sector's share of GDP and its contribution to real GDP growth, it is apparent that the robust economic growth is not a shared prosperity. On the contrary, those who earn their livelihood from agriculture and who happen to live in rural areas are trapped in poverty. For example, in 1992 the rural population was 80% of the total population and the poverty rate was 40%. In 2007, after 15 years, the rural population was 74% of the total population and rural poverty rate was estimated at 37.8%. It is apparent that much has not changed in terms of both the share of rural population and rural poverty rates in Tanzania. The sectors that have driven economic growth, such as construction, finance, mining, services⁵, and telecommunications have not created jobs in rural areas and have not had a noticeable impact, direct or indirect, on the rural population.

¹ The background (Chapters I and II) is adapted and building on the FAO-TCIA support to ASDP-2-BF June 2013.

² Tanzania Economic Update: Spreading the Wings, From Growth to Shared Poverty. World Bank, October 2012.

³ See also <http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG/countries>.

⁴ According to the World Bank (<http://data.worldbank.org/indicator/NV.AGR.TOTL.ZS/countries>) the agriculture sector value added in % the country GDP is estimated at 28.1%, 27.7%, 28.7% and 28.4% for 2010, 2011, 2012 and 2013 respectively. In this case agriculture corresponds to ISIC divisions 1–5 and includes forestry, hunting and fishing, as well as cultivation of crops and livestock production. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources.

⁵ Including tourism.

Moreover, the reason why the robust economic growth over the last decade has not been associated with poverty reduction is because the agriculture sector has been growing more slowly than other major sectors. Therefore, growth of the agriculture sector does not substantially influence GDP growth, as it did in the 1970s and 1980s when it contributed about 50% of total GDP; neither does it contribute significantly to poverty reduction in Tanzania.⁶

3. The 2012 Tanzania Economic Update⁷ highlights that “rapid economic growth and stability has generated high dividends for Tanzania in recent years, driving increases in per capita income of 70% over the past decade. However these benefits have not been evenly shared. To fight rural poverty, successful economies have implemented systems to connect their farmers to markets. These economies encourage the cultivation of high-value, non-traditional crops and manage migration flows toward urban centres to facilitate growth and equity. Rather than minor adjustments, fighting rural poverty requires a major policy shift that involves: (i) agricultural commercialization; (ii) diversification; and (iii) urbanization. The paper concludes that the challenge for Tanzanian policy makers is to stimulate these three transformational forces and manage them appropriately over the long term”

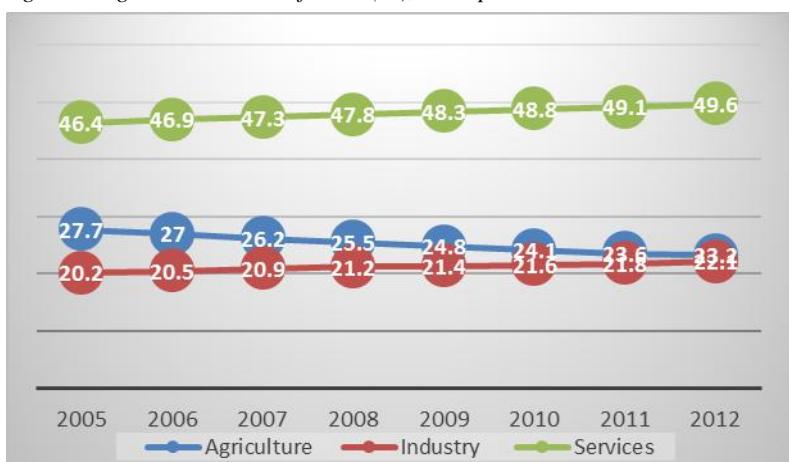
B. The Agriculture Sector

4. The relative contribution to agricultural GDP by crop, livestock, forestry and hunting, and fisheries in recent years averaged 18%, 5%, 3% and 1.4% respectively. Tanzania has a total of about 7.1 million ha of high and medium potential land (2.3 and 4.8 million ha respectively) suitable for irrigation, supported by rivers, lakes, wetlands and aquifers. Of the 2.3 million ha classified as high potential, only 461,326 ha had improved irrigation infrastructure in 2015, accounting for only 1.6% of the total land with irrigation potential (MAFC, 2015). An estimated 55% of the land could be used for agriculture, and more than 51% for pasture. However, only about 6% of the agricultural land is cultivated, and the practice of shifting cultivation causes deforestation and land degradation on pastoral land. Tanzania is one of the few countries in Africa that still has extensive wildlife resources and protected areas that account for about 25% of its total land area.

⁶ Review of food and agricultural policies in the United Republic of Tanzania. MAFAP Country Report Series, 2013, FAO, Rome, Italy.

⁷ Spreading the Wings: from growth to prosperity. World Bank publications: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2012/10/24/000386194_20121024053815/Rendered/PDF/733460WP0P133400Box371944B00PUBLIC0.pdf.

Figure 2. Agriculture share of GDP (%), 2001 prices



public expenditure. Use of productivity enhancing agricultural inputs is also one of the lowest in the region. For example, Tanzanian farmers use about 8–10 kg of fertilizer per hectare (doubled from 2008 to 2013), compared with an average of 16 kg/ha for Southern African Development Community (SADC) countries while Malawi uses 27 kg/ha and China 279 kg/ha on average. However, in spite of these low levels of application, the Tanzanian market has failed to absorb all the fertilizer stocks supplied by traders, recording surpluses of between 15% and 30% during the 2007/2008 to 2009/2010 seasons. The annual supply of improved seeds is about 30,000 tons (75% maize seeds) or 25% of total estimated requirements of 120,000 tons per year. There has been a sharp increase in supplies, combined with a narrowing of the gap between supplies and purchases since 2007/2008, when the government increased funding for its National Agricultural Input Voucher System (NAIVS), suggesting that this system has been useful in enhancing input absorption by farmers.

5. However, the growth of agriculture is hampered by low productivity of land and labour. Although numerous factors caused this situation, the key factors are, *inter alia*: (i) poor production techniques; (ii) underdeveloped markets, market infrastructure and farm-level value addition; (iii) poor rural infrastructure, including rural roads, telecommunications and electricity; and (iv) inadequate agricultural finance, including

Figure 3: GDP by economic activity (at current prices—TSh billion)⁸

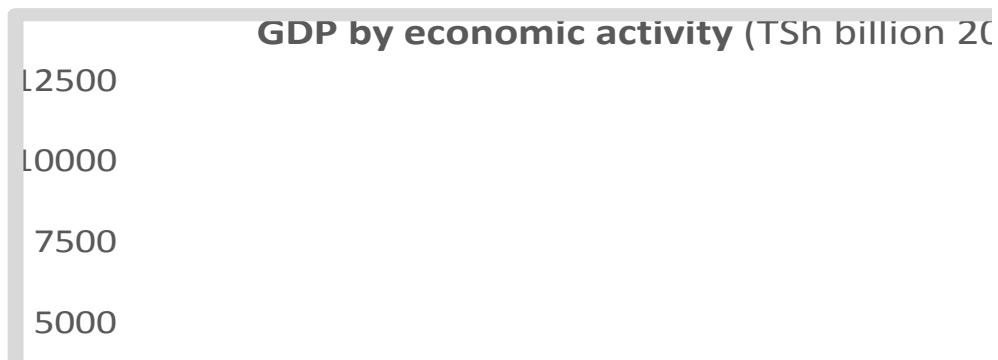
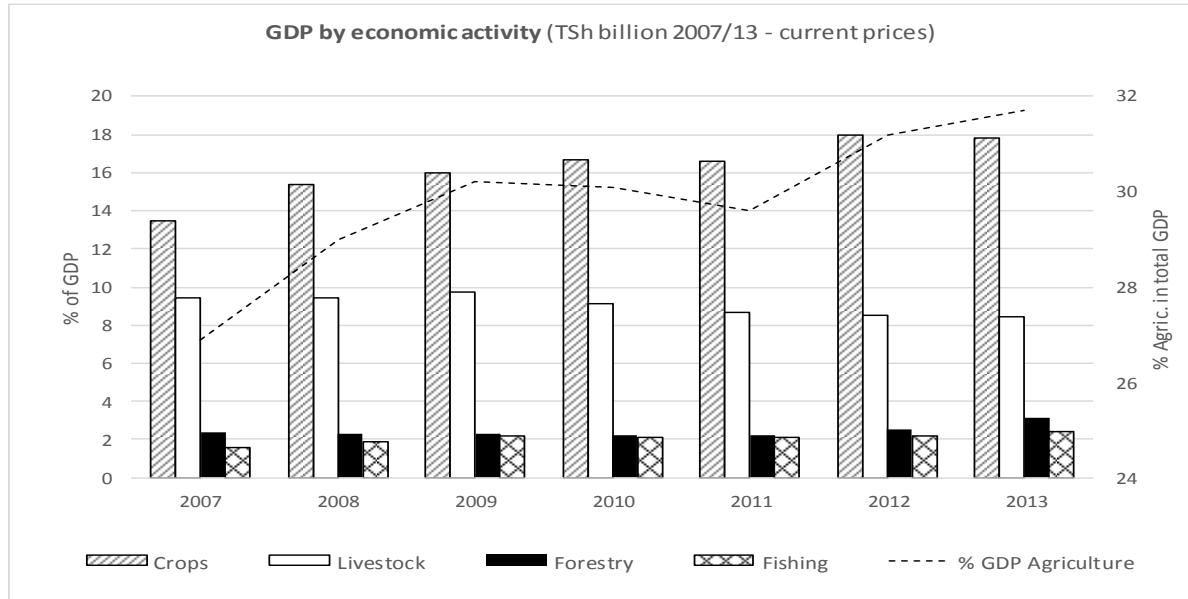


Figure 4: Percentage GDP by economic activity (in % of total GDP—at current TSh prices)



6. **Crop subsector.** The production of main crop commodities over the past 50 years has been reported (FAOSTAT), as shown in Figure 5. The changing point seems to be in year 2000 with: (i) the total cereal (maize, rice, sorghum, millet) production out-yielding the annual cassava production (mainly linked to yield variations); (ii) sharp production increases are recorded for cereals, especially maize, banana, sugar and other root crops and to a lesser extend for oil crops. Farmer yields for the main food crops doubled over the past 50 years reaching about 1.5 and 2.0 tons/ha for maize and rice respectively. For pulses and oil crops yields increased, but remain on average below 1.0 ton/ha per season as shown in Figure 6.

⁸ Adapted from data sourced in Revised National Accounts Estimates for Tanzania Mainland (Base year 2007). National Bureau of Statistics, Ministry of Finance, November 2014.

Figure 5: Main crop production in Tanzania (1961–2013, in tons)

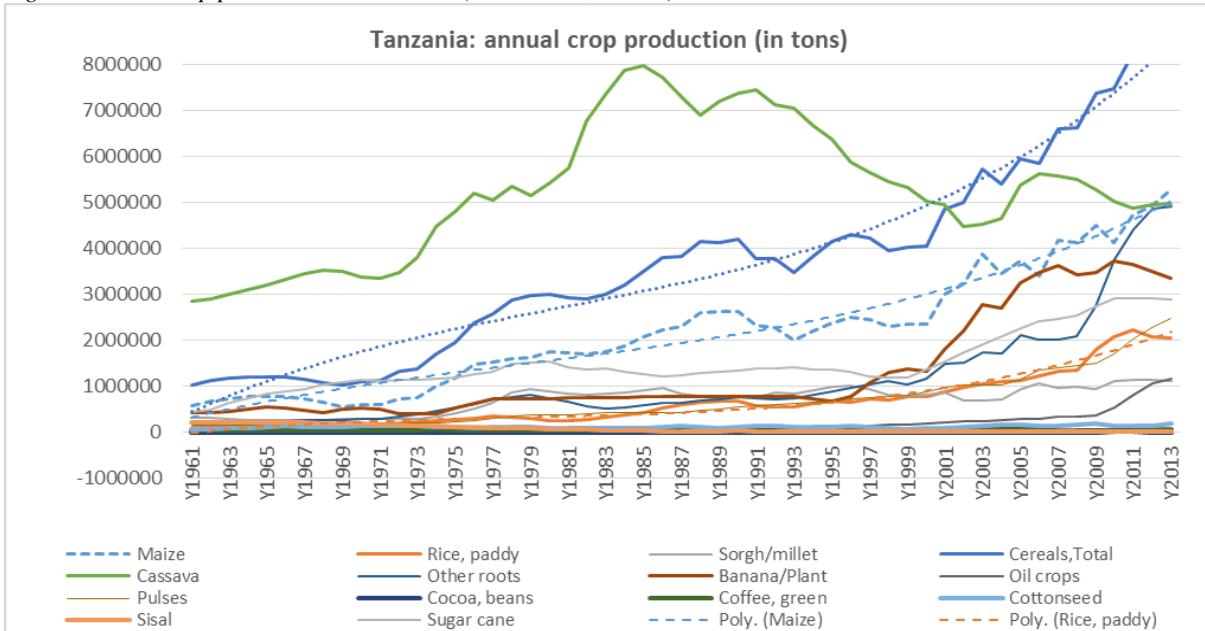
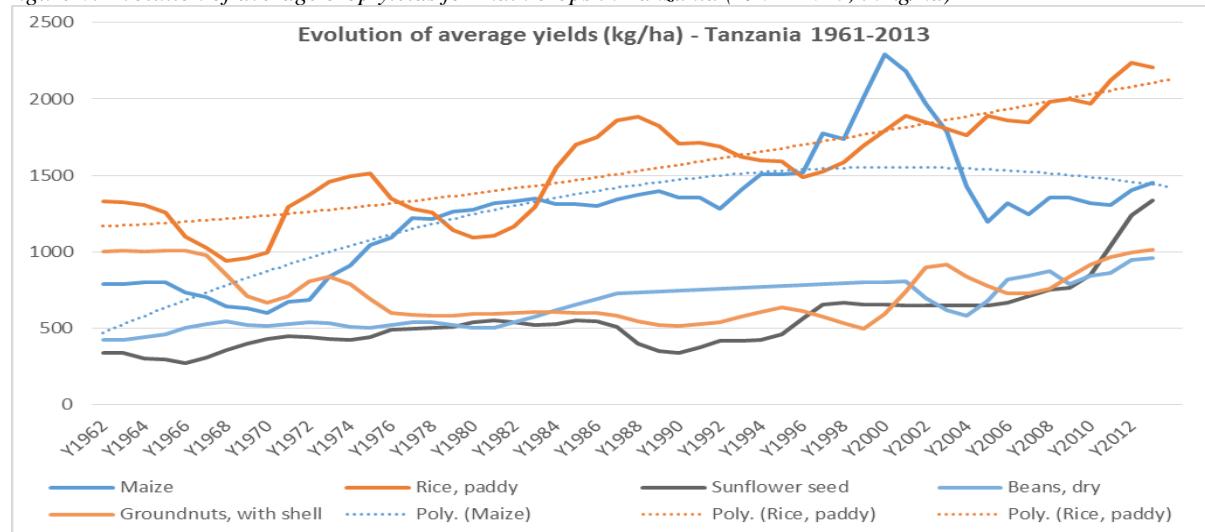


Figure 6: Evolution of average crop yields for main crops in Tanzania (1961–2013, in kg/ha)



7. **Livestock sub-sector.** This sub-sector includes about 21.3 million cattle, 15.2 million goats and 6.4 million sheep. Other livestock kept in the country include 1.9 million pigs, 35.1 million indigenous and 23 million exotic chicken⁹. The country has the third largest cattle population in Africa after Ethiopia and Sudan. About 90% of the livestock population is of indigenous types which are known for their low genetic potential in milk and meat production. The livestock sub-sector growth rate averaged 4.2%, against 3.6% for the whole sector. The cattle population increased at an average rate of 1.4% and poultry recorded an impressive growth rate of 9.6% to reach 58 million chickens.

8. **In meat processing.** The government has supported the private sector to invest in modern abattoirs and slaughterhouses in Sumbawanga, Dodoma, Arusha, Morogoro and Coast regions among others. The government has also sold some of its shares in former government owned companies such as National Ranching Company (NARCO) and Dodoma Abattoir. Although the number of milk processing plants increased from 22 to 39 over the 2001–2009 period, there is still huge potential to expand the milk industry (1.5 billion litres/year), as only 20% is collected and processed. Private

⁹ Ministry of Livestock and Fisheries Development (MLFD), Statistical Year Book, 2013.

companies have also resumpted milk processing in Musoma, Arusha, Tanga, Dar es Salaam, Morogoro, Iringa, Mbeya and Njombe. Following improvement in business environment, the number of plants for processing hides and skins increased from 3 to 6 between 2001 and 2009, with a capacity to meet 52% of the total production (48.2 million square feet with TSh 12.8 billion in 2009).

9. **Fisheries.** Tanzania is endowed with fishery resources, both marine and inland. Marine water covers 64,000 square kilometres and a coastal line of 1,424 kilometres. The Exclusive Economic Zone (EEZ) is up to 200 nautical miles covering an area of 223,000 square kilometres providing the country with additional marine area and fisheries resources. Fresh water fisheries which cover 62,000 square kilometres include the shared waters of the great lakes, namely Victoria, Tanganyika and Nyasa. The country has also other small natural lakes, man-made lakes, river systems and many wetlands with fisheries potential. Despite the diverse fisheries potential, most are untapped including those in the EEZ. The industry has been dominated by small-scale fishers and fish farmers who normally use traditional technology. Hence, the fisheries sector is an area which, once effectively utilized, will improve the economy in an enormous way. The annual growth rate of the fisheries sector has been fluctuating annually. For example, in 2014 the growth rate was 2.0% and in 2013 it was 5.5%. The contribution of fishing activities to GDP has almost remained constant with a slight change of 0.1%. In 2010 the share of fishing activities was 1.5% before decreasing to 1.4% in 2011 and 2012; it further decreased to 1.3% in 2013 and 2014.

10. **Private investment in agroprocessing.** This sub-sector has the potential to generate employment, raise productivity, transfer skills and technology, increase competitiveness, substitute imports and enhance exports, and contribute to the long-term national economic development. Although increasing, the inflow of the foreign direct investment to the agriculture sector remains low with 2–3% of the total foreign direct investment (USD 31.4 million in 2011). Rapid urbanization and rising incomes have been contributing to increased demand for value-added products in the agriculture sector. However, on the supply side, the underdeveloped agroprocessing industry has so far failed to provide significant levels of import substitution for the urban food market. The mismatch between demand and supply for value-added food products resulted in tripling the country's food import bill between 2006 and 2013 (USD 963.9 million). Globally, the pattern of growth of the economy is influenced by the transformation of the agriculture sector through value addition of primary products, thereby influencing investments in industry and service sectors.

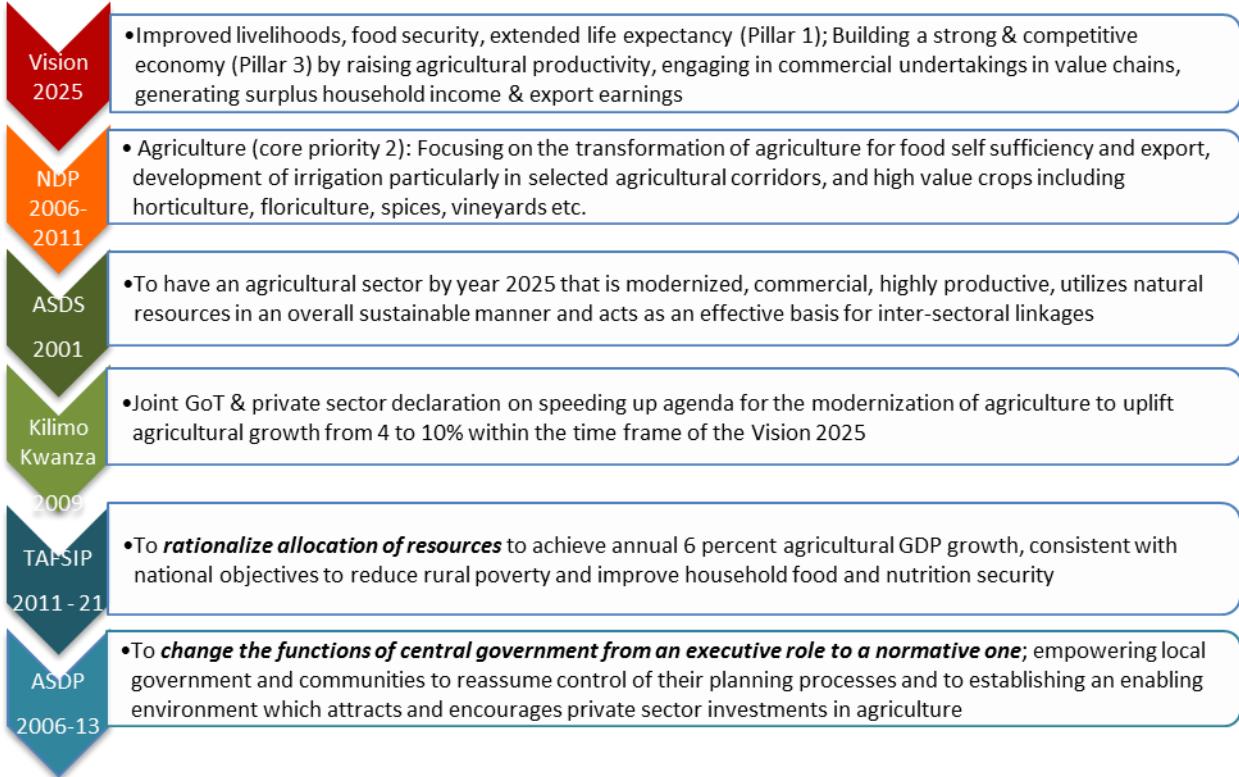
C. Policy Environment

11. Tanzania has a clear articulated long and medium-term policy frame for the economy in general and for the agriculture sector in particular. The long-term policy framework places agriculture at the centre and has evolved various sector and sub-sector policies. Related fields such as natural resources management are addressed and their complementarity in terms of achieving the long-term social and economic development objective of the country is articulated. The key policies that address the sector are discussed in the following sub-sections;

12. **Tanzania Development Vision 2025.** The Tanzania Development Vision (TDV) is a long-term vision that the Government of Tanzania issued to guide its development. The vision articulated in this policy document is that by 2025 Tanzanians will have created a substantially developed, people-centred, peaceful, stable and united society with high quality livelihood and high level of human development. The economy will have been: *“transformed from a low productivity agricultural economy to a semi-industrialized one, led by modernized and highly productive agricultural activities which are effectively integrated and buttressed by supportive industrial and service activities in the rural and urban areas. A solid foundation for a highly productive, competitive and dynamic economy will have been laid”*. The agriculture sector is identified as an important arena where strategic interventions will be implemented to contribute to the building of a strong solid foundation for a highly productive, competitive and dynamic economy¹⁰.

¹⁰ Government of URT. 1999a. *The Tanzania Development Vision 2025*. Dar es Salaam.

Figure 7. Long & medium-term policy framework for the transformation of the agriculture sector



Source: Compiled from FAO/TCIA (2013).

13. The National Strategy for Growth and Reduction of Poverty I & II. This strategy is known as MKUKUTA I and II and is one of the national strategies aimed at moving the nation towards Vision 2025 and to achieve the Millennium Development Goals (MDGs). The essential features in developing both MKUKUTA I & II were national ownership and consultation with stakeholders, aiming to foster greater collaboration among all sectors and stakeholders. The strategy requires increased resource mobilization and that the national budget is aligned to MKUKUTA with direct links to the public expenditure review. A Joint Development Cooperation Framework (DCF) has been developed with development partners to increase the volume and effectiveness of aid, harmonization and alignment to achieve MKUKUTA objectives¹¹. The MKUKUTA II strategic intervention cluster is Growth and Reduction of Income Poverty, focusing on equitable and employment generating growth, sustainable development principle, food security and affordable and reliable modern energy services and adequate infrastructures for production purposes. Agriculture is identified as one of the key growth areas and means to attain TDV 2025.

14. Agricultural Sector Development Strategy II (ASDS-2) of September 2015. This strategy reflects the changes in the overall economic environment and the policies and programmes that emerged over the years. ASDS-2 sets a new direction for the development of the sector, integrates the Comprehensive Africa Agriculture Development Programme (CAADP) objectives and reflects most of the vision and principles enunciated in the Tanzania Agriculture and Food Security Investment Plan (TAFSIP). It stresses the need to continue the pursuit of a sector-wide approach to plan, coordinate and harmonize the resources (public and private) required to accelerate implementation of existing initiatives and to incorporate new initiatives which address national, regional and sectoral development priorities. Largely along the line of TAFSIP, the ASDS-2 defines the sector-level monitoring and evaluation (M&E) framework and identifies strategic areas for public and private investment for achieving expected outcomes and impact. The ASDS-2 also details the policies, strategies and priority support areas for achieving agricultural and rural development, contributing to

¹¹ Government of URT. 2010b. *National Strategy for Growth and Reduction of Poverty II (NSGRP II)*. Dar es Salaam, Ministry of Finance and Economic Affairs.

the goals of Vision 2025, as well as the economic growth and poverty reduction objectives specified in MKUKUTA/MKUZA strategies. Identified key priorities for ASDS-2 include: (i) the role of science and technology (research, extension, fertilizer use by small-scale commercial farmers); (ii) further priorities such as irrigation, finance, mechanization, agroprocessing and access to markets; and also (iii) strong articulation with other sector initiatives such as, Big Results Now (BRN) and the Southern Agricultural Growth Corridor of Tanzania (SAGCOT).

15. **Kilimo Kwanza (KK).** The global food price crisis of 2008/2009 gave rise to renewed interest in the agriculture sector by both continental leaders under the African Union framework and the international community. The government successfully launched plans for the active engagement of the private sector and in mainstreaming agriculture in all sectoral undertakings, emphasizing the importance of Kilimo Kwanza, which means “agriculture first”. Internationally, the country received support from the G8 to mobilize international private sector capital and technology transfer to revamp the agriculture sector. Most initiatives were designed to enhance technology uptake (e.g., seeds and fertilizer), market development and export promotion. The government, development partners and the private sector agreed to adopt a cluster approach to optimize human and financial resources in attaining maximum impact in the shortest time possible. SAGCOT is among the first programmes under this approach where partnership between government, small-scale farmers and large-scale commercial farmers/processors is emphasized. These developments channelled additional support for mainly parallel implemented projects to be ‘coordinated’ within the overall ASDP framework.

16. **Tanzania Agriculture and Food Security Investment Plan.** TAFSIP is Tanzania’s version to operationalize the CAADP¹² framework formulated to assist achievement of TDV 2025. It is a 10-year road map for agricultural and rural development that identifies priority areas for public and private investments in the sector to promote agricultural growth, rural development, and food security and nutrition. It is a framework for the prioritization, planning, coordination, accountability, harmonization and alignment of investments that will drive Tanzania’s agricultural development over the next decade. To achieve the CAADP objectives, the investment plan is expressed in terms of seven thematic programme areas each with its own strategic objective and major investment programmes. The thematic areas are: (i) Irrigation Development, Sustainable Water Resources and Land Use Management; (ii) Agricultural productivity and Rural Commercialization; (iii) Rural Infrastructure, Market Access and Trade; (iv) Private Sector Development; (v) Food Security and Nutrition; (vi) Disaster Management, Climate Change Adaptation and Mitigation; and (vii) Policy Reform and Institutional Support.

17. The objectives of CAADP are to: (i) achieve an average of annual sectoral growth of 6% and government allocation of budget at 10%; (ii) attain food security and nutrition; (iii) develop regional and sub-regional agricultural markets; (iv) integrate farmers and pastoralists into the market economy; and (v) achieve a more equitable distribution of wealth. These objectives, as amplified by the Malabo Declaration (2014) anchor to: (i) allocate at least 10% of public expenditure to agriculture, and to ensure its efficiency and effectiveness; (ii) transform agriculture and ensure inclusive growth through doubling of agricultural productivity, enhance value chains and tripling intra-African trade in agricultural goods and services; and (iii) strengthening systematic capacity for transformation through capacity for planning, policies and institutions, leadership, coordination, partnerships and data and statistics. Through CAADP, African governments commit to providing technical and financial support for the transformation of the agriculture sector and the development of the agro-based private sector, as well as addressing trade issues¹³. CAADP includes a focus on: (i) changing perspectives and mind-sets to promote commercial agriculture; (ii) promoting policies that raise agricultural productivity; (iii)

¹² Initiative of the African Union’s New Partnership for Africa’s Development (NEPAD), adopted by the Heads of State and the government in Maputo, Mozambique in 2003.

¹³ From 2008 to date, the CAADP Africa-owned policy narrative has been steadily sidelined by the US-led G8 mobilization of (support for) global agribusiness, with assistance pledged by aid agencies and philanthropies. The comprehensive nature of this transition to MNC-driven policy—which climaxed with the May 2012 NAFSN G8 meeting ... reflects the seriousness of the on-going global food crisis (Source: The Comprehensive Africa Agriculture Development Programme (CAADP) and agricultural policies in Tanzania: Going with or against the grain? (B. Cooksey, 2013).

expanding markets at national, regional and international level; and (iv) encouraging and facilitating private investment to support the agricultural sector. Unlike the Maputo Declaration, the Malabo Declaration sets output indicators (see para 87) to be achieved with high level aspirations for sustainable and inclusive development, renewed commitments towards evidence based planning and accountability with view to conduct a biennial Agricultural Review Process that involves tracking, monitoring and reporting on progress.

II. SECTOR PROGRAMMES, PROJECTS AND PUBLIC EXPENDITURE

A. Agriculture Sector Development Programme (ASDP phase 1)

18. **The Agriculture Sector Development Programme (ASDP)** is one of the key instruments that the government uses to meet TDV 2025 and implement the ASDS. This programme had the following 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; and (ii) to promote private investment based on an improved regulatory and policy environment. The objectives will be achieved through a set of complementary interventions aimed at: (i) improving the capacity of farmers, including food insecure and vulnerable groups, to more clearly articulate demand for agricultural services and to build partnerships with service providers; (ii) reforming and improving capacity of both public and private agricultural service providers to respond to demand and provide appropriate advice, services and technologies; (iii) improving the quality and quantity of public investment in physical infrastructure through more devolved technically-sound planning and appraisal; and (iv) improving market institutions, including strengthening the policy and regulatory frameworks and coordination capacity at national level. These results will be delivered through Local Level Support and National Level Support, as described in the following paragraphs;

19. ASDP was launched in 2006 to provide a sector-wide investment vehicle to deliver the Programme and to contribute to the targets of reducing rural poverty from 27% to 14% by 2010, and raising agricultural growth to 10% per year by 2010. ASDP was conceived and implemented as a bottom up approach delivered nationally, with 75% of development funds from a multi-donor Basket Fund allocated to local level support through a performance-based block grant mechanism. The Basket Fund represented an improvement in aid effectiveness away from fragmented projects to an on-budget, government-led approach underpinned by greater policy coherence and use of government planning and reporting systems. ASDP also envisaged greater pluralism in service delivery, an improved regulatory environment and stronger control of resources by beneficiaries. ASDP was conceived to have a 15-year horizon and a first phase of 7 years 2006/2007 to 2012/2013.

20. Despite initial delays in Basket Fund contributions and programme start-up, ASDP-1 implementation improved steadily over time. It succeeded in introducing the concept of a sector-wide approach in the agriculture sector. The ASDP process is now widely understood from national down to village level. It has created a mode of operation which has streamlined planning, financial management, monitoring and reporting systems, all of which have shown improvement. It has facilitated significant development of human and physical capacity, particularly at the Local Government Administration (LGA) level¹⁴; a capacity which can now support ASDP-2 activities, and which can also provide an environment for new initiatives to use and contribute to the higher level sector goals.

21. ASDP-1 also faced challenges in the course of implementation. As for the government budgets, its wide thematic area coverage and its national scope resulted in a situation where limited resources were thinly spread, and results were fragmented and hard to assess, attribute and report. Challenges related to inadequate technical capacity, particularly at the level of LGAs in planning, prioritization and implementation were also experienced. Significant carryover of funds from year to year (e.g., about 30% of released funds in the case of irrigation) shows that capacity to plan, manage and deliver investments has been a challenge. Donor harmonization, as envisaged at the start of ASDP, weakened over time and proliferation of self-standing projects gradually emerged. Coalescing around both the Paris Declaration and the Accra Agenda for Action to make development assistance more effective has faced challenges in the agriculture sector in the absence of strong leadership. Other challenges and gaps include limited participation of agribusiness/private sector in programme

¹⁴ See ASDP JIR and Evaluation report 2011.

activities; limited support to farmer organizations, especially on their role in marketing and value addition; incomplete irrigation schemes, which reduces achievement of optimum payoffs and sustainability.

22. **District Agricultural Sector Investment Project** (USD 83 million) financed by the African Development Bank from 2006 to 2013 was implemented in parallel to ASDP-1 in 28 rural districts of Kagera, Kigoma, Mwanza, Mara and Shinyanga regions (about 0.57 million beneficiaries). The project was to increase productivity and incomes of rural households by: (i) farmers capacity building; (ii) community planning and investment in agriculture, especially in infrastructures; and (iii) support to rural microfinance and marketing.

B. Other Related Agricultural Sector Initiatives

23. Besides ASDP-1, major ongoing projects in the agriculture sector, inter alia include:

24. **AFSP** (Accelerated Food Security Programme: about USD 245 million, co-financed in 2009–2013 by the Government of Tanzania and the World Bank in parallel to ASDP). The objective was to contribute to higher food production and productivity in targeted high potential areas in Tanzania through improving maize and rice farmers' access to the critical agricultural inputs (total number of beneficiaries are 1.75 million households). The AFSP had three main components: (i) improving access to maize and rice seeds and fertilizers, by strengthening the NAIVS; (ii) consolidating the agricultural input supply chains, by strengthening private agrodealer networks and national seeds systems; and (iii) project management, and monitoring and evaluation. AFSP also provided an additional financing for: (i) the ASDP-1 (USD 30 million), aimed to promote sustainable agricultural productivity growth, including support to small-scale irrigation and water management, integrated soil fertility management by strengthening research and advisory capacities for soil nutrient management and conservation farming; and (ii) for the second Tanzania Social Action Fund (AF-TASAF-2, USD 30 million), to strengthen the rural safety nets for food insecure and vulnerable people.

25. **MIVARF**: The Marketing Infrastructure, Value Addition and Rural Finance Support Programme (co-financed by the International Fund for Agricultural Development [IFAD] and AfDB for a total of USD 170 million, and coordinated by the Prime Minister's Office [PMO]) is implemented in 26 regions of Tanzania, including the mainland (21 regions) and Zanzibar (5 regions) with a total of 141 rural districts. The programme is expected to directly benefit close to 500,000 rural households. The development objective is to enhance the incomes and food security of the target group sustainably through increased access to financial services and markets. The programme will focus on strengthening the marketing infrastructure and systems, and the rural finance sector. In particular, it aims at: (i) increasing access of poor rural people to a wider range of financial services for productivity-enhancing technologies, services and assets; and (ii) increasing access to sustainable agricultural input and output markets and opportunities for rural enterprise.

26. **MUVI** (The Rural Micro, Small and Medium Enterprise Support Programme): A total of USD 25 million, implemented through the Ministry of Industry Trade and Investment helps improve rural employment opportunities in 6 regions (Iringa, Manyara, Mwanza, Pwani, Ruvuma and Tanga). The programme provides selected medium and small-scale rural entrepreneurs with improved skills training, knowledge and access to markets, to help increase productivity, profitability and off-farm incomes. The programme has three goals: (i) to improve the awareness of rural entrepreneurs of market opportunities and how these can be exploited through the development and implementation of a communication strategy and the training of the entrepreneurs to improve their businesses; (ii) to improve the coordination and cohesion of selected value chains, through the creation and strengthening of backward and forward linkages for the selected chains; and (iii) to strengthen public and private sector institutions to provide efficient and effective support to rural enterprises.

27. **SAGCOT** (Southern Agricultural Growth Corridor of Tanzania): The goal of this initiative is to expand investment in agribusiness leading to income growth among smallholders and employment generation across agribusiness value chains in the Southern Corridor. Its mandate is to mobilize private sector investments and partnerships by catalysing large volumes of responsible private investment, targeted at rapid and sustainable agricultural growth, with major benefits for food security, poverty reduction and reduced vulnerability to climate change. SAGCOT promotes 'clusters' of

profitable agricultural farming and services businesses, with major benefits for smallholder farmers and local communities. The SAGCOT focus on value addition, infrastructure development, agricultural production and productivity and public-private partnership is consistent with the strategies and priorities of ASDS, complemented by KK.¹⁵

28. **BRN** (Big Results Now): The slow pace of implementing Vision 2025 has prompted the government to embark on a new model dubbed ‘Big Results Now’. This initiative has started with six sectors, namely agriculture, energy, education, resource mobilization, transport and water. Expert laboratories prepared priority implementation plans¹⁶ for the next two years. The objective of the agriculture BRN plan is to address critical sector constraints and challenges and to speed up agricultural GDP, improve smallholder incomes and ensure food security by 2015, mainly through smallholder aggregation models for main cereals and high potential crops contributing to import substitution, farm income and food security. Three programmes were prioritized including: (i) building a warehouse based trading system for maize (275 warehouses in 8 districts); (ii) building 78 professionally managed commercial rice irrigation schemes (in 10 districts); (iii) supporting 25 commercial farming (agribusiness) deals in the SAGCOT region. The target under 3 programmes is to have additional 150,000 tonnes of sugar¹⁷, 290,000 tonnes of rice and 100,000 tonnes of maize produced by June 2016. Although BRN provides important impetus in terms of political will, leadership and coordination across ministries, the financing of proposed activities and implementation modalities, coordinated through a Presidential Delivery Bureau (PDB) and Agricultural Delivery Division (ADD).

29. To ensure effective participation of private sector investment in the agriculture sector, through BRN, the Government has embarked on creating a conducive business environment. Among others, highlighted areas addressed as business environment challenges, especially for the micro-, small- and medium-scale enterprises, is both a strategically critical and urgent matter for the prospect of attaining TDV 2025. A Business Environment Lab was also conducted in early 2014, covering six (6) key work streams, namely: (i) access to land and security of tenure; (ii) contract enforcement, law and order; (iii) curbing corruption; (iv) labour laws and skillset; (v) aligning regulations and institutions; and (vi) taxation, multiplicity of levies, fees and charges.

30. **EAAPP** (The East Africa Agricultural Productivity Programme): This programme supports the regional centres of excellence (RCoE) to contribute to increased agricultural productivity and growth by strengthening and scaling up regional cooperation in technology development, training, and dissemination programmes for four priority commodities (wheat, Ethiopia; rice, Tanzania; cassava, Uganda; and dairy, Kenya). Accordingly, EAAPP strives to enhance regional specialization in agricultural research for development (AR4D) and facilitate increased transfer of agricultural technology, information and knowledge within and across national boundaries. The main programme components are: (i) strengthening institutional capacities of RCoEs; (ii) technology generation, training, dissemination and scaling up, focused on regional priorities and using participatory strategies; (iii) improved availability of seeds and breeds, including strengthening the enabling environment for regional seed and breed exchange and trade; and (iv) programme coordination and management at national and regional levels. For the regional coordination activities, each participating country contributes about 2.7% of its budget to ASARECA¹⁸, for regional coordination activities.

¹⁵ ASDP and SAGCOT cover both the Southern Highland corridor area and target smallholder farmers, emphasizing commercialization by linking farmers with agribusiness to enhance competitiveness in domestic, regional and international markets. ASDP-2 will empower smallholder farmers so that they can increasingly benefit from support and services offered through SAGCOT, such as contract farming and out-grower schemes and matching grants under a catalytic fund.

¹⁶ More of a plan than actual programmes/projects as clarified by PMO and the Minister of the then MAF.

¹⁷ To be supported by IFAD (USD 40 million) and co-financed by AfDB (USD 30 million)

¹⁸ ASARECA is a sub-regional organization aiming to enhance regional collective and harmonized action in AR4D, extension, training and education to promote economic growth, fight poverty, eradicate hunger and enhance sustainable use of resources in 11 participating countries. ASARECA focuses on generation and delivery of improved scientific knowledge, policy options and technologies as instruments to drive the sub-region towards meeting the NEPAD CAADP agenda and the MDGs, within a subsidiarity approach.

31. **FTF (Feed the Future):** In Tanzania FTF is a USD 70 million annual off-budget contribution from the United States Agency for International Development (USAID), of which 80% is invested in SAGCOT; the rest targets Manyara and Dodoma regions and the Zanzibar islands. The FTF strategy, aligned to TAFSIP, is integral to the USAID strategic plan in both achieving sustained economic growth through agriculture and improving the nutritional status of all Tanzanians. Investments aim at improving economic opportunities and incomes through private sector led interventions and partnerships, including for women and youth. Expected outcomes are to increase yields (maize and rice), productivity and market access for horticulture producers and prevalence of children receiving a minimal acceptable diet, targeting about 100,000 smallholders (about 2% of the total number of smallholders). Furthermore, FTF is supporting the Tanzanian government to: (i) make informed policy decisions based on research and data, including quantifying the impact of rescinding the maize export ban, examining land compensation and leasing schemes and implementing a collateral registry system; and (ii) build human capacity and strengthen collaborative research capacity in national universities and institutions. FTF is also leveraging and scaling up local innovations, including food fortification, to improve access to nutritious foods and increase dietary diversity along the value chain.

32. **ASDP-1 Financing:** In the past 10 years, ASDS has been operationalized by ASDP with financing by the government (central and local governments), the World Bank, AfDB, IFAD, the governments of Japan and Ireland, and the European Union. ASDS and ASDP emphasized sector-wide approach and Basket Funding as the preferred form of contribution from donors to foster harmonization of sector interventions, as opposed to the proliferation of ‘traditional’ projects. Overall, it appears that over the ASDP-1 implementation period, development partner funding support to the agriculture sector gradually moved towards increasing levels of earmarked basket funding, (back to) ‘traditional’ on-budget projects/programmes implemented through different sector ministries, but also increased off-budget support. Although not always recognized¹⁹, several stand-alone projects were building on systems and capacities developed and maintained by ASDP-1, especially at LGA level: mutual levering is commendable, but non-earmarked financing of basic capacities, (Extension and Capacity building Block Grants) have decreased to a critical level. Development partners have also made further investment commitment to BRN and/or specific local programmes, with high investment concentration on the SAGCOT area. ASDP-2 is open to a variety of financing modalities including the Basket Fund.

C. Agriculture Sector Review-Public Expenditure Review (ASR-PER)

33. There is significant variability between sources of information relating to public expenditure in the agriculture sector. For example, the ASDP Secretariat often use budgets and expenditure of agriculture sector lead ministries (ASLMs). This approach excludes departments and agencies which undertake agricultural activities and is therefore prone to under-reporting of public expenditure. In contrast, the Ministry of Finance uses a broader definition of the agriculture sector than that reported by the ASDP. A more reliable source of information on public expenditure in agriculture are the series of annual reports on agricultural public expenditure, prepared since 2006, including the most recent Agriculture Sector Review-Public Expenditure Review (ASR-PER) (2014) issued in March 2015²⁰. The main aims of the ASR-PER are to: (i) present in-depth analyses on current issues of sector policy; and (ii) provide a standard database on key indicators of sector development, government interventions and public spending.

34. The ASR-PER compiles expenditure data by applying the standard Classification of Functions of Government (COFOG) which covers crops, livestock, fishing and production forestry. The statistics

¹⁹ The IFAD Country Programme Evaluation (December 2014 final-unedited), recognized the high relevance, effectiveness, efficiency and sustainability of their ASDP investments when compared to alternative investments especially in agricultural marketing and value chain development.

²⁰ Agriculture Sector and Public Expenditure Review 2014, MAFC, March 2015.

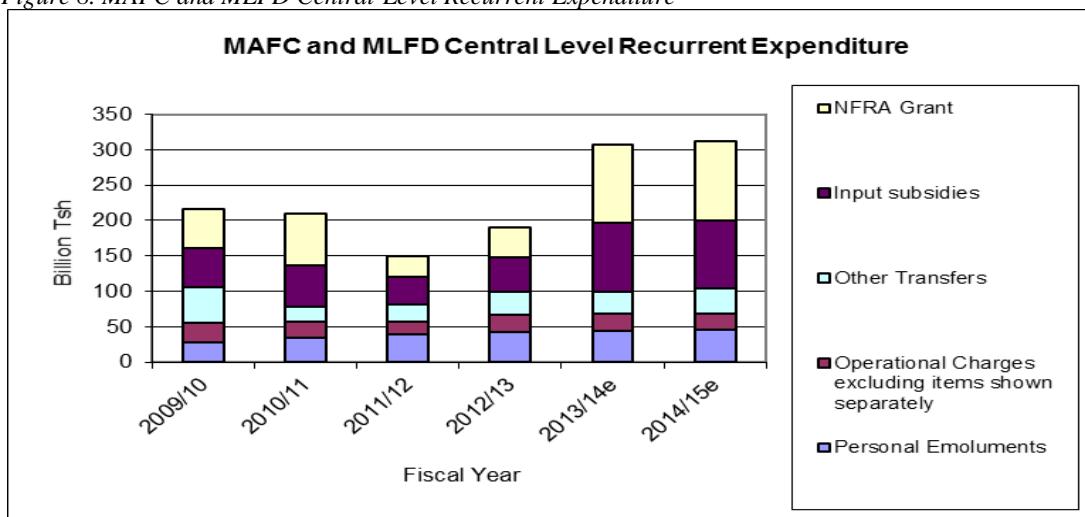
include expenditure from domestic budgetary sources (both national and sub-national) as well as from donor contributions in the category of “aid to government” and official loans. Expenditure on irrigation schemes is also included, but support for processing and marketing of agricultural products is not covered. The data collected by the annual ASR-PER is also used to monitor actual spending levels against the benchmark of the Maputo Declaration of 2003 and reaffirmed under the Malabo Declaration of 2014 in which the Heads of State of the African Union are committed to allocating 10% of total public expenditure to agricultural development. This commitment is primarily aimed at accelerating annual agricultural growth (target at 6%) to reduce poverty and enhance food security.

35. Public expenditure on agriculture appears in the central government budget mainly as recurrent and development spending of the Ministry of Agriculture Food Security and Cooperatives (MAFC) and the Ministry of Livestock and Fisheries Development (MLFD). However, services to farmers are primarily provided by LGAs and financed through grants from the central budget. The agriculture sector also receives development aid, but only the on-budget portion appears in budget estimates and financial statements.

36. **Recurrent expenditure** through MAFC and MLFD and agricultural spending by districts, have increased in recent years. However, this can to a large extent be attributed to the growth in input subsidies (2009–2012) and grants to the National Food Reserve Agency (NFRA). Expenditure on NFRA, input subsidies and other transfers to autonomous government institutions and international organizations, is shown in Figure 8.

37. In 2013/14, total recurrent expenditure through MAFC and MLFD was estimated at TSh 306.6 billion with special expenditure (i.e., NFRA grants, input subsidies and transfers to other government agencies) absorbing TSh 238.1 billion (78% of the total MAFC budget). In contrast, routine expenditure (i.e., personnel costs and operational charges) amounted to TSh 68.5 billion (22% of the total MAFC budget). However, while NFRA grants and input subsidies have increased since 2011/12, expenditure on personnel and operational charges has broadly remained unchanged and, in real terms, routine expenditure at central level has actually declined (Table 1).

Figure 8. MAFC and MLFD Central-Level Recurrent Expenditure



Source: ASR-PER, March 2015 (based on Budget Estimates for various years).

Table 1: MAFC and MLFD central level recurrent expenditure (TSh million)

	2009/10 Actual	2010/11 Actual	2011/12 Actual	2012/13 Actual	2013/14 Estimate	2014/15 Estimate
Routine Expenditure						
Personnel Emoluments						
MAFC	16,953	18,490	21,659	25,167	26,328	27,169
MLFD	11,467	15,669	17,238	16,721	18,429	18,429
Operational Charges						
MAFC	11,673	9,781	7,174	16,368	14,516	14,916
MLFD	15,373	12,501	10,371	8,836	9,207	7,533
Total Routine Expenditure	55,465	56,441	56,442	67,091	68,479	68,047
Special Expenditure²¹						
Input subsidies MAFC	54,963	56,902	39,893	47,858	97,014	96,900
Input Subsidies MLFD	332	149	26	127	106	37
NFRA Grant	54,657	74,383	28,134	42,423	110,400	111,254
Other Transfers	50,761	22,436	24,269	32,432	30,596	35,401
Total Special Expenditure	160,714	153,870	92,323	122,839	238,115	243,592
Total MAFC and MLFD Recurrent Expenditure	216,179	210,311	148,765	189,930	306,594	311,639

Source: ASR-PER, March 2015 (based on actual and budget estimates for various years).

38. With regard to LGA expenditure, Table 2 shows that the levels of district spending account for a significant proportion (above 60%) of total routine expenditure. However, when compared to agricultural GDP, total routine expenditure (i.e., spending at central level plus district level recurrent and development spending) amounts to only 1.2% to 1.7% of agricultural GDP. Furthermore, this proportion is declining because agriculture's contribution to GDP is growing while public expenditure on agriculture stagnates. In addition, extension and technical services account for a substantial proportion of district spending.

²¹ ‘Special Expenditure’ is defined as grants to NFRA, spending on input subsidies, and transfers to other government agencies and international organizations.

Table 2: Routine expenditure on agriculture and as a proportion of agriculture GDP

	2009/10 Actual	2010/11 Actual	2011/12 Actual	2012/13 Actual *	2013/14 Estimate	2014/15 Estimate
Central recurrent routine expenditure	55,465	56,441	56,442	67,091	68,479	68,047
Districts—recurrent		37,098	48,365	58,652		
Districts—development		69,631	56,227	34,909		
Total (TSh million)	163,170	161,034	160,652			
Agriculture GDP (TSh billion)		9,429	11,675	13,780		
Recurrent routine expenditure as % of Agriculture GDP		1.7%	1.4%	1.2%		

Source: ASR-PER, 2015 (*Budget Estimates for central level expenditure & PMO-RALG district spending*).

39. Technology-enhancing expenditure is a significant component of the MAFC budget with expenditure on research, plant breeding, mechanization and irrigation services absorbing between 40% and 50% of the total expenditure excluding NFRA grants and input subsidies (Table 3). Nevertheless, technology-enhancing expenditure is still very low and almost negligible (0.3%) in relation to the crops sector's contribution to GDP.

Table 3: Technology enhancing expenditure in MAFC (TSh million)

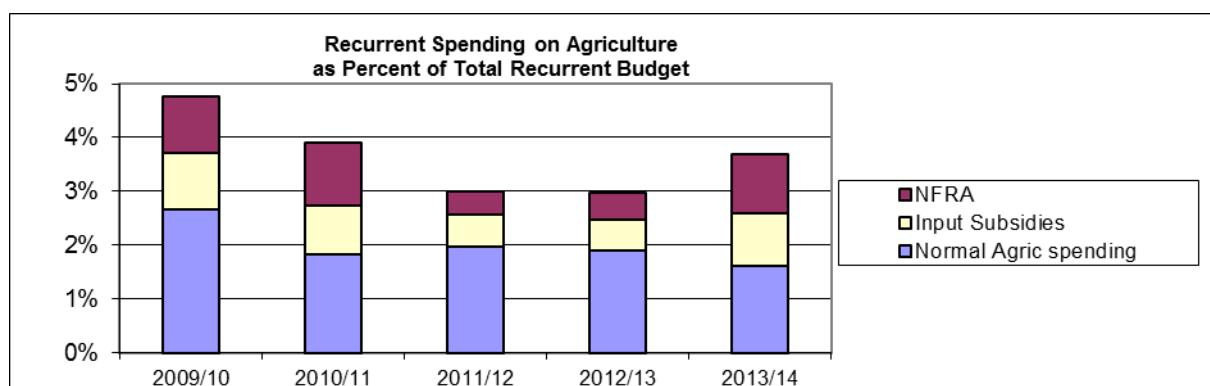
	2009/10 Actual	2010/11 Actual	2011/12 Actual	2012/13 Actual	2013/14 Approved	2014/15 Approved
MAFC Personnel	16,953	18,490	21,659	25,167	26,328	27,169
MAFC Operation Charges excluding input subsidies	11,673	9,781	7,174	16,368	14,516	14,916
MAFC Transfers excluding NFRA grants	45,606	19,033	19,454	17,388	19,988	28,332
Total MAFC excluding input subsidies and NFRA grants	74,231	47,303	48,288	58,922	60,831	70,417
Of which technology enhancing	17,076	18,263	22,400	28,641	29,073	27,953
Technology enhancing as % of MAFC excluding input subsidies & NFRA grants	23.0%	38.6%	46.4%	48.6%	47.8%	39.7%

Source: ASR-PER, March 2015 (*based on Budget Estimates for various years*).

40. With regard to the estimate of agricultural expenditure as a proportion of total government expenditure, the ASR-PER study was only able to determine ratios for recurrent expenditure. Due to the lack of adequate and reliable data on spending by development partners, it was not possible to accurately estimate ratios for both capital and recurrent expenditure. The results of the ASR-PER analysis show that routine recurrent spending on agriculture amounts to around 2% of total recurrent spending by government. If expenditure on NFRA support and input subsidies are also included, spending on agriculture as a share of total recurrent expenditure was estimated to range from 3.0% to 3.7% (excluding debt service) between 2010/11 to 2013/14 (Figure 9). The increase in the agricultural budget for 2013/14 is due entirely to increased spending on NFRA and input subsidies.

Figure 9. Recurrent Agricultural Expenditure as Proportion of Total Recurrent Expenditure

Source: ASR-PER, March 2015



41. Public expenditure on agriculture in Tanzania is therefore very low and, even if NFRA grants Agricultural Sector Development Programme 2 (ASDP-2)

and input subsidies are included, agricultural spending as a proportion of total government budget is well below the target 10% envisaged in the 2003 Maputo Declaration. In addition, as a signatory of CAADP, Tanzania is expected to change both its investment pattern and meet some of the key principles of the programme, namely “pursuing an average of 6% annual agricultural sector growth at country level, and allocating 10% of the national budget to agricultural development”. To achieve these goals, a substantial increase in investments in sustainable agricultural development is therefore required, and it is anticipated that programmes such as ASDP-2 will provide a framework to facilitate rapid expansion of agricultural investment.

42. Revenue collection and budget execution (Table 4). In 2012/13 actual revenue collected amounted to 92% of the estimate, while total recurrent expenditure was 95% of the planned budget. In 2013/14 the rates were even lower with revenue collection and budget execution achieving rates of only 88% and 87% respectively. With the exception of the MLFD execution rate for recurrent expenditure in 2013/14, the budget execution rates for MAFC and MLFD were generally lower than the overall execution rates. It should, however, be noted that the low budget execution rates for MAFC are highly influenced by the disbursement rate for NFRA grants and input subsidies which account for most MAFC recurrent spending. Execution rates for routine recurrent expenditure of MAFC are usually higher than the rates for special expenditure.

Table 4: Revenue collection and budget execution rates

	Overall	MAFC	MLFD
2012/13			
Domestic revenue	92%		
Recurrent expenditure	95%		
Agriculture Central Level:			
Recurrent expenditure		84%	80%
Development expenditure: Local		41%	48%
Foreign		97%	80%
2013/14			
Domestic revenue	88%		
Recurrent expenditure	87%		
MAFC and MLFD:			
Recurrent		71%	90%
Development		82%	40%

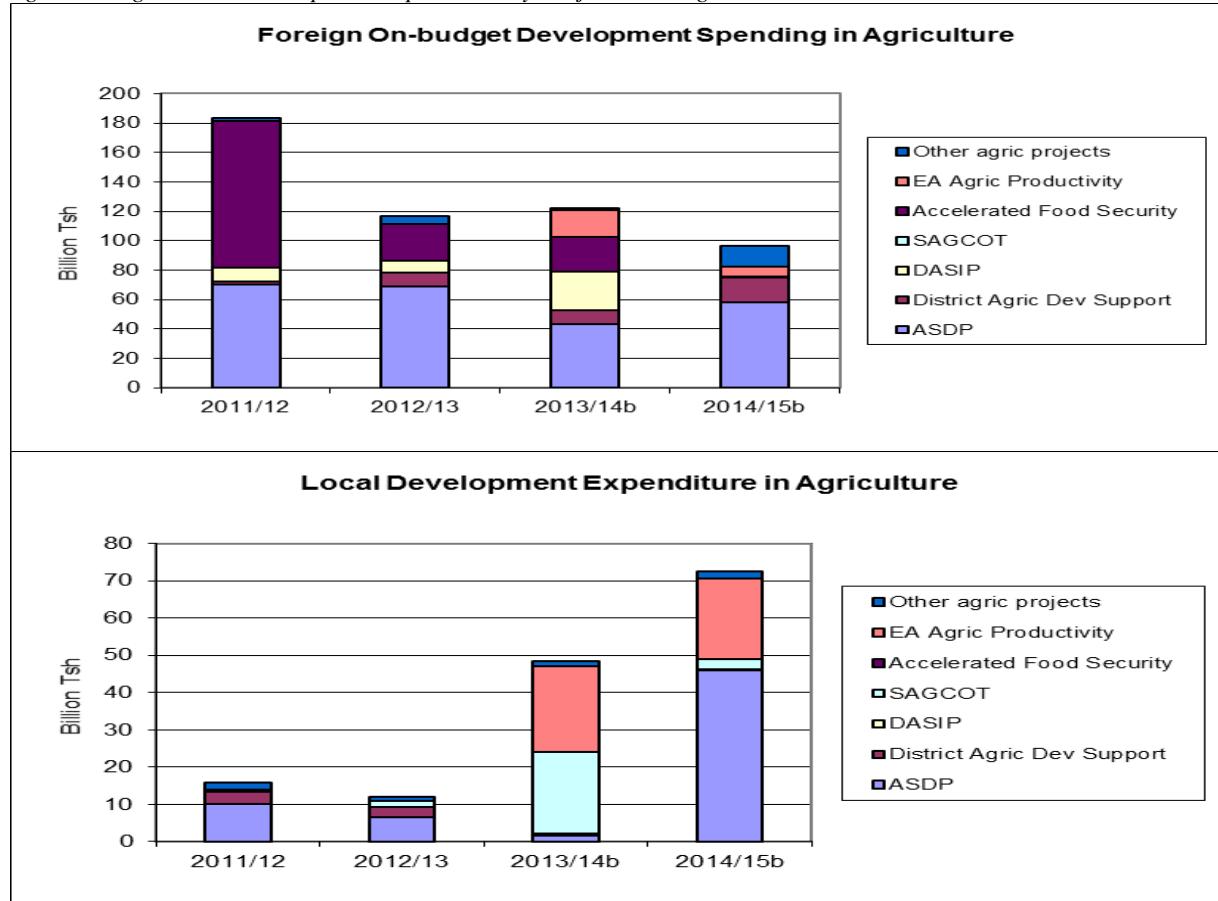
Source: ASR-PER, March 2015 (from 4th Quarter Budget Execution Reports 2013 and 2014).

Note: The 2013/14 Execution Report does not distinguish between domestic and foreign expenditure.

43. Development Expenditure. With regard to development expenditure, the ASR-PER (March 2015) noted that “records about development expenditure in the agricultural sector are utterly incomplete”. The two main sources of data are available: (i) government budget documentation; and (ii) the aid management platform, a database that donors supply with their respective information.

44. Overall, the coverage of development aid in the government budgets remains poor. Donors contribute substantial funds through development projects, but a significant proportion of expenditure is not recorded in government budgets as off-budget spending; Non-Governmental Organization (NGO) expenditure is also not captured. A list of agricultural projects and their respective donors are indicated in the budget book, but the list is not exhaustive and does not show annual expenditures. Based on available data, the on-budget development spending by international donors is presented in Figure 10: about TSh 183 billion was spent by donors in 2011/12, with ASDP and AFSP being the major contributors to development expenditure. In the past two years, on-budget spending by donors in the agriculture sector declined and, by 2014/15, it was estimated that development expenditure would be TSh 97 billion, considering that AFSP was terminated in 2013/14. With regard to local development expenditure within the agriculture sector, Figure 10 shows that only TSh 16 billion was spent in 2011/12, but this spending substantially increased in 2013/14 and was projected to rise to TSh 72 billion in 2014/15. Local development expenditure reflects the spending at central level and the contributions of LGAs towards agricultural development spending are not included, but remain limited.

Figure 10. Agriculture Development Expenditure by Project – Foreign and Local



Source: ASR-PER, March 2015 (from Budget Estimates Vol. IV for 2013/14 and 2014/15)

III. ASDP-2-DESIGN PROCESS AND PRINCIPLES

A. Lessons Learned from ASDP-1

45. Unlike other sectors, public investment in the agricultural sector does not directly produce the expected results, but rather facilitates the private sector (farmers and commercial partners) to achieve the expected targets. Several lessons and experiences have been drawn from the implementation of ASDP-1 (and other related programmes/projects) and will guide the design of ASDP-2, including²²: (i) the potential efficiency of a Sector Wide Approach (SWAp)²³ in agriculture when sufficient leadership, commitment and well-resourced decentralization of agricultural development planning and implementation can be well anchored; (ii) results orientation of local and national development planning, implementation and M&E need to be strengthened to achieve sustained productivity growth—through technology adoption in value chains that offer competitiveness and most favourable market prospects; (iii) focus resources on high impact areas, which beyond productivity, also strengthen upstream levels of targeted value chains, such as market linkages and facilitating access to value addition facilities, involving strengthened farmer organizations and facilitation of their participation in marketing and value addition; (iv) sustainable irrigation development with robust planning and management systems throughout the cycle to aid appropriate infrastructure development, water resource management, professional and institutional management of the schemes and access to services and inputs; (v) champions at national and local level for adequate planning and funding mechanisms to promote private sector participation, supported by appropriate mechanisms; (vi) the design of the M&E framework should be based on national statistical surveys and the Agricultural Routine Data System (ARDS) enabled to produce timely information to measure programme achievements; (vii) improved access to seeds and fertilizers towards increased adoption rates and productivity and strengthened sustainability of productivity gains.

46. The following are some of the key lessons learned from ASDP-1 implementation over the last six years. The performance of the ASDP, though not without challenges, has shown that:²⁴

- a) *A sector-wide approach in agriculture is possible* where sufficient political and donor commitment is in place, and where a well-resourced decentralization policy is pursued on to which local level agricultural development planning and implementation can be attached. It also clearly demonstrated that successful implementation requires strong sector leadership at various levels and unwavering alignment of development aid to this approach.
- b) *Thinly spread resources result in fragmented results/impacts, generally difficult to measure.* ASDP was launched as a national programme covering all districts in Tanzania Mainland. Initially, one of the options considered was a phased implementation, covering a few districts at a time. In hindsight, because of the scale and complexity of implementing a new programme nationally, phasing may have been a better option. This would have allowed for better focus and complementarities between programme interventions, thus a better programme impact.
- c) *Successful decentralization of agricultural sector support.* The integration of the agricultural grants within the Local Government Development Grant (LGDG) and the decision to

²² Adapted from ASDP-1 evaluation (June 2012) and other evaluations of other on- and off-budget agricultural sector support projects. Further elements are extracted from the ASDP Implementation Completion Report (Draft version early 2014).

²³ IFAD Country Programme evaluation which recognized ‘reduced programme management costs as compared alternatives fielding separate projects and reduced transaction costs for the Government and development partners’ ... allowing thus for a higher investment rate at farmer level. (Source: IFAD Country programme Evaluation Dec 2014 Unedited Final Version, p. 71).

ASDP-1 also contributed to harmonized mechanisms and adhered to the principles of the Paris Declaration and the Accra Agenda for Action towards strengthened country ownership.

²⁴ Adapted from: ASDP Evaluation June 2011 and follow-up studies on irrigation, extension etc.; ASDP ICR (Government report)—draft Jan 2014.

implement participatory district agricultural development plans (DADP) has been successful. The bottom-up planning processes has improved over time and has begun to provide a model for other sectors. Coordination between the then PMO-RALG and the ASLMs, and the efforts to conduct impartial annual assessments of the quality of DADPs has demonstrated that performance-based funding can be implemented using national planning and financing mechanisms.

- d) *Increased productivity needs to be linked to value addition, marketing and increased farmer income.* To date, ASDP-1 has focused mainly on basic production technology diffusion and processes. The lesson, based on field level studies, is that many farmers are already knowledgeable about basic production techniques, except perhaps for new crops and new practices that emerge periodically. What is lacking and gaining importance is focus on how farmers increase their incomes by engaging in more profitable activities including value addition and improved market efficiency. Generation and dissemination of basic technologies must be pursued together with greater consideration of supply chain linkages, especially expanded access to marketing.
- e) *Little progress in farmer empowerment and organization strengthening.* Creating and strengthening farmer organizations, or empowering farmers, is a topic covered in most projects and programmes, including ASDP. However, little qualitative or quantitative evidence exists of notable progress in this area, and thus achievement of limited progress in improving access to markets, as well as farmers' productivity and incomes. In view of the focus on a value chain approach, this area deserves significantly higher levels of attention to overcome critical constraints along the value chain, through collective action.
- f) *Lack of clarity about how the public sector should facilitate and enhance private sector involvement in the agricultural sector.* Value chain development requires permanent consultation (from the design stage and on) and coordinated approaches with private sector actors (economic and associative) and with other international organizations. Coordination promotes joint efforts to develop private and public stakeholder involvement and cooperation, to enhance public capabilities for enabling strategic policy formulation and implementation. Furthermore, low participation of private agribusiness sector and private service providers (PSP) indicates the need for adequate planning and funding mechanisms at national and local level to support private sector involvement. This should be done either within the ASDP-2 framework or through other emerging multi-donor initiatives, such as the Agricultural Marketing Development Trust or SAGCOT, etc. The involvement and capacity strengthening of private and associative (farmer organizations [FO], NGO and civil society organizations [CSO]) service providers would also allow for enhancing collaboration, alliances and increased efficiency²⁵.
- g) *Incomplete irrigation schemes and inadequate maintenance limit sustainability and farmers' returns* due to poor planning and management of irrigation development, inadequate resources and limited access to professional support services and productivity enhancing technologies. Irrigation is a major part of the ASDP-1 investment with about 112,500 ha upgraded and developed from 2006 to 2012 (18,920 ha per annum on average). Progress in this area has been significant and the capacity to implement larger investments has improved. Nevertheless, the irrigation schemes have encountered problems before, during and after construction and commissioning. These problems are documented and analysed, and lessons show that new investments need to be prioritized through feasibility studies to determine the most cost effective irrigation infrastructure, area to be developed for irrigation and institutional organization and management of schemes. Most of the schemes supported by ASDP-1 were rehabilitation and improvement of existing schemes, but deferred maintenance, faulty designs and poor workmanship of irrigation schemes require corrections. Through careful planning and professional management, the prevailing vicious circle of build-deferred maintenance-rehabilitation can be broken.

²⁵ Adapted from IFAD-COSOP evaluation and analysis (Dec 2014).

h) *Harmonized sector M&E challenging to implement.* The design of the ASDP M&E framework was based around costly national statistical surveys that were not timely in producing information about programme achievements. Equally, the planned annual services delivery surveys that would have given regular estimates of intermediate outcomes such as adoption of improved technologies were not implemented until 2008/9. In their absence, M&E reports were based on direct surveys of LGA authorities, and these have been incomplete and have contained inaccuracies. Finally, the set of short-list M&E indicators was modified over time and, while they reflect an active interest in regular results, the list now also fails to capture critical areas such as pace of empowerment, service reform and research outputs. There are several lessons to draw from the experience including: (i) the need to ensure that any national survey and ARDS has sufficient resources to provide necessary analysis and results on time; (ii) the importance of financing necessary planned annual surveys that provide critical annual performance assessments, for both outputs and outcomes; and (iii) above all the need to use M&E as a tool to track reform processes as well as measuring conventional benefits such as production and technology adoption. Overall, progress towards system alignment remained limited, while the broadening investment plan (TAFSIP) allowed for claiming policy/strategic alignment.

47. **In summary**, the SWAp implemented through ASDP-1 appears as a strong case of effectiveness, impact and sustainability. The ASDP-1 Basket Fund was instrumental in setting in place systems for delivery of infrastructure and extension services to smallholder farmers through LGAs, including for other stand-alone projects implemented. Interventions focusing on agricultural marketing and value chain development were hampered, constraining their effectiveness and efficiency and the sustainability of benefits. Furthermore, in recent years many donors and NGOs have supported several interventions in agricultural value chain development with the risk of inconsistent approaches and uncoordinated actions, which has limited their collective potential for rural transformation. There has been limited progress in supporting agricultural marketing and value chain development and the proliferation of uncoordinated activities in agricultural value chain development forms the risk of inconsistent approaches. Programmatic efficiency involves participative results-based programming and coordinated M&E systems to be streamlined into the agricultural sector statistics. Further investment in institutional capacity and methodology for enhancing outreach to farmers and other value chain stakeholders, and continuity and consistency in policies are key factors to ensure sustainability of results.

B. Key Agricultural System Challenges and potential drivers

48. Challenges and constraints to the implementation of ASDP-2 are summarized as follows:

Table 5: Key constraints and thematic drivers

Area	Key constraints	Thematic drivers
Enablers	<ul style="list-style-type: none"> - Poor implementation and coherence of existing policies - Inadequate coordination across agencies and weak links to regions and the local level - Inadequate data and data systems both for informing decisions and knowledge exchange - Inadequate infrastructure (crop and livestock production, energy, water, market access, etc.) - Inadequate land tenure systems, planning and enforcement - Weak link between public and private sector 	<ul style="list-style-type: none"> - Government to own, improve and effectively implement and monitor and evaluate appropriate policies
Potential productivity	<ul style="list-style-type: none"> - Ineffective national agricultural research systems and funding (insufficient personnel, qualification to respond to farmer needs) - Weak of adapted innovation products for farmers use (too generic and not farming systems and site-specific); - Weak links, mechanisms and mainstreaming of innovations between research-extension and stakeholders/implementers - Inadequate of improved genetics (livestock & fisheries) - Inadequate crop, livestock and fisheries research - Inadequate control of diseases and pests - Inadequate extension service equipment (transport, veterinary kits and services, extension kits) - Inadequate diagnostic capabilities (equipment and personnel) - High calf mortality rate for livestock due to tick and tick-borne diseases 	<ul style="list-style-type: none"> - Strengthen agricultural systems: <ul style="list-style-type: none"> o research and extension, and their linkages; o seeds, fertilizers, animal genetics and fingerlings o other input systems including mechanization o animal and plant health services o diagnostic laboratories (veterinary, etc.)
Realized Productivity	<ul style="list-style-type: none"> - Inefficient seed and animal genetic systems - Inadequately staffed and capacitated extension systems - Low input use (fertilizer, seeds, machinery, feed fodder, vaccines, fingerlings, etc.) - Inadequate rural platforms (Farmers Organization, Small and Medium Enterprises) to allow farmers to engage with governments and the private sector - Inadequate automated machinery for veterinary vaccine production - Inadequate development, use and monitoring of vaccines - Inadequate testing and quality monitoring of acaricides and other pesticides for vectors and pathogens control 	<ul style="list-style-type: none"> - strengthen the national livestock vaccine production - strengthen capabilities in testing and monitoring of acaricides and other pesticide
Realized value	<ul style="list-style-type: none"> - Huge post-harvest losses (25–35%, varying by crop and region) due to inadequate of agroprocessing expertise, facilities, storage and access to markets - Inadequate market information and research - low production indices for milk, meat and eggs - Low quality animals and animal products not able to compete on or access lucrative markets - Inadequate and weak enforcement of standards in food quality and safety. - Inadequate cooperative/union/farmer organization structures to ensure competitive pricing and reliable demand - Underdeveloped private sector, difficult regulatory system and weak market pull - Limited access to credit/finance and insurance 	<ul style="list-style-type: none"> - promote functioning input, output and credit markets - promote well functioning farmer organizations and cooperatives - strengthen enabling environment for private sector participation including promotion of PPP
Cross-cutting: Gender, stakeholder improved governance, institutional capacity at various levels		

Adapted from BMGF (2014).

49. Summary of Main Sectoral Constraints²⁶

- 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, livestock genetic improvement (artificial insemination, embryo transfer), fingerlings, acaricides, vaccines and veterinary drugs);
- iii. Low genetic potential of the indigenous livestock and limited supply of improved breeds;
- iv. Weak delivery of agricultural support services for crops, livestock, fisheries, for improved technologies, crop and animal health services, regulatory services, etc.;
- v. Inadequate prioritized and quality public investments and low level of private sector investments in infrastructure (e.g., irrigation, rural roads, storage facilities, rural energy, market infrastructure);
- vi. Constraints to efficient and competitive agricultural marketing and agroprocessing, including limited value chain development;
- vii. Limited access to sustainable rural finance;
- viii. Inadequate land use planning allocation and secure tenure for land users;
- ix. Weak capacities to respond to climate change challenges;
- x. Weak institutional and human resource capacities and inadequate coordination among stakeholders, at national and local levels, including weak agricultural statistical system.

50. Strategic System “Drivers” for inclusive agricultural growth and reduced rural poverty²⁷. To achieve the ASDS-2 goal, the programme objective for ASDP-2 will build on the lessons learned from ASDS-1 and ASDP-1 and focus on intensifying and operationalizing the following key drivers for sectoral growth transformation and rural poverty reduction:

- ***Policy and Regulatory Framework.*** Promoting the effective multi-stakeholder formulation, consensus and effective implementation of key policy and regulatory reforms which can enable key productivity and value chain drivers of the sector transformation process. This process ensure expanded access to and efficient utilization of improved seeds, fertilizers, agrochemicals, vaccines, AI, fingerlings complying with sanitary and phytosanitary standards for ensuring competitive exports, marketing policies and regulations, enhanced value chain development, sustainable incentive structure for various actors, consistent with Tanzania’s market and competitive advantage. For the regulatory framework (legislation, institutional framework and human resources), the government is also working on, among others: (i) development of the conducive legal environment for strengthening farmers organizations and cooperatives societies; (ii) identification, demarcation and effective utilization of agricultural land; (iii) promotion of agricultural mechanization; (iv) facilitation contract farming for reliable markets; (v) price stabilization fund; and (vi) crop laws reforms.
- ***Production/Productivity and Trade.*** Increasing sustainable productivity of crop, livestock/fish and export commodities, would improve household nutrition and food security, but also marketable surplus. Increased competitiveness and farmer profitability will be enabled by: (i) sustainable productivity-enhancing technologies (including climate smart), facilitated through strengthened research-extension linkages; (ii) effective extension models using ICT; (iii) expanded and inclusive private sector role; (iv) sustainable access to rural financing; and (v) stronger and more effective farmer cooperatives and organizations which also would support and incentivize expanded marketed production, and value chain development.

²⁶ The current ASDS-2 document includes a background subsection on a summarized SWOT for the agricultural sector. This assessment provides a rather homogeneous picture of the sector: an updated framework disaggregating constraints based on a typology of rural households would be most useful to further develop appropriate and differentiated strategies/measures.

²⁷ To achieve inclusive agricultural growth and rural poverty reduction, relevant evidenced-based analyses need to be further sharpened and disaggregated, to better target specific farm household types, and/or agro-ecological zones articulated along key CVCs.

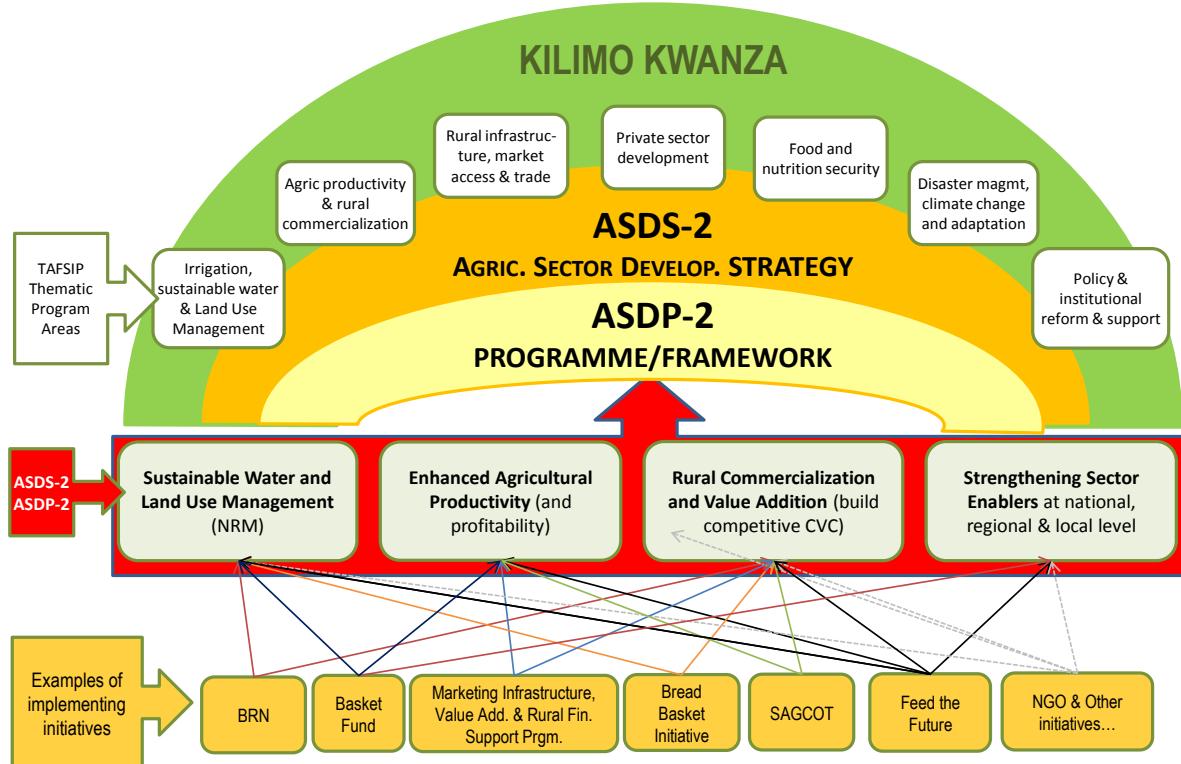
- *Inclusive Private Sector.* Stimulating expanded and inclusive private sector-driven development and integration, facilitated by: (i) effective and viable public–private partnerships and public support services, and (ii) expanded rural infrastructure (especially small-scale irrigation, post-harvest facilities veterinary infrastructure, storage facilities and rural feeder roads). This would contribute also to much needed expanded off-farm employment opportunities.
- *Institutional Capacities and Coordination.* Strengthening institutional development and effectiveness, including: (i) results-focused capacity development of key actors at national and local levels; (ii) more efficient, responsive transparent and accountable decentralization of key agricultural services and implementation; (iii) more effective and evidenced-based planning, budgetary and M&E systems at various levels, involving all stakeholders; (iv) enhanced nutrition and food security support services; and (v) enhanced processes and mechanisms for more effective coordination within ASLMs, other sector ministries/agencies, Development Partners, local government agencies/entities, private sector and other key stakeholders (including farmer and other commodity value chain organizations).

C. The Process towards ASDP-2

51. Implementation of ASDP-1 has benefited from regular joint reviews that have led to a better understanding of the challenges as well as the strengths and weaknesses in the programme design and implementation performance. The annual Joint Implementation Reviews (JIR) involving ASLMs, development partners, agribusinesses, LGA representatives and farmer representatives at local and national levels have been used to track implementation progress and achievement of the programme objectives. This has allowed for timely removal of implementation bottlenecks and adapted programme adjustments. Information from regular contact between the supervising authorities and those responsible for the implementation is compiled by the ASDP Secretariat and PMO-RALG and this has informed design of ASDP-2. Efforts have been made to incorporate the lessons learned in ASDP-2 design and to address the challenges encountered during implementation to avoid similar setbacks and impediments. ASDP evaluation carried out in 2011, the ASDP-1 Implementation Completion report (2014) and related studies and analysis were extensively used. Most of the reviews have made recommendations and elaborated ways to improve the relevance and effectiveness of the various interventions, as well as processes, procedures, guidelines used in the day-to-day implementation²⁸.

²⁸ Evaluation of the Performance and Achievement of the Agricultural Sector Development Programme, MAFC, 2011.

Figure 11: Tanzania landscape for agricultural development (2015–2024)



52. Over the past years, extensive consultations were held with government officials, private sector representatives, civil society representatives, development partners and LGAs, to understand what worked and what did not work in the course of implementation. The overall ASDP-2 framework encompasses all public funded (public good funded by the government, development partners and NGOs) activities in the agriculture sector, implemented under the guidance of the updated sector strategies (ASDS-2), taking into account relevant aspects of the TAFSIP framework.

53. **The Basket Fund** approach appeared rather challenging during ASDP-1; the clear separation of programmatic support from financing modalities encouraged most donors to earmark their contributions to specific activities. Although Basket Fund financing remains the preferred government financing modality, the current non-earmarked contributions to a large extent originate from the Government of Tanzania, while all main donors have earmarked large parts of their on- and off-budget contributions. Earmarking appears to be a non-viable solution for financing core sector-wide functions within a harmonized and aligned investment programme, including coordination and M&E.

54. ASDP-2 is a results-oriented sector programme for public support delivery. It serves as the main vehicle for the implementation of the sector strategy (ASDS-2), but also sub-sector policies and development programmes (crops, livestock, marketing, food security and nutrition, private sector, etc.). The formulation framework (Figure 12) and its financing modalities (Figure 13) include key elements, such as: (i) orientation towards leveraging and catalysing inclusive private investment; (ii) close coordination between public-private-partnership in areas of high potential (SAGCOT) or around commercially viable value chains (BRN), as pilots that can be up-scaled in the framework as a whole; (iii) strengthened sector coordination (common planning and budgeting, joint monitoring and evaluation) for increased accountability of all actors, at national and local levels; and (iv) integrating different aid modalities and progressively aligning planning and implementation, and M&E procedures to strengthened country systems.

Figure 12: ASDP-2 design and formulation framework.

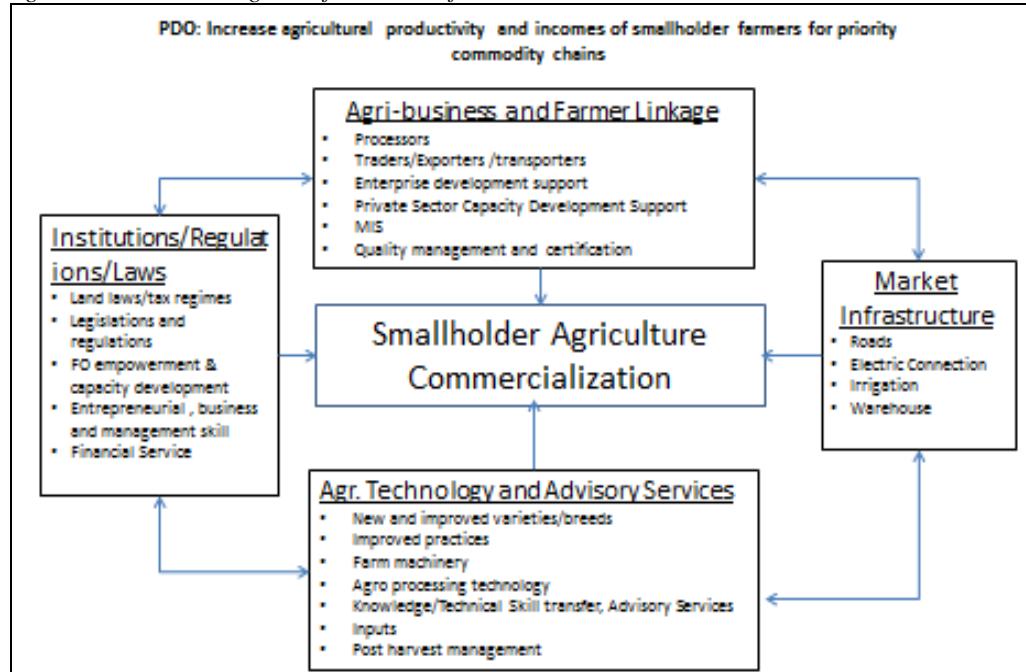
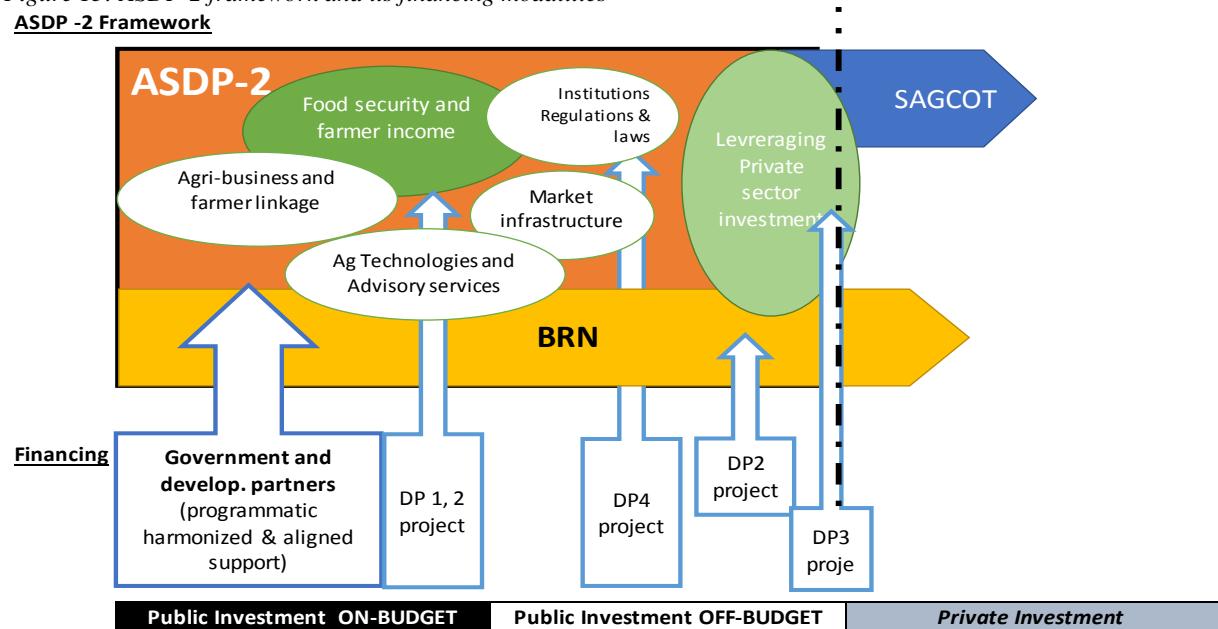


Figure 13: ASDP-2 framework and its financing modalities²⁹



55. The key role of the ASLMs, led by Ministry of Agriculture Livestock and Fisheries, is to promote coordination and harmonization across all development and cooperator partners investments in the sector, to provide a viable pathway out of poverty for the nation's millions of small-scale farmers, and to facilitate the road towards improved sector harmonization and alignment of partners to drive equitable growth in a sound and common framework. Including by stimulating inclusive private sector role and investments (including public-private partnerships—PPPs)³⁰.

²⁹ Further details in Agriculture Sector Development Programme—ase 2: Coordination Mechanisms. Revised Draft discussion notes for the ASCG. 2012/13.

³⁰ The concept of PPP in productive sector and socio-economic services entails an arrangement between the public and private sector entities whereby the private entity renovates, constructs, operates, maintains, and/or manages a facility in whole or in part, in accordance with specified output specifications. The private entity assumes the associated risks for a significant period of time and in return, receives benefits and financial remuneration according to agreed terms (PPP, 2009).

D. Key Design Principles for ASDP-2

56. Consistent within the key features of ASDS-2, the following principles underline the design of the ASDP-2 programme.

Box 1: Key Principles of the ASDP-2 Design

Key principles of the ASDP-2 design

- **Priority focus on commercialization of sustainable small-scale farmers production systems** by market orientation;
- **Enhanced involvement of all stakeholders**, including farmer organizations and the private sector at all levels for enhanced partnerships and increased ownerships. This includes increased control of public resources by all CVC stakeholders at all levels for improved relevance and efficiency;
- **Farmer and local CVC stakeholders' empowerment** by capacity strengthening, organization strengthening
- **Pluralism in service provision:** ASDP aims to provide a wider choice in service providers to increase cost-effectiveness, competition responsiveness of services (de-linking of public funding from service delivery).
- **Results-based resource transfers.** Resource allocations to LGAs will be more transparent and equitable through adopting and extending the local government grant system. The incentive for LGAs to use their funds effectively will be promoted through annual assessments. However all LGAs will be eligible to qualify for basic additional support especially to strengthen operational and capacity building funding to demonstrate adequate performance and capacity to join investment flows
- **Focused support to enhance private investments and public–private partnerships (PPPs)** under control of CVC MSIPs: propose matching grants/contributions based on performance scorecards and agreed priority areas.
- **Integration with government systems:** existing government financing and planning systems (the Medium Term Expenditure Framework (MTEF), DADP, grant transfers) will be used and through increasing integration will build sustainability, strengthen alignment with government priorities and avoid unharmonized, project-based approaches with parallel implementation mechanisms.

57. The second phase of the government's 10-year ASDP programme (2016/2017–2025/2026) addresses the challenges and gaps experienced in ASDP-1. The aim of ASDP-2 is to address the critical constraints and challenges to sector performance and to speed up agriculture GDP, improve growth of smallholder incomes and ensure food security by 2025. The programme builds on and strengthens successful investments under ASDP-1, while integrating support to BRN plans on irrigation development and smallholder aggregation. Consistent with the long-term and medium-term policy frameworks, the sector development strategy developed in ASDS-1 (2001), the signed sector investment plan (TAFSIP, 2011), the revised ASDS-2 (2015) and key lessons learned from ASDP-1 implementation, the following key principles were taken into account and streamlined into the design of the ASDP-2 programme.

58. **The ASDP-2 design reinforces smallholder commercialization focus** with the view to support farmers to graduate from subsistence farming to semi-subsistence/semi-commercial status, practising farming as a business. This recognizes that food security is a necessary condition for escaping poverty, but it is not sufficient—household cash incomes must also increase from their currently very low levels. Smallholder farmers have to begin producing for the market and be supported to forge strong and dynamic linkages with commercial input and output supply chains in order to connect with a growing agro-industrial sector and expanding food demand from urban consumers. Whilst the focus will be clearly on the smallholder sub-sector, greater inclusive private sector participation will also be encouraged, both in commercial agricultural production and in marketing, agroprocessing and farm input supply chains. Investment in rural roads/infrastructure, agroprocessing, especially in grain milling and packaging and sustainable utilization of natural resources, will get special attention to expand the market, especially for priority crops.

59. **Results-based focused support.** Based on lessons learned from ASDP-1, key innovations integrated in ASDP-2 include, among others, impact orientation and concentration of resources on high potential CVC within agro-ecological zones and selected districts to achieve results, and scale-up. While targeting market-oriented smallholders³¹, a phased approach is being proposed to build and consolidate impact. A phased approach is being proposed by building and consolidating impact on priority CVC in a limited number of districts (clusters) before gradual scaling up of support activities, based on various milestones and performance indicators. Districts not covered in the first phase will be covered in subsequent phases and therefore growth-inducing interventions will reach all regions and districts over time.

60. **Productivity increase for sustainable national food security and nutrition, farmer income and economic growth.** ASDP-2 addresses the challenge of food deficit areas by promoting surplus food production and quality (crops, livestock and fish) in districts that have the potential to do so. Food deficit or low potential areas will benefit from the surplus generated from selected priority districts (see complementary government interventions, including social safety nets), enabled by enhanced marketing policies and private sector marketing. The focus of the programme is to maximize food self-sufficiency, but also export of commodities for which Tanzania has a comparative advantage in regional and international markets. Priority is given to investments focusing on expansion of irrigation, development of rangelands, control of livestock diseases, aquaculture development, mechanization, research and development, access to improved agricultural technologies and related inputs and appropriate support services.

61. **Increasing management of resources by beneficiaries.** The ASDP-1 stressed the importance of increasing the voice of farmers/fishers in local planning and implementation processes and in increasing their decision-making and management control in the design and implementation of investments, and over the kinds of services that they need. Although some progress has been made in this regard, much remains to be done and ASDP-2 reinforces this principle through a more structured planning, implementation and M&E arrangements and supporting financing mechanisms. The ASDP-2 places greater decision-making control over resource allocations in the hands of farmer groups, cooperatives and agribusinesses based on transparent processes.

62. **Pluralism in service provision.** A further analysis of the lessons learned from ASDP-1 and experiences in neighbouring countries would be useful to develop and implement a clear strategy for the promotion of private and associative (FO, CSO, NGOs) service providers at different levels of targeted activities. ASDP-2 aims to push for a wider choice in service providers to broaden knowledge support by integrating agribusiness services delivered by the PSPs. Performance-based contracts for private agribusiness advisory service provision will enable linking of public funding from service delivery and complementing public technical services implemented by local government services.

63. **Sustainability and diversification.** ASDP-2 emphasizes the need to diversify crop and livestock production to increase farm incomes and to reduce risks in light of both production and price fluctuations. Under ASDP-2, there will be a commodity focus, but intertwined with strategic diversification. While focusing on priority CVC, crop rotations and promoting intensive animal husbandry systems to use efficiently crop residues, sustainable soil and water management systems and efficient use of irrigation systems will be promoted. Appropriate processes and mechanisms will be introduced and strengthened to achieve market-driven diversification and sustainability. The expansion in irrigated agriculture opens up an opportunity for crop intensification, one of which could be diversification into high value crops, such as horticulture. Focus will also be directed towards developing livestock diseases free zones, improve water availability for livestock, improving access to grazing lands, improvement of genetic potential of the existing stock, increasing supply of improved stock, commercialization of the livestock industry and aquaculture and fisheries development. ASDP-2 will, therefore, encourage such diversification with the aim of increasing and diversifying farm incomes, to use natural resources, including water, more efficiently and meeting increasing local and export market demands.

³¹ Support for and disadvantaged/vulnerable farmers is important and should be considered under alternative safety-net supports.

64. **Food security and nutrition.** Although ASDP-2 focuses on a limited number of CVCs, nutrition remains an area of concern, as little progress has been recorded on nutritional status over the past decade, especially in rural areas. In complementing specialized support programmes, ASDP-2 will contribute to improved rural nutrition mainly by: (i) agricultural research, especially breeding for high quality and food safety, although for proposed priority value chains, the scope remains relatively limited (e.g., quality protein maize, enriched rice varieties, beef and dairy breeds (meat, milk) and fish); (ii) support participative advisory services (e.g., Farmer Field Schools (FFSs)) combined with farmer education and access to information (at ward resource centres and village level and intensive use of Information and Communication Technology (ICT) for information diffusion); (iii) expanded access to seed diversification (including horticultural seeds, livestock breeds, fingerlings) through strengthened agrodealer networks and competition, supported by appropriate regulation; and (iv) food processing for improved nutritive quality in the value addition part of the value chain. The programme has built-in flexibility to accommodate interventions to improve the nutritional status of rural households and protect them from the impact of natural disasters, along with improving the capacity of institutions that provide services for sustainable productivity growth and quality.

65. **Gender and youth mainstreaming.** While it is recognized that gender and youth is a cross-cutting area, which needs to be addressed at all levels, sectors, and in both technical and management areas, the ASDP-2 contributes its share by undertaking both socio-economic³² and gender/youth analysis. The strategy will also ensure these issues are adequately covered in the design and implementation of programme interventions and activities. This will be done by ensuring that gender and youth mainstreaming is operationalized in all ASDP-2 interventions. The tools for achieving this are at the strategic level (the gender/youth strategy), and at the operational level (the activity plans of each district), or implementing entity, which will outline what systems and processes will be targeted and how. Differentiation of groups by wealth, vulnerability, age and possibly other socio-economic characteristics is required to ensure that more vulnerable groups also benefit from the Basket Fund activities. Based on the analysis and content of mainstreamed gender and youth activities, ASDP-2 will ensure adequate support, and explore synergies by collaborating with other projects and programmes.

66. **Resilience, including to climate variability and change.** ASDP-2 interventions will be undertaken with climate change considerations factored into the interventions, including climate smart agriculture in sustainable landscapes and appropriate climate change mitigation strategies. Extremes in temperature and precipitation will be the focus of research and technology development, since climate change tends to manifest itself in these forms most of the time. Farmers' adaptive capacities will be strengthened to ensure the impact is understood and integrated into their farming systems/activities. A menu of response options to mitigate the impact of climate change on agriculture, including conservation³³ agriculture, will be developed, tested and shared. Capacity building programmes for FFSs, extension officers and subject matter specialists on current climate related issues will be developed, implemented and periodically updated.

E. Scope, Focus and Phasing of the Programme

67. The scope and focus of the programme under ASDP-1 was national and interventions were in almost all agricultural sub-sectors and scales, depending on LGA prioritization and investment decisions. **Under ASDP-2, the intervention will cover all districts in terms of public service delivery** (basic support for capacity building, demand-driven advisory services, etc.), **but investment coverage will focus on selected priority commodities in a limited number of high potential**

³² Differentiation of groups by wealth, vulnerability, age and possibly other socio-economic characteristics is required to ensure that more vulnerable groups also benefit and are provided with adapted support. However, the main target of ASDP-2 is to promote the gradual marketing capacities of the small-scale commercial farmers (SCF), while most vulnerable farmers (i.e., those who are unable to be auto-sufficient) need to benefit from safety net like support (TASAF and similar).

³³ See also 'Save and grow'. FAO 2012.

district³⁴ clusters, at least for an initial implementation period (Y1–Y5). After evaluating the implementation approaches and outcomes, additional districts and commodities will be considered through scaling up and scaling out in phases.

68. Focusing will increase the likely contributions of planned investments to agricultural growth, import substitution and food security. The reasons for moving in the direction of both commodity and area/cluster specific interventions are to: (i) increase sustainably the productivity and competitiveness of the priority CVC production systems; (ii) increase the volume and value of produce that enter the market channels for both domestic and export markets, and reliable raw material supply for local industries; (iii) allow for significant impact of investments, especially in infrastructure and other interventions in priority areas; (iv) finish/complete priority investments started under ASDP-1 (especially irrigation and other value addition and marketing infrastructures); (v) enhance economies of scale by improved access of commodity producers' to agricultural inputs and financial services, and lower transaction costs for input/output supply chains, as volumes and competition increase; and (vi) promote expanded investments by private sector, at farm and off-farm levels, especially in priority value chains.

69. **Institutional capacity strengthening.** The programme will focus on: (i) empowering and strengthening small-scale farmer organizations, towards enabling farming as a business; (ii) supporting agribusinesses linked and integrated with to farmer production systems for markets and value chain development; (iii) strengthened public and private support services for enhanced use of improved technologies and agribusiness; (iv) development of markets (policies and infrastructure) and productive infrastructure; and (v) institutional capacity building, at various levels, for state and non-state actors.

70. **Priority commodity selection.** Using³⁵ contributions to national food security, the food import bill and export revenues, and contributions to the value of agricultural production as criteria, few commodities emerged as critical for economic growth and poverty reduction. In terms of contribution to kilocalories of food intake by Tanzanians, maize, cassava, rice and pulses contribute about 53%. In the area of agricultural trade, tobacco (17.6%), cotton (14.5%) and coffee (14.1%) contribute about 46% of the export value. Wheat (31.4%) and palm oil (27.3%) form the main share of total food import value as shown in table 6.

Table 6: Commodities coverage, agricultural production, trade and diet (2005–2010)

Commodity	Share of production value	Share of export value	Share of import value	Share of kcal intake*
Cashew nuts	1.2	6.7	0.0	0.2
Coffee	0.8	14.1	0.0	0.0
Cow milk	7.3	0.0	0.6	2.6
Maize	6.5	0.8	2.9	24.3
Pulses	10.6	7.5	0.7	8.5
Rice	5.2	n.d.	n.d.	9.1
Cotton	2.9	14.5	0.1	n.a.
Sugar	1.2	1.6	8.6	4.0
Wheat	0.2	1.4	31.4	5.9
Cassava	8.2	0.0	0.0	10.5
Livestock	12.0	^d 0.1	^d 0.6	1.6
Sorghum/millet	2.4	0.1	0.2	3.8
Tea	0.5	6.3	0.0	0.0
Bananas	12.7	0.0	0.0	4.0
Palm oil	0.0	1.6	27.3	3.3
Tobacco	1.3	17.6	1.1	n.a.

Source: MAFAP (2013). Review of food and agricultural policies in the United Republic of Tanzania. MAFAP Country Report Series, FAO, Rome, Italy, p 62.

³⁴ The term 'districts' refers to all LGAs—whether District Council, Municipal Council, Town Council or City Council (a total of 186 LGA in November 2015).

³⁵ Based on a recent FAO study (MAFAP/SPAAA, 2013).

71. In addition to the above criteria, by applying criteria of possibility for commercialization, availability of technology for improving productivity and profitability, and possibilities for scaling up and scaling out, the list of commodities that make up the priority list narrows down to a few.

Table 7: Priority commodities in the AEZs & potential commodities phasing by region

Ecozone (old³⁶ zones)	Targeted HHs^c	Priority commodities			Nutrition^b	Market density	Donor density
		Crops	Livestock & fish	Cash crops			
Centre Semi-arid	715,000 (8%)	Sunflower/maize/sorghum & millet, groundnut	Meat—beef, goat poultry	Cotton	Worst	Moderate	Moderate
Lake	2,100,000 (23%)	Rice, maize, cassava	Meat—beef, goat, fish	Cotton	OK	Good	Low-Moderate.
Northern Highland	1,035,000 (11%)	Maize, beans, horticulture	Dairy, meat	Coffee	Worst	Good	Moderate.
Eastern Coast	2,300,000 (25%)	Cassava, rice, maize, oil seeds,	Dairy, beef, fish	Cashew, Sugar cane	OK - Worst	Moderate.	Moderate-High
West-SW Highland	760,000 (8%)	Maize, banana legumes/pulses, rice	Poultry, beef, goat, fish	Coffee	OK	Bad	None Low
Southern Highland	1,635,000 (18%)	Maize, Rice, Horticulture	Meat—beef, poultry, dairy	Tea/ coffee	Worse	Good	High
South Semi-arid	570,000 (6%)	Cassava, sim-sim, rice	Goats, poultry, fish	Cashew, Palm oil	Worse	Bad	Low

^a Horticulture promotion for household nutrition and market supply forms a diversification option in most irrigated areas, but also as small-scale counter-season activity.

^b Nutrition, market and donor density: Results from overall Meta-analysis (BMGF, 2014)

^c Total number of households for 2014 calculated on the basis of the demographic data provided in the 2012 national socio-economic profile (2012): about 70% of households are rural and an average HH size is about 5.

72. **ASDP-2 phasing.** ASDP-2 will follow a phased approach for investment interventions, focusing on high potential districts initially³⁷, but gradually extending its coverage to further districts. Selected districts in a given AEZ will be targeted for intensification of production and for further value chain development. These districts will be “clustered”³⁸ so that service provision and technological recommendations can be channelled to similar production systems and rural household types³⁹. Public service delivery interventions will cover all districts and will be supported by other programmes and projects that are funded by various multilateral agencies (AfDB, IFAD, World Bank), bilateral donors (USAID, Irish Aid, DFID, SIDA, NORAD, etc.) and NGOs. District coordination mechanisms established by ASDP-1 using DADP will be consolidated to improve local coordination among all sector interventions, including private sector.

F. Priority setting and Focusing

73. **Approach.** For the purpose of focusing on required services in upstream and downstream production, production clusters will be established for selected strategic commodities as growth poles within each AEZ. Table 7 illustrates the potential AEZ and related districts’ priority commodities: the choice of commodities will be revisited with all local value chain stakeholders at the start and during the mid-term review of the programme. The cluster approach enhances delivery of essential services, exploitation of economies of scale, development of required infrastructure, bulking of produce, agroprocessing and reduction of transaction costs. A commodity cluster will be a coherent area comprising three to six districts with a proven potential for that specific commodity as well as the presence of value chain actors (e.g., producers, traders, processors and service providers) meeting in a Multi-Stakeholder Innovation Platform (MSIP), and availability of basic market infrastructure. The programme will target maize, rice, oilseeds beef, dairy, local chickens and aquaculture products, all strategic commodities or food security, import substitution and /or for export to the regional markets.

³⁶ Based on geographical position

³⁷ A systematic CVC study will take place to identify priority commodities and investment areas

³⁸ See further details in attachment 1 for operationalization of cluster approach

³⁹ See also typology of rural households.

74. The selection of the content focuses on an adapted Opportunities and Obstacles to Development process used for many years in ASDP-1 and familiar to the LGAs for local-level investments. Through a value-chain approach, the programme will support access to and utilization of yield enhancing technologies (improved seeds, fertilizers, mechanization and water crop, livestock and fish production) as well as infrastructure and agribusiness services for marketing and value addition. The capacity of private sector actors, including farmer organizations and cooperatives, will be strengthened to improve stakeholder access to the required inputs, agroprocessing and marketing services. Supporting efficient and integrated input use to complement enhanced research and advisory services is a cost-effective response for increased productivity and farm income and preventing unsustainable subsidies. Broader access to adapted varieties and seeds, integrated soil fertility management and timely land preparation will also help farmers move towards sustainable agriculture and overcome risks, including those induced by climate variability and change. Gradual adoption of appropriate mechanization technologies for production and post-harvest operations will not only increase rural labour productivity, but also attract young entrepreneurs in the sector.

75. **Phasing in and out concept/approach.** The programme will initially focus on the BRN selected districts and pilot support activities for key CVCs in other AEZ, considering selected district clusters and priority crop, livestock and fish commodities. Based on gained experience, support will be expanded from mid-term on to gradually cover high potential CVCs in three to six districts (cluster) selected in each AEZ, on the basis of criteria such as: (i) agricultural production potential for target commodities; (ii) productivity and production levels of target crops, livestock and fish by category; (iii) access to productive and marketing infrastructures (road, railways, electricity⁴⁰ etc.); (iv) annual performance assessment of district investments; (v) historical background of beneficiaries contribution/involvement in development initiatives; (vi) availability of private sector supporting target CVC(s); and (vii) other ongoing initiatives (projects such as FTF, MIVARF, MUFI, AFSIP) in the areas to avoid duplication and maximize synergies.

G. Approaches and principles for the ASDP-2 design.

76. **ASDS-2** and lessons learned from ASDP-1 form the main building blocks for ASDP-2. Seven proposed ASDS-2 Strategic Result Areas were mapped within four programme areas for the agricultural sector (crops, livestock and fish) development programme (ASDP-2), as shown in Table 8.

Table 8: ASDS-2 Strategic Result Areas & mapping of proposed priority programme areas

ASDS-2. Strategic Result Areas	ASDP-2. Priority programme areas (or SO)
SO1. Expanded Sustainable Water and Land Use management <i>for crops, livestock and fish & system resilience to climate change; irrigation expanded).</i>	PA1. Sustainable Water and land use management <i>for crops, livestock and fish & system resilience to climate change.</i>
SO2. Improved Agricultural Productivity and Profitability <i>(crop, livestock and fish, through research, extension, access to input, and mechanization)</i>	PA2. Enhanced agricultural productivity and profitability <i>(crop, livestock and fish)</i>
SO3. Strengthened and Promote Competitive Value Chain <i>(farmers organizations empowered; agribusiness and value addition promoted; access to markets and rural infrastructure improved)</i>	PA3. Rural commercialization and value addition <i>(market access, value addition, trade & private sector development)</i>
SO4. Strengthened Institutions, enablers and coordination framework <i>(policy, regulatory and institutional framework enhanced; institutional capacity, knowledge management and ICT strengthened; food and nutrition security, and safety net improved; sector coordination improved; M&E and agricultural statistics strengthened)</i>	PA4. Strengthening sector enablers <i>(including policies, food and nutrition security and safety nets, CKM, ICT, Coordination and M&E)</i>
<i>Cross-cutting issues (as for ASDS-2): (i) Gender: Balanced and equitable participation men and women in agricultural development; (ii) Rural Youth (self-employment; (ii) HIV/AIDS: reduce spread and mitigate its</i>	

⁴⁰ Rural electrification is still very low as household lighting and cooking by electricity are only 20.7% and 1.7% respectively (Population and housing Census 2012).

impact; (iv) Improved governance and accountability.

77. **ASDS-2 Strategic Objectives** (September 2015) are defined as: (SO1) Expand sustainable water and land resource management (for crops, livestock and fisheries) and promotion of climate change smart agriculture; (SO2) Improve agricultural productivity and profitability driven by improved research, extension, input access and mechanization; (SO3) Strengthen and promote competitive value chain development in the agricultural sector (crops, livestock, fisheries), driven by empowered farmers organization, improved value addition and enhance access to markets, finance and rural infrastructure; and (SO4) Strengthen institutional performance, enablers (policy and regulatory framework) and effective coordination of public and private sector institutions in the agriculture sector at national and local levels.

78. All expected ASDS-2 outcomes have been reorganized along the proposed four programme areas and further enriched by team and inception workshop discussions. Cross-cutting and cross-sector elements were also included, such as: (i) gender, balanced and equitable participation of men and women in agricultural development; (ii) rural youth self-employment; (iii) HIV/AIDS, to reduce the spread and mitigate its impact; and (iv) improved governance and accountability.

79. Major public investment/support areas across proposed programme areas (PA) were identified as: (i) research; (ii) extension/training, information services and knowledge management; (ii) farmer/stakeholder organizations; (iii) access to inputs; (iv) rural infrastructures; (v) access to rural financing; (vi) policy and regulatory framework; and (vii) coordination and M&E. Using this double-entry framework, public (ASLM departments) and non-governmental stakeholders identified priority investment/support actions (group of activities) enabling achievement of expected outcomes of proposed PAs, at each the national and local level (including intermediate regional level to accommodate coordination requirements).

80. Based on further discussions with key public and private sector stakeholders and ‘practicalities’ the ASDP-2 sector programme was structured around four components: (PA1) Sustainable water and land use management (crops livestock and fisheries); (PA2) Enhanced agricultural productivity and profitability; (PA3) Rural commercialization and value addition (building competitive value chains); and (iv) Strengthening sector enablers and coordination (at national, regional and local levels). The main changes against former PAs were to add a component for strengthening sector enablers (policies, food security and nutrition, capacity strengthening, coordination and M&E), while food security and nutrition were targeted in a specific sub-component and resilience mainstreamed into sustainable resource management.

81. Priority actions were discussed and consolidated, and related budgets were estimated and compared to current on-budget recurrent and development investments, mainly at national level. Bulk estimates for local level DADP investments were consolidated. Although large parts of proposals were promoting increased investments in ongoing actions, Ministry of Agriculture Livestock and Fisheries departments identified priority investment areas considered as key drivers for the agricultural sector growth and rural poverty reduction. These key drivers for ASDP-2 implementation (and priority changes against ASDP-1) are summarized as follows:

- a. **Sector-wide coordination** (results-oriented sector-wide planning, implementing and M&E) including all ‘public good’ programme and projects in the agricultural sector: (i) at national level, efficient coordination within ASLMs and between government systems and other sector support programmes and projects; and (ii) at local level initiatives, through participatory planning/implementation systems, capacity building and focused investments;
- b. **Focus of local investments targeting prioritized commodity value chains** (CVCs) with improved balance between sub-sectors in line with their comparative advantage in each AEZ and focused supports to district clusters, with gradual out- and up-scaling (prioritization criteria) and phasing to be defined. ASDP-2 will gradually increase investments at local level. This will be based on the principles of: (i) maintaining participatory planning/implementation systems and strengthening human capacities; (ii) implementing irrigation investments (under the District Irrigation Development Fund) already identified to a large extent for the next five years under ASDP-BRN and completing ASDP-1 started schemes; (iii) enhancing investments in availing

water for livestock and aquaculture farming⁴¹; and (iv) implementing focused DADPs investments around priority CVCs in selected clusters with gradual upscaling.

For livestock, targeted beef and/or dairy priorities require further use of quality breeds adapted to key production systems, including agropastoralism, pastoralism or tethering. High productivity will also depend on other factors such as diseases control, which requires strengthening of diseases detection capacities (veterinary laboratory diagnostic services) and access to vaccines (Tanzania Vaccine Institute -TVI).

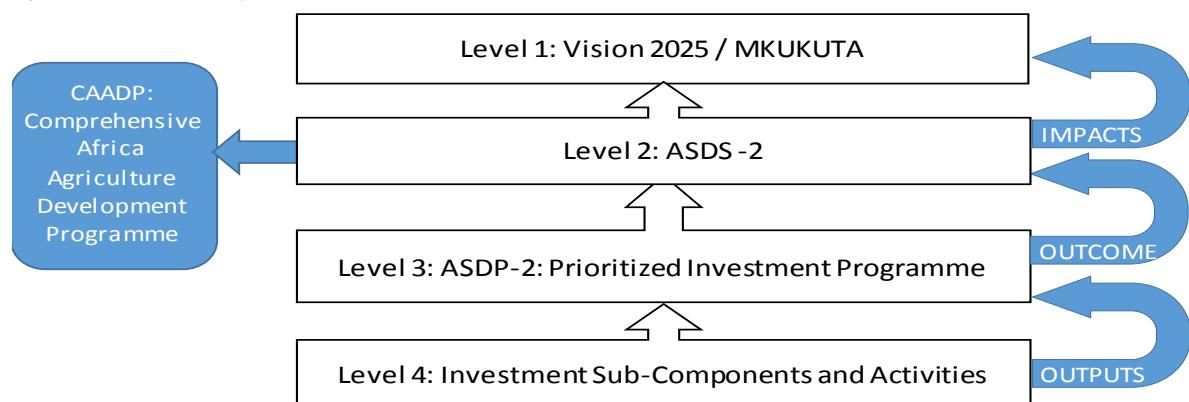
- c. **Key thematic investment areas identified as main sector drivers and benefiting from a higher growth of budget support**, including: (i) *irrigation*—remains a priority as also identified in BRN; (ii) research-extension linkages, including zonal/district driven adaptive research and AR4D liaison units; (iii) farmers access to enhanced technical knowledge (improved technologies) expanded private sector-driven input distribution networks (seeds/breeds/fingerlings, fertilizer, feeds, vet drugs and vaccines, etc.); (iv) expanded access to competitive mechanization services for production and post-harvest processing/value addition; (v) reduction of post-harvest losses for crops and livestock (calf mortality); (vi) providing specialized private sector-driven agribusiness support services at regional/zonal level; and (vii) detection capacities vectors/pests/pathogens and access to quality vaccines.
- d. **Use of modern information and communication technologies** for efficient coordination, data collection, processing and dissemination, but also stakeholders access to up/downwards information demand and supply flows (i.e., technical, markets, M&E).
- e. **Farmer empowerment and** (higher level) **farmer organization strengthening** to consolidate engagement and ownership of rural development, driving towards improved livelihood, including strengthened economic associations (e.g., around local warehouses), cooperatives, strengthened internal information and technical services to their members.
- f. **Enhancing sustainable production systems and use of natural resources** by promoting conservation agriculture/farming, integrated soil water and fertility management (soil health systems), integrated pest management, livestock husbandry, keeping livestock based on the carrying capacity, etc.
- g. **Use of integrated sector level outcome and impact evaluation** using national agricultural statistics services from the National Bureau of Statistics (NBS) for effective implementation of the National Agriculture and Livestock Sample Census (NASC implemented every 10 years) and the Annual Agricultural Sample Survey (AASS) and ensuring sound and timely analyses of this information;
- h. **Strengthened support to policies and regulations** to facilitate harmonization and expanded involvement of an inclusive private sector and continued support to strengthening decentralization and local level capacities and ownership advocacy of such policies to be understood and win stakeholder support.
- i. **Flexible and harmonized financing modalities and management** to integrate on-budget (budget support, BF (preferred), earmarked and ring-fenced programmes and projects) and off-budget programme and budgets. Core programme elements such as coordination (planning, implementation, M&E), capacity strengthening at national and local level will need to be financed either by the Basket Fund (government and non-earmarked development partner contributions) and/or ‘voluntary’ contributions (e.g, 5%) from each (on- and off-budget) programme and project in the sector.

⁴¹ For livestock and fish development, the LSDP (2011) identified the following priorities: (i) livestock infrastructure; (ii) grazing-land development for forage and water for livestock; (iii) production of pasture seeds and fodder trees; (iv) livestock research, training and extension services; (v) genetic improvement of cattle and chicken; (vi) animal diseases control and establishment of animal disease free zones to facilitate international trade; (vii) availability and utilization of inputs/implements for livestock; (viii) conducive environment for private sector investment in livestock; and (ix) livestock statistics and marketing information system.

IV. PROGRAMME OBJECTIVE AND DESCRIPTION

82. The ASDP-2 programme (2016/2017–2025/2026) is imbedded in the Tanzania Long Term Perspective Plan (LTPP)⁴², MKUKUTA and ASDS -2 underlying results chain. Building on lessons learned from ASDS-1 and ASDP-1, the programme focuses on intensifying and operationalizing in a coordinated and sequenced manner the key ‘drivers’ of sectoral growth and transformation towards inclusive economic growth and rural poverty reduction. Building on lessons of the first phase and linking to national and continental higher level goals, the overall framework for the results chain has been defined in Figure 14⁴³.

Figure 14: Framework for ASDP-2 results chain



A. Programme Objective

83. **ASDS-2 goal.** In line with Tanzania Development Vision 2025, the higher level sector goal as per ASDS-2 are to “*Contribute to the national economic growth, reduced rural poverty and improved food security and nutrition in Tanzania*”. Key ASDS-2 strategic objectives are to: (i) create an enabling policy and institutional environment for enhancing modernized competitive agriculture sector, driven by inclusive and strengthened private sector participation; (ii) achieve sustainable increases in production, productivity, profitability and competitive value chain development of the agricultural sector 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.

84. ASDS-2 targets are to be achieved by 2024/2025: (i) inclusive and sustainable agricultural growth of 6% per annum; (ii) reduced rural poverty (per cent of rural population below the poverty line from 33.3% in 2011/2012 to 24% in 2025; and (iii) enhanced food security and nutrition (e.g., per cent of rural HHs below food poverty line: 11.3% in 2011/2012 to 5% in 2025).

⁴² The Tanzania Long Term Perspective Plan (2011/2012–2025/2026) outlines a development path that is cast in three five-year periods each with a specific development agenda. The first five-year period aims to remove the economy’s growth constraints in order to unleash the growth potential of the country. In the second five-year period the focus will be on nurturing an industrial-based economy whilst developing the country’s agriculture and agro-processing sectors to enable Tanzania to become the regional food basket. In the third period focus will be to boost exports of manufactured goods with sharpened competitiveness. The three phases are inherently interconnected, with the successful implementation of one being an imperative for the implementation of the other.

⁴³ Adapted from ASDS-2

85. **Programme Development Objective (PDO) for ASDP-2.** The objective of the ASDP-2⁴⁴ is to:

Transform the agricultural sector (crops, livestock & fisheries) towards higher productivity, commercialization level and smallholder farmer income for improved livelihood, food security and nutrition’.

86. The strategy is to transform gradually subsistence smallholders into sustainable commercial farmers by enhancing and activating sector drivers and supporting smallholder farmers to increase productivity of target commodities within sustainable production systems and forge sustainable market linkages for competitive surplus commercialization and value chain development.

87. The PDO will be measured by the following preliminary indicators⁴⁵:

- (i) Agricultural sector growth (crops, livestock and fisheries)
- (ii) Variation in annual average yield of target commodities (crops, livestock/fish products)
- (iii) Variation in crop, livestock/fisheries income of beneficiaries (men/women/youth)
- (iv) Average share of the consumer price kept by farmer or average farm gate (real) prices for selected commodities
- (v) Variation in volume and value of total output marketed for selected CVC
- (vi) Variation in number of food (and nutrition) insecure households in PAs (average Household Dietary Score) compared to other areas
- (vii) Number of beneficiaries (or per cent by social groups and gender);
- (viii) Increase in volume of agricultural exports
- (ix) Increase in farm incomes (by different rural household types)

88. The **programme focus** is on public investments that curb constraints and enhance the identified priority drivers towards increased sustainable productivity and farmers profitability growth, targeting high potential CVCs in selected districts (district clusters), while strengthening institutional capacities of public and private sector stakeholders (platforms), especially at local level. The proposed programme will initially focus on high potential commodities in selected (high potential) areas and subsequently scale-up to further commodities and district clusters across all AEZs, considering their respective priority CVC, as outlined in Chapter III sections E and F. To upgrade outputs and profitability of farming systems, the main thrust is to support priority CVC development, with an emphasis on building business partnerships between smallholders, markets and agribusinesses. This will involve interventions that support smallholder farmer transformation into more market-oriented (commercial) producers, through increased and sustainable productivity, resilience to climate variability/change and local value addition by improved market efficiency to enhance income growth by aggregating outputs (such as warehousing) and agroprocessing. Key investments at national and local level will include infrastructures, support services, farmer⁴⁶ and other stakeholder empowerment and organization, capacity strengthening, policy and regulatory reforms, but also institutional strengthening towards strengthened coordination and consolidated M&E of the agricultural sector at various levels.

Beneficiaries include smallholder crop, livestock and fish farmers/fisher folk and their organizations and agribusiness stakeholders (value adding and marketing) that form joint ventures in selected value chains, with special attention to women and youth engaged in the targeted priority CVCs. Smallholder farmers with potential for increasing their productivity and marketing levels will be supported with access to technologies, while being empowered through FOs for enhanced market orientation and partnering with agribusiness. The number of direct beneficiaries will grow in waves, as stakeholder institutions will be strengthened to develop sustainable support capacities for key sector drivers.

⁴⁴ ASDP-2 is a 10-year programme starting from 2016/2017 and ending in 2025/2026.

⁴⁵ These are indicative indicators: a detailed results framework is provided in Annex I (Results framework and monitoring). Proposed indicators will be disaggregated by gender (and youth) as applicable.

⁴⁶ Farmers include crop producers, livestock keepers and fish farmers.

Table 9: Typology of rural households active in the agricultural sector against holding size

Holding size (ha)	Crops only		Livestock		Crops and livestock		Total	
	Number of households	%						
A. 0.01–0.50	484,585	14	47,773	80	181,083	8	713,441	13
B1. 0.51–1.25	1,045,293	31	4,198	7	481,164	22	1,530,656	27
B2. 1.26–2.50	1,191,939	35	2,352	4	720,494	32	1,914,786	34
C. 2.51–5.00	493,775	14	2,059	3	482,001	22	977,833	17
D. Above 5.00	206,481	6	3,463	6	359,670	16	569,614	10
TOTAL	3,422,072	100	59,845	100	2,224,411	100	5,706,329	100

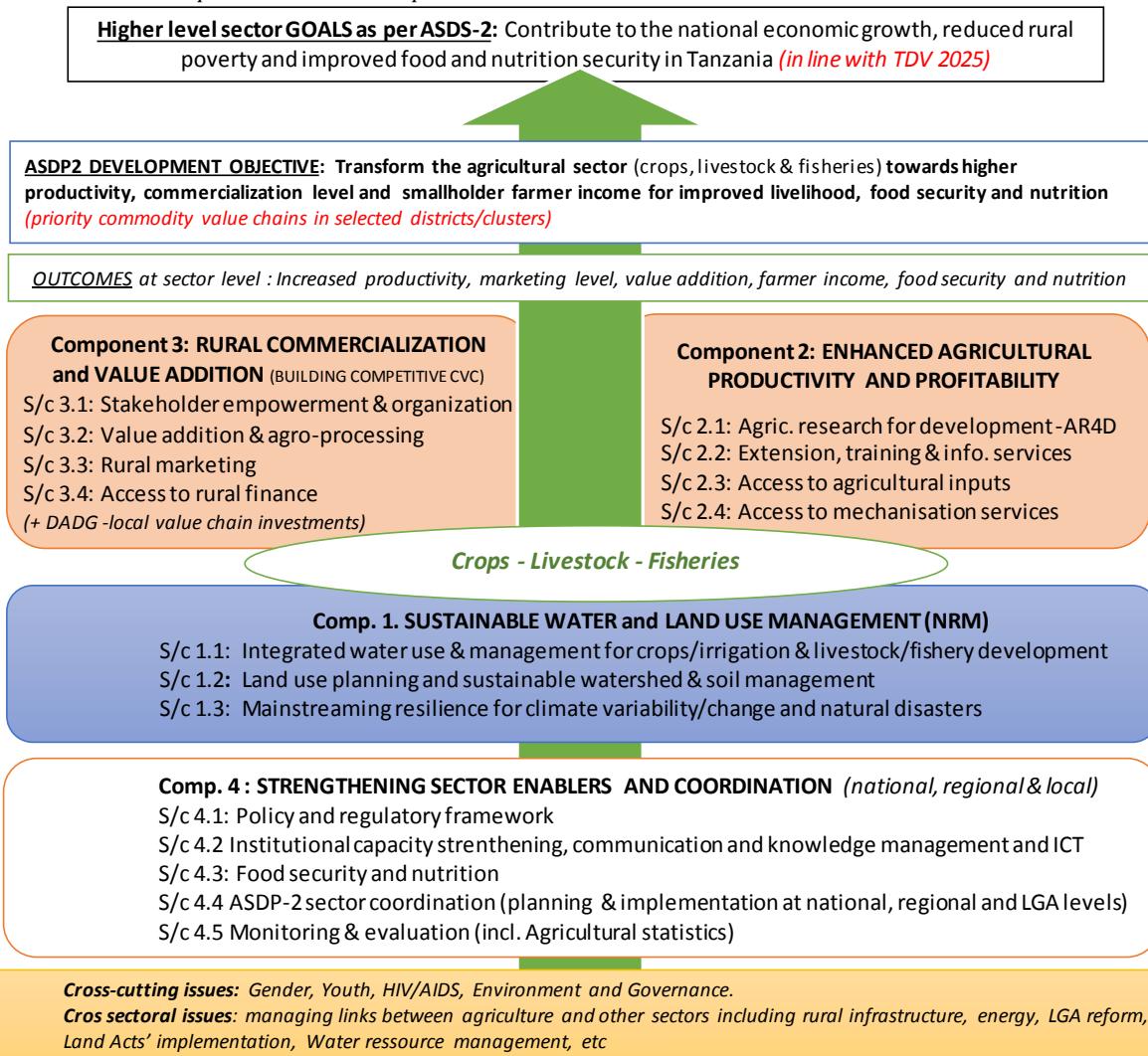
Source: Adapted from the Tanzania Agriculture Sample Census 2007/2008

89. While involving the already market-oriented producers (category C and D, in Table 9) for further intensification, the programme will concentrate its support on developing the potential for intensification and market contribution of category B, which represents about two-thirds of the farming community. Category A represents the poorest section of rural dwellers, mainly subsistence farmers, who are constrained by limited land and access to labour. As net food buyers, this category has little potential for market-orientated agricultural production (except for specialized horticulture) and needs to be supported by social safety net programmes (e.g., TASAF) and also through professional capacity building, especially of youth, for integration into other rural (agribusiness) and urban sectors of the economy.

90. The small-scale commercial farmers (above 1.0 ha cropped area) form up to two-thirds of rural farming households: their attitudinal, risk bearing and investment characteristics are different from those with smaller holdings. At the lower end, they sell at least one-third of what they produce and look for opportunities to increase their farm income as they are already profit oriented, by taking some risk. Furthermore, their expenditure on labour intensive goods and services increase local employment and raise incomes (and food security) of the rural non-farm families.

91. **Programme components.** The programme has four interlinked components (see Figure 15): (i) *Sustainable Water and Land use Management, including mainstreaming resilience of sustainable and smart farming systems;* (ii) *Enhanced Agricultural Productivity and Profitability by sustainable technology generation and promotion/use;* (iii) *Rural Commercialization and Value Addition to build competitive CVCs; and* (iv) *Strengthening Agricultural Sector Enablers, including policy framework, food security and nutrition, institutional capacity and coordination, and sector-wide M&E.* Cross-cutting issues mainstream gender, youth, HIV/AIDS, environment and governance while cross-sectoral issues will take care of managing links between agriculture and other sectors including rural infrastructure, energy, LGA reform, Land Act implementation, water resource management, etc.

Figure 15: ASDP-2 components and sub-components



Financing



B. Priority Investment Areas (summary)

92. Investments to increase farmers' productivity for crops, livestock and fisheries are the first priority towards increasing opportunities for commercialization within the frame of sustainable utilization of natural resources. Expansion of research and development, extension services, irrigation, water for livestock, pasture development, mechanization and improved access to crop/livestock/fisheries inputs will enhance efforts to increase productivity across the sector. Investments in improving the capacity of institutions and rural infrastructure (roads, electricity, facilities) will be needed to expand markets and ensure efficient support services for transforming the sector. ASDP-2 also integrates specific interventions to improve food security and nutritional status of rural households and to enhance the resilience of rural livelihood systems to mitigate the impact of natural disasters, including climate change.

93. To stimulate growth in the agricultural sector to reach expected levels of 6% per annum, increased public and private investments are required. The best results in terms of economic growth, reduction of poverty and food security are likely to be generated by balanced support for both the commercial and smallholder sub-sectors, focusing on the main commodities that are largely produced and consumed by the local population, along with efforts to help subsistence smallholders graduate to

the ranks of small-scale commercial farmers (IFPRI, 2011). For ASDP-2, investment activities have been grouped into programmatic areas along components and sub-components (see Figure 15). Strategic priority investment areas are depicted in Table 10:

Table 10: ASDP-2 components and strategic objectives

<i>Components/programme areas</i>	<i>Strategic priority investments</i>
Component 1: SUSTAINABLE WATER & LAND USE MANAGEMENT	Sustainable integrated land and water resources use and management and increased resilience (irrigation, charco-dams & boreholes, land use planning, soil fertility management, pasture development, ponds/cages)
Component 2: ENHANCED AGRICULTURAL PRODUCTIVITY and profitability	Increased productivity growth rate for commercial market-oriented agriculture for priority commodities (crops, livestock and fisheries value chains)
Component 3: RURAL COMMERCIALIZATION AND VALUE ADDITION (build competitive CVC)	Expanding farmer access to rural value addition and competitive marketing systems for priority commodity value chains, driven by an inclusive, strengthened and thriving private sector and effective farmer organizations.
Component 4: STRENGTHENING SECTOR ENABLERS at national, regional and local level	Policy and regulatory framework Institutional capacity strengthening, communication & knowledge manag. Food security and nutrition (including early warning and safety nets) Coordination (facilitate planning & implementation at all levels) Monitoring & evaluation (including agricultural statistics)

94. ASDP-2 phasing for LGA investments. The gradual phasing of ASDP-2 implementation involves: (i) restoring basic agricultural capacity building and extension block grants to prepare human and institutional (MSIP) capacities to sustain sector investments; and (ii) gradual building-up of focused local investments (DADG) focused on priority commodity value chains (CVC) in selected district clusters. The phasing of LGA involvement for capacity building and investment support is planned as in Table 11:

Table 11: Phasing of LGA involvement schedule in ASDP-2

A-EBG & A-CBG^a	TSh mil.		<i>Year 1^b</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Y6–10</i>
<u>Number of LGAs</u>	-		<u>75</u>	<u>125</u>	<u>150</u>	<u>150</u>	<u>150</u>	<u>150</u>
Extension Block Grant (EBG) ⁴⁷ (see s/c 2.2)	10	Local	750	1,250	1,500	1,500	1,500	1,500
	50	National	3,750	6,250	7,500	7,500	7,500	7,500
Capacity Building Grant (CBG) ⁴⁸ (see s/c 4.2)	10	Local	750	1,250	1,500	1,500	1,500	1,500
	50	National	3,750	6,250	7,500	7,500	7,500	7,500
DADG Investment^b			<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Y6–10</i>
<u>Number of AEZ</u>			3	5	8	8	8	8
<u>Number of regions</u>	-		<u>7</u>	<u>15</u>	<u>20</u>	<u>25</u>	<u>25</u>	<u>25</u>
<u>Number of districts</u>	-		<u>25</u>	<u>50</u>	<u>75</u>	<u>100</u>	<u>125</u>	<u>125</u>
DADG contributions	150	Local	7,500	11,250	15,000	18,750	18,750	22,500
	750	National	37,500	56,250	75,000	93,750	93,750	112,500

^a Agriculture Extension Block Grant and Agriculture Capacity Building Grant.

^b Year 1 = FY 2016/17; ^b Investments for local value chain development (budget integrated in comp 3). National Irrigation Development Fund (NIDF) will be covered under component 1.1

⁴⁷ EBG for agricultural extension activities targeting farmers: (i) to make agricultural technologies more accessible to farmers (demonstration and awareness), including to manage/use conservation agriculture technology and develop their enterprises; on-farm adaptive research, adapt technologies to better suit local production and marketing conditions and generate relevant management information; and farmer to farmer exchange visits and/or study tours; (ii) DFF/WFF expenditures to develop current enterprises or to introduce new ones at ward/village level; and (iii) establishment of Ward Agricultural Resource Centres (WARC).

⁴⁸ CBG, for retooling and strengthening DAICO/DLFO includes: (i) data management; (ii) internal audit; (iii) computer & ICT; (iv) participatory development planning and appraising approaches & mainstreaming; (v) agroforestry, environment and natural resources management; (vi) agribusiness and entrepreneurship; (vii) participatory M&E; (viii) financial management and procurement procedures; (ix) public–private partnership; (x) building of district internal auditing capacity; (xi) capacity to develop business plans; (xii) skills to facilitate agricultural investment development; and (xiii) group formation, dynamics, leadership skills and management.

C. Component 1: Sustainable Water & Land Use Management (*crops, livestock and fisheries*)

95. Strategic objectives, outcomes and related indicators for the sustainable water and land use management component are defined as follows:

Table 12: ASDP-2 Component 1: Related ASDS-2 specific objectives and outcomes

<i>Spec. objective</i>	<i>Outcomes</i>	<i>Outcome indicators^a</i>
Comp 1. Sustainable integrated land and water resources use and management (irrigation, water for livestock, cropped land, pastures, ponds/cage, soil fertility management, etc.)	<i>Expanded sustainable water and land use management for crops, livestock and fisheries</i>	<ul style="list-style-type: none"> - % of farmers practising sustainable irrigation and access to water for livestock - Expanded and modernized irrigation facilities with professional management - % of priority crop area under irrigation (e.g., rice) - Improved and sustainable access of livestock to water and pasture/rangeland - Enhanced integrated management of natural resources for fish farming (pond/cages) and seaweed farming
	1.1. Water use for irrigation, livestock and fisheries made more efficient and inclusive	<ul style="list-style-type: none"> - Additional area under improved irrigation (ha/year) - Cropping intensity for irrigated crops - Number of water points for livestock (charco-dams, boreholes) - Number/average area/production of fish ponds /aquaculture - Tons of farmed aqua-products (fish, seaweed) - Number of Beach Management Units registered
	1.2. Land use planning and watershed management improved	<ul style="list-style-type: none"> - Additional land under land use plan (ha/year) - Demarcated and allocated land for cropping and grazing - Area under improved land and water management technologies - Number of title deeds issued (crops and livestock) - Area of land with improved pasture (ha) - % farmers adopting integrated soil management or conservation agriculture methods - Watershed area under sustainable management
	1.3. Resilience for climate change/ variability and natural disasters mainstreaming	<ul style="list-style-type: none"> - % of farmers adopting climate smart agriculture - Number of institutions with increased capacity to adapt the impact of climate variability - % of Climate Change affected HH receiving assistance - Resilience by integrated soil and water management (conservation agriculture) - Farming system diversification for better preparation, response and resilience to Climate Change and natural disasters. - Productivity support and preventive livestock purchase for better preparation & response to Climate Change and natural disasters

^a Indicators in bold sourced/adapted from ASDS-2 M&E framework (September 2015)

96. Component 1 is sub-divided into 3 sub-components :

Component 1. SUSTAINABLE WATER AND LAND USE MANAGEMENT

S/c 1.1: Integrated water use & management for crops/irrigation & livestock/fishery development

S/c 1.2: Land use planning and sustainable watershed & soil management

S/c 1.3: Mainstreaming resilience for climate variability/change and natural disasters

1. Sub-component 1.1: Integrated water use and management for crops/irrigation and livestock/fishery development

97. **Efficient and inclusive water use for irrigation, livestock and fishery.** Expected strategic interventions and innovations are: (i) investment in irrigation to increase productivity by targeting the prioritized areas with high return potential; (ii) strengthen irrigators organizations for better operation and management of the infrastructures and resources; (iii) further strengthen backstopping services for LGAs and Irrigators Organizations; (iv) implement coordinated water resource planning and management in watershed/catchment areas; (v) enhance efficiency of water utilization; (vi) encourage

private sector to invest in irrigation development; (vii) enact and enforce laws and regulations which protect irrigation potential and irrigation developed areas; (viii) continued efforts to ensure sustainable water resources management and utilization through enhance observation of existing Environmental and Social Management Framework (ESMF) and strengthened capacities for integrated water resources management.

98. **Conservation and sustainable utilization of water resources** is a high priority. This will be achieved through watershed management initiatives, water harvesting, and improved smallholder and commercial irrigation and drainage systems to increase water use efficiency and ensure the sustainability of investments. These capital intensive investments include irrigation infrastructure, equipment and integrated water management services. Investments target the improvement of traditional irrigation schemes, rehabilitation of deteriorated schemes and expansion of irrigated area in the identified potential areas. Increasing the efficiency of irrigation schemes by professional management schemes will improve farmers' returns and sustainability of investments. Besides crop irrigation, specific investments will facilitate improved access to quality water resources for livestock and fisheries.

99. **Increasing resource competition towards sustainable use.** Along with climate change, water demand by multiple sectors (agriculture, energy, human consumption, watershed and wildlife conservation, etc.) is becoming more and more competitive. There is no assurance of continuous water allocation for the agricultural sector, the largest user of water resources. Policies will need to eliminate perverse subsidies that encourage farmers to waste water. Globally, the management of water resources would require improved water use efficiency through sustainable extraction rates, maintenance of infrastructure, land use planning and tracking environmental impact. Sustainable intensification requires smarter, precision technologies for irrigation and farming practices that use ecosystem approaches to conserve water, rainwater harvesting and supplemental irrigation of rainfed crops. Despite its high productivity, irrigation is under growing pressure to reduce its environmental impact: knowledge-based precision irrigation that provides reliable and flexible water application and wastewater reuse will be a major platform for sustainable intensification. Increasing rainfed productivity will depend on the use of improved, drought tolerant crop varieties and management practices that save water.

a. Crop Irrigation Development.

100. **The objective of irrigation development is to improve crop productivity and sustainable returns for small- and medium-scale farmers on an expanded irrigated area.** This support will include: (i) irrigation development planning and professional management for intensification; and (ii) irrigation infrastructure development, including rehabilitation and expansion of existing irrigation infrastructure. Under ASDP-1, irrigation was given high priority with a major budget share. As a result, the increase in developed irrigated area by about 100,000 ha was one of the main ASDP-1 outputs. At local level, demand-driven support for scheme development was incorporated into DADPs and funding was sourced from the benefiting farmers. In addition, the support was channelled through the ASDP-1 District Irrigation Development Fund. At national level, larger and more complex inter-district irrigation infrastructure was funded using the National Irrigation Development Fund (NIDF).

101. Although the average cost per irrigated hectare appears comparable to or lower than corresponding costs in sub-Saharan Africa, there is room to reduce infrastructure costs and to increase water use efficiency. The impact assessment study⁴⁹ for ASDP-1 pointed out that cost reduction is an issue that needs to be tackled under ASDP-2. Hence, a comprehensive strategy should be adopted that will lead to improved design and completion of irrigation infrastructure, aiming at increased water use efficiency. The cropping intensity of the irrigation schemes was low, as only 25 per cent of the area irrigated during the rainy season was cultivated under irrigation during the dry season. Irrigator contributions for water fees and infrastructure maintenance were also low.

102. **Strengthen technical support services for irrigation development.** At the national level,

⁴⁹ See Impact Evaluation of the Irrigation Investment of the ASDP. April 2013.

this activity will strengthen the capacity of the National Irrigation Commission (NIC) and Zonal/Regional Irrigation Technical Units (ZITSU) in: (i) strategic planning and prioritization for sustainable irrigation development, including water resources management and environmental and feasibility assessments; (ii) provision of technical support to improve planning and designing for sustainable irrigation investments; and (iii) monitoring of performance and payoffs to existing irrigation investments, including routine data collection and management for critical aspects of irrigation development.

103. **Participation of the private sector** in ASDP-2 irrigation works and services will be enhanced by: (i) building capacity of local contractors/engineering companies in works/service provision for irrigation development by ZITSUs (construction and rehabilitation skills); and (ii) contracting out supervision services to private engineering companies, as from the first year of ASDP-2. Information systems for irrigation schemes will be improved and a data management system established to allow for detailed prioritization, planning and budgeting of investments. The NIC Human Resources Development Plan will be consolidated and prioritized in view of strengthening all levels of irrigation players through recruiting required professionals.

104. **Strengthen Irrigation Organizations (IOs) for professional irrigation management** for sustainable productivity. This activity will strengthen capacities of IOs⁵⁰ for effective development and management of irrigation schemes, within the frame of the NIP (2010) and the “*Comprehensive Guidelines (CGL) for Irrigation Scheme Development*”. In close collaboration with LGAs, ZITSUs and NIC and jointly with the irrigation scheme’s leadership, ASDP-2 will: (i) carry out a review of all existing IO constitutions and by-laws to identify gaps and provide necessary improvements linked to the approved template for IO by-laws, the NIP (2010), the CGL for irrigation schemes, Operation and Maintenance under DADPs and the National Irrigation Act (2013); (ii) identify knowledge and skills gaps in the IOs, describe training needs, prepare a training programme, and assist in carrying out the required training, using appropriate resource persons and service providers; (iii) train IOs and other stakeholders on the National Irrigation Act (2013) and its regulations; and (iv) develop framework guidelines for the IOs for implementation of the existing legislation and appropriate scheme management.

105. ASDP-2 will improve the management of existing schemes through contracting professional irrigation service providers⁵¹ to strengthen, for one or two years, the capacity of IOs and provide them with technical support in: (i) effective scheme development/upgrade and management of scheme operations, including potential crop diversification; (ii) maintenance and management of irrigation infrastructure; (iii) efficient water resources management, including water saving techniques; (iv) enhanced access to technologies (System of Rice Intensification (SRI), etc.), information and advisory services; and (v) strengthened linkages to inputs suppliers, mechanization services, processors, output markets and financial institutions. During the 2015–2020 period, interventions under this activity will target: (i) 78 irrigated rice schemes identified in the BRN plans that cover about 56,000 ha under irrigation development, benefitting about 70,000 smallholders in the southern agricultural corridor; and (ii) finalize rehabilitation of high priority schemes supported under ASDP-1. During the remaining years (2021–2025) the programme will consider scaling up this approach to rehabilitate and develop further priority irrigation schemes.

106. **Irrigation Infrastructure Development**⁵². Building on ASDP-1 and BRN targeted priorities, this activity will finance the expansion of irrigation development through new construction of small- and medium-scale irrigation schemes or the expansion of existing ones, targeting priority commodities in high potential areas. Full system ownership and professional management by irrigators and their organizations (water user, marketing, etc.) will be pre-conditions for efficient investment with

⁵⁰ Farmer participation at IOs is mandatory for sustainable irrigation infrastructure and water management and maintenance. Farmer empowerment and organization strengthening (including formation of cooperatives—AMCOS and SACCOS) for sustainable value chain development are outlined in Component 3. Strengthened farmer organizations are key for all sector activities (irrigated or not) and their membership, free farmer option.

⁵¹ Market support service providers are discussed in value chain and agribusiness development.

⁵² Adapted from Irrigation investments under ASDP-2 BF and BRN (FAO-TCIA 2013).

increased payoffs and sustainable use of infrastructures. The support will include three main investment areas summarized, as shown in Table 13.

Table 13: Summary of BRN and remaining ASDP-1 prioritized irrigation schemes (2015/2020)

Irrigation Schemes	Total number of irrigation schemes	Total number uncompleted schemes for ASDP-1	Number of uncompleted or new schemes		Total new schemes	Total area (ha)
			Earmarked by JICA	Total BRN—initiative		
Total	367	280	120	78	87^c	162,122
(i) Ongoing implementations by JICA and USAID						
Earmarked by JICA	120	77	107	13	43	51,964 ^d
Earmarked Global Accelerated Food Security Programme (GAFSP)	4	3		4		10,000
Earmarked USAID—under review	5	0	0	2	5	18,600
(ii) Completion, rehabilitation and upgrading of remaining 63 BRN irrigation schemes (World Bank⁵⁹)						
Part of BRN—initiative not overlap (i)	59 ^e	21 ^f	(13) ^g	63	39 ^h	25,879 ⁱ
(iii) Completion, rehabilitation and upgrading of 179 ASDP-1 prioritized irrigation schemes						
ASDP-1 priorities, not overlap (i) &(ii)	179	179	0	0	0	52,243
Total area (ha)				59,558^j		

^a Construction cost without « soft » activities; 70 million USD already financed under ASDP-1 WHERE IS THIS IN THE TABLE? WHERE IS B?

^c Total - Uncompleted (367-280); ^d Upgrade = 31,973 ha; and Extension = 19,991 ha

^e 78-13-2-4; ^f 280-77-179; ^g Read vertically only; ^h BOTH ways: Total - JICA - USAID (87-43-5);

ⁱ Total BRN (59,558 ha)—13 overlapping with JICA (13.293 ha = 7,893 + 5,400)—2 overlapping with USAID and 4 with GAFSP

107. **Implementation.** Two guideline documents exist already⁵³, but will be improved to address the weaknesses noted during implementation of ASDP-1. The methodology agreed and explained in the “Comprehensive Guidelines (CGL) for Irrigation Scheme Development” will be used. NIDF will finance larger and more complex irrigation schemes—extending over several districts. The strategy for coherent irrigation development will be implemented using ASDP-2 as a framework, while contributing also to the regulatory framework for sustainable land and water management.

b. Improved water management in rainfed agriculture

108. **Most farmers are engaged in rainfed agriculture.** Better seasonal rainfall forecasting and improved (surface) water management within intensified and resilient production systems will reduce farmers’ production risks. Furthermore, crops and varieties adapted to exploit limited soil moisture, cropping practices increasing soil water storage capacity and water infiltration, deep-rooting crops in rotations, and minimizing evaporation through organic mulching will be promoted. Improving the productivity of rainfed agriculture depends largely on improving husbandry across all aspects of crop management. This entails capture of runoff, reduced tillage, organic mulching and use of natural and managed biodiversity which are fundamental to lengthening the duration of soil moisture availability.

109. **On-farm runoff management** can be achieved in different ways. For example, the use of water retaining bunds in cultivated areas has been used successfully in transitional climates to extend soil moisture availability (even ‘irrigation’) after each rain event. Another example is the concentration of overland flow into shallow groundwater or farmer-managed water storage, can allow

⁵³ “Comprehensive Guidelines (CGL) for Irrigation Scheme Development” (under DADPs – 01/2010) and “Guidelines for Operationalizing District Irrigation Development Fund and National Irrigation Development Fund” (under ASDP—Revised 04/2011. Like in ASDP-1, communities will contribute 20% of total costs for irrigation development, and annually at least 5% of average returns for O&M.

for limited supplementary irrigation. However, both these interventions have an impact on downstream users and overall river basin water management is required. There is a need for reinforcement of advisory services to farmers dependent on rainfed agriculture, including a sharper analysis of rainfall patterns and soil moisture deficits to stabilize production from existing rainfed systems under climate change impacts. Extending the positive environmental and soil moisture conservation benefits of ecosystem approaches will often depend on the level of adapted farm mechanization (see s/c 2.4), which is needed to take advantage of rainfall events (see also Conservation farming/agriculture, s/c 1.2).

110. Policies and investment priorities. The relative contributions of rainfed and irrigated production investments at national level need to be assessed for different production systems in targeted AEZ. If rainfed production can be stabilized by enhanced soil moisture storage, the physical and socio-economic circumstances under which this can occur need to be well identified. The respective merits of low-intensity investments in sustainable rainfed crop production intensification and high intensity localized investments in full irrigation need careful technical and socio-economic appraisal against development objectives⁵⁴. Proposed key action areas are proposed in Table 14.

Table 14: Priority actions for improved water management in rainfed agriculture

Investment areas	Priority activities
Extension & AR4D	<ul style="list-style-type: none"> - Improved cropping practices for improved soil and water management (land husbandry) - Promotion of conservation agriculture
Farm level interventions	<ul style="list-style-type: none"> - On- and off-farm run-off management (including support for adapted mechanization development) - Enhanced soil coverage and organic matter level
Landscape level interventions	<ul style="list-style-type: none"> - Off-farm run-off management (including upper catchment)
Policies & investment strategies	<ul style="list-style-type: none"> - Assessment of impacts and efficiencies of irrigation and rainfed water management investments

c. Water resources for livestock and fisheries

111. Over 70% of the livestock population are kept in semi-arid areas in northern, central and western parts of Tanzania. Water supply in pastoral and agropastoral areas includes the management of: (i) ground water by springs, shallow wells and boreholes; and (ii) surface water from streams and rivers, earth dams and catchments of rainwater harvest. Under ASDP-1 about 1,060 charco-dams and 40 boreholes, constructed between 2001 and 2010 at local level, have improved the availability of water for livestock and minimized the movements of livestock farmers and their livestock while searching for water.

112. The aim is to further increase water availability for livestock and fish by developing and maintaining reliable water sources. Priority investments are given in Table 15.

Table 15: Priority activities livestock/fish access to water resources

Investment areas	Priority activities
Developing and maintaining reliable water sources for livestock	<ul style="list-style-type: none"> - Construct and maintain (charco)-dams, boreholes, etc. (Participatory planning, implementation and management with livestock holder organizations). - Pasture improvement (seed/hay production, irrigated production demonstration plots)
Fish and other seafood farming development	<ul style="list-style-type: none"> - Facilitate construction of fish ponds - Fish cages in lakes - Other seafood production

⁵⁴ See also Save and grow (FAO 2013)

Seaweed farming development	- Facilitate promotion of seaweed cultivation in ocean
Fisheries resources development	<ul style="list-style-type: none"> - Facilitate sensitization among fisher folk on Ecosystem Approach to Fisheries (EAF) issues - Facilitate conduct of fisheries frame survey - Conduct of border patrol - Improve quality standard of fish and fisheries products

Budget note: Construction of 10 dams at TSh 1 billion each

2. Sub-component 1.2: Land use planning and sustainable watershed and soil management

113. **Increasing human and livestock populations are putting pressure on land use.** There has been an expansion in the cropped area in recent years and increasing conflict levels between farmers and livestock keepers hinder development of the sector. Promotion of land use plans and their enforcement is thus critical for sustainability of the sector. This strategic area requires a multi-stakeholder approach for sustainable land use for crops, livestock (pasture and rangeland) and fisheries: (i) country-wide national and village level land use plans in collaboration with the Ministry of Land, Housing and Settlements Developments, Office of the Vice-President, PO-RALG and the Tanzania Investment Centre (TIC—land banks); (ii) sustainable pasture and range management measures to prevent or minimize land degradation and desertification and mechanism for resolving land use disputes; (iii) improved soil fertility management by adapted land tillage and sustainable use of fertilizers; and (iv) enhanced fish farming by integrated inland aquaculture.

114. Although there are still areas of arable land which are not used for crop and livestock or fish production, most of the incremental production from the smallholder sub-sector is expected to come from productivity improvements. Additionally, in the intensive commercial sector, investments to expand the utilization of land resources will also be a source of growth. Area expansion needs to be accompanied by measures to safeguard customary property rights.

115. ASDP-2 is expected to spearhead efforts to conserve and utilize Tanzania's natural resources in a sustainable and productive manner, by adopting sustainable land and water management systems. Measures to strengthen the policy and legal framework for utilization of land and water resources utilization will also include developing institutional and technical capacity as priority areas. Equally important is the prevention and reversal of arable and rangeland degradation in the rainfed areas, which cover most of the country. Soil fertility depletion and erosion are already threatening the sustainability of arable agriculture. The damaged areas need to be rehabilitated to prevent further deterioration through better soil health management, introduction of soil conservation measures, reforestation, appropriate conservation agriculture and sustainable pasture management methods.

a. Land use planning and watershed management

116. “*Land use planning is a systematic and iterative procedure carried out in order to create an enabling environment for sustainable development of land resources which meets people's needs and demands. It assesses the physical, socio-economic, institutional and legal potentials and constraints with respect to an optimal and sustainable use of land resources, and empowers people to make decisions about how to allocate those resources*” (FAO/UNEP 1999: 14).

117. Increasing scarcity of land requires land use planning for diverse purposes, all aiming to optimize land resource uses to avoid deteriorations and land use conflicts as well as other consequential problems such as famines and wars. Land use planning can be applied to support sustainable development within given areas (territorial development) or specifically to ensure the protection of ecosystem services, biodiversity and high conservation values (natural resource management, national park management, and buffer zone management). It can also help mitigate climate change or adapt to it, to prevent disasters or to be prepared for them, to ensure food security, to develop areas in post-conflict situations or in drugs environments or specifically to reduce land conflicts and improve land governance. It will also contribute to address land/resource tenure issues, avoid land ‘grabbing’ and mitigate its consequences.

118. In response to current constraints and challenges of development, the aim is to optimize land Agricultural Sector Development Programme 2 (ASDP-2)

use planning and land access for respective local population activities, including cropping and grazing lands (*connected to water availability*). Land use planning is cross-sector elements between crop and livestock and other uses, which allows integrating participatory spatial planning into local development planning. Besides national level facilitation, policy adaptation and technical support, the implementation of land use planning activities will mainly be integrated into local level investments implemented under AR4D activities and DADPs. Priority national and local investments are shown in Table 16.

Table 16: Priority activities in land use planning for crop and livestock development

Investment/action areas	Priority activities
Land use planning and watershed management	<ul style="list-style-type: none"> - Participatory land use planning and watershed management - Development and enforcement of by-laws - Capacity building for land use management - On- and off-farm run-off management (including adapted mechanization) - Conservation of marginal land areas - Area protection (afforestation, terracing, etc.)—communal land - AR4D activities/studies for optimal land use determination
Agricultural land use management	<ul style="list-style-type: none"> - Demarcation and titling of farmlands to increase security and promote investment - Establish and implement sustainable crop land management plans. - Promote appropriate soil and water management technologies and improved cropping practices
Grazing land development: improved rangeland management and use in livestock production	<ul style="list-style-type: none"> - Develop and implement sustainable rangeland management plans - Pasture improvement (seed/hay production, demonstration plots) - Strengthen early warning systems for timely information & mitigation strategies - Support environmental conservation in pastoralist communities
Pastures development & forage conservation	<ul style="list-style-type: none"> - Promote production and use of improved pasture & fodder tree species - Enrichment of <i>in situ</i> pastures (seeds) - Forage conservation (hay, silage, etc.)
Vector and vector-borne disease control in the rangelands	<ul style="list-style-type: none"> - Area wide integrated pest management techniques (ticks, tsetse and other vectors of veterinary importance)
<i>Investment strategies follow-up^a</i>	<i>Assessment of impacts and efficiencies of irrigation and rainfed water management investments</i>

^a project management to be integrated in comprehensive M&E (s/c 4.5)

b. Sustainable soil management and upscaling conservation agriculture⁵⁵

119. Declining soil fertility, due to continuous cropping (without fallow) and low levels of fertilizer use for soil nutrient restoring is believed to be a key cause of low crop yields. Rangeland degradation threatens the livelihoods of pastoral communities, calling for better rangeland management, including drought preparedness and response, but also alternative forms of income generation to reduce grazing pressure. Sector support initiatives should aim to increase both productivity and production while keeping a balance between adapted productivity investments in high and low potential areas to fight rural poverty. To increase productivity levels sustainably, there is a need to promote appropriate technologies, including soil and water conservation, integrated soil fertility management, agroforestry, conservation agriculture techniques and other related indigenous knowledge. Furthermore, trade-offs between productivity and resource management will be minimized within sustainable agricultural intensification of adapted farming systems.

120. **Integrated soil health management.** The best yields are achieved when nutrients come from a mix of mineral fertilizers and organic sources, such as nitrogen-fixing crops/trees and organic matter (manure, compost). Integrated soil fertility management ensures that nutrients reach the plant when required and do not pollute natural resources, and save farmers' money. Policies to promote soil health should encourage conservation agriculture (see s/c 1.3) and mixed crop–livestock and agroforestry

⁵⁵ See also ‘Save and grow’: http://www.fao.org/ag/save-and-grow/index_en.html

systems that enhance soil fertility and encourage ‘reasoned’ site-specific and precision nutrient management. Soils rich in organic matter and biota are the foundation of increased crop productivity.

Box 2: Basic elements for better land husbandry—Integrated soil fertility management

Promotion of an integrated and synergistic resource management approach embracing locally appropriate combinations of the following technical options:

- Build-up of soil organic matter and related biological activity to optimum sustainable levels (for improved moisture and nutrient supply and soil structure) through the use of compost, farmyard manure, green manures, surface mulch, enriched fallows, agroforestry, cover crops and better crop residue management
- Integrated plant nutrition management with locally appropriate and cost-effective combinations of organic/inorganic and on- and off-farm sources of plant nutrients
- Better crop management with improved seeds of appropriate varieties, improved crop establishment at the beginning of the rains, weed management and integrated pest management
- Better rainwater management to increase infiltration and reduce runoff (erosion) so as to improve soil moisture conditions within the rooting zone, thereby lessening the risk of moisture stress during dry spells, e.g., box ridges)
- Improvement of soil rooting depth and permeability through breaking of a cultivation-induced compacted soil layer (hoe/plough pan) through conservation tillage practices (sub-soiling, chisel ploughing or inter-planting of deep rooted perennial crops/trees and shrubs)
- Reclamation where appropriate (i.e., if technically feasible and cost effective), of arable land that has been severely degraded by such processes as gullyling, loss of topsoil from sheet erosion, soil compaction, acidification, alkalinization and salinization
- For irrigated crop production systems, also improving water use efficiency: improved water distribution to minimize channel seepage losses, and mulching to reduce evaporation losses, and minimizing the risk of salinization by following good irrigation and drainage practices
- For livestock production systems, better integration of crop and livestock production in both the cereal based farming and agropastoral systems

Adoption of people-centred self-learning and investigating approaches

Community-based participatory approaches to planning and technology development

Better land husbandry that offer farmers tangible economic, social and environmental benefits.

Source: Strategic Investment Programme for Sustainable Land Management in sub-Saharan Africa (FAO, 2007)

121. Upscaling Conservation Agriculture. Conservation Agriculture is a concept for resource-saving agricultural crop production that strives to achieve acceptable profits together with high and sustained production levels while concurrently conserving the environment (FAO, 2007). Conservation agriculture relies on three key principles: (i) practising minimum mechanical soil disturbance (minimum tillage); (ii) creating and maintaining a permanent organic soil cover; and (iii) practising crop rotation with more than two species. The main activities proposed are centred on: (i) creating awareness by information dissemination on integrated soil fertility management and conservation agriculture; (ii) building capacity of extension staff and farmers on conservation agriculture; and (iii) adapting policies and regulations for conservation agriculture, including for agricultural mechanization (equipment specifications in line with conservation agriculture). Besides national level facilitation, policy adaptation and technical support, conservation agriculture support activities will be integrated into local level investments implemented under DADPs. A range of extension tools will be deployed to train farmers and promote improved agricultural practices to sustainably increase staple crop yields by improved soil health and integrated soil fertility management. ASDP-2 will also facilitate farmers’ access to needed inputs (s/c 2.3), mechanization equipment for production and post-harvest (s/c 2.4) and related financial services (s/c 3.4).

3. Sub-component 1.3: Mainstreaming resilience for climate variability/ change and natural disasters

122. Climate variability/change presents Tanzanian farmers and pastoralists with a new set of challenges. Although uncertainties about the nature and extent of change in the different AEZ of the country, there are indications that the frequency of extreme events may increase. This calls for an adequate level of preparedness in order to manage risks and mitigate their impacts on vulnerable households, including loss of assets. Efforts to mitigate the impact of disasters and climate change

have been facing challenges⁵⁶, including among others: (i) inadequate capacities to produce and disseminate early warning information on disasters; (ii) limited emergency response and mitigation measures including facilities; (iii) weak meteorological information and set-ups; (iv) lack of well-organized disaster maps focusing on major sources of disasters in the country (v) weak institutional integration of early warning system disaster response and preparedness; and (vi) weak financial capacity to arrest the shocks.

123. **Climate smart approach**⁵⁷ adds a further dimension to the natural resource management issue. Due to the high level of agroclimatic diversity in Tanzania, climate change is likely to affect agriculture in many and varied ways during and beyond the time horizon of the ASDP-2. The high level of dependence on rainfed agriculture makes Tanzanian rural households particularly vulnerable to climate change, which could increase the frequency of drought. There is a need to enhance the development of more robust and resilient farming systems that are able to adapt to a range of possible climate change outcomes. This climate smart approach will include the promotion of integrated (and synergistic) crop, livestock and fish production systems for sustained use of available natural resources.

124. **Climate Smart Agriculture (CSA)**⁵⁸ is an integrative approach to address interlinked challenges of food security and climate change through: (i) adapting and building resilience of agricultural and food security systems to climate change at multiple levels; and (ii) reducing greenhouse gas emissions from agriculture (including crops, livestock and fisheries). In response to a growing threat of climate change, the ASLMs will collaborate with related ministries and take mitigation and adaptation measures. The required interventions include: (i) undertake research and exchange information with other research institutions (regional and international); (ii) improve water use efficiency in agricultural production systems; (iii) promote integrated land and soil management; (iv) facilitate implementation of ESMPs by farmers and livestock keepers; and (v) create awareness, build policy frameworks, strategies and programmes, strengthen institutions and enhance financing towards implementing climate smart agriculture development.

125. **Save and grow!**⁵⁹ Sustainable intensification means a productive agriculture that conserves and enhances natural resources. Increasing food demand remains a challenge made even more daunting by the combined effects of climate change and growing competition for land, water and energy. The new paradigm is ‘sustainable crop production intensification’, which produces more from the same area of land while conserving resources, reducing negative impacts on the environment and enhancing natural capital and the flow of ecosystem services. Key principles are: (i) farming systems that save resources and offer a range of productivity, socio-economic and environmental benefits to integrated crop and livestock producers; (ii) access to improved crop varieties/seeds, animal breeds and fingerlings; and (iii) good agricultural practices including soil health and integrated soil nutrient management, rainwater and irrigation water management and plant and animal health protection. To encourage smallholders to adopt sustainable crop production intensification, policies/regulations and institutions need to devise incentives for small-scale farmers to use natural resources wisely (i.e., environmental services), rebuild research and technology transfer capacities and reduce the transaction costs of access to credit for investment (remove barriers to adoption and scaling up!).

⁵⁶ Evidence of Impact: climate smart agriculture in Africa. CTA 2014.

⁵⁷ See expected potential changes induced by climate change for Tanzania in ASARECA study on East African Agriculture and climate change: A comprehensive analysis—Tanzania

http://www.ifpri.org/sites/default/files/publications/aaccs_tanzania_note.pdf

⁵⁸ Adapted from ASDS-2 (September 2015) and Tanzania Climate Smart Agriculture Programme, coordinated by Ministry of Agriculture Livestock and Fisheries and the Vice President’s Office (2015–2025).

⁵⁹ See also SAVE and GROW: <http://www.fao.org/ag/save-and-Grow/>. In a broad sense involving crops, livestock, fish and natural resource (soils, water, vegetation) management.

Box 3: The agenda for sustainable agricultural intensification and resilience

The agenda for sustainable agricultural intensification needs to respond to rising market demand for crop and livestock/fish products from a growing global (and urban) population, in the context of a weakened natural resource base, energy scarcities and climate change. Promoting a sustainable intensification agenda involves:

- **First**, to increase resilience and promote environmental sustainability, while increasing productivity, *it is of critical importance to address together the imperatives of producing more, more effectively, and of preserving or restoring the natural resource base to put tomorrow's rural generations at the centre of a new agenda for rural growth and poverty reduction.*
- **Second**, to capitalize on farmers' local knowledge and social capital as well as on scientific research to address context-specific problems, so as to develop responses that are rooted in local agro-ecological conditions. There is no *blueprint for an agenda for sustainable intensification, but a systemic approach, context adaptation, and linking farmers' own and scientific knowledge are part of agenda for change.*
- **Third**, to build resilience to stress (including climate change) into farming systems, thus strengthening small-scale farmers' capacity to manage risk. *Sustainable agricultural intensification should be taken as an approach to broaden women and men farmers' options to better capture market opportunities while reducing risks, or strengthening their capacity to manage them.*
- **Fourth**, to enhance policy and political support, including adequate incentives and risk mitigation measures for a shift to sustainable intensification to take place. This requires, in particular, more secure land tenure to encourage long-term investments, conducive pricing and regulations for the use of natural resources and agricultural inputs, and support for the development of PES opportunities and markets. Farmers need better education, adapted to their needs, *new farmer-centred learning approaches and linking-up to sources of information and resources. Conducive environment for developing capabilities for sustainable intensification requires building coalitions, sharing responsibilities and creating synergies among governments, civil society, the private sector—and above all—farmers and their organizations.*

Source: Adapted from Tanzania—Agriculture Climate Resilience Plan (ACRP), 2014–2019

126. Besides national level facilitation, policy adaptation and technical support, the implementation of climate change activities will be mainstreamed in all ASDP-2 activities, including research, support to sustainable crop, livestock and fish production and post-harvest management towards increased resilience and synergies. Specific investments will be integrated into local level investments implemented under DADPs. The main action areas for ASDP-2 are outlined in Table 17.

Table 17: ASDP-2 investment and action areas for improved resilience of farming systems

<i>Investment/action areas</i>	<i>Priority activities</i>
Policies/regulations	<ul style="list-style-type: none"> - Impacts on vulnerable groups, identifying opportunities for adaptation and mitigation, including strategies derived from the East African Community Climate Change policy - Strengthen early warning and preparedness - Enhance risk management measures, including risk insurances
Crops	<ul style="list-style-type: none"> - Research & extension on new crops/varieties and sustainable farming systems suited to hotter/drier conditions (mainstreamed) - Promotion of conservation agriculture, including adapted mechanization - Short- and long-term weather forecasting and response farming
Livestock/fisheries	<ul style="list-style-type: none"> - Strengthening human and technical capacities and systems for early warning to provide timely information and response - Developing mitigation and adaptation strategies for climate variability and change towards sustainable livestock and fisheries production systems - Support livestock herders and their organizations to implement mitigation and adaptation measures

127. Component 1 investments at national and local levels.

Table 18: Development budget/investment projection for component 1 (TSh million)

COMPONENT 1: SUSTAINABLE WATER AND LAND MANAGEMENT—BASE COST ESTIMATES (TSh million)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Sub-component 1.1: Integrated water use and management (crop and livestock/fisheries)											
a) Crop Irrigation											
<i>Irrigation Infrastructure (National/District Irrigation Development Fund)</i>	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	1,000,000
<i>Management, Operation, Vehicles and Training</i>	27,226	27,226	17,180	17,180	17,180	13,080	13,080	13,080	13,080	13,080	171,389
b) Water Sources for Livestock and Fisheries	2934	3744	4381	5126	5741	6315	6947	6947	6947	6947	56,029
sub-total	130,160	130,970	121,561	122,306	122,921	119,395	120,027	120,027	120,027	120,027	1,227,418
Sub-component 1.2: Land use and sustainable soil management											
a) Land Use Planning and Watershed Management											
<i>Land use planning and watershed management</i>	11,540	11,540	11,540	11,540	11,540	11,540	11,540	11,540	11,540	11,540	115,400
<i>Grassland development and forage conservation</i>	6,700	6,700	6,700	6,700	6,700	6,700	6,700	6,700	6,700	6,700	67,000
sub-total	18,240	182,400									
b) Sustainable Soil Management and Upscaling of Conservation Agriculture											
<i>Awareness and information dissemination</i>	449	736	873	1,037	987	987	987	987	987	987	9,017
<i>Capacity building</i>	426	650	780	936	936	936	936	936	936	936	8,408
sub-total	875	1,386	1,653	1,973	1,923	1,923	1,923	1,923	1,923	1,923	17,425
Sub-component 1.3: Mainstreaming resilience for climate variability/change											
Mainstreaming Resilience for Climate Change	1,840	1,970	2,150	2,330	2,510	2,510	2,510	2,510	2,510	2,510	23,350
TOTAL COMPONENT 1	151,115	152,566	143,604	144,849	145,594	142,068	142,700	142,700	142,700	142,700	1,450,593

D. Component 2: Enhanced Agricultural Productivity and Profitability

128. Strategic objectives, outcomes and related indicators for the ‘Enhanced agricultural productivity and profitability’ are defined in Table 19⁶⁰.

Table 19: ASDP-2 Component 2: related ASDS-2 specific objectives and outcomes

Specific objective	Outcomes	Outcome Indicators ^a
SO2. Increased productivity growth rate for commercial market-oriented agriculture for priority commodities (crops, livestock and fish value chains)	Improved agricultural productivity and profitability	<ul style="list-style-type: none"> - Yields (t/ha) or animal productivity (meat, milk, etc.) for targeted priority value chains - Gross margins (TSh) per ha or animal for priority value chains - Profitability/net return of priority commodities - Increased labour efficiency and net financial return to farmers
	2.1. Agricultural research improved	<ul style="list-style-type: none"> - Number of new field tested technologies released from research stations, e.g., new varieties - % of budget allocated to R&D - Improved quality and relevance of Tanzania’s integrated agric. research & technology system (response to farmer needs) - Strengthened research-extension linkages - Availability of gender/youth sensitive technologies
	2.2. Extension services improved	<ul style="list-style-type: none"> - Number of new field tested technologies released from research stations, e.g., new varieties - % of farmers satisfied with extension services (satisfaction level) - Access of target groups to adapted technology support services - Adoption rate (%) of relevant technologies (knowledge and inputs) - Adoption level (%) of farmer and market-responsive technologies (including technologies for improved nutrition) - Prevention and control level of economic animal diseases
	2.3. Access to agricultural inputs increased	<ul style="list-style-type: none"> - % of farmers using fertilizers - % of farmers using improved seeds - % of livestock accessing artificial insemination services - Number /% of farmers benefiting from input subsidy - Access to quality inputs (fertilizer, agrochemicals, vet. drugs, feed, vaccines, fingerlings, etc.) - % of farm inputs marketed by private sector dealers National production, supply and access to improved seeds, semen, germplasm, vaccines, fingerlings, etc. - Level and targets of public subsidy for key inputs - % of farmers accessing mechanization services (production and post-harvest)

^a Indicators in bold sourced/adapted from ASDS-2 M&E framework (September, 2015)

129. The strategy aims to increase and sustain productivity of priority commodities (crops, livestock and fishery) by targeting the small-scale commercial farmer sub-sector towards consolidated household food security but also agricultural commercialization. There is a need to accelerate the adoption of yield-enhancing technologies and reduced on-farm and post-harvest losses, including use of improved seeds and fertilizers, through improved access to credit, livestock health services and adapted mechanization services. Component 2 is divided into four sub-components.

Component 2: ENHANCED AGRICULTURAL PRODUCTIVITY AND PROFITABILITY

S/c 2.1: Agricultural Research for Development (AR4D)—*crop/livestock/fisheries*

S/c 2.2: Extension training and information services

S/c 2.3: Access to agricultural Inputs

S/c 2.4: Access to mechanization services

⁶⁰ Summary of specific objectives and outcomes as defined by ASDS-2 (September 2015).

130. The Government of Tanzania priority for the agricultural and agro-industrial sector is to achieve a sustainable production increase equivalent to a 6% annual compound growth rate⁶¹. **The specific objective of this component is to enable increased productivity growth rate for commercial market-oriented agriculture for priority commodities** (crops, livestock and fish value chains). Increased agricultural commodity productivity is a prerequisite for household food security and agricultural commercialization, while area extension should be considered under intensified production systems. The proposed objective and outcomes will be achieved by four interlinked sub-components: (i) research for development; (ii) extension/advisory, training and information services; (iii) access to agricultural inputs for crops, livestock and fisheries; and (iv) access to production and post-harvest mechanization services.

131. Targeting smallholder commercialization, the strategy of this component is to increase delivery and use of demand-driven technologies, enhancing the productivity of prioritized CVCs within sustainable production systems for crops, livestock and fish. This will be achieved through: (i) broader availability of technology options responding to commercial needs of CVC stakeholder; (ii) facilitated farmer access to adapted technical knowledge and options for use; (iii) enhanced farmer access to inputs through private agrodealers (i.e., adapted seeds, planting materials and livestock breeds, fertilizers, feed and agrochemicals); and (iv) other technology support services (such as mechanization, phyto- and zoo-sanitary services, etc.). Advisory and training services will include food and nutrition aspects, such as promotion of crop diversification and bio-fortified varieties, awareness on cross-cutting issues such as gender; youth, environment and sustainable NRM, climate change mitigation, risk resilience and governance, as required.

132. Sustainable intensive production systems include among others natural resource management (land and water), conservation agriculture, integrated soil fertility, integrated pest, diseases, and post-harvest management. These approaches will be fine-tuned and scaled up by strengthened national and zonal AR4D services, demand-responsive extension services and private input supply channels (improved seed/breeds/fingerlings, fertilizers, agrochemicals, veterinary drugs, vaccines, etc.). Support will also provide improved access to: (i) sustainable management of land and water resources; (ii) adapted mechanization for production and value addition; (iii) required production, processing and marketing facilities; and (iv) appropriate diagnostic laboratory services, control and prevention of pests and diseases.

133. Livestock development will make a significant contribution to the sector growth through use of improved genetic resources and feed practices, but also commercialization, increased processing capacity and improved marketing efficiency. Specific measures will also be undertaken to improve fisheries and aquaculture production and management including infrastructure (modern fisheries harbour) and targeted sanitary measures.

⁶¹ Raise sectoral GDP from TZS 9,600 billion (USD 6.4 billion) in 2010/11 to around TZS 30,600 billion (USD 20.4 billion) in 2030/31. GDP per capita among the rural population would increase from around USD 180 to USD 360 over the same period.

Table 20: Objectives for priority action in livestock and fish productivity development (10 years)

<i>Sub-sectors</i>	<i>Specific objectives/outcomes</i>
Subsector Livestock and Fisheries	<ul style="list-style-type: none"> - Availability, access and use of inputs/implements - Strengthened research, extension and training activities (infrastructure) - Diversification of new potential revenue sources
Meat production	<ul style="list-style-type: none"> - Water and pasture for livestock and fisheries (infrastructures)—comp 1; - Improved meat productivity towards commercial production of quality meat, meeting standards for domestic and international market
Milk production	<ul style="list-style-type: none"> - Increased production to meet domestic demand and external markets (raise income)
Eggs production	<ul style="list-style-type: none"> - Meet domestic demand and raise income of poultry farmers
Hides & skins and other by-product development	<ul style="list-style-type: none"> - Improved quality, collection and processing of hides and skins for domestic and export markets - Use for food, feed, pharmaceuticals and energy
Animal draught	<ul style="list-style-type: none"> - Increased return on agricultural labour and related small-scale production
Promote market access of animals & animal products	<ul style="list-style-type: none"> - Develop cooperative and other farmer-based organization - Improve zoo-sanitary inspectorate services (improve prevention and control) - Establishment of disease free zones and strengthen disease reporting & surveillance - Strengthen laboratory disease diagnostic services
Aquaculture production and fish captures	<ul style="list-style-type: none"> - Promoting fish farming and aquaculture production and services Feasibility study and a detailed design for construction of fishing port - Increased aquaculture productivity and raised income of aquaculture farmers - Fishing regulation updating/enforcement for sustainable fishing & fish production

Source: Adapted from ‘Livestock Sector Development Programme’. December 2011. The Medium Term Expenditure Framework (MTEF) for 2015/2016 takes into consideration of the National Five Year Development Plan (2011/12–2015/16) and the BRN.

134. Priority CVCs in each agro-ecological zone. AEZ conditions in combination with market opportunities determine comparative advantage of CVCs productivity and marketing: the zonal level allows stakeholders to better articulate participative prioritization, generated by local Opportunities and Obstacles to Development processes, with national level priorities, while allowing for zonal/cluster economies of scale. ASDP-2 will target high potential priority crop and livestock/fish CVCs⁶², selected within each AEZ. The selection criteria for zonal priorities include among others: (i) the current importance of value chain (% of national production) and potential market demand; (ii) the contribution to sustainable local production systems, to household food security and income generation; (iii) the potential for productivity improvement and value addition (e. g. agroprocessing and improved marketing); and (iv) the potential contribution to local agribusiness development and increased agricultural exports. The proposed prioritization is consistent with priority CVCs identified during the participative planning of the 2012 DADPs, and broadens the priority areas targeted by investments prioritized by the BRN Labs⁶³, to other AEZ. In support of CVC development, District (multi-stakeholder) Commodity Platforms (DCP) will operate at district cluster level to guide development support activities implemented at district level, with support from the regions.

⁶² See details in Annex VII: Selection criteria for participating districts

⁶³ Choices also complement the BRN (2013): (i) 9 Paddy (60/130,000 ha) and 16 sugar (350/150,000 ha) commercial farming deals (10 districts NW and SE); (ii) 78 professional irrigated schemes (Southern corridor 8 districts); and (iii) 275 collective warehouses (Southern highlands Songea-Mpanda).

Table 21: Summary of zonal CVC prioritization

Commodity	Crop		Livestock		Opportunity windows
AEZ ⁶⁴	Primary	Diversification⁶⁵	Primary	Diversification	
Arid	Sorghum/millet	Pulses, fruit tree	Meat-beef	Goats/bees	Grapes/fruits
Semi-arid (North)	Sunflower	Groundnut/pulses	Meat-beef	Local poultry	Cotton
Semi-arid (South)	Sesame	Rice, Cashew	Meat-goats	Poultry	Oil palm
Plateau	Maize	Pulses	Meat beef	Local poultry	
Northern Highland	Maize	Horticulture	Dairy/pig/fish	Meat	Coffee
Eastern Coast	Rice/horticulture	Oil seed/cashew	Dairy/fish	Beef	Sugarcane ^c
West/SW Highland	Maize	Banana, legumes	Local poultry	Beef/Goat	Cassava/cane
Southern Highland	Maize ^a	Rice/Horticulture	Meat-beef	Dairy/pig	

^a See also proposed BRN collective warehouses (s/comp. 3.3).

^b Horticulture promotion for household nutrition and market supply forms a diversification option in most irrigated areas but also as small-scale counter-season activity. Diversification by cereal rotation with leguminous crops will also be considered.

^c Sugarcane mainly promoted by SAGCOT initiative.

1. Subcomponent 2.1: Agricultural Research Systems for Development (AR4D)

135. The specific objective under this subcomponent is to improve technology generation delivery systems responsive to farmer needs and market requirements, which will contribute to increased and sustained productivity and production of priority commodities (crops, livestock products and fishery). Targeted outcomes to be achieved are: (i) improved 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); (ii) enhanced support to technology dissemination systems through strengthened research-extension linkages; (iii) build capacity of semi-autonomous research institutes in human and financial and physical (infrastructures, equipment) resources; (iv) consolidate participatory identification, implementation and evaluation of research involving a broad spectrum of stakeholders; and (v) enhanced collaboration with regional and international research institutes including the Consultative Group for International Agricultural Research (CGIAR) and the private sector.

136. Building on participatory approaches developed under ASDP-1, AR4D investments will include strategic and demand-driven adaptive research agenda/activities focused on priority CVCs for crops⁶⁵, livestock and fish products within each AEZ. Further to a consultative role to the PPP for adaptive research and technical support, the sub-component will support adaptive research activities and address priority CVCs technology needs for productivity impact, within sustainable production systems based on:

- i. Enhanced client-oriented and demand-driven adaptive technology generation to broaden users' technology options, with emphasis on crop and livestock⁶⁶ breeding/selection, enhanced breeder seed/breed supply, sustainable natural resource management (soil and water), climate smart production practices, integrated pest management (IPM), intergrated disease management (IDM) and post-harvest practices, including client needs for value addition, nutrition issues (bio-fortification) and reduced post-harvest losses. Zonal Agricultural Research and Development Funds (ZARDEFs), established during ASDP-1, will be used to channel financial support to user-selected demand-driven adaptive agricultural research

⁶⁴ See map of AEZ in Annex VI.

⁶⁵ Limited complementary support for rice, as this crop is already being supported by the EAAPP.

⁶⁶ Including research for livestock, aquaculture, transformation/value-addition [TARI, TALIRI, etc. under the Ministry of Industry Trade and Investment (industrial research, TIRDO, etc.)] as per identified zonal priority commodities. ASDP-2 will not cover all ASLM research needs, but rather adaptive research that directly/indirectly supports the focus CVCs.

projects focused on local priority CVCs⁶⁷. This competitive fund is open to public and private researchers for client-oriented research, based on zonal research priorities.

- ii. *Strengthened coordination and networking for priority CVC research* at national, regional and international levels to source adapted technologies. This will be achieved by enhanced networking with the Consultative Group for International Agricultural Research (CGIAR) and other international, regional (applying the subsidiarity principle) public and private (i.e., seed) research institutions to source technologies adapted to the needs of local systems and global changes. Furthermore, national level AR4D coordination and networking for targeted CVCs and cross-cutting thematic⁶⁸ areas (food and nutrition, integrated NRM, climate change, gender -sensitivity, etc.) will be strengthened by regular information exchange and research platforms for targeted priority CVCs at zonal and national level, including annual AR4D planning, programme review with stakeholders and evaluation workshops.
- iii. *Improved user access to adapted technology options by strengthened research-extension linkages* and technical and economic⁶⁹ information management and communication. This will be achieved by zonal Technology Transfer and Partnership Units (TTPU)⁷⁰ and more effective agricultural information management and communication of available technologies. The TTPU teams (crop/livestock technical and information specialists) will be empowered to act as strong links between zonal research teams and District CVC stakeholder Platforms (DCP) and designated crop, livestock and fish AR4D liaison officers (see s/c extension). The delivery capacities of TTPU teams in each AEZ will be strengthened in terms of human and technical capacities to handle knowledge and linkages between AEZ research network and the district agricultural facilitation team⁷¹ for crops and livestock, as well as the stakeholder innovation platform for priority CVCs. The zonal technology inventory will be updated and diffused while on-farm research and demonstration programme will be up-scaled for targeted CVCs in focused district clusters. Socio-economic capacities will be integrated into the technical teams to generate further knowledge on socio-economic characterization of farming systems, micro-level policy options, market efficiency and modelling of impacts generated by broader farmer use of improved technologies.

Table 22: Crop and livestock research institutes in AEZ

AEZ ^a	Crop AR4D	Livestock/fisheries AR4D	
		TALIRI	TAFIRI
Arid	Selian & HORTI Tengeru	Mpwapwa, Mabuki & Kongwa	Mwanza & Kigoma
Semi-arid (N&S)	Makutupora, Hombolo, Ilonga, Dakawa	Mpwapwa Kongwa, Naliendele	
Eastern coast & alluvial plains	Mlingano, Mikocheni, Kibaha, Naliendele, Uyole, Katrin Dakawa	Tanga + TVLA DSM (Kibaha & Temeke)	TAFIRI-DSM
Plateaux	Uyole, Ukiriguru, Tumbi	(a) Mabuki and	Mwanza & Mara

⁶⁷ About five and three AR4D projects per AEZ per annum for crops and livestock respectively.

⁶⁸ i.e., Sustainable crop/livestock production systems and technologies natural resource/land use management (conservation agriculture), climate smart agriculture, post-harvest losses and nutrition issues by breeding for nutrient rich vars, etc.).

⁶⁹ Partial investment budget analysis for farmers to make informed choices.

⁷⁰ An alternative zonal AR4D structure to be implemented under TARI: the TTPU would take over (and consolidate) the functions implemented by Zonal Information and Extension Liaison Units (ZIELU) under ASDP-1. This arrangement fits well under the proposed restructuring of Crop Research Department under MAFC into the TARI, where TTPUs will continue to use the current Department of Research and Development innovative participatory approaches to engage its stakeholders along the zonal priority CVC. Within each AEZ, the TTPUs will include all Agricultural Research Institutes based within the respective zone, and strengthen the AR4D linkage with districts focal person, promoting agricultural technology transfer, and users.

⁷¹ The District Agricultural Facilitation Team includes the DAICO/DLFO and the technical subject matter specialists for crops, livestock, fish and rural development active at district level.

		Uyole	
Northern highlands (bi)	Selian & HORTI Tengeru	West Kilimanjaro	Mwanza and Mara
Southern highlands	Uyole & Kifyulilo	(b) Uyole	Mbeya& Kigoma;
Western and SW highlands	Maruku & Tumbi	(c) Mabuki	Kigoma

^a AEZ adapted from Sokoine University of Agriculture, 2014. The National Livestock Research and Development Agenda (2015), Fisheries and Development Research Agenda (2015).

- iv. *Effective agricultural information management and communication* of available technologies will be promoted, using modern ICT at national and local levels. AR4D will contribute by: (a) establishing a national innovation sharing platform between agricultural research and extension; (b) compiling an updated technology information database; (c) adapting available technical information to the user community needs (farmers, entrepreneurs, agricultural training institutions, NGOs and others); and (d) facilitating users access through modern ICT (internet and mobile) for information exchange and learning processes (e-learning). This will require investment in effective communication infrastructure and human resources for developing innovative technology adaptation and dissemination pathways.
- v. *Upgrading selected AR4D institutions towards sustainable research and development support* for priority CVCs by: (a) contributing the institutional strengthening of Tanzanian Agricultural Research Institution (TARI); Tanzania Veterinary Laboratory Agency (TVLA), Tanzania Livestock Research Institution (TALIRI) and Tanzania Fisheries Research Institute (TAFIRI); (b) strengthening human resources for research and technical staff for crops, livestock and fisheries, based on capacity gaps and needs for CVC to be identified through a training needs assessment; (c) targeted support for priority research infrastructure and field and laboratory facilities and equipment of selected zonal ARI, TVLA, TALIRI, Livestock Training Agency (LITA), Fisheries Education and Training Agency (FETA) and TAFIRI; (d) promoting public/private partnerships⁷² towards sustainable funding mechanisms for agricultural research through ZARDEF; and (e) strengthening efficient linkages between TTPUs and district agricultural support teams for crops, livestock and fish.

Among others, biotechnology (marker assisted breeding, genetic engineering, diseases diagnostics, bioinformatics, genomics, proteomics, gene tilling and metabolomics) will be an important cutting-edge science and researchers capacities need to be built in this area and related biosafety and biosecurity issues. In this and other high tech areas, regional cooperation (e.g., EAC) will be sought to enable for higher efficiency on solving common issues and sharing of results⁷³.

137. **Effective planning, implementation, monitoring, evaluation⁷⁴** of AR4D are important prerequisites for effective and quality research. Stakeholder involvement in research agenda planning, but also monitoring/evaluation is key for high quality and relevance. Therefore ASDP-2 will track and assess the extent of use and effectiveness of research outputs at sector level and get feedback on adoption and impact of proposed technologies.

138. **Livestock and Fisheries research.** The Directorate of Research Coordination, Training and Extension (DRTE)⁷⁵ coordinates livestock and fisheries research implemented in accordance to the mandates of the TALIRI, TAFIRI and other research institutions such as the TVLA, the Tanzania

⁷² The district CVC platform facilitates the dialogue among major commodity actors (producers, traders, processors, etc., public and private service providers (including research and extension) to develop a common strategy and work plan to improve the performance of targeted CVCs)

⁷³ See the achievements of the EAAPP and regional collaborations with ASARECA.

⁷⁴ Output indicators to be developed in Programme implementation manual and linked to intermediate outcomes.

⁷⁵ DRTE coordinates planning, implementation, monitoring, technology dissemination and impact assessment of technical and socio-economic livestock/fisheries research programmes (including animal health and disease management, maintains a livestock and fish research database and promotes the dissemination of innovations).

Commission of Science and Technology (COSTECH), Sokoine University of Agriculture (SUA), LGAs, Dairy and Meat Boards, NGOs/community based organizations (CBOs) and other relevant stakeholder where research is undertaken. The coordination is also extended to all collaborative livestock and fisheries research activities in international research institutions/organizations. The priorities for livestock/fisheries research across AEZs⁷⁵ were identified as shown in Table 23.

Table 23: Livestock and fisheries priority investment and action areas for research

Action areas ^a	Priority actions/activities
Dairy cattle	<ul style="list-style-type: none"> - Improved technologies for dairy productivity by breeding - Promote selection, use and conservation of indigenous livestock - Disease diagnostics & prevention and control of disease vectors/pests and pathogens
Beef cattle	<ul style="list-style-type: none"> - Improved beef productivity by breeding/selection, conservation of indigenous germplasm—genetic resources - Disease diagnostics & prevention and control of disease vectors/pests and pathogens
Sheep and goat	<ul style="list-style-type: none"> - Improved sheep and goat productivity by breeding/selection, conservation of indigenous germplasm—genetic resources
Pig	<ul style="list-style-type: none"> - Diseases and feeding
Poultry (meat/egg)	<ul style="list-style-type: none"> - Prevention and control of diseases and testing for quality feeds
Feed resources	<ul style="list-style-type: none"> - Research on pasture and forage production
Animal disease	<ul style="list-style-type: none"> - Research on disease prevention and control/quality of animal diseases vaccines - Research on vectors, parasites and disease pathogens; control livestock inputs/outputs - Development of diagnostic kits and other biologicals
Fisheries	<ul style="list-style-type: none"> - Research on stock and catchment assessment and frame survey - Impact of human activities to water resources, including illegal unreported and unregulated fishing (IUU) - Research on reduction of post-harvest losses in sardines - Improved fish handling, storage, processing & distribution technologies and facilities - Impact of different processing technologies on nutritional value of the fish - Fishing gear technology, methods and crafts - Research on restocking in minor waters - Marketing processes and study on fish consumption pattern within the country - Research-extension linkages
Aquaculture	<ul style="list-style-type: none"> - Fish feed production and quality assurance; potential farmed species - Fish breeding, genetics, and biotechnology, hatchery technologies & quality assurance - Aquaculture system modelling - Research-extension linkages

^a Main investment elements are rehabilitation and consolidation of infrastructures and research facilities (ponds, cold rooms, water catchments, vaccine production, smoking/processing facilities, etc.), short- and long-term capacity building, and purchase of parent stocks (breeding bulls, bucks, does, poultry, fingerlings).

2. Subcomponent 2.2: Agricultural Extension, Training and Information⁷⁶ Services

139. **Smallholder productivity for both crop, livestock and fish commodities still remain low** due to limited use of improved agricultural technologies, inadequate AR4D linkages and extension services (public and private), limited availability and farmer access to agro-inputs, and unreliable markets and value addition opportunities. Disharmonized legislation and weak inspectorate services are limiting the country's access to potential regional and international niche markets, while inadequate capacity building and monitoring systems result into unsustainable natural resource (land and water) use management and intolerable pesticide use and residues to consumers and the environment.

⁷⁶ The ICT framework investments at sector level are included in subcomponent 4.2.

140. Overall ASDP-1 was instrumental in setting in place a system for delivery of extension services to smallholder farmers through LGAs, although their coverage and service quality have been uneven, focusing mainly on production of crops, with less attention on livestock and fisheries and post-harvest handling and marketing. It contributed with substantial on-the-job and formal training and increases in total manpower⁷⁷ of public extension systems, while focusing mainly on conventional production technologies. The current structure for crop and livestock extension services is heavily reliant on the public sector. Recent efforts to introduce PPP initiatives, FFSs and ward resource centres (WRC) show promises for more effective farmer support services. Further steps for piloting and up-scaling innovative and cost-effective approaches for technical services, provided and managed in close partnership with farmer organizations (e.g., farmer facilitators, community animal health workers (CAHW))⁷⁸ or Private Service Providers (agribusiness services, veterinary services, etc.) should be undertaken.

141. Extension and training services play pivotal roles, as described in Box 4, in terms of linking farmers to new technologies, information and knowledge that are central to enhancing agricultural productivity. To meet farmers' demand and ownership towards increasing sustainable agricultural productivity, there is a need to: (i) strengthen AR4D linkages; (ii) adopt the most modern participatory extension methodologies; (iii) use modern ICT, such as mobile phone and Internet, including for higher level backstopping; (iv) promote use of sustainable agricultural practices (conservation agriculture, good agricultural practices, IPM, etc.); (v) facilitate farmers access to quality inputs (seeds/germplasm, fertilizer, feed, vaccines, etc.); (vi) strengthen the pest monitoring and early warning surveillance system; (vii) harmonize institutional set-up for PPP, involving local CVC stakeholders (including FO); and (viii) strengthen laboratory capacities for detection of disease pathogens and vectors for newly emerging and re-emerging diseases.

Box 4: Strengthening efficient extension (MAFC Workshop - January 2015)

⁷⁷ Number of village/ward extension officers in June 2013 was 7,974 (Minister budget speech FY 2014/15).

⁷⁸ Sustainable services that are provided by trained animal health services at community level (e.g., CAHW) in support of livestock holder groups/association/cooperatives services related to livestock such as dipping, water dams, breeding bulls, grazing land.

Is the current model of extension still fit to serve diverse farmer needs?

Government targets transformation for provision of quality commodity extension services with increased private sector participation. Within the government regulatory role, institutional framework reform, started with TARI, multipurpose WARCAs, FFS, etc. ASDP-2 coordination framework will be more comprehensive to include all projects/programmes in the agriculture sector.

Recommendations/ideas for strengthening provision of extension services:

- (i) **Diversity of its clientele** by gender, resource base, type of enterprise, AEZ, climate, market opportunities, social capital and access to credit, etc.
- (ii) **Pluralism in the provision of extension services** that include both public, FO/CSO and private entities (including ties with input supply). Promote private sector process in extension services (including PSP) and use diverse communication methods (ICT); leverage private sector service provision;
- (iii) **Strengthen training–research–extension linkage** to address real farmer issues (LGA-ASLM linkages, operational ZIELUs and district facilitation teams (DFTs)), joint planning and sector financial support. **Integrate training institutions** under one umbrella (Sokoine University of Agriculture, ATIs, LITAs, Fisheries Education and Training Agency) and strengthen their capacities and effectiveness.
- (iv) **Number of extension staff** (1 per village—need 9,139 more): staff deployment to every village or fewer staff to form ward technical teams (public/private). Continuous enhancement knowledge & practical skills of extension staff on the value chain approach
- (v) **Participative approaches/models and methodologies used in the provision of extension services** (system/commodity, reasonable cost): (i) multiple approaches/models to be used including VBA and RIPAT; (ii) guidelines/manuals for the extension implementation; (iii) use ICT; and (iv) lifting farmers to organize themselves into self-running/help entities (e.g., SACCOS, Farmer (Learning) Groups, Agriculture Marketing Cooperative Societies (AMCOS), etc.
- (vi) **Institutional arrangements in the provision of extension services:** professional organization for extension officers, retraining, regular performance evaluation; strengthened district extension teams to link with research/FO, implement/equip functional WARCAs (ICT) and use the PPP policy/strategy to improve efficiency for extension delivery (guidelines?)
- (vii) **Financing: pre-conditions for effective** extension include increased budgetary allocations (Agriculture Extension Block Grant, Agriculture Capacity Building Grant), adequate motivation, conducive arrangements & change working culture.

Way forward! Transformation of extension service is key for enhancing agricultural production and productivity by: (i) ensuring quality services by involvement of key players; (ii) taking cognizance of the diversity of farmers including gender; (iii) envisaging institutional reforms for research/training); (iv) accessing information involving ICT; (v) supporting & equipping of multifunctional WARCAs to backstop VEOs; and (vi) coordinating all local extension supports with annual planning and evaluation meetings; and (vii) build professional capacities of extension staff.

142. **The objective is to enhance improved technology dissemination delivery systems into farmer use, which will contribute to increased and sustained production, productivity and farmers' profitability of priority commodities (crops, livestock and fisheries) responsive to smallholder constraints and market requirements.** Building on the lessons learned from ASDP-1, this sub-component will provide support to strengthen delivery of demand-driven market-oriented advisory and information services for smallholder farmers, scaling out successful approaches such as FFS, farmer-to-farmer and use of modern ICT (mobile phone, Internet and other social media), but also provider increased service ownership to CVC stakeholders, especially FOs. Special attention will be given to mainstream cross-cutting issues such as women and youth in agriculture, nutrition (see also s/c 4.3), HIV/AIDS and good governance and professional management of farmer and CVC organizations, including cooperatives.

143. At national level, this sub-component focuses on policy and institutional reforms for implementing effective agricultural service strategy, support to local implementation, media (national level radio/television programmes, newsletters, agricultural shows, networking with international agencies, etc.) and information technology (IT) support. ASDP-2 will also integrate support to training and additional technical services such as land use planning and management (see s/c 1.2), animal and plant health services; plant and animal production materials; mechanization (see s/c 2.4) and additional policy and regulatory support.

144. At LGA level, the sub-component, will support efficient and effective extension approaches and services that will enhance farmers' access to technology innovations for increased productivity of their priority crop/livestock value chains; and promote farming system diversification towards improved risk management and food security and nutrition. This sub-component will support the following strategic action areas:

- i. *Reorient technical support services to commercial farming* promotion focused on priority CVC, facilitated by DCPs. Public technical agricultural services will be complemented by private agribusiness advisory service providers to form integrated CVC support teams at district and ward levels. The support services will provide specialized training and coaching to the district and ward-level agricultural facilitation teams to allow for their involvement in promoting commercial agriculture and strengthen agribusiness partnerships. To complement farmer empowerment and farmer organization strengthening (see s/c 3.1), FFS and farmer-to-farmer extensions will be strengthened by training, motivating and supporting lead farmers to provide technical services to local farmer/cooperative groups. This approach will promote efficient demand-driven and market-oriented advisory services and enhanced AR4D flows.
- ii. *Scale up on-farm technology testing and demonstration* to allow farmers a wider choice of options by strengthening research-extension-farmer linkages through the client-oriented research and extension management framework developed during the ASDP-1. This would include: (a) supporting district crop and livestock AR4D officers to link district technical teams with TTPUs; (b) implementing demand-driven on-farm research trials for priority CVCs (two/district/year); and (c) up-scaling technology tests (two/ward/year) and demonstrations (two/village/year), focused on priority CVCs, to assure broader awareness and farmer access to improved technologies/inputs and post-harvest technologies.
- iii. *Improve farmer access to technical and economic information* by strengthening local stakeholder access to technical and market information through use of innovative technology dissemination pathways, including traditional communication and modern ICT (e.g., Internet and mobile phones). Based on established effective communication infrastructure and technical support from TTPUs (see s/c 2.1), activities aim to improve farmer and other CVC stakeholder access to relevant technical and economic information to develop their agribusiness. To this end, district technical subject matter specialists, ward/village extension teams and lead farmers will be equipped and connected for information exchange and technical help desk at all levels, using internet and mobile phones. However, access to traditional farmer information channels will also be promoted by means such as the diffusion of leaflets/technical notes, radio programmes and listener discussion groups and the establishment of basic Ward Agricultural Resource Centre (WARC) modules (20 m²), where not yet implemented.
- iv. *Rehabilitating/strengthening capacities for agricultural training institute (ATI)/ livestock training institutes (LITIs)* to enable their functions of: (i) education and production of new extension officers (diploma and certificate level); (ii) in-service training and upgrading to existing extension officers (including the upgrade from certificate to diploma); and (iii) contribution to technical service providers to LGAs and farmers (local level function).
- v. *Strengthening of crop and animal health services, including regulatory functions of input and output quality control.*

145. At national/zonal level, the extension sub-component will support the national agricultural extension services and the regional secretariats to develop strategies and provide technical backstopping to districts. This will cover capacity strengthening for innovative market oriented CVC and advisory services for sustainable farming systems, developing guidelines and specialized information and training material, enhancing methodological support and guidelines for pluralistic extension services and capacitating the LITI/ (ATI) to deliver quality training. At local level, technical services will be financed through LGAs using the existing discretionary, performance formula-based Agricultural Extension Block Grant (EBG). District, ward and village extension staff, supported by private Agricultural Service Providers (APS), will play key roles in supporting testing and up-scaling

of successful technologies/systems within and across districts.

a. Crops Extension, Training and Promotion

146. **Crop extension** services department under the Ministry is mandated to: (i) advise on policy formulation and strategies; (ii) improve extension services methodologies for use in LGA; (iii) establish standards and monitor their implementation; (iv) provide technical guidelines to the Regional Secretariat (RS), LGAs on good agricultural practices and sustainable agriculture; (v) disseminate technical packages for use in RS and LGAs; (vi) facilitate research-extension-farmer linkages; (vii) coordinate and facilitate private extension services providers; (viii) facilitate in-service training and capacity building of extension workers; (ix) promote the use of ICT in extension; and (x) monitor and evaluate extension services provision.

147. ASDP-1 promoted agricultural extension service innovations, including the use of the FFS approach to enhance technology diffusion and use among small-scale farmers. The FFS approach has been recognized as efficient among public and private/NGO extension service providers, although its up-scaling requires further harmonization across public and PSPs, integration of all value chain segments and improved focus on women and youth. The FFS approach will be used in parallel with other approaches, such as farmer-to-farmer exchange visits, internal technical and market services of farmer organizations, etc., but also the establishment of effective technical and economic information services adapted to the different user needs (farmer, extension worker, district subject matter specialists, ministry level specialists, etc.).

148. At national level, the proposed key action areas for agricultural extension are:

- i. Strengthening human resources and working facilities for national extension support services, especially for methodological and institutional innovation & higher level support.
- ii. Contributing to harmonization of the FFS approach(es) around priority value chains and focusing on women and youth, enhancing graduated FFS master farmers to set up new ones, promoting study/exchange visits for farmers and field staff.
- iii. Accelerating extension reforms towards effective modern agricultural extension by developing an extension strategy (and master plan), enhanced research and extension linkages, harmonization of public and private extension support, use of ICT (e-extension—*see further details in s/c 4.2*) in dissemination of technologies and market information along commodity value chains;

As part of implementing the National Agricultural Policy (2013), the ministry is committed to develop a National Extension Strategy and a legal framework for extension services which will define amongst others: (i) the relationship of key players in the provision and financing of extension services; (ii) responsibilities the extension staff and clientele to be served; (iii) coordinating mechanisms between different organizations that undertake extension; and (iv) promoting dialogue forum for key stakeholders involved in extension.

- iv. Rehabilitating physical infrastructures and retool four farmer training centres⁷⁹ and Farmers Education Unit (FEU) to disseminate improved technologies.
- v. Strengthening technical backstopping at local level and building capacity of extension services at regional administrative secretariats (RASs), districts and ward teams to increase efficiency of public and private service delivery and supervision of field activities (*including by the use of ICT—s/c 4.2*)

149. At local level priority investments are:

- i. Strengthening human resources and working facilities for extension services at district and ward level (technical knowledge-retraining and working gears—extension kit, transport).

⁷⁹ Four farmer training centres under the ministry: Mkindo in Mvomero district; Bihawana in Dodoma District; Inyala in Mbeya district; and Ichenga in Njombe District.

- ii. Improving working and living environment at ward and village levels; building and consolidating ward extension teams.
- iii. Retooling and facilitate functioning of WARCs, including establishing technology demonstration plots.
- iv. Linking up with zonal research and extension liaison/partnership units (TTPU) and strengthening implementation of on-farm research and demonstration networks for new varieties and sustainable agricultural management practices along priority CVCs (see s/c 2.1).
- v. Widening technical and economic knowledge support to farmer empowerment and organization within integrated value chain development from production to marketing.
- vi. Developing efficient response systems to farmer technical needs/questions by developing ICT systems (see s/c 4.2) at local level for increased extension and advisory service efficiency.

150. **Training.** The ministry has 14 ATIs⁸⁰ for the crop sub-sector. Most of the physical infrastructure needs rehabilitation to stimulate effective learning and staff efficiency and effectiveness. These institutes also lack teaching and most learning materials and/or training facilities. This negatively affects ‘learning by doing’ and the skills developed do not correspond to the current labour market requirements. The curricula used in the ATIs therefore needs to be reviewed. The capacities of human resources of the training division (195 tutors, 94 agricultural field officers and 119 support staff) need to be upgraded by specialized long and short course programmes.

151. The objective is to strengthen training capacities for agricultural technicians (certificate and diploma level, and on-the-job training for farmer leaders) to avail public institutions and private companies with high quality agricultural technicians, whose training is accredited by National Council for Technical Education (NACTE). Training cycles will also allow for youth empowerment on self-employment and enterprise creation in the commercial agriculture. Priority support areas include: (i) rehabilitating living and learning environment of 14 ATIs; (ii) retooling ATIs with training facilities, aids/materials/library, transport facilities and furniture; (iii) development of practical training farms/demonstration plots for students/farmers in ATIs; (iv) capacity building of tutors (195), agricultural field officers (94) and supporting staff (119 in the ministry headquarters and ATIs) in long and short courses; (v) curricula development for training diploma and certificate programme and farmers (include marketing issues, M&E, business investment planning and budgeting, FO support, etc.). It is proposed to invest about TSh 1,000 million annually in rehabilitating gradually the physical and human capacities of the ATIs.

⁸⁰ ATI (14): Igurusi, Uyole, Inyala training centre (Southern highlands); Ilonga, Mlingano, National Sugar Institute (NSI), Kilombero Agriculture Training and Research Institute (KATRIN)—(Eastern zone); Maruku and Ukiriguru (Lake zone); Mtwara (Southern zone); Tumbi and Mubondo (Western zone); Horticultural research and training institute (HORTI), Kilimanjaro Agricultural Training Centre (KATC)—(Northern zone). Only 3 ATIs (Mtwara, Ukiriguru and Maruku) were rehabilitated in 2011.

Box 5: Technical training institutions

ATI/LITIs form middle level technical institutions between ASLMs and LGAs, which primarily provide practical and theoretical training of agricultural technicians who can be employed in the public and private sector. ATI/LITIs also undertake some short-term training for farmers (leaders). Approximately 1,600 and 2,700 students graduate annually from ATIs and LITIs respectively. ASDP-2 needs to strengthen the role of ATIs and LITIs (eight colleges) to achieve:

- (i) Well-trained agricultural extension professionals and technicians (diploma and certificate). The gap for crop extension workers is 6,244 (15,802 is total need), while at headquarters the gap is 142 + 372 for other cadres (approximately 2,700 students graduate annually from ATIs). The gap for livestock extension workers is about 10,000 (total need is 16,000).
- (ii) In-service training for VAEO/WAEO and upgrading capacities of existing extension manpower.
- (iii) In-service training and farmers training is provided in ATIs and LITIs mainly for farmer leaders and to strengthen farmer organizations in management, leadership and technical & economic services to their members.

Therefore these institutions require significant improvements in terms of tools and facilities for practical training in production and marketing, adapted to zonal farmer needs. Support to the running of these public institutions is generated from core public support, programmes/projects, CVC boards, private entrepreneurs and the students (fees and internal production).

152. Crop Promotion ‘Section’. To improve production, productivity and commercialization of crop sub-sectors through promotion of good agricultural practices and entrepreneurship skills such as ‘Farming as a Business’ to the smallholder farmers, especially in specialized window crops. The strategies to improve production and productivity and commercialization of the sub-sectors will include the following: (i) commercialize production of drought tolerant crops (especially cassava); (ii) develop programmes/plans and to operationalize horticultural strategy and infrastructure; (iii) training of horticultural subject matter specialists and lead farmers on good agricultural practice and value chain development; (iv) develop strategy and implement programme for organic produce promotion to capture increasing demand for organically grown products; (v) develop a national oil seed development strategy and implementation programme; and (vi) upgrade and maintain mother orchards in five potential areas so as to establish a reliable sources of quality scions for seedling production. The crop promotion section also provides technical support services to nine crop boards (tea, coffee, cotton, sisal, pyrethrum, tobacco, sugar, cashew nut and cereal and other produce boards). This support includes, among others: (i) the review and improvement of their development strategies; (ii) specialized technical backstopping of key value chain actors and lead farmers; and (iii) promoting contract farming.

153. Proposed priority investments include: (i) implementation of crops development strategies in nine crop boards⁸¹ (*about TSh 1,100 million per year*); and (ii) other activities related to cassava commercialization, operationalization of the horticultural development strategy, training and working facilities of LGA and the ministry staff, implementation of regulatory functions and monitoring (*all together about TSh 1,250 million per year*). Strategic alignment of respective functions of crop boards, the Ministry of Agriculture Livestock and Fisheries and Ministry of Industry, Trade and Investment would be useful for increased efficiency of supports.

b. Livestock and Fish Extension and Training

154. Livestock and fisheries extension services deal with transfer of knowledge and skills to farmers and sharing of technical and economic information and experiences amongst value chain stakeholders, to increase production and productivity and producers’ return. The extension service currently is mainly provided by public service providers with gradual increase of private sector participation in the delivery of the services through different interventions, especially for animal health services. Currently, livestock extension services include 4,172 livestock extension staff at district,

⁸¹ Tea, Coffee, Cotton, Sisal, Pyrethrum, Tobacco, Sugar, Cashew nut and Cereal and Other Produce Board.

ward and village levels⁸² (the staff deficit estimated at 16,000 technicians).

155. Under the extension system, the Livestock Identification and Traceability System (LITS) is an essential prerequisite for international livestock trade and marketing and guarantee food safety and sanitary assurance to consumers. The export of livestock and livestock products is compromised by the high prevalence of trans-boundary animal diseases and inadequate/low compliance with international markets sanitary and phytosanitary standards requirements, demanded by livestock and livestock products importing countries. The priority investment areas for the improvement of livestock/fisheries advisory and technical support services are, as established in Table 24:

Table 24: Priority activities livestock extension

<i>Investment areas/priority activities</i>
At national and regional level:
<ul style="list-style-type: none"> - Development of practical training farms/ demonstration plots for students/farmers - Coordinate livestock extension services providers and undertake technical backstopping - Training of 594 livestock extension staff at MSc level from all LGAs & headquarters - Rehabilitate four (4) and build three (3) livestock infrastructure in 7 zonal agricultural show grounds - Establish and equip TV and radio programmes recording studios at national level - Establish a Guarantee Support Fund for Livestock Identification Devices (LIDs) - Rollout of Tanzania National Livestock Identification and Traceability System (TANLITS), including a strengthened TANLITS Help Desk through provision of reliable internet and website connectivity - Conduct long- and short-term training to TANLITS managers/administrators, ICT & other experts on database management, computer programming, computer engineering and system management - Prepare and circulate public sensitization materials on TANLITS including print materials, radio and TV programmes and conduct sensitization meetings and workshops to target stakeholders in 25 regions
At LGA level
<ul style="list-style-type: none"> - Identify knowledge gaps for public/private livestock extension service providers in all LGAs, promote private technical services (animal husbandry, health services, etc.) - Provide extension kits, vehicles (147) and motor cycles (4,000) in 147 LGAs, training of 294,000 farmers on improved livestock production technologies in all LGAs - Establish 147 Livestock Resource Development Centres in all LGAs - Use ICT to inform and advise livestock keepers (see also s/c 4.2) - Facilitate 147 LGAs to sensitize formation and strengthening farmer groups, organizations, associations and cooperatives - Build capacity of 30,700 livestock farmers on management and entrepreneurship skills - Conduct training and provide backstopping on TANLITS application to 165 LGA Livestock Identification Traceability Officers & 25 Regional Livestock Officer; support 147 LGAs in TANLITS field operations & communication network - Support installation of TANLITS hardware and software to five accredited export abattoirs/slaughterhouses

Note: The LGA investments represents an annual average of about TSh 1,500 million per year with supplementary hardware provision in Y1 and Y2 (15,000 million).

⁸² Overall there are about 12,111 villages, 3,383 wards and over 160 LGAs (all not having livestock extension services).

Table 25: Priority intervention in fisheries extension

Investment areas/priority activities
National/regional level
1. Improved collaboration among extension service providers 2. Increased expertise for fisheries extension officers and fishers/aqua farmers 3. Strengthen <u>private</u> quality feeds and seeds production 4. Rehabilitation of existing infrastructure 5. Capacity building on new technology and facilities operations 6. Construction of processing facilities for dagaa (<i>Rastrineobola spp</i>) from fresh and salt water 7. Strengthen preservation facilities (ice plant and cold room) along lake Tanganyika
LGA level
1. Support private sector participation in provision of fisheries/aquaculture extension services 2. Formulate and strengthen fisher folk and aqua-farmer (water and land user) organizations 3. Develop and strengthen infrastructure—resources centres for fisheries and aquaculture extension services 4. Strengthen technical backstopping for fishers/aqua farmers

156. **Training, Livestock Training Agency (LITA)** is among the three agencies of the ministry, established in September 2011 under the then MLFD as an Executive Agency under the Executive Agency Act Cap 245 (RE 2009). The Agency was formed by merging the six LITIs which were: Mpwapwa, Morogoro, Tengeru, Madaba, Temeke and Buhuri with two campuses, Kikulula and Mabuki, which currently offer training at diploma and certificate levels as well as short-term trainings.

157. **Fisheries Education and Training Agency** was established by merging the Mbegani Fisheries Development Centre and the Nyegezi Freshwater Fisheries Institute. The main role of Fisheries Education and Training Agency is to assist the Ministry in: (i) provision of fisheries education and training in aquaculture, fisheries technologies and management; and (ii) conduct applied research and consultancy in promoting sustainable development of fisheries and allied industries. This initiative will promote public and private service delivery to aqua-farmers, small-scale fisher folk and commercial enterprises and other stakeholders, which are mainly provision of quality fisheries education and training, improve extension services, develop appropriate fisheries technology and promote sustainable aquaculture through physical demonstration and practical advice.

158. Both LITA and Fisheries Education and Training Agency take over the functions of the livestock and fisheries training institutes (LITIs and FTIs) as well as other functions expressed in their respective framework document, including: (i) training, research and consultancy: manage and coordinate long- and short-course training, applied research and specialized consultancy services; (ii) production support services of livestock, livestock products and other farm produce; and (iii) business support services to the agency in areas such as administration, management of human and financial resources, marketing of agency services and products and estate management towards sustainability and meeting clients demands.

Table 26: Priority activities & investment areas in livestock and fisheries training

(a) LIVESTOCK: Train professionals for the development of the livestock industry	
1. Develop human capacities, review curricula and training programmes and retooling of LITA to provide livestock training	
2. Train 100,000 livestock keepers from 20 LGAs on livestock improvement technologies	
3. Infrastructures: support, construct and rehabilitate 8 LITA training centres	
4. Capacity building of the ministry staff: facilitate DRTE and LITA staff to attend long and short courses, study tours and training workshops annually	
(b) FISHERIES: Train professionals for the development of the fisheries industry	
1. Build capacity of training institutes	
2. Strengthened up to date information and training materials	
3. Support maintenance of training institution's infrastructure	
4. Strengthened training guidelines	
5. Support the Fisheries Education and Training Agency programme on value chain analysis, identification of technological gaps, value addition possibilities and mitigation of marketing snags along sardine supply chain	
6. Monitoring and evaluation of training activities	
7. Promotion of artificial reefs for sustainable restoration of depleted fish stocks and enhanced seaweed farming in coastal area, Tanzania	

3. Subcomponent 2.3: Access to agricultural inputs

159. Government efforts through NAIVS for increased use of improved seed and fertilizer delivered by a strengthened network of private agrodealers has enhanced the use of improved seeds and fertilizer by smallholders and requires follow-up, including: (i) further targeted smart input subsidy; (ii) design agricultural input credit package adapted to smallholder needs; (iii) facilitate private agrodealers to enhance their business network for improved input offer and access; (iv) effective extension services and training for accelerated adoption of new technologies; (v) enhance integrated soil fertility management, especially the use of organic fertilizer along with livestock activities; and (vi) strengthen the national seed systems involving ARI, the Agricultural Seed Agency, the Tanzania Official Seed Certification Institute (TOSCI), private seed producers and agrodealers.

160. The experience of smart subsidies in promoting crop productivity could be scaled up to livestock technologies including: (i) increased access to artificial insemination (AI) for upgrading of local breeds; (ii) improving animal health through interventions for controlling and eradicating diseases and pests (e.g., vaccinations, cattle dips, veterinary drugs); and (iii) pasture seed dissemination for improved rangeland, prevention of erosion, etc. For enhanced aquaculture and access to fingerlings, smart subsidies for certified fingerlings and feed could be envisaged within PPP in fish seed and feed production.

161. **The objective is to expand sustainable access to and efficient integrated use of adapted farming inputs (i.e., seeds, planting materials and livestock breeds, fish fingerlings, fertilizers, animal feed and agrochemicals) by increased proportion of smallholders, which will contribute to increased and sustained production and productivity of priority commodities for crops, livestock and fishery.** As farmers seek to widen their use of technology options for increased efficiency, income and resilience, the availability and access to specific inputs needs to be ensured: to this end, public support will facilitate and regulate the multiplication of improved genetic material (seeds, breeds, etc.) and farmer access to quality production inputs commercialized through competitive private sector supply channels (agrodealers).

162. Specific support will focus on priority CVCs in the selected district clusters, and include the following action areas:

- i. Enhanced availability of high quality crop seeds by strengthening private sector participation (including farmer organizations) in seed supply chains. This support targets seed production/multiplication and distribution for priority commodities (and their companion crops) to assure availability of adequate quantities of quality seed for users preferred varieties. Main support activities include: (a) enhancing breeder seed/breed supply and technical assistance to the

private seed sector; (b) supporting the Tanzanian Seed Trader Association (TASTA) and its seed market information system (seed demand and offer by variety and prices); (c) consolidating the capacities of regulatory functions of TOSCI⁸³; International Seed Testing Association (ISTA) accreditation and regional expansion); (d) supporting the ministry's seed unit for monitoring of seed sector development strategy and organizing an annual seed sector planning and evaluation involving all stakeholders; (e) Agricultural Seed Agency production of foundation/basic seed for public-bred varieties; and (f) supporting private/farmer multiplication, including by Quality Declared Seed farmer groups, for specific non-commercial varieties of priority CVCs (maize/rice/oil seed) and responding to a specific demand (i.e., sunflower).

- ii. *Improved access to quality crop inputs* (seeds, fertilizer, agrochemicals and tools) by strengthening the national and local agricultural input supply systems implemented by the private agrodealer network. Activities will include: (a) technical, safeguard and business capacity strengthening for about 1,000 active agrodealers in the target areas; (b) local demonstrations of improved technologies by agrodealers and extension workers (5–10 agrodealers per target district); (c) consolidating the capacities of regulatory functions of Tanzania Fertilizer Regulatory Authority (TFRA); (d) stimulation of partnerships (contract farming, etc.) between farmer organizations and agribusiness engaged in targeted CVC for sustainable production and marketing systems (receipt systems); and (e) promote the use of conservation farming practices⁸⁴ and include the distribution of starter packs of seeds and other inputs for production diversification, including nutritious crops such as pulses and horticultural crops.
- iii. *Production of quality pasture seeds* to increase productivity and production of quality feeds to cope with the increasing number of animals and related economic and environmental impacts. Investments in improved ruminants (e.g., dairy) requires parallel investments in pasture development adapted to respective AEZ to increase productivity and contribute to farmers return. Incorporating improved pasture development strategies in the farming system and hay/silage production technologies will contribute to adequate supply of supplementary feed throughout the year.
- iv. *Production of quality bulls and semen for improvement of indigenous livestock*. The breeding objective(s) (trait) for selected farmer research groups are to improve milk potential of the indigenous cattle populations through cross-breeding, while maintaining high levels of adaptation to local feed resources and environments in general. In response to increasing farmer demand, TALIRI distributed 640 improved Mpwapwa bulls and 780 cattle between 2006 and 2015, some of which are used in cross-breeding. Current needs are to: (a) develop a breed of cattle whose cows will regularly yield about 2,800 kg of good quality milk per year in the semi-arid areas in Tanzania; (b) increase production of improved heifers and bulls to meet the current farmer demand of Mpwapwa breed and their crosses; and (c) improve the production and distribution of semen for AI from the semen producing centres
- v. *Fingerlings production for aquaculture*. Farming of fish and other aquatic organisms in fresh and marine water environments is becoming an important contributor to the world's food supply and nutritional security, but also to rural livelihoods and employment. With decreasing fish supply from capture and increasing population, economically viable and environmentally sustainable inland and marine aquaculture need to be developed in Tanzania. This implies increasing farmers' access to critical aquaculture inputs (seed, feed, organic fertilizers), and promoting appropriate aquatic farming technologies, extension support and training. Priority support actions include: (a) hatcheries for *Tilapia sp.*, catfish, milkfish, mud-crabs and trout; (b) feed and grow-out development for selected fish species; (c) prawn farming development for clustered coastal farmers; (d) cage fish culture in selected non-drip irrigation schemes; (e) promotion of indigenous species for fish culture development (*O. tanganicae*, grouper culture, and Nile perch); and (f) promotion of value addition in seaweed.

⁸³ TOSCI: support in complement of EAAPP.

⁸⁴ Applying principles of: (i) minimum tillage; (ii) permanent soil coverage; and (iii) crop rotations/associations.

163. **Input subsidies.** The NAIVS/AFSP (2008–2014) programme implemented a targeted smart subsidy, which yielded an additional production of 2.5 million tons of grains, through increased yields of maize (+433 kg/acre) and paddy (+ 263 kg/acre)⁸⁵. Besides multiple challenges, the final economic rate of return (ERR) of NAIVS was estimated at 53.5%. The evaluation showed that about two-thirds of the 2.5 million beneficiaries continued to buy seeds while one-third continued to buy fertilizer at commercial prices, once the subsidy was terminated. Furthermore, besides increased awareness and use of agricultural inputs, NAIVS also strengthened seed production systems and farmers relationship with trained agrodealers and commercial agents for seed and input supply.

164. However, considering the high investments costs, the Government of Tanzania tried to organize a follow-up programme to provide subsidized credit⁸⁶ to smallholder farmers by paying banks the difference between the commercial interest rate of 18% and the programme's designated rate of 4%. In addition, the government has agreed to pay commercial banks 50% of the value of the credit upfront, as a guarantee against possible defaults. Farmers were expected to contribute 20% of the input cost (against 50% in NAIVS), leaving banks to bear the risk on the remaining 30% of the cost. Farmers are also expected to agree to market their produce through a designated trader or warehouse, allowing the banks to first be repaid. Several issues, including limited interest of local banks and delays in government's advance funding of the programme slowed down the start-up and expected outreach.

A. Crops inputs (seeds and fertilizers and agrochemicals)

165. **Seeds.** The effective potential market demand of improved seed in the country is estimated at about 60,000 tons per year, while the current availability of improved seeds (mainly maize and rice) is 35,352 tons. Only about 25% of farmers are using improved seeds, mainly due to inadequate availability and accessibility of improved seeds, but also low awareness on improved varieties/technologies adapted to their farming conditions.

166. **Fertilizer and agrochemicals.** Although fertilizer use was increased and private distribution networks developed by NAIVS support, the level of fertilizer use remains low, especially for basal fertilizer. Integrated soil fertility management needs to be fully integrated into AR4D as extension activities towards more efficient use of fertilizers while enhancing soil fertility and health. In addition, the use of agrochemicals (herbicides, pesticides, etc.) remains limited and intensive agrodealer and farmer training and technical advice is required to allow for efficient, sustainable and safe use of recommended pesticides.

167. **Improved availability and use of improved seed and fertilizers by smallholder farmers.** Building on former targeted actions, this objective will be achieved by: (i) strengthening farmers awareness on improved seed and fertilizer (flyers, leaflets, radio/TV, training, demonstrations, etc.); (ii) strengthening production of Quality Declared Seed (QDS), especially for species not (yet) considered by the private sector, by training, access to quality foundation seed and small equipment; (iii) strengthening the agrodealer network by annual technical, management and safeguard training; (iv) supporting ASA to enhance private/farmer seed business and the production of quality basic seed (collaboration with ARIs); (v) supporting the national seed committee and variety release committee; and (vi) facilitating the seed trader association and information exchange in the sector; and (vii) strengthening agricultural inputs regulatory services (i.e., TOSCI) for quality assurance.

168. **Considering the economic efficiency of targeted (smart) subsidies, the Government of Tanzania is considering another cycle of time-framed input subsidies,** but targets and modalities are not yet fully defined. Although electronic vouchers (e-voucher) simplify implementation (including decreasing subsidy levels over time), follow-up and governance of the operation⁸⁷.

⁸⁵ Source: AFSP ICR (December 2014) and Tanzania PER: NAIVS February 2014.

⁸⁶ Credit interest is subsidized, while farmer pay the full price, 20% at planting and 80% after harvest.

⁸⁷ The Ministry of Agriculture Livestock and Fisheries will continue promoting input utilization by subsidy through bank loans (discussion with commercial banks are underway). Meanwhile, the ministry will also continue to promote input subsidy through the voucher scheme until the above is in place (i.e., parallel operations for some time). ASDP-2 is expected to target both farmer organizations and individual farmers, with a focus on FOs in connection with 'priority commodity' interventions.

Furthermore, a similar approach could be used for other inputs such as agrochemicals including veterinary drugs (e.g., acaricides), but also services such as mechanization services (land preparation, seeding, threshing, etc.) to enhance farmers' access (demand) and business development (offer) for PSPs. Although LGAs will be final beneficiaries of subsidies, there is a need for technical support from the national and regional level to: (i) organize solid and harmonized subsidy systems; (ii) coordinate actions between public and private stakeholders at all levels, including linkages to other CVC supports; (iii) provide technical advisory and backstopping support for implementation; (iv) strengthened agricultural research and advisory services to increase efficiency of farmers' input use within an integrated management approach; and (v) implement the M&E system of the subsidy system.

169. **Strengthened Agricultural Input Regulatory Services** to ensure availability of quality seeds and fertilizer. Seed regulation and quality control is carried out by TOSCI while fertilizer regulation and quality control is done by Tanzania Fertilizer Regulatory Authority (TFRA). Within a results-based agreement, TOSCI need to be further⁸⁸ supported for: (i) the International Seed Testing Association (ISTA) accreditation (by 2018) to ensure that seed produced and certified in the country meet international standards; (ii) establishment of new centres in Mtwara (South) and Tabora (Centre) by 2019; (iii) training of district seed inspectors and staff; and (iv) office and laboratory facilities. Furthermore, the support to TFRA will include: (i) office facilities within the Ministry of Agriculture Livestock and Fisheries premises to deliver its services; (ii) fertilizer testing laboratory or a memorandum of understanding with the specialized laboratory at the Mlingano Research Institute; (iii) training of TFRA staff and district fertilizer inspectors; and (iv) recruitment and on-the-job training of competent inspectors.

170. The regulatory framework needs to be strengthened to control quality and safe handling of products and their residues. Support activities should also cover the Office of Registrar of Pesticides and Plant Health Services (PHS) which is responsible for enforcing the Plant Protection Act dealing with pesticides management. Moreover, as part of ensuring stakeholders awareness on the existing ago-inputs legislation, it is expected that training of law enforcers should go together with stakeholders' awareness creation and monitoring of legislative compliance.

171. The **Plant Health Services** mandate aims at minimizing crop losses at pre- and post-harvest levels mainly from outbreaks of pests such as the red locust and quelea birds. Control and surveys are conducted jointly by the government and international organizations. The mandate of PHS includes the management of pest outbreaks, promotion of IPM and enforcement of the Plant Protection Act (plant import/export control, plant quarantine and phytosanitary services, pesticide registration and management regulations). The existing capacity of the phytosanitary services in Tanzania has several gaps in terms of infrastructure and human resource capabilities that need to be addressed for improved compliance of crop standards.

172. The specific objective of proposed PHS activities include to: (i) control pests and diseases to minimize pre- and post-harvest crop losses; (ii) deploy pest management strategies and approaches that will enhance crop production and protect the environment; (iii) enforce regulatory measures that will limit introduction and spread of pests to promote production and sustainable internal and export market access; (iv) improve and strengthen pesticides management technologies for safeguarding human health and the environment; (v) provide technical contributions towards harmonization of the regional (East African Community (EAC)) phytosanitary law and regulation frameworks and their application; and (v) empower PHS staff with new skills to facilitate them for efficient service delivery.

173. Action areas for achieving these objectives are: (i) capacity building for PHS staff; (ii) strengthening the capacity of Plant Quarantine Inspectorate Services; (iii) strengthening procedure for pest listing and managing surveillance data; (iv) strengthening pesticide management system including residues; (v) development and use of IPM technologies; (vi) institutional reform to harmonize institutional set-up of legislation; (vii) strengthening early warning, management and monitoring of

⁸⁸ Most of these supports were already provided under former programmes such as AFSP, EAAPP.

outbreak pests; (viii) strengthening the management of mycotoxins (e.g., aflatoxins in cereals for food and feed); and (ix) strengthening early warning and management of invasive species. Proposed investments levels will reach TSh 1,000 million during the first 3 years and stabilize at TSh 750 million in the following years.

c. Livestock and fish inputs

174. Overall, priority action areas for improved availability and farmer access to quality livestock and fish production factors, including breeds/fingerlings, production inputs and health/veterinary drugs have been summarized, as shown in Table 27.

Table 27: Priority activities livestock/fisheries access to inputs

Action/investment areas	Priority activities
ANIMAL/FISH FEEDS	
Animal feeds and additives for increased productivity	<ul style="list-style-type: none"> - Promote quality animal feed production, processing and marketing - Quality control of animal feed (laboratory services) - Promote agro & industrial by-products as animal feed resources - Access to quality animal health/veterinary drugs/devices - Improve safety for animal product consumer - Control mycotoxins in animal feed and fish meal
Quality/quantity fish feeds and seeds for increased productivity	<ul style="list-style-type: none"> - Facilitate private sector to produce quality and quantity fingerlings - Update fish feeds and hatchery construction guidelines
ACTIVITIES LIVESTOCK/FISH DISEASE CONTROL & VETERINARY PUBLIC HEALTH	
Trans-boundary animal diseases (TADs) controlled for sustainable industry	<ul style="list-style-type: none"> - Facilitate livestock health certification - Equip zoo-sanitary check points - Strengthen capacity for epidemiological surveillance of TADs - Strengthen laboratory capacity for TADs detection - Public awareness & conduct vaccination campaigns of priority TADs - Capacity of early warning detection and response - Strengthening laboratory capacities for detection of TADs
Parasitic & vector-borne diseases	<ul style="list-style-type: none"> - Promote control of parasitic and tick-borne diseases (opportunity for targeted acaricide subsidy) - Promote East Coast Fever (ECF) vaccination - Acaricide subsidy for area-wide IPM - Control of tsetse and trypanosomiasis - Strengthen laboratory capacity for vectors and parasites detection
Veterinary public health	<ul style="list-style-type: none"> - Strengthen zoonotic control to safeguard human health - Increase public awareness on important zoonosis - Enhanced monitoring, surveillance of food-borne and zoonotic disease
Farmed aquaculture products	<ul style="list-style-type: none"> - Implement fish and other aquatic diseases surveillance - Monitoring of farmed fish and other aquatic diseases - Training on farmed aqua-products and fish feeds import risk analysis - Training on imposing biosecurity system in seaweed and fish farms
Fish quality control and fisheries protection	<ul style="list-style-type: none"> - Equipping Nyegezi quality control laboratory - Equipping fisheries protection outpost stations - Capacity building, including on early warning detection and response

175. **Improved availability of acaricides, veterinary drugs and vaccines for livestock farmers** to ensure improved disease prevention and resilience. The government established a vaccine production facility at Kibaha (Coast) in 2012. This facility currently produces three types of vaccines: (i) Newcastle disease vaccine strain I-2 (about 4 million doses/month or 50% of needs); and (ii) anthrax and blackquarter vaccine (10,000 doses/month each). The current production is low due to lack of automated equipment and qualified personnel. The production of vaccines will be supported by: (i) providing specialized equipment for vaccine production; (ii) specialized training of personnel; (iii) building and equipping the quality control unit; and (iv) developing infrastructures for vaccines research and production. Livestock vaccines are generally considered as a ‘public good’, and their use could be enhanced under well targeted subsidy programmes.

176. **Strengthened veterinary services by establishing more veterinary service centres** in each administrative division by: (i) encouraging private sector investments (innovative tax incentives and/or grants) to complement the government’s efforts in providing livestock husbandry and veterinary

services at local level to increase the number of cattle dips, artificial insemination centres, vaccination facilities and hatcheries (poultry); and (ii) promoting the establishment of community cells to share facilities for poultry hatcheries, cattle dips, improved bulls, insemination and vaccination facilities.

177. **Sustainable fisheries development** will be considered within an ‘ecosystem approach’ involving: (i) support services skill development for improved sustainable fisheries; (ii) sensitization and awareness creation among fisher folk; (iii) review of pelagic fishery management plan; (iv) conduct of MCS operation for licensing and registration of vessels; (v) value addition to fish/fisheries products; and (vi) registration and capacitation of all BMUs, fishery associations, etc.

4. Subcomponent 2.4: Access to mechanization services

178. The low level of mechanization⁸⁹ is a major constraint towards increased smallholder productivity and production. GoT efforts for promoting mechanization, include: (i) tax exemption for importation of farm machinery and spare parts; (ii) public finance from AGITF and TIB-Agricultural window and commercial banks to extend loans for purchase of tractors and machinery; while (iii) some active savings and credit cooperative societies (SACCOS) provide loans to its members for purchasing agricultural machinery. Within this framework, ASDS-2 proposes the following required interventions: (i) collaborate with private sector on promotion of mechanization through demonstrations of modern technology (tractors, power tillers, harvesters, etc.) and simple farming implements and tools such as weeder, seed-distributor, etc.; (ii) facilitate agricultural financing services for agricultural mechanization; (iii) support educational institutes for producing qualified mechanical engineers needed in the sector; and (iv) create favourable business environment for importing agricultural machinery and spare parts and for domestic marketing.

179. Mechanization is critical to addressing labour bottlenecks and low productivity (production and post-harvest) and poor timing of critical farming operations (seeding/planting, weeding) among smallholder farmers. Intensification and growing cropped areas require mechanization to allow for optimal timing of operations and reduced drudgery in production and in post-harvest operations. Mechanization will need to be adapted and sustainable, while gradually progressing with farmers’ technical level and the size of the farming enterprise. Based on supports initiated under ASDP-1, further investment in agricultural mechanization will be facilitated, including by farmer organizations and the establishment/strengthening of privately owned mechanization service providers (commercial services) for increased sustainability. In addition, there is need to enable smallholders to use labour saving technologies such as zero or minimum tillage.

180. The initial interventions on mechanization will focus on building the financial and economic case of mechanization and developing the regulatory enabling environment to facilitate the emergence and growth of private sector tractor and mechanization services. The programme will also ensure that legislation is in place to facilitate leasing and the ability to use non-fixed assets as collateral, so that the private sector has multiple instruments to facilitate their investments in agricultural mechanization.

181. **The objective is to facilitate access to adapted agricultural mechanization⁹⁰ services to increase labour return towards sustainable productivity, value addition and farmer income.** Support to private mechanization services (production, post-harvest and transport) will enable smallholder producers to increase their labour productivity, use sustainable soil management techniques, but also to increase the attractiveness of the sector for young entrepreneurs (‘agripreneurs’) and rural youth. Smallholder access to private mechanization services will be enhanced by updating the national strategy for sustainable agricultural mechanization⁹¹, including the regulatory framework for sustainable and profitable private service arrangements. Innovative

⁸⁹ 14% using tractor (including 2-wheel tractor) services and about 24% oxen (Source: Agric. Policies 2013).

⁹⁰ Sustainable mechanization is to increase the use of labor-saving technologies, including appropriate mechanization of production (conservation farming in s/c 1.3), value addition (see s/c 3.3 on agroprocessing) and other farm management related operations.

⁹¹ Targeting sustainable soil management within the framework of conservation agriculture (see also ‘Save and grow’, FAO 2012)

approaches (including leasing), bringing together the tractor/equipment companies, commercial banks and mechanization service providers should be facilitated to allow for increasing the business of current service providers and allow for new entrants where opportunities exist.

182. Further to the policy and institutional framework for labour-saving technology (see s/c 4.1), ASDP-2 will promote improved farm and environmental management practices that reduce farm energy inputs and costs, protect the soils and environment and produce good crops, livestock, fish and other farm produce. Main activities will include:

- a. *Strengthen the demand for mechanization services* in agricultural production and post-harvest operations by demonstrations, sensitization campaign and smart subsidies (vouchers) to raise farmers' awareness for sustainable agricultural production and productivity growth.
- b. *Improved farmer group or cooperatives access to small-scale mechanization options, including two-wheel tractors and oxen-drawn equipment for production, post-harvest handling and transport.*
- c. *Enhancing supply of viable private mechanization services* for increased productivity and production through strengthening existing successful contractors, building on business case/repeatable business model and new business models (leasing, triangular contracts between importers, financial institutions and mechanization service providers, etc. that encourage agricultural mechanization through leasing arrangements and other financial supports for leveraging private sector investments in technology innovations.
- d. *Capacity development* for equipment/machinery information acquisition and evaluation for sustainable agricultural mechanization (conservation agriculture tools) service provision, operation and maintenance (resource and training centre).

183. This strategy will be developed during the first year of the programme, and implemented from the second year onwards along the following axes: (i) stimulating private service offer by access for stakeholders in the mechanization chain to professional training and technical information on equipment/machinery operating a sustainable agricultural mechanization resource and training centre; and (ii) increasing demand for adapted agricultural mechanization services by subsidies (i.e., targeted vouchers) to facilitate the purchase of adapted implements for small-scale mechanization (oxen/two-wheel tractors) and to access to private mechanization services for production and postharvest operations.

184. Human resource development and setting-up a reference centre for agricultural mechanization could be implemented through a network of selected ATIs or a specialized training centre networking with selected ATIs for training mechanization technicians and tractor operators. This would allow for breaking the vicious cycle of poor operation capacities, breaking machines, little reparation capacity and lack of spare parts and finally no successful business for entrepreneurs. Developing business should allow for tractor importers to set-up regional selling and reparation units. Furthermore, from the beginning, mechanization service investors should be encouraged to equip themselves with conservation agriculture tools and equipment for sustainable soil management (see also s/c 1.2).

185. Investment summary for component 2:

Table 28: Development budget/investment projection for component 2 (TSh million)

COMPONENT 2: ENHANCED AGRICULTURAL PRODUCTIVITY AND PROFITABILITY—BASE COST ESTIMATES (TSh million)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
2.1 Agricultural research for development (AR4D)											
a) Crop Research	19,100	21,725	19,060	15,170	16,955	16,955	16,955	16,955	16,955	16,955	176,785
b) Livestock Research	7,000	6,230	6,105	6,730	6,490	5,680	5,680	5,680	5,680	5,680	60,955
sub-total	26,100	27,955	25,165	21,900	23,445	22,635	22,635	22,635	22,635	22,635	237,740
2.2 Extension, training and info services											
a) Crop Extension and Training	2,615	2,521	2,302	2,106	2,051	2,051	2,051	2,051	2,051	2,051	21,850
b) Livestock/Fish Extension and Training	9,105	6,575	3,605	1,535	2,095	1,440	1,295	1,660	1,525	745	29,580
(a + b) Extension Block Grant Loc & Nat financing	4,500	7,500	9,600	9,600	9,600	9,600	9,600	9,600	9,600	9,600	88,800
sub-total	16,220	16,596	15,507	13,241	13,746	13,091	12,946	13,311	13,176	12,396	140,230
2.3 Access to agricultural inputs											
a) Improved Access to Crop Inputs	951	1,466	1,206	808	648	648	648	648	648	648	8,319
b) Strengthen Input Regulatory Services	1,529	1,056	1,168	1,026	946	946	946	946	946	946	10,455
c) Plant Health Services	1,472	1,021	1,025	1,025	743	614	614	614	614	614	8,356
d) Crop Input Subsidies	100,115	100,115	100,115	100,115	100,115	100,115	100,115	100,115	100,115	100,115	1,001,150
e) Improved Access to Livestock Inputs	5,660	3,723	4,356	4,879	5,367	5,904	5,904	5,904	5,904	5,904	53,505
sub-total	109,727	107,381	107,870	107,853	107,819	108,227	108,227	108,227	108,227	108,227	1,081,785
2.4 Access to mechanization services											
Mechanization Promotion	4,985	5,886	6,053	6,533	6,083	5,733	5,733	5,733	5,733	5,733	58,205
TOTAL COMPONENT 2	157,032	157,818	154,595	149,527	151,093	149,686	149,541	149,906	149,771	148,991	1,517,960

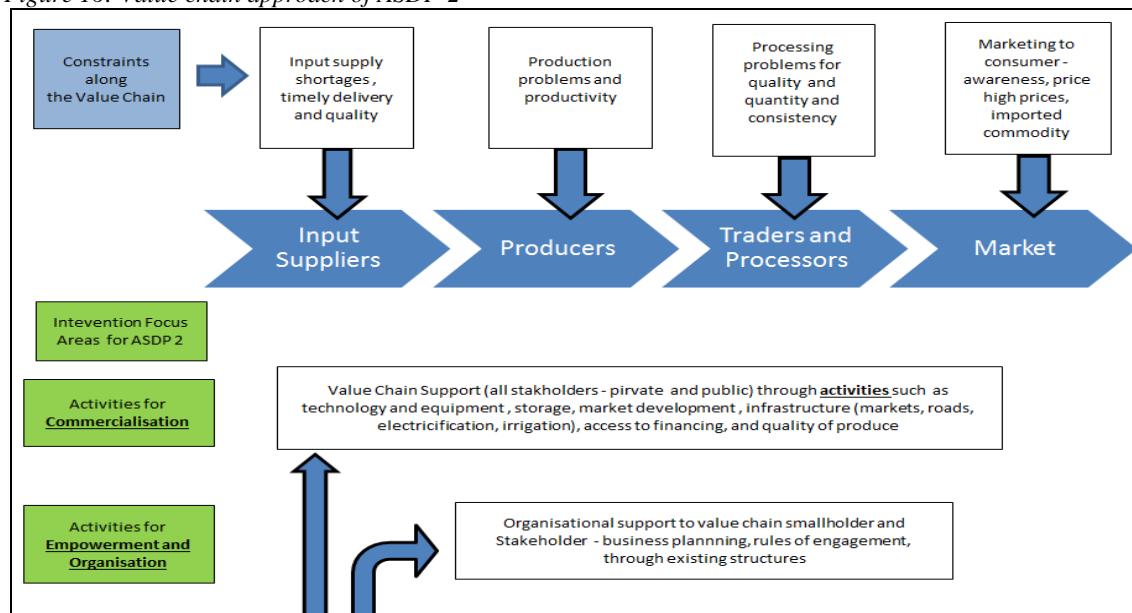
E. Component 3: Rural Commercialization and Value Addition (*building competitive commodity value chains*)

186. Under ASDP-1, limited progress was recorded in supporting agricultural marketing and value chain development. Key constraints to value chain development include: (i) agriculture remains characterized by low crop and livestock productivity and commercialization levels; (ii) limited private sector involvement in agribusiness; (iii) policies that do not allow value chains to fully benefit from regional integration; and (iv) proliferation of uncoordinated activities in agricultural value chain development with a risk of inconsistent approaches. Furthermore, at implementation level, further issues were identified such as: (i) design and implementation flaws; (ii) insufficient value chain diagnostic and mapping at local, regional and national levels; (iii) weak implementation capacities in both the public and private sector; and (iv) limited internalization of past experiences, especially for market access and market information.

187. The commercialization initiative is expected to produce fundamental changes in the structure and functions of Tanzania's agricultural sector including: (i) increased amount of quality agricultural produce entering in the domestic and export market channels; (ii) diversification of smallholder production (and income) from higher value (non-staple) crop and livestock products; (iii) increased supply of raw materials to the industrial sector; (iv) improved farmer access to inputs and financial services; (v) stronger farmer organizations; and (vi) improved infrastructures and communications. The higher levels of commercial activity are also expected to enlarge opportunities for rural non-farm business enterprises and both farm and non-farm employment, including for youth.

188. **The Commodity Value Chain (CVC) Approach.** Value chain development refers to the various stages from production, processing and marketing/distribution systems of key commodities, including value addition. The approach, schematically captured in Figure 16, shows the issues faced at each stage towards commercializing and professionalizing value chain characteristics and overall performance. There is a clear focus on smallholder producers and improving their role and relationships within the value chain(s) that they belong to. Particular attention will be given to the development of the institutional capacity of smallholder organizations to negotiate and manage new marketing arrangements with private sector actors, leading to productive alliances and viable commercialization partnerships.

Figure 16: Value chain approach of ASDP-2



189. Towards building competitive value chains, ASDP-2 will support smallholders to graduate from subsistence towards farming as a business, by forging linkages with commercial input and output supply chains to connect with a growing agro-industrial and urban consumers demand. A diverse,

inclusive, competitive and robust private sector will spearhead the development of agribusiness, driven by improved investment climate, trade capacity and business linkages and improved capacities for advocacy and service delivery within effective PPP.

190. The component aims at expanding farmer access to rural value addition and competitive marketing systems for priority commodity value chains, driven by an inclusive, strengthened and thriving private sector and effective farmer organizations. Strategic objectives, outcomes and related indicators are defined, as shown in Table 29.

Table 29: ASDP-2 Component 3: related specific ASDS-2 objectives and outcomes

Objective	Outcomes	Outcome Indicators ^a
Comp. 3. Improved & expanded rural marketing and value addition promoted by a thriving competitive private sector and effective farmer organizations	Strengthened and competitive value chains	<ul style="list-style-type: none"> - % increase in volume and value of exports - Value of foreign direct investment and private capital flow to agricultural sector - Jobs created by new and expanded investment in agribusiness - Reduction in volume and value of food import - Increased profitability & competitiveness of products in all level markets
	s/c 3.1 Farmer organizations empowered	<ul style="list-style-type: none"> - % of farmers who are members of farmer organization - % of farmers accessing technical, training, financial, etc. services from their organizations (& level of satisfaction) - Volume and value of farm products marketed through farmer organizations - % of producer organizations improved in the governance index
	s/c 3.2 Agribusiness and value addition promoted	<ul style="list-style-type: none"> - Number and value of new investments in agriculture - % crops/livestock/fishery products processed/value added - Reduction in post-harvest loss for selected value chains - No of CVC development strategy operationalized and supporting mechanisms driven by a strengthened PPP - Improved quality control and safety assurance for agricultural inputs and outputs for crops, livestock and fish - Level of private sector investments value chain development of priority CVCs - Scope of cost-sharing arrangements and mechanisms for productive infrastructure (field, storage) - Increased profitability & competitiveness of commodities across CVCs
	s/c 3.3 Access to markets and rural infrastructure (markets/storage) improved	<ul style="list-style-type: none"> - % of farmers selling products to the market - % increase in marketable surplus (or level (%) of production marketed) - Volume and value of agricultural produce passing through WRS/COWABAMA - Number of new market linkages and PPP established, e.g., contract farming - Access to modern market infrastructure and storage facilities in rural areas: - No & % of farmers accessing and using market information systems (private & public sources) - No. and % of farmers with access to trade facilitation services
	s/c 3.4 Access to agricultural finance expanded	<ul style="list-style-type: none"> - % of farmers with access to formal financial services - % of farmers who are members of SACCOs and VICOBAs - Share and value of the financial sector lending to agriculture - Increased private sector participation in investment in agricultural infrastructures for marketing & value addition (including PPPs) - Loan repayment rates (%)

^a Indicators in bold sourced/adapted from ASDS-2 M&E framework (draft September 2015).

Policy, regulatory and institutional environment required to generate expanded participation of broad-based strengthened private sector actors in all aspects of the agriculture strategy and its effective implementation.

191. Component 3 is sub-divided into 4 sub-components :

Component 3: RURAL COMMERCIALIZATION AND VALUE ADDITION (BUILDING COMPETITIVE CVCs)

- S/c 3.1: Stakeholder empowerment & organization
- S/c 3.2: Agribusiness development: value addition & agro-processing
- S/c 3.3: Rural marketing
- S/c 3.4: Access to rural financing
(+DADG – to facilitate local value chain investments)

192. Engaging smallholders and fostering strategic partnerships between priority commodity value

chain stakeholders, from producers to marketers and agroprocessors, will drive the promotion of smallholder commercialization and lead to improved product quality and competitiveness in domestic and regional markets. The focus of this component is to enhance efficiency for farmers and their organizations, to access profitable input/output markets and value addition (including agroprocessing) opportunities in priority CVCs, and by setting the environment for the private sector to invest. Within the appropriate policy framework (see s/c 4.1), this will happen through facilitation of the public sector, strong stakeholder (farmer, processors, marketers, etc.) organizations, provision of relevant information and advisory services, improved linkages and/or partnerships for investments along the target value chains, and the availability of critical infrastructures and other facilities.

193. Increased offer and demand for targeted commodities will be achieved through a combination of: (i) use of improved technologies, input market consolidation and mechanization services; (ii) irrigation development towards double cropping, mainly for rice and high value crops (horticulture); and (iii) reduced post-harvest losses and value addition; and (iv) improved marketing promoted by capacitated farmer organizations, alliances with other CVC stakeholders and adequate socio-economic infrastructures and facilities.

194. **Prioritization.** To avoid thin spreading support, the program will primarily target key CVCs in local farming systems, offering high potential for quantitative and qualitative growth: agro-ecological potential, importance in local farming system (see also ASDP-1 district priorities) and market demand will be key selection criteria. Within this line, BRN and SAGCOT concentrate solely on priority commodities (i.e., maize, rice and sugar), mainly in the Southern Highlands. As a national sector programme, ASDP-2 will initially focus on priority CVCs for crops, livestock and fish in each AEZ, and implement activities within a limited number of high potential district clusters to be determined by the regional stakeholder innovation platforms. Practically, based on the analysis of growth prospects/potentials for priority value chains in respective AEZs, specific strategies to achieve sustainable growth are summarized as follows:

Table 30: Objectives for priority CVC and strategies to achieve expected results

<i>Outcomes</i>	<i>Priority AEZ</i>	<i>Strategies to achieve expected outcomes</i>
MAIZE: Tanzania becomes a major maize exporter in the region. Based on recent trends, Tanzania should aim to be exporting over 500,000 t of maize each year, mainly to neighbouring countries (Kenya)	Southern Highlands West and south-west Northern highlands	i. Incentives for increased productivity and production by more efficient use of available technologies (seed and fertilizers) ii. Warehousing for improving market incentives: could lift average farm gate prices as much as 50% iii. Better revenues would in turn facilitate more farmer investment in production (further broaden input markets) iv. Promotion of conservation agriculture for resilient sustainable production system v. Rotations maize/soya beans (nutrition and livestock) vi. Formation of cooperatives to earn economies of scale
RICE: Tanzania achieves self-sufficiency in rice production (and starts to export these grains (potential to become a regular exporter)	East All irrigated	i. Increased productivity—efficient use of improved technologies ii. ‘Block farm’ management for improved irrigation efficiency iii. Irrigation infrastructure rehabilitation/extension iv. Warehousing/marketing and value addition linkages v. Counter-season irrigated vegetables vi. Strengthen management capacities of existing paddy schemes
OIL CROPS: Tanzania food oil self-sufficiency (reducing by 50% dependence on palm oil imports)	Semi-arid (N) (sunflower)	i. Incentives for increased sunflower productivity using adapted hybrids and integrated soil & water management ii. Rotation/relay cropping with pulses iii. Grouping/grading and warehousing (farmer organizations) iv. Promotion of medium scale FO/private value added industry
	Semi-arid (S) (sesame/sim sim)	i. Productivity increase (varieties, fertility management) ii. Incentives for FOs for bulking, grading (varieties) & improved marketing/export of their produce (price increases up to 50%)
MILK: Tanzania substitutes 25% of its milk product imports by local production	Tanga Peri-urban	i. Improved breeds, improved feeding and health management ii. Dairy farmer organizations / cooperatives; grouped marketing iii. Milk collection centres, quality control iv. Improved feeds (soya/maize, etc.)

MEAT: Satisfy local demand and export quality meat (Middle East)	Arid Semi-arid West & Southern Highland	i. Improve breeds of meat animals ii. Establish and Strengthen livestock stakeholders Associations along the meat value chain iii. Establish and strengthen feedlot cattle production for beef iv. Conducting and strengthening market information services
Horticulture (fruits and vegetables). Production for consumption & export	All peri-urban areas & highlands	i. Controlled/greenhouse production ii. Irrigation for counter-season production iii. Input/output marketing organization
Traditional cash crops (cashew, coffee, sisal etc.) Increased export quantity and quality		i. Increased productivity and enhanced product quality ii. Target bio-product windows on international markets iii. Local value addition (cashew, coffee, tea, etc.) iv. Diversify traditional products
Goat and chicken products. Contribute to improved HH FS/ nutrition and farm revenues	All AEZ	i. Access to improved breeds ii. Improved management skills, integrate in household farming systems iii. Strengthened animal health services (including vaccination) iv. Feeding strategies based on complemented farm residues v. Commercialization of chicken and goat meat and products
Fish Become major fish producers and exporter along the coast of Indian ocean. Making sure that, fishing activities is sustainably done and contribute to livelihood of fishers and GDP	Major lakes, (Victoria, Tanganyika, Nyasa and Rukwa). Also rivers and coast of the Indian ocean waters	i. Ecosystem approach to fisheries management skills improved ii. Establishment of registration of beach management units iii. Value addition to fisheries products iv. Reduction of post-harvest losses to zero v. Promotion of pond and cage culture farming in lakes/ocean vi. Facilitation private sector producing quality and quantity fish fingerlings and feed vii. Facilitate aquaculture training institutes to impart practical skills

Source: Compiled by the FAO mission for ASDP-BF, 2013

195. **Capacity building and Investment phasing. Institutional capacity building**, promoting stakeholder organization and value chain MSIPs and agribusiness support services remain fundamental for CVC development (*see also s/c 4.2*). Agribusiness support services will be contracted-in to agribusiness PSPs, which will also provide specialized training to assist target beneficiaries to prepare investment plans, strengthen management capacities and improve access to finance. Activities will be piloted in cluster districts (three to six) in each AEZ and be gradually (i) scaled out across a larger number of interested districts; and (ii) scaled up using complementary local CVC options for diversification. Regional commodity MSIPs will decide on the priority investment schedule, based on opportunities and available capacities to achieve expected impact.

196. This gradual up- and out-scaling will allow for an active cluster of districts in each region from Year 3 on. A first chronogram of gradual AEZ and commodity coverage is proposed in Table 31. The choice of commodities should be revisited at mid-term (in Year 3).

Table 31: Priority commodities in the AEZs & potential crop and livestock commodities in relation to regional (district clusters) phasing

AEZ	Year 1 FY15/16	Year 2	Year 3	Year 4	Year 5
Number of AEZ	3	5	8	8	8
Number of regions involved	7	15	20	25	25
Number of districts	25	50	75	100	125
Arid		Meat beef/goat/bees, fruit tree			
Semi-arid (North)		Sunflower/pulses + meat-beef + cotton, fruit tree			
Semi-arid (South)		Sesame & meat-goats, cashew, oil palm			
Plateau (N-S)		Cereals/pulses + meat-beef			
Northern Highland	Maize	Horticulture + dairy, coffee			
Eastern Coast	Rice + Beef	+ Peri-urban horticulture & dairy/milk, sugar cane, fish, cashew			
Western & SW highlands	Maize	+ Legumes + beef and local poultry, banana, coffee/tea			
Southern Highlands	Ongoing BRN actions		Maize/rice + meat/beef, horticulture		

^a Horticulture promotion for household nutrition and market supply forms a diversification option in most irrigated areas but also as small scale counter season activity. ^b Beef feedlot

197. Building on ongoing programmes, ASDP-2 will gradually expand and **cover all regions from Year-3 on**, while the number of districts will increase simultaneously to reach all rural districts by Year 5. The range of priority commodities for crops, livestock and fisheries will be consolidated gradually, as per stakeholder choices, to achieve a broader-based growth for rural poverty reduction. Regional MSIPs for priority CVCs will allow for linking local specificities (DADP priorities) to zonal and national priorities towards focusing investments and economies of scale.

198. **Financing at local level.** A competitive matching grant will be made available under this component, as top-up fund through the existing DADG, for financing profitable CVC investments and building partnerships in local agribusiness development.

199. **Strengthen local coordination mechanism.** Continuous support to crop and livestock extension, along local priorities and capacity building for planning, implementation and follow-up of priority CVC activities. This includes support to district level MSIPs for prioritized CVCs, involving public and private stakeholders.

200. Integrated support involving innovations and capacities for production, value addition and marketing will induce required outcomes in performances of priority value chains towards sustainable changes in local production systems. Overall, the ‘Rural Commercialization and Value Addition’ component will support building competitive value chains through activities grouped in four sub-components: (i) farmer empowerment and organizational strengthening; (ii) value addition and agroprocessing; (iii) access to markets; and (iv) access to rural financing.

1. Subcomponent 3.1: Farmer empowerment and organizational strengthening

201. **Profile of agricultural organization and service provision**⁹². Traditionally, cooperative societies had been the only way farmers were organized to access various services. However, cooperatives emerged mostly for cash crops such as coffee, cotton and tobacco. Due to various economic and political factors most cooperatives collapsed. To revitalize the registered cooperative societies and pre-cooperative groups the government devised Cooperative Reform and Modernization Programme (CRMP) and enacted the Cooperative Societies Act No. 6 of 2013 to regulate the cooperatives stakeholders in their economic activities of buying and selling services and commodities such as food and traditional and non-traditional cash crops.

202. Currently, a variety of organizations are emerging. Some are classic FO type groups whilst others are more professionalized and include associations such as the Tanzania Horticulture Association (TAHA) and the Agricultural Council of Tanzania (ACT). These NGOs provide services to their members, but many still depend on external technical and financial support. Such

⁹² Drawn from TCIA/FAO contribution to ASDP-2 BF (Annexes-June 2013)

organizations need to be supported to mobilize internal resources and to develop their business skills, making them more effective private sector, business-oriented organizations, equipped to help smallholders move from subsistence to commercial practices. These organizations provide an opportunity for linking smallholder farmers with input suppliers, traders, financial and other service providers and for creating strong value chains around specific commodities. Existing farmer organizations have been categorized into several groups (Table 32).

Table 32: Farmer organizations, by category

FO type^a	Examples	Strengths and weaknesses
Commodity-based producer associations/organizations/groups	Rice growers associations (total number of rice growers associations is not known) FBO and groups (COWABAMA)	Most producer associations are poorly linked to input suppliers, financial and business services. In addition, many of them have inadequate management capacity which limits the benefits. However, these associations can be strengthened to negotiate for better policies and prices, possibility of linking better with buyers and other service providers for value chain actors.
Apex organizations	Rural and Urban Development Initiatives (RUDI) in Mbarali (7,000 members) and Kilombero (3,600 members); Sugar Cane Outgrowers Associations in Kilombero, Mtibwa and Kagera. Tanzania Milk Producers Association (TAMPRODA)	Tanzania has no maize producers association unlike those for the other commodities, although many farmers in maize growing areas belong to farmer groups and networks of farmer groups. Some of these are members of MVIWATA, which does not focus on any particular commodity. Maize producers should be organized to facilitate linkages with other value chain actors (maize buyers) to facilitate bulking and warehousing. Livestock herder/fisheries organization.
Cooperative societies (affiliated to cooperative unions)	Lindi & Mtwara: simsim is marketed through Ilulu Coop Union in Lindi and Masasi-Mtwara Coop Union (MMCU)	Still important in some areas, for the traditional cash crops as well as for new crops. For sim sim it will be important to work through the primary cooperative societies and unions by strengthening their business and marketing operations.
Water User Associations & Irrigator organizations	Water User Associations in Mbarali Districts (from only a few members up to 3000 members (Madibira)	They vary in size and capacity. However, they are a potential entry point for promoting diversification into horticultural crops during the off season after paddy has been harvested.
Membership-based organizations open only to full-time farmers	MVIWATA (<i>Mtandao wa vikundi vya wakulima Tanzania</i>) HODECT: Horticultural Development Council of Tanzania ⁹³	It is a network of farmer groups with over 5,000 active farmer groups in 25 regions. It currently represents about 70,000 farming households, though the exact figure is uncertain. Farmer groups are usually between 5 and 15 households and networks represent the groups within a village usually totalling 4–20 groups.
Large-scale (commodity based) farmer organizations	Tanganyika Farmers Association (TFA), Tanzania Chamber of Commerce Industry and Agriculture (TCCIA) or ACT	The limited number of large-scale farmers means that they tend to interact informally. Large-scale farms, ranches and plantations have an important role in modernization, increased commercial production and as the focal point for out grower schemes and contract farming. They will have greater impact on overall Tanzania agriculture as well as position themselves for greater profit, if they were better organized.

^a Compiled from different sources.

203. ASDP-1 contributed to the implementation of public policies by setting the stage for improving decentralized public systems for agricultural support, involving the grassroots farmers (and their organizations) to participate in shaping local agricultural development plans. There is evidence of positive effects on improving farmers' participation (Opportunities and Obstacles to Development), capacity and knowledge building towards increased productivity and potential farmer returns. ASDP-1 also promoted the establishment of Farmer Fora (FF) at ward and district levels, but gained little understanding about their role. Overall, there is a lack of strategic framework for stakeholder

⁹³ <http://hodect.org/>

empowerment initiatives and their organization along value chains at local and national level⁹⁴. *Suitable service providers with required skills and experience on farmer organization and empowerment are required to guide and enhance capacities of technical skills at local level.*

204. Group formation and adoption of collective approach are indispensable steps for realizing agricultural growth and commercialization. The capacity of farmer organizations, as a key private sector player, requires significant improvements to be addressed (see ASDS-2) by the following public interventions: (i) building organizational and technical capacity of farmers organizations through public and private support; (ii) enhancing entrepreneurship and competitiveness of farmer organizations through capacity building in organizational management and leadership; (iii) promoting wide-ranged participation among women and young farmers into farmer organizations; and (iv) providing a clear framework for establishment and operation of farmer organizations.

205. The aim of this sub-component will be to support activities for empowering farmers and strengthening value chain stakeholder organizations, so that they can access services, knowledge, information, investment opportunities and markets more efficiently and effectively. This sub-component will enhance capacities of smallholder farmers and support their organizations to engage in transformative ‘commercial’ agriculture. Farmer groups/organizations/cooperatives will be strengthened and supported towards federating in higher-level organizations (along CVC), for increased leverage and benefit from internal and external support services to improve the profitability of their enterprises. FOs will serve as a focal point for learning, quality control and standardization, but also increased negotiation power and ownership.

206. Success of a smallholder, market-oriented development strategy rests on establishing a foundation of strong farmer organizations, capable of making and acting on decisions that affect their livelihoods. Key elements attracting farmers to associate within competitive agricultural value chains to access opportunities outside the reach of individuals, require at least: (i) a viable business model, consistent with agro-ecological conditions, farmers’ resource endowments and market opportunities; (ii) effective farmer organization governance and accountability; and (iii) access to appropriate technologies, information, production and processing, inputs and credit.

207. To achieve this, ASDP-2 will strategically empower farmers and support structuring of farmer and other CVC-based organizations, capitalizing on local experience in smallholder enterprise development, enhancing good governance structures (i.e., economic associations, cooperatives, companies, etc.) and saving and credit (e.g., SACCOs) facilities. The farmer- and CVC-based approach will serve as a focal point in the extension strategy (s/c 2.2) in responding to farmers’ needs for intensification technologies, access to markets and marketing information availed through strengthened support services and ICT-based systems (s/c 4.2), but also access to quality inputs and marketing strategies. Main action areas are summarized, as shown in Table 33.

⁹⁴ See ASDP-1 evaluation of performance and achievements (June 2011).

Table 33: Action areas for farmer empowerment and organization strengthening

Action/investment areas	Priority activities
Assessment of FO capacities	
	<ul style="list-style-type: none"> - Initial assessment of the capacities of FO in Tanzania. (including case study for success stories) - Develop a strategic framework for stakeholder empowerment initiatives and their organization along value chains
Farmer empowerment	
	<ul style="list-style-type: none"> - Group management training (e.g., support for registration, by-law formulation, leadership training, annual report writing, meeting organization) - Financial management training (e.g., financial record-keeping, auditing) - Business plan training (incl. access to financing services; see also s/c 3.4) - Support for acquiring Certificate of Customary Rights of Occupancy (CCROs) or land title deeds that can serve as collateral - Commodity specific FFS (technical networks) - Trainings for collective FO storage, sales & purchases (see s/c 3.2 and 3.3)
Farmer organization strengthening	
Structuration and federation of farmer groups and unions <i>Strengthening organizational and technical capacities of existing and new small-scale producer, trade and processing FOs/cooperatives</i>	<ul style="list-style-type: none"> - Enhance/support higher level farmer organizations (unions, federations and cooperatives) and their governance - Facilitate emergence and strengthen stakeholder economic entities and/or cooperatives - Strengthen dialogue with stakeholders (ministries, private sector, development partners, etc.) - Support the up-scaling of the Warehouse Receipt System (WRS) - Facilitate processing and marketing by farmer organizations and cooperatives with technical and management skills - Develop effective operational systems for input and output supply chains - Sensitize on the linkage between SACCOS and agriculture marketing cooperative societies (AMCOS)
Strengthening commodity-wise stakeholder organizations (TAHA, etc.)	<ul style="list-style-type: none"> - Regional multi-stakeholder innovation platforms for prioritized CVCs - Rice value chain stakeholder - CVC stakeholder organizations at district level - Commodity specific platforms - Strengthen dialogue with stakeholders (ministries)

208. **Initial assessment of the capacities of FO in Tanzania.** To ensure maximum and enduring impact of support to farmer organizational development, a detailed assessment of the operational capacities and needs of business-oriented farmer organizations will be implemented during the first year. This assessment will focus on: (i) the internal resources and capabilities of the organizations—staffing, management, quality of services, current and potential reach of field operations; (ii) needs for updating of internal trainings and field support materials; (iii) quality of tools used in value chain assessment, competitiveness analysis and initial business development support; (iv) capabilities and needs, of linking with financial institutions; and (v) needs of the organizations in terms of headquarter support and field logistics. Based on the findings, a support framework for farmer empowerment and organization strengthening will be finalized. Furthermore, mapping of other CVC stakeholders/entrepreneurs and their respective training needs towards MSIPs development in priority CVC intensification and diversification in targeted clusters will be performed.

209. **Farmer empowerment.** Strengthening of capacities of producer marketing groups and higher-level FOs is critical to the long-term success of smallholder farmers' participation in agricultural value chains. Key features of this sub-component are the focus on building the capacity of farmers (value chain actors) and their organizations (groups, unions, federation) to make informed choices and implement decisions that affect the businesses and livelihoods of members, but also enhance their capacity to negotiate with other actors in the priority CVCs. The FO-based approach will also serve as a focal point in the new extension strategy in responding to farmers' needs for new technologies, market and other information availed through the ICT-based systems plan (s/c 4.2), but also the quality seed and inputs (s/c 2.3), agribusiness and value addition (s/c 3.2) and marketing

strategy (s/c 3.3).

210. Three elements are required: (i) a viable business model, consistent with agro-ecological conditions, farmers' resource endowments and market opportunities; (ii) effective group (organization) governance and accountability; and (iii) access to necessary technologies, information, production and processing inputs, and credit. To achieve this, and to complement public production/productivity oriented extension systems at district level, ASDP-2 will provide support to strategically strengthen partnerships with specialized agribusiness PSPs⁹⁵ and other commodity-based organizations, capitalizing on local experience in smallholder enterprise development, establishing good governance structures (e.g., cooperatives, companies) and saving and credit (SACCOs) facilities, as required.

211. **Strengthening of capacities of producer marketing groups and higher-level farmer organizations is critical** to the long-term success and stakeholder ownership of sustainable growth in the agriculture sector. Specifically, assistance will be given to updating internal training and support materials, and the tools used in value chain market assessment, competitiveness analysis and initial business development support. The sub-component will: (i) strengthen FOs to address demand-driven linkages with agribusiness partners for critical services such as input supply, output market and processing facilities; (ii) strengthen the roles and capacity of existing producer/market organization partnerships; and (iii) develop innovative ICT-based approaches for enhancing access to technical, market information and financial advisory services. This support will be gender sensitive and youth inclusive, giving particular attention to disadvantaged producer groups to access agribusiness opportunities. Activities will complement and/or scale up complementary efforts and related initiatives in the sector.

212. **Higher-level farmer organization enhancement** (*unions, apex organizations, cooperatives, etc.*). Farmer institutional development is also critical to ensure that farmer organizations play the envisaged role in transforming subsistence into commercial farming, but also strengthening stakeholder ownership and organization governance. Farmer groups/cooperatives engaged in targeted commodity (crop, livestock, fish) production at village level will be supported to organize into a higher-level production and marketing association, acting as an economic entity (union, cooperative or company). In addition to technical advice, enhanced capacity for negotiations with other value chain actors will require training and awareness creation in different areas, including attention to quality of farm inputs, post-harvest handling, processing, transporting, utilization of market information, pricing, and marketing skills. This will involve strengthening existing FOs in business development skills, as well as facilitating the creation of farmer owned associations at village, ward and district levels, where these do not exist. Furthermore, linking smallholder farmer organizations to larger-scale producers will be promoted where feasible to increase their access to inputs, agricultural advice and markets. Formal and transparent arrangements for contract farming relations is an important way forward to improve relationships and which will help attain fair prices and, in the long run, reduce supply uncertainties.

Table 34: Proposed ASDP 2 interventions into cooperative activities and operations

<i>Intervention</i>	<i>Activities</i>
1.To enhance regulatory, institutional and supervisory framework of Tanzania Cooperatives Development Commission (TCDC) and Cooperative Societies	<p>1.1. To conduct training of 95 cooperative inspectors annually in cooperative societies inspection, supervision, accounting & record keeping</p> <p>1.2. To facilitate Registrar's Office execute regulatory functions at national, regional and district levels</p> <p>1.3. To facilitate conduct cooperative societies special general meetings</p> <p>1.4. To carry out inspection of the affairs and operations of the Tanzania Cooperative Federation; 5,500 AMCOS; 8,000 SACCOs; 45 Cooperative Unions and 4 Cooperative Joint Ventures</p>
2. To strengthen cooperative movement (all levels) to take on responsibility of promotion and self-regulatory functions	<p>2.1. Facilitate provision of cooperative education to Board members of cooperatives, management and ordinary members in 2,000 cooperative societies annually.</p> <p>2.2. To develop and air mass media programmes on the cooperative values,</p>

⁹⁵ See also other experiences by MUVI-IFAD and NGO activities in value chain organization and promotion.

	undertakings and SACCOs strengthening campaigns
3.To build capacity and strengthen cooperative organizations on business management and leadership skills	3.1. To conduct training of trainers (TOT) to district and sectoral ministries promotion and sensitization teams 3.2. To offer advanced training to TCDC staff on entrepreneurship skills, negotiation skills, project planning and management plus business plans writing, skills mix and the like
4.Strengthen & operationalize Cooperative Data Management Systems (CODAS)	4.1. Strengthen regulatory reporting information for cooperative 4.2. To establish IT system centres as strategic tools for farmers produce value addition

Source: Adapted from proposals developed by the Cooperative Agency.

2. Sub-component 3.2: Value addition and agroprocessing

213. Value addition and agroprocessing are key elements of increased agricultural commercialization, revenue and employment generation in rural areas, but also use of by-products in agroprocessing for animal feed. Although they have strong forward linkages by providing additional market opportunities responding to high demands for processed products, the level of agroprocessing infrastructure and facilities remains rather low which in turn also contributes to high post-harvest losses.

214. **Agribusiness and Private Sector Development.** A diverse, competitive and robust private sector to spearhead the development of the agriculture sector is envisaged by way of increased flows of private investment and services in the sector. This will be achieved with public support towards improved conditions and systems in which the private sector operates, by promoting among others: (i) agroprocessing to reduce post-harvest losses and for value addition; (ii) improvement on packaging, handling, cold chain and transporting agricultural products; (iii) environmentally responsible technology and hygiene measures, based on the relevant laws and regulations; and (iv) favourable business and investment environment for agroprocessing.

215. The priority strategies and interventions recommended in ASDS-2 include: (i) promoting private sector investment, especially through ongoing efforts of SAGCOT initiative and commercial farm component of BRN; (ii) continued improvement of business environment with regard to trade policy, procedures/regulations on export and import, investment, taxation, and other related issues in collaboration with relevant organizations, such as TIC; (iii) establish and strengthen dialogue forum among the key public and private stakeholders, to discuss on the improvement of business environment; and (iv) expand agricultural finance services through TIB-Agricultural window and AGTIF, the Tanzania Agricultural Development Bank, but also commercial banks for medium- and long-term investment in the sector.

216. **The aim of this sub-component is to enable smallholder farmers, their organizations and other value chain participants/stakeholders to invest in profitable value addition and agroprocessing in priority value chains, to increase ‘enterprise’ profitability and ‘local’ incomes.** Targeted agribusiness investments at local and inter-district/regional levels, require specialized support in both technical and management aspects of enterprise development, including: (i) agribusiness advisory and support services and capacity building; (ii) a financing mechanism for business development through competitive matching grants; and (iii) identifying and developing promising commercialization opportunities. Entrepreneurial skills enhancement for value addition is key to build entrepreneurship and self-employment in rural communities, especially among women and young farmers. Agroprocessing must be undertaken in a socially and environmentally responsible manner, including decent working conditions and safety, gender equity and youth employment, preventing child labour.

Table 35: Priority activities for CVC value addition and agroprocessing.

Action/investment areas	Priority activities
Key drivers and enablers for agribusiness development	Institutional strengthening: - District/regional CVC agribusiness/ MSIPs - Agribusiness private support services (PSP)—regional level -

Post-harvest management systems	- COWABAMA-BRN (smallholder collective commodity marketing schemes); village-level storage facilities and professional management
Agribusiness (processing, value addition) investments along priority CVC	<ul style="list-style-type: none"> - Agribusiness services including support to consolidate enterprise business plans (see agribusiness PSPs) - Improve required infrastructure in terms of access to facilities (electricity, water, etc.) - Support to local investments using competitive matching grants

217. Key drivers and enablers for agribusiness development. Institutional weakness and lack of agribusiness support capacities, especially at local level, have been identified and tackled through several pilot projects⁹⁶. Actions will take place at district level while coordination and support services centred on priority commodity value chains will be common at regional level, for efficiency and economies of scale reasons. Therefore regional facilitation teams (to be established/contracted within a PPP framework) should provide results-based agribusiness support services to DCP and technical teams active in the agriculture sector.

218. District CVC Platforms (DCP)⁹⁷ for improved coordination between stakeholders at LGA level. These stakeholder platforms bring major actors in priority local CVCs together to develop and drive the implementation of a strategy for sustainable productivity growth, value addition and efficient market access. These platforms develop mutually beneficial partnerships among actors along the value chain for increased production, quality, value addition and trade of the selected commodities. DCP will be critical in terms of establishing formal or even *ad hoc* mechanisms to encourage value chain connectivity between private and public stakeholders and drive innovations/changes towards higher levels of commercialization in targeted priority value chain (or group of complementary CVC). These platforms will become the vehicles for strategic alliances and business partnerships that will create better understanding of the requirements of producers and processors, transporters and storage businesses and traders and the market. DCP will be involved in priority public support actions planning and evaluation.

219. Regional facilitation/support teams. Agribusiness support services remain a weak link at local/LGA level, as farmers and their organizations and other value chain actors need specialized support services and advice to achieve high returns from their respective activities of production, value addition and marketing in priority CVCs. Agribusiness PSPs are the essential instrument for the programme to engage all actors in the development of priority commodity value chains at local level. Where those support services do not exist or are weak, ASDP-2 will help promote their establishment and growth through training and capacity building initiatives. These services will be contracted by targeted regions (or district clusters) to deliver the capacity building and agribusiness support services farmer organizations and other CVC stakeholders in commercialized farming and agribusiness development for selected priority CVC.

220. Post-harvest management systems target to achieve effective and efficient food supply by addressing key issues between production and consumption of agricultural commodities. High post-harvest losses remain a central concern, as different research studies demonstrate that farmers lose up to 40% of produced cereals, although losses vary to a large extent by crop type and geographical zone.

⁹⁶ Rural Business Support Services for improving value chains had varying fortunes, largely depending on the performance of the PSPs (see IFAD programme evaluation, 2014). Only a few contracts have been facilitated between farmer groups and rural enterprises and between these enterprises and the market. The capacity building support for rural entrepreneurs and enterprises has been limited and of short duration.

⁹⁷ There is already a “value chain stakeholder meeting” established along with the DADP which will be upgraded to DCP. The purpose of encouraging platforms is to get farmers/producers and agribusinesses to network and connect better, to understand requirements and issues and to see if there can be solutions developed to solve problems or perhaps improve the way business is conducted. The ‘District Commodity Platforms’ (e.g., Tanga), have contributed to bringing the value chain stakeholders together, identifying issues and problems and providing a framework for networking. Potentially, these platforms could contribute to improving value chain cohesion, but to do so they would need to be expanded beyond district boundaries (to cover i.e., clusters).

The main issues are to protect harvested products against physical (water, heat and dust) and biological (fungus, insects and rodents) degradation during transportation, storage and processing operations. From the institutional point of view, harmonization and alignment of functions between the Ministry of Agriculture Livestock and Fisheries and the Ministry of Industry Trade and Investment is needed, especially for activities related to storage infrastructures and management, reduction of post-harvest losses and value addition and agroprocessing of agricultural products.

Table 36: Priority actions towards reduction of post-harvest losses

Reduction of post-harvest losses (see also BRN)	
Action area	Actions/proposed activities
Large post-harvest losses due to poor support systems/technologies and limited handling capacity	<ul style="list-style-type: none"> i. Develop and disseminate guidelines for harvest and post-harvest handling of selected crops (<i>special attention to aflatoxins on cereals</i>) ii. Develop guidelines for appropriate post-harvest handling practices for meat, milk, hides & skins iii. Promote and disseminate technologies that promote better handling and improved storage and preservation of food and food products including livestock products (meat, milk, hides & skins) iv. Professional storage management (see COWABAMA) v. Improved market infrastructure see s/c 3.3)
Highly perishable products for crops (horticulture) and animal products (milk, meat, fish etc.)	<ul style="list-style-type: none"> i. Cold chain infrastructures and marketing ii. Partnerships with private sector involved in transformation & marketing iii. Awareness of standards and compliance control
Institutional alignment and harmonization	Storage infrastructures and management, reduction of post-harvest losses and value addition between the Ministry of Agriculture Livestock and Fisheries, the Ministry of Industry Trade and Investment and LGAs

Note: For meat, milk, hides and skins (50 million x 5Y = 250 million) and for livestock products (meat, milk, hides and skins; 100 million x 5Y = 500 million).

221. Village-level storage facilities for smallholder collective marketing schemes (COWABAMA). The objective of these investments, planned and implemented within BRN, is to develop and promote smallholders' access to more profitable markets for priority commodities through sustainable collective warehouse based marketing schemes. This will establish a network of commodity warehouses to be linked to large-scale buyers inside and outside the country. The initial investment will focus on 275 collective maize warehouses in SAGCOT, and 78 irrigation scheme warehouses for rice, as identified under the BRN plans. Selected high potential districts encompass warehouses averaging 300 MT in size, benefiting about 165,000 households. Over time, the programme is expected to expand to other high maize potential districts and bring in additional commodities with promising commercialization opportunities, such as sunflower, dairy and horticulture.

222. COWABAMA will involve the rehabilitation of existing village warehouses and the construction of additional ones. Overall, the support under this component will include: (i) improving (village) storage facilities and marketing infrastructures (feeder road connectivity); (ii) promoting management capacities for commodity bulking/assembly; (iii) creating favourable business environment for market activities of priority commodities by strengthening regulatory framework for quality and standards; (iv) supporting access to production enhancing interventions to ensure sufficient output supply for efficient utilization of storage capacity of warehouses; and (v) linking gradually with WRS, commodity exchange programme⁹⁸ and value addition services. From Year 4 on, the support will expand to further districts (clusters), but also priority commodities (crop and livestock) of other AEZs. Building on achieved results, the programme will gradually expand to other AEZs and/or priority commodities such as sunflower and dairy/meat, trying to achieve broader based growth and rural poverty reduction in clusters of districts of each of the main AEZ, serving as focal point for gradual geographical expansion.

⁹⁸ See details in s/c 3.3 Marketing.

223. **Agribusiness** (*processing, value addition*) **investments along priority CVC**. Besides advisory and capacity building, ASDP-2 will promote targeted investment development at national and local level, including demand-driven agribusiness support services, improved infrastructures and facilities for increased commercialization, and support to private/associative agribusiness development investments.

224. At national level, public services will facilitate and provide technical support for the implementation of actions at LGA (and LGA cluster) level. Proposed priority action areas for agroprocessing are outlined in Table 37.

Table 37: Proposed strategic action areas for agroprocessing and value addition

Action areas	Strategic activities ⁹⁹
Entrepreneur mapping	- Mapping of entrepreneurs, their organizations and activities within targeted priority CVCs
Training of entrepreneurs	- Organize training of entrepreneurs in agroprocessing business planning, especially value-addition for targeted priority CVC products within each AEZ.
Packaging and branding	- Needs assessment/awareness creation of entrepreneurs and producer associations - Promote product branding and quality - Link processors with packaging producers (study tours, grouping demand, etc.)
Modernization of agroprocessing industries for selected CVCs	- Identify needs in priority CVC - Sensitization, diagnostic study, building capacity and provide technical agribusiness advisory services (PSP) - Facilitate modernization with technologies upgrading and financing plan (<i>national level support & regulation</i>)
Promote mechanization of postharvest processes	- Evaluation of use and quality of processing mechanization (dissemination) - Promote post-harvest farm tools - Prototypes for post-harvest handling in priority CVCs
Improve product quality & traceability	- Build capacity for product traceability - Laboratory accreditation for quality control
NEDF	- Promote National Entrepreneur Development Fund
Establishment of SMEs Agricultural Exports Processing Zones	- Identify areas for establishing export processing zones - Mobilize private sector to develop export processing zones - Follow up the implementation of EPZ development
Establish & develop sunflower industrial cluster	- Identify sites for developing sunflower clusters - Mobilize stakeholders to develop sunflower industrial clusters - Follow up the implementation of sunflower cluster development

Source: Ministry of Industry Trade and Investment, 2015

225. For livestock and fisheries identified priority action in processing and value addition are shown in Table 38:

Table 38: Proposed strategic action areas for agroprocessing and value addition (livestock/fisheries)

Action areas	Strategic activities
Milk processing	- Promote milk collection and processing facilities and infrastructures in 20 dairy clusters (about TSh million each) - Compliance with standards (training quality and safe dairy products)
Meat processing	- Promote production of quality products by investment in meat processing, slaughter facilities, training in processing - Construct 5 abattoirs in key livestock marketing clusters (about TSh 3 billion each)
Hides and skins processing	- Promote production and value of quality hides and skins through improved collection and processing
Other by-products	- Promote production, processing and handling of other animal by-products
Processing of Sardinella	- Promote standard processing and value addition

⁹⁹ Detailed activities to be identified by commodities with involved stakeholders, during investment phase.

spp. from fresh water	<ul style="list-style-type: none"> - Training on safety and quality products - Improve collection of ‘dagaa’ and proper fishing methods - (i.e., Lake Victoria, Tanganyika, Nyasa and Rukwa)
Fishing and value addition for pelagic fish	<ul style="list-style-type: none"> - Promote support value addition, processing, handling of by-products - Improve proper fishing methods; reduce post-harvest losses - Fish handling and improved quality of by-products
Other fisheries products	<ul style="list-style-type: none"> - Value addition to farmed seaweed
Regulations	<ul style="list-style-type: none"> - Animal product and by-product quality - Licensing and registration of fishing vessels

226. At local level, facilitation of agribusiness investments in priority CVC will be promoted by: (i) improving required infrastructure in terms of access to facilities (electricity, water, etc.); (ii) enhancing agribusiness services including support to consolidate enterprise business plans (see agribusiness PSPs); and (iii) supporting local investments using competitive matching grants. This infrastructure will facilitate further entrepreneur investments in agroprocessing and value addition.

227. **Public Agribusiness Investments¹⁰⁰**. As for ASDP-1, investment funding used the DADG window to support priority public good investments for the development of targeted infrastructures (roads, markets, etc.) and facilities (access to water and electricity, etc.) in support of CVC development at local level. Project selection and implementation will follow consolidated ASDP-1 implementation procedures¹⁰¹ while contributions of beneficiaries and LGA will be gradually increased with increasing returns from the selected priority CVCs.

228. **Support to private/associative innovative investments for agribusiness** development will be provided by competitive matching grants. This complementary facility will be gradually available for demand-driven investments that improve processing, value addition and market access focused on the priority CVCs. To kick-start local agribusiness investments, these competitive matching grants will be open to proposals from organized FOs and/or joint ventures with other private sector CVC stakeholders to support promising local initiatives for priority value addition, agroprocessing and/or marketing and other related downstream/upstream investments. Proposals will be evaluated and selected by a competitive process at regional level (regional CVC platform)¹⁰². Agribusiness PSPs will assist applicants to develop eligible proposals for funding under the grant as well as help to prepare them to access alternative financial resources. At local level, these sub-projects, whose total cost is between TSh 20 to 100 million, would qualify for a maximum matching grant reaching a maximum of 25% of the total investment (i.e., up to the equivalent of TSh 25 million). The matched element of the applicant’s contribution will be at least 30% cash and the balance being in-kind if this is offered.

3. Subcomponent 3.3: Expanded Access to Markets

229. **The adoption of the Agricultural Marketing Policy** (AMP, 2008) paved the way to collaboration between the public and the private sector, such as MVIWATA, MUFI and the Rural Livelihood Development Company (RLDC) to empower producers and enhance market linkages. There have been several programmes/projects 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, DASIP, and some other projects supported by NGOs.

230. **Domestic, Regional & International Trade.** The Government of Tanzania will continue to promote domestic, regional (EAC¹⁰³ and the Southern African Development Community (SADC)) and international trade for agricultural and food commodities. The required interventions include promoting and strengthening: (i) internal and external trade under the Tanzania Trade

¹⁰⁰ To be included in local level investments within DADG.

¹⁰¹ To be updated in ASDP-2 Programme Implementation Manual (PIM).

¹⁰² At the regional level a CVC Grant Management Committee could be an option for this.

¹⁰³ The East African Common Market, launched in 2010, opens up new regional trade opportunities, but also exposes Tanzania’s domestic market to increased competition.

Development Authority (TANTRADE); (ii) campaigns to use “Made in Tanzania” products; (iii) key traditional cash crop exports including tobacco, coffee, tea, cashew nut, cotton and their processing; and (v) increasing export of fish and horticulture, but also strategic export of maize and rice to neighbouring countries. To this end, the government proposes to expand well-functioning export processing zones in the prioritized regions and to reinforce the current system of regular consultations with private sector stakeholder associations about procedures and regulations impacting trade benefits and profitability.

231. **Market access.** ASLMs will collaborate with various stakeholders to implement policies, enforce laws and regulations and create a favourable environment for domestic, regional and international marketing activities, including: (i) establish and operationalize the Agricultural Commodity Exchange for selected commodities; (ii) raise stakeholders awareness on the required marketing standards and quality and oversee implementation of grading and standard protocols for different commodities; (iii) continued review of existing legal and regulatory framework of agricultural marketing; (iv) improve the market information system and its use to support commercial decision-making; (v) strengthen the systems for enforcing food safety controls based on traceability (including barcodes) and proper handling; and (vi) improve enforcement of the regulations and procedures for appropriate treatment of agricultural traders and transporters to minimize non-tariff barriers.

232. **Improved rural and marketing infrastructure** (roads, markets, private and public storage facilities, electrification, telecommunication, etc.) is a high priority for efficient inputs and output marketing and to attract private investment in agricultural related activities such as agroprocessing, but also increasing producer prices, farmer incomes and rural employment opportunities. Improved transport infrastructure, dissemination of market information and easing of cross-border trade restrictions can all play a role.

233. **The private sector is expected to take the lead in processing and marketing of agricultural commodities** so that they satisfy consumer demand for quantity, quality and safety. As domestic and regional markets expand and become more discriminating in terms of quality and food safety the issue of sanitary and phytosanitary standards will become increasingly important, calling for improved regulation and certification services. The Government of Tanzania (see ASDS-2), through the ASLMs, will work closely with private sector and the development partners to continue its efforts to undertake: (i) improvement and maintenance of rural roads network, including by promoting private investment; (ii) roll out the operations of WRS¹⁰⁴ for appropriate commodities by empowering farmers, increasing storage capacity at all levels; (iii) support increasing capacity of cold storage and cold chains, especially to service dairy, meat and fish products; (iv) close collaboration with the Rural Energy Agency (REA) to promote rural electrification; and (v) developing *market facilities* at village, ward and district levels, but also wholesale markets, border¹⁰⁵ market places, to encourage trade with neighbouring countries.

234. **The aim is to develop and promote access to profitable domestic and export markets for priority commodity value chains.** This will be achieved by a gradual building process building on promoting sustainable collective warehouse marketing schemes (see COWABAMA in s/c 3.2) at village/farmer group level and supporting: (i) establishing and maintaining an effective market information system; (ii) enhancing the use of warehouse receipt systems and consolidating efficient marketing information system; and (iii) piloting and establishing a commodity exchange programme, including strategic warehouses when required, starting with major cash crop commodities (cashew nut, coffee, sesame, etc.).

¹⁰⁴ Since 2007, the WRS has played an important role in improved marketing for some agricultural products (cotton, coffee, cashew, maize, rice, sunflower and sesame). A Commodity Exchange System is in preparation under the coordination of the Capital Market Security Authority (CMSA).

¹⁰⁵ Complete the construction of international produce market places at Kibaigwa (maize, sorghum and beef), Segera (horticultural products—Tanga region) and Makambako (multi-purpose—Njombe region). Border markets are expected to support farmers in terms of price stabilization, as all stakeholders use same facilities.

235. **Market access for beef dairy and fish.** The main marketing infrastructure for livestock include, among others stock routes, 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 LGAs and supply animals for local markets and for onward transfer to secondary and terminal markets located at Thembi (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.

236. **Market Information Services (MIS).** To complement the agribusiness support services and competitive grants to promote agribusiness, timely access to adapted market information is crucial to improve decision-making. Market information comes in the form of prices, product quantities and qualities available for sale and purchase in specific locations. Currently, the availability of information is rather scattered, ineffectively collected and poorly disseminated. Developing a more robust system (facilitated by public investments and implement within PPP) using modern ICT (Internet, mobile phone, text messaging) for providing relevant market information will be an important support for improved linkages producers, buyers and other CVC stakeholders towards enhanced value chain efficiency.

237. **Warehouse Receipt Systems (WRS) and market linkages.** Successful market improvement efforts through WRS by various development and financial partners, in East and Southern Africa, allowing for common marketing (including contract selling to large buyers, auctioning, spot selling), improved farm-gate prices for inputs and outputs, reduced losses and reliable farmers cash flow. The implementation of ASDP-2 prioritizes in a first phase the promotion of village level storage facilities (see s/c 3.2 COWABAMA), while more formal WRS require storage facilities of at least 5,000 tons¹⁰⁶ to cover the higher management and transaction costs involved in professional collateral management, infrastructure maintenance, insurances, licenses, etc., as per application of the ‘Warehouse Receipt Act’. Therefore the WRS will be piloted in about 10 critical locations, and build on further grouping of village warehouses (average capacity of 300 tons each) to develop a critical mass, which would allow for working on a third aggregation level¹⁰⁷, from mid-programme on. Gradually strengthened market linkages will lead to contractual agreements between cooperative unions, public and private service providers, rural banks, input suppliers, and commercial farmers or aggregators who have linkages with agro-industries, commodity exchanges, wholesalers or exporters. To facilitate the development of these linkages, ASDP-2 will support exchanges, value chain consultation and specialized technical and economic assistance.

238. **Pilot commodity exchange platform establishment.** The initial step in this process is in generating a body of knowledge on the market, its opportunities, requirements, sources of information and the key players, particularly private companies. This will form the core of the market training courses. The Ministry of Industry Trade and Investment will maintain a Market Intelligence knowledge database including: (i) regional sources of information; (ii) updated listing of companies, agribusinesses, logistic companies, sources of equipment; and (iii) regulations, standards, trade data. Building on a critical number of functioning warehouses, commodity exchange markets will be established, starting with cash crops such as cashew and coffee, but maize and other exported food crops. Under the guidance of specialized Ministry of Industry Trade and Investment services, technical capacities will be developed, including by learning from experiences in neighbouring countries (Ethiopia, Malawi, South Africa, Uganda, etc.). ASDP-2 will support exchanges, value chain consultation and specialized technical assistance for developing priority commodity exchange platforms involving PPP.

¹⁰⁶ In the range of 1,000–5,000 tons depending on the value of the commodity.

¹⁰⁷ See proposed pilot Commodity Exchange activities in Table 39.

Table 39: Summary of action areas and activities in market enhancement at national/regional level

Action areas	Activities
Market research (cost, competitively for priority crop/livestock CVC	<ul style="list-style-type: none"> - Investment opportunities for local and export markets - Evaluate marketing costs in segments along value chain
Market intelligence	<ul style="list-style-type: none"> - Facilitate market access for Tanzanian products - Guaranty product quality and offer reliability
Develop Warehouse Receipts System (WRS)	<ul style="list-style-type: none"> - Facilitate warehouse rehabilitation and management (at least 5,000 tons); - Mapping of warehouses under WRS (needs and opportunities for WRS); - Create awareness and build user capacity by linking stakeholders (FO, banks, marketers, etc. at different levels; Facilitate the implementation of the pilot WRS - Follow up the implementation of the expanded WRS
Pilot Commodity Exchange Market in Tanzania	<ul style="list-style-type: none"> - Awareness and framework of collaboration between public and private sector - Create awareness and build capacity to key stakeholders - Enhance capacity of 'Warehouse Licensing Board' to implement the WRS to facilitate effective commodity exchange - Harmonize legal framework and redefine role of Marketing boards - Consider crop law reforms which resulted into Crop Laws (Miscellaneous Amendments) No., 20/2009 - Develop institutional framework for commodity exchange - Business plan for funding the commodity exchange market - Develop guidelines & enhance capacities of involved stakeholders - Facilitate the implementation of Commodity exchange market - Establish and operationalize an information exchange interface for commodity exchange market/platform
Improved MIS	<ul style="list-style-type: none"> - Enhance market information needs for priority CVCs - Strengthen existing MIS to fill the gaps (use ICT to get it efficient) - Promote effective market information diffusion and user access
Promote agricultural products in domestic and regional/international markets	<ul style="list-style-type: none"> - Participate at shows and exhibitions and expos - Encourage use and consumption of domestic products - Improve and maintain standards, quality and distribution of products - Promote market infrastructures including feeder roads, strategic functional warehouses, markets, abattoirs, milk collection centres and market centres - Strengthen regulatory functions of crop boards (see also s/c 2.2) - Traceability and safety of agricultural products
Promote fisheries products	<ul style="list-style-type: none"> - Participate in shows and exhibitions - Traceability and safety of fisheries and aquaculture products - Awareness and collaboration between public and private sector

Source: Proposals from the Ministry of Industry Trade and Investment

239. **Livestock and fisheries quality control and product safety assurance.** Priority action areas and proposed investments include among others, at national/regional level (Table 40).

Table 40: Priority activities livestock and fisheries quality control and safety assurance

Action area	Priority actions
Livestock & products marketing	<ul style="list-style-type: none"> - Empower livestock producers with basic knowledge & skills on product quality - Strengthen capacities of livestock regulatory boards (dairy, meat, hides and skins, and animal feeds boards) - Reinforcement and (regional) harmonization of laws/regulations on quality livestock products - Strengthen linkage between livestock producers and potential markets - Strengthen regulatory boards (TSh 500 million/year)
Livestock marketing infrastructure	<ul style="list-style-type: none"> - Investment in key livestock marketing infrastructures - Promote and enforce sector standards for safety and quality
Livestock marketing information	<ul style="list-style-type: none"> - Strengthen (integrated & sustainable) livestock marketing information system (data collection, processing/analysis and dissemination using modern ICT)—involving public and private sector stakeholders
Facilitate marketing of quality livestock inputs and outputs to promote production & safeguard animal/public health	<ul style="list-style-type: none"> - Create public awareness of locally produced veterinary vaccines (Newcastle disease, Anthrax, ‘Blackquarter’ vaccine, etc.) - Strengthen laboratory capacity for control (equipment, capacity strengthening) - Encouraging private laboratories for quality control - Support surveillance an quality livestock inputs and food of animal origin
Fisheries products marketing	<ul style="list-style-type: none"> - Improve the standard and quality of fish and fisheries products (regulations and their enforcement)
Fisheries marketing infrastructure	<ul style="list-style-type: none"> - Investment in key fisheries processing and marketing infrastructure & facilities - Promote and enforce sector standards for safety and quality
Fisheries & aquaculture marketing information	<ul style="list-style-type: none"> - Improve and strengthen (integrated & sustainable) fisheries, farmed fish and other aqua-product marketing information system (data collection, processing and dissemination using modern ICT)—with public/private sector stakeholders - Conduct seaweed and farmed fish value chain analysis
Traceability, eco-labelling and animal welfare	<ul style="list-style-type: none"> - LITS practiced to increase performance and quality - Promote animal welfare adherence

Source: Proposals from the Ministry of Agriculture Livestock and Fisheries

240. **At local level**, main investments to promote priority CVC marketing are prioritized in participative district agricultural development plans and included in DADG. Key investments include, among others: (i) improvement of road/transport infrastructure; (ii) rehabilitation/construction of local—collection/grouping—markets, including cold storage, slaughterhouse, fish disembarkation facilities; and (iii) specialized agribusiness technical support and capacity building for quality product marketing development. Prioritization and follow-up of investments will be done in close collaboration with the DCP involving the participation of priority CVC stakeholders.

4. Sub-component 3.4: Expanded Access to Rural Finance

241. **Background.** Inadequate financial service for small-scale commercial farmers is a major constraint to agricultural growth and limits the level of investment and the pace of agricultural commercialization. Commercial banks are reluctant to lend to the sector and have limited outreach in rural areas. There are numerous microfinance institutions (MFIs) targeting farmers, but they have limited capacity to reach the large number of rural households due to lack of skilled personnel, branch networks and finance. Small- and medium-scale enterprises engaged in value addition are also constrained by access to financial resources.

242. Currently, government initiatives promote agricultural rural finance mechanism including among others: (i) the National Financial Inclusion Framework (Steering committee is chaired by the Bank of Tanzania, drawing members from the Ministry of Agriculture Livestock and Fisheries, CMSA, the Ministry of Finance and Planning, TIRA, TCRA, FSDT, TAMFI and mobile phone operators); (ii) SACCOS, channeling savings and finances borrowed from the commercial banks to the smallholder farmers who are members of the SACCOS, but also other similar arrangements through the SACCAS, VICOBIA and the like; (iii) WRS for smallholder farmers to access financing of their agricultural activities (mostly in traditional cash crops); (iv) the National Cooperative Bank that

envisages at financing cooperative societies (unions); (v) the agricultural lending window in the Tanzania Investment Bank; (vi) the Kilimanjaro Cooperative Bank and the Kagera Farmers' Cooperative Bank; (vii) lending to youth to engage in income generating activities including agriculture (Ministry of Information Culture Artists and Sports); (viii) LGAs to set aside 10% of their own source revenues to be channeled to lending to youth and women in the respective LGAs area of jurisdiction; (ix) the Agricultural Inputs Trust Fund (AGITF) under the Ministry of Agriculture Livestock and Fisheries; (x) the National Social Security Fund (NSSF) issues individual and cooperative loans (Wakulima scheme); (xii) NAIVS and potential follow-up programmes; and (xiii) the Marketing Infrastructure, Value Addition, and Rural Finance (MIVARF) Programme¹⁰⁸ issuing grants to Irrigators Organizations or Paddy Agricultural Marketing Cooperatives to acquire medium size rice milling machines. The government plans to establish and operationalize an Agricultural Development Bank to provide a specialized funding window for investment in the sector, while catalytic funds (see e.g., SACGOT) and credit guarantee schemes are some of several initiatives towards integrated rural commercialization.

243. The number of commercial banks is increasing (about 50 in 2014) and some of them extend services to agricultural sector and agroprocessing. Agricultural financing (crops and livestock) from commercial banks in terms outstanding sector lending is gradually increasing at an equivalent of 10% of the total lending (about TSh 1 trillion). 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 the National Financial Inclusion Framework by MOF intends an implementation plan targeting 50% of the adult population to have access to formal financial services by 2016.

244. Overall, numerous public, project-related and finance institutions initiatives exist at national and local levels to promote access to rural financing of the public sector, but no clear strategy (and coherent and comprehensive action plan) promoting rural financial systems to up-scale stakeholders investment in the agricultural sector, within sustainable PPPs. Improving financial services to the sector is a key policy issue in order to facilitate private investment.

245. **For ASDS-2**, the required public interventions promoted by ASDS-2 include: (i) promote services of existing community banks and start-up of new ones at local level; (ii) design agricultural credit packages, appropriate to smallholder farmers; (iii) provide support to establish stronger and well capitalized grassroots MFIs such as SACCOS and Village Community Banks (VICOBA) as first-line financial services for small-scale commercial farmers; (iv) update the National Microfinance 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; (v) strengthen overseeing/regulatory functions of the Cooperative Department at local level as part of promotion of MFIs; (vi) accelerate efforts to expand agricultural finance services through TIB-Agricultural window, AGITF, the establishment of the Tanzania Agricultural Development Bank, for medium- and long-term investment in agricultural production and processing; and (vii) promote lending for agricultural investments from commercial banks.

246. **Within ASDP-2, priority action areas** for expanded access of smallholder producers and transformers/exporters (SME/SMI) to rural financing, include among others to:

- i. **Develop a comprehensive rural financing** strategy and action programme for promoting business investments and profitability in agricultural commodity value chains development with all involved stakeholders.
- ii. **Strengthen cooperatives and other economic associations** and related SACCOS/SACCA (social control as guarantee) for providing sustainable (and stakeholder-owned) (micro) financial services at local level.

¹⁰⁸ For rural finance MIRVAF targets improved and sustainable financial and operational performance of: (i) informal grassroots associations, SACCOS and other MFIs; and (ii) rural small- and medium-scale entrepreneurs.

- iii. **Enhance availability of and access to short- to medium-term agricultural financing** sector within a PPP approach, involving among others an Agricultural Development Bank, private banks investing in the rural sector, etc.
- iv. **Facilitate farmers access to agricultural investments**, among others by: (a) promoting WRS to overcome the guarantee issue; (b) strengthening contract farming (contractual agreement between producer organizations, agrobusiness, exporters and banks/financiers); (c) establishing a legal framework policy for ‘leasing’ contracts, especially for promotion of private mechanization services (contractual agreement between equipment importers, investment banks and mechanization service providers).

247. **Comprehensive rural financing strategy and action programme. There is little coherence among number of public and private initiatives for** promoting an agricultural rural finance mechanism, giving rise to the need to develop, consolidate and implement a multi-stakeholder strategy to promote agricultural investment. A strategy for improving rural financial linkages would include, among others, to: (i) encourage and strengthen the sector’s own control through network organizations for rural SACCOS; (ii) facilitate linkage of FOs (associations) with financial cooperatives, micro-credit institutions and/or commercial banks; (iii) enhance the bargaining power of producer, trader and processor organizations, associations and cooperatives through improved market information, aggregation of produce and the use of inventory financing opportunities; and (iv) strengthen the public sector support in its regulatory function of the financial sector.

248. **Grassroots financial services**¹⁰⁹, aiming at building the capacity of informal financial institutions and SACCOS to consolidate them into viable, sustainable entities, supporting selected MFIs to expand their rural outreach, and supporting selected community banks as alternative rural financial service providers. The sub-component also aims at supporting the Tanzania Cooperative Development to enhance the implementation of the Cooperative Reform and Modernization Programme. Action areas include improved financial and operational performance of informal grassroots associations, SACCOS and other MFIs (informal associations transformed to MFIs on a sustainable basis), but also strengthened operational linkages between MFI and formal financial/credit institutions.

249. **Warehouse Receipt System (WRS)**¹¹⁰ using stocks as guarantee for facilitating access to affordable credit in participating financial institutions (PFIs). The financial institutions would assess eligibility of warehouse receipt operators to credit on the basis of checklists and benchmarks including: (i) governance and structure of membership; (ii) existence of by-laws, manuals and minutes of meetings; (iii) financial and income statements and balance sheets; (iv) assets; (v) credit history; and (vi) contractual agreements with buyers of produce. ASDP-2 will support PFIs in collateral management of warehousing, value chain analysis, agricultural risk management, and market research and intelligence, to minimize the risks of their ventures. To improve access of rural financial institutions to data on opportunities for value chain financing, detailed financial analyses will be undertaken for gross margins, profitability, repayment capacity, etc., of all actors in the value chains being supported, and develop training manuals and guidelines for applying the methodology to identify financing opportunities and analyse proposals.

250. The Food and Agriculture Organization of the United Nations (FAO) in collaboration with Rabobank/NMB Foundation pilot project aims at building financial management capacity among producers and their organizations, creating sustainable linkages with local financial service providers and agricultural value chain agents and improving productivity practices. It will build linkages between FOs and financial service providers which will also provide room for development of a long-term market strategy. Smallholder paddy producer organizations will be formalized into agriculture marketing cooperative societies (AMCOS) to achieve scale and bargaining power, strengthening the commercial relationships between FOs and other rice value chain actors and building the capacity of

¹⁰⁹ See also MIRVAF and lessons learned (IFAD).

¹¹⁰ See also ‘Professional warehouse management (COWABAMA initiative) in s/c 3.2.

smallholder farmers to manage loans and participate in the national WRS which will enable them to become creditworthy.

251. **Availability of short- and medium-term financing** for input provision and operating warehouses which would result in value addition, improvements of grain quality and bulking at the farmer association/cooperative enterprise scale is a key success factor. The improvement of value chain actors and farmers' access to rural financial services¹¹¹ by facilitating links to sound financial institutions, including commercial banks, but also partnerships with other initiatives in the rural finance sector¹¹². During the first year, several participating financial institutions and financing models would be identified, so as to ensure availability of financial services in target clusters.

252. However, due to high interest rates and lack of credit guarantees, it remains difficult for farmer groups and private firms to borrow medium- to long-term loan for facilities/equipment investments. This hinders the agricultural investment significantly and appropriate mechanisms need to be developed. Even for seasonal credit, interest rates absorb large parts of supplementary net return on investment (inputs) due to low efficiency in productivity growth. Within this context, targeted subsidies (e.g. interest rates), specialized trust funds and other similar mechanisms need to be discussed between all stakeholders to facilitate sustainable access of sector stakeholders to financial services for agricultural investments, without competing with the financial system.

253. **Key action areas** and activities to improve sustainable rural/agricultural investments have been summarized, as shown in Table 41.

¹¹¹ See also National Entrepreneurship Development Fund—NEDF facilities.

¹¹² The programme will collaborate with other initiatives engaged in classic and innovative financing to build an information base that could help streamline complementary financing through financial institutions at different levels. See also related supports by Rabobank initiative, etc.

Table 41: Action areas and activities to improve rural/agricultural investments (draft)

Action areas	Activities
Comprehensive rural financing strategy and action programme	<ul style="list-style-type: none"> - Draft and consolidate comprehensive agricultural investment financing strategy with all involved stakeholders - Develop and action programme for enhanced offer and access to rural financing, its financing and implementation modalities
Strengthen organizational and technical capacity of existing and new small-scale producer, trade and processing farmer organization and cooperatives	<ul style="list-style-type: none"> - Training and strengthen organizational and technical capacities of farmer organizations to enhance the bargaining power of producer, trader and processor - Facilitate linkage of farmer organizations/associations with financial cooperatives MFI, and/or commercial banks - Strengthen sector's own control (audit) through network organizations for rural SACCOS - Support the up-scaling of WRS by expanding into new locations and adding new crops - Sensitize on the linkage between SACCOS and AMCOS; train FOs/AMCOS management and board members on good governance and supervision - Support outreach expansion of selected community banks as alternative rural financial service providers - Build the capacity of informal financial institutions and SACCOS to consolidate them into viable, sustainable entities, supporting selected MFIs - Improve financial and operational performance of informal grassroots associations, SACCOS and other MFIs - Support the Tanzania Cooperative Development Commission to enhance the implementation of the cooperative reform and modernization programme
Enhance availability of and access to short- to medium-term agricultural financing	<ul style="list-style-type: none"> - Rural finance support aiming at increasing the access of rural producers and entrepreneurs to financial services by commercial banks, testing new approaches, methods and services in rural areas for the benefit of the target group, improving the legal and policy framework for rural microfinance, and integrating knowledge management into the programme - Improved access to financial services on a sustainable basis for rural small- and medium-scale entrepreneurs (increased number of farmers and SMEs obtaining loans from financial institutions)
Facilitate farmers access to agricultural investments	<ul style="list-style-type: none"> - Improved farmer organizations and cooperative input and output marketing by information systems, aggregation/grouping of produce and the use of inventory financing opportunities - Promoting WRS to overcome the guarantee issue - Consolidating and scaling up contract farming where applicable (<i>contractual agreement between producer organizations, agrobusiness, exporters and financial institutions</i>) - Design schemes that will enable smallholder access to loans financing along agriculture value chains (start with lessons learned from ongoing schemes) - Establishing a legal framework and policy for 'leasing' contracts, especially for promotion of private mechanization services (<i>contractual agreement between equipment importers, investment banks and mechanization service providers</i>)

254. Implementation. The Tanzania Cooperative Development Commission under the Ministry of Agriculture Livestock and Fisheries should take the lead role in developing strategies and priority actions in close collaboration with all sector stakeholders, including departments of Policy and Planning in all ASLMs; departments responsible for Crop, Livestock and Fisheries Development in the ministry; Marketing Department (Ministry of Industry Trade and Investment), the Ministry of Finance and Planning; FOs; MFIs and private banks and development partners.

255. **Summary of component 3:** Preliminary costing of implementation of proposed action plan was proposed (Table 42).

Table 42: Development budget/investment projection for Component 3 (TSh million)

COMPONENT 3: RURAL COMMERCIALIZATION AND VALUE ADDITION—BASE COST ESTIMATES (TSh million)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
3.1 Stakeholder empowerment and organization											
a) Crop Production	1,000	1,500	2,000	2,000	2,500	2,500	2,500	2,500	2,500	2,500	21,500
b) Livestock/Fish Production	455	750	750	750	750	750	750	750	750	750	7,205
sub-total	1,455	2,250	2,750	2,750	3,250	3,250	3,250	3,250	3,250	3,250	28,705
3.2 Value addition and agroprocessing											
a) Crop Production	2,660	5,000	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	67,660
b) Livestock & Fish Production	9,082	6,160	7,057	7,815	8,614	9,382	9,382	9,382	9,382	9,382	85,638
sub-total	11,742	11,160	14,557	15,315	16,114	16,882	16,882	16,882	16,882	16,882	153,298
3.3 Rural marketing											
a) Crop Production	5,000	7,500	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	92,500
b) Livestock Production	8,926	7,500	7,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	83,426
sub-total	13,926	15,000	17,500	18,500	175,926						
3.4 Access to rural finance											
a) Crop Production	500	750	750	1,000	1,000	1,500	1,500	1,500	1,500	1,500	11,500
b) Livestock Production	500	750	750	1,000	1,000	1,500	1,500	1,500	1,500	1,500	11,500
sub-total	1,000	1,500	1,500	2,000	2,000	3,000	3,000	3,000	3,000	3,000	23,000
Total 3.1 & 3.2 & 3.3 & 3.4	28,123	29,910	36,307	38,565	39,864	41,632	41,632	41,632	41,632	41,632	380,929
+ DADG-local value chain investments	45,000	67,500	90,000	112,500	112,500	135,000	135,000	135,000	135,000	135,000	1,102,500
TOTAL COMPONENT 3	73,123	97,410	126,307	151,065	152,364	176,632	176,632	176,632	176,632	176,632	1,483,429

F. Component 4: Strengthening Sector Enablers and Coordination

256. Strategic objectives, outcomes and related indicators for the programme enablers and coordination are defined in Table 43.

Table 43: ASDP-2 Component 4: related specific ASDS-2 objectives and outcomes

Objective	Outcomes	Outcome Indicators
Comp. 4: Strengthening Sector	<i>Strengthened institutions, enablers and coordination framework</i>	- Number of policies, regulations and institutional procedure reformed - Improvement in ranking in WB's doing business and EBA (Enabling the Business in Agriculture)
Enablers & Coordination	s/c 4.1 Policy, regulatory and institutional framework enhanced Enabling environment for expanded private sector investments in agricultural marketing for priority CVC	- No. of improved priority policies and regulations formulated (research, advocacy/public debate), approved, operationalized and effectively implemented - Extent of policy and regulation compliance (e.g., “compliance rates”)
	s/c 4.2 Institutional capacity development, knowledge management & ICT Improved efficiency for sector decision making due to improved knowledge management and access to relevant information for the agric. CVC development	- % of DADPs that meet assessment criteria - No of knowledge management and ICT systems established - Leadership, management and supervision of implementation at national and local levels - Timely, relevant, accurate and user friendly cost effective information is available to stakeholders when and where needed - Increased business efficiency in delivering services to clients by government (faster response to problems and solution provision) - Increased sector productivity, value/prices, profitability and growth potential relying on improved knowledge management and efficient ICT use
	s/c 4.3: Food Security and nutrition Safety nets strengthened <i>Strengthened and effective crop forecast/early warning systems, livestock disease surveillance, and annual vulnerability assessments to provide timely information for mitigation. (for crops and livestock)</i>	- % of rural households below the food poverty line - Incidence of malnutrition (%) - Number of districts receiving food assistance from NFRA - % of national food self sufficiency - Volume of public stocks held by NFRA - Number of households receiving emergency food relief - Expanded HH access to efficient food market & distribution system - Efficient and cost-effective strategic grain reserve management. - Compliance with enhanced food quality and safety standards - More nutritious food diversity by larger proportion of households - Diversified farming systems for improved diets & reduced vulnerability to food shortages - Level of children stunting (%) - Reduced prevalence of malnutrition/micronutrients - Efficient monitoring of water and animal feed resources availability
	s/c 4.4 Sector coordination improved <i>Involvement of public and private stakeholders in joint sector planning, monitoring and budgeting</i>	- % agric. investment coordinated under ASDS-2 (on/off budget) - % execution of allocated budget - % LGAs submitting quarterly reports - Coordination unit for plan & monitoring established - Alignment of annual work plan and budget on sector programmatic framework - Enhanced Budgetary Process (agreement on strategic issues paper which may guide formulation of annual budget) Results-focused performance, participation and accountability by key actors of major agric. services (including in enhanced planning, budgeting, implementation, M&E systems)
	s/c 4.5 M&E and agricultural statistics strengthened	- AASS implemented and results available in 3 months - LGAs that provide complete data through ARDS - Joint M&E systems established and operational

Policies/institutional actions: focus on priority policies as outlined in the New Alliance on Food Security & Nutrition: (i) trade/marketing; (ii) enabling policy for private sector involvement; (iii) land tenure; (iv) access to financing; and (v) seed policies.

knowledge management & ICT: Harmonized standards, mechanisms for collection, analysis and dissemination of agricultural identified and developed agricultural knowledge assets in the sector through use of ICT tools shall be strengthened to increase efficiency in decision making but also be a source and stimulant for future sector growth through innovation.

257. Component 4 is sub-divided into five sub-components :

Comp. 4 : STRENGTHENING SECTOR ENABLERS & COORDINATION (national, regional, local)

- S/c 4.1: Policy and regulatory framework
- s/c 4.2: Institutional capacity development, knowledge management and ICT
- s/c 4.3: Food security and nutrition (incl. early warning and safety nets)
- s/c 4.4: ASDP-2_sector coordination (planning & implementation at national, regional and LGA)
- s/c 4.5: Monitoring & evaluation (incl. Agricultural statistics)

258. The success of ASDP-2 depends to a considerable extent on the capacities and effectiveness of the various institutions and participants in the sector to carry out the planned activities. Most of the institutions, e.g., policy makers, academia, services in research, extension, training and information technology that support the agriculture sector will need capacity to rationalize their functions to implement ASDP-2. The institutional factors that hamper development of the agriculture sector are outlined in Box 6.

Box 6: Key issues in policy and institutional reform and support (updated from TAFSIP)

- Inadequate government development funding for research, extension, research extension linkage, planning and regulatory functions
- Limited policy coordination and implementation leading to duplication of efforts and gaps in programme design, implementation and evaluation
- Weak interface and synergy between academic institutions and government
- Relative disconnect between farmers and cooperatives management structures
- Inadequate financial, human and technical capacity to generate, manage and disseminate useful agricultural information, weak communication systems at all levels and the high cost of procuring improved I ;
- Weak financial and asset management, records, reporting and M&E
- Limited training facilities including farmer training centres and limited financing of agricultural training services
- Shortcomings in the legal and regulatory framework including enforcement of laws and regulations
- Inadequate good statistical base and analytical capacity for policy analysis and decision making

1. Sub-component 4.1: Policy and regulatory framework

259. Effective policy formulation and institutional reforms necessary for policy implementation are the foundations for realizing the Strategic Objectives of ASDS-2. It is also one of the most important functions of the government. Whilst Tanzania's policy framework for agricultural and rural development is comprehensive and stable, in several areas reviews, adjustments and refinements may be beneficial.

260. The aim is to harmonize, rationalize and align policies and regulatory framework which oversees the agricultural sector (across ASLMs) and related industry (crops, livestock/fish and natural resources) and to strengthen institutional capacity for effective development and management of the sector.

Table 44: Key policy areas and related actions for agricultural sector growth (ASLM)

<i>Policy outcomes</i>	<i>Priority actions (national level)</i>
Agricultural Input Policy	
Enable the private sector to develop, commercialize, and use improved inputs to increase smallholder productivity and incomes	<ul style="list-style-type: none">- Analysis and advocacy to promote policy options that encourage production and distribution of improved seed varieties- Work with EAC to implement harmonized standards and free trade in seeds

Agricultural Trade Policy	<ul style="list-style-type: none"> - Analysis of food security system capacity and needs, potential for regional trade in food crops, and impacts of export bans on poverty and growth - Advocacy efforts with Parliament and civil society to build support for alternatives - Promote fair & competitive agricultural markets - Align Tanzania's trade policies with regional (EAC/SADC) policies
Enabling Policy for Private Sector Investment	<ul style="list-style-type: none"> - Analysis and advocacy to offer alternatives to specific regulatory impediments – streamline the number of regulatory fees and processes - Implement a more simplified tax system on food crops, including the possible elimination of taxes - Promote a more transparent and robust policy environment conducive to establishing a successful commodity exchange - Policy incentives to promote value addition to mitigate rising food import & promote jobs creation - Analysis of agricultural investment incentives to promote domestic and foreign investment
Land Tenure Policy	<ul style="list-style-type: none"> - Establish/implement clear policies and procedures for investors to access land relatively quickly and without conflict - Promote improved legislation and the formalization of land rights through titling - Promote Certificate of Customary Right of Occupancy (CCRO) - Re-organize and expand mandate of the Rufiji Basin Development Authority to act as a land bank for the region (for SAGCOT region only) - Mitigate conflicts in resource use through implementation and enforcement of land use plan
Access to Capital and Financing	<ul style="list-style-type: none"> - Establish/implement modern collateral registry system with associated legal framework to protect lender's claims to collateral in the case of default - Implement training and outreach to facilitate wide-spread use of Secured Transactions System by financial institutions - Design schemes that will enable smallholder access to loans financing along agriculture value chains
Agriculture Sector Policy (including crop, livestock/fisheries and marketing)	<ul style="list-style-type: none"> - Strengthen and sustain regional integration (CAADP activities) - Invest in agricultural statistics capacity building - Enhance policy stability, predictability and transparency—streamline procedures and processes in policy reforms - Streamline policies to promote policy coherence - Scale-up and promote policies to promote inclusive growth particularly among youth, women and poorest
Food security	<ul style="list-style-type: none"> - Policy level recommendations: Within a coordinated cross sector approach within the TAFSIP framework - Strengthen existing programmes to boost agricultural productivity by focusing on the supply side of the agricultural value chain(s)—availability; - Focus food security specific policies and interventions on household livelihoods and income generation (improve access) - Reinforce disaster preparedness (incl. specialized studies) and response measures with focus on household coping and resilience - Scale up safety net schemes (school feeding, cash for work)
Nutrition	<ul style="list-style-type: none"> - Legislation (and regulatory framework) on breastmilk substitutes, maternity leave, salt iodation and food fortification are in place - Policy dissemination and advocacy are needed to ensure operationalization and broaden audiences

Source: Compiled from 'Policy discussions G8'. Dar-es-Salaam (February 2015) and ASDS 2 (draft).

2. Sub-component 4.2: Institutional Capacity Development, Knowledge Management (KM) and Information and Communication Technologies (ICT)

261. The agricultural sector involves many stakeholders and institutions at national and LGA levels to deliver various services required by farmers and other CVC actors. Therefore, it is imperative to ensure coordination and effective service delivery, to avoid duplication of efforts and wastage of resources. ASDS-2 targets strengthened institutional capacities, among others, for: (i) LGAs in overseeing implementation of agricultural activities, including Public Financial Management (PFM); (ii) PPP in agricultural investment and service (extension) delivery; (iii) human resources in ASLMs to guide implementation and promote innovations; (iv) knowledge management systems for institutional memory, sharing lessons learned and long-term monitoring of the sector performance; and (v) ICT use to improve efficiency of technical support, administration and management of resources and activities.

262. **Agricultural transformation** requires productive human resources for generation and diffusion of technology, value addition and marketing promotion and overall sector coordination and management. There is a need for a major shift towards introduction of a new generation of farmers who are equipped with the necessary skills to revitalize and modernize agriculture. While professionalism and expertise will be taken seriously, agricultural skills and knowledge will be imparted at various levels in the education system: investment in enhancing human resource capacity will be complemented by better use of ICT for efficient sector management, including on- and off-budget public good investments in the sector.

263. **The challenges are to enhance institutional capacities** of public (national and local) and private/associative players (FOs, private sector and non-state actors) to support enhanced coordination of planning, implementation, policy analysis, research, technical support services, agroprocessing, financing and M&E in the agricultural sector, while ensuring that women and youth play a major role. The *public sector* will create an enabling environment including: setting up appropriate and improved standards and regulations, providing public investments, negotiating on trade matters, organising safety nets for targeted stakeholders, defining sustainable access to and management of natural resources, and providing enhanced agricultural statistics. The *private sector, including* producer organizations, *CBOs/NGOs and business enterprises*, will participate in activities and also increase profitable investments in the agricultural sector for production, agroprocessing and/or commercialization.

264. **Communication and Knowledge Management.** Key communication and knowledge management (CKM) issues of the sector which will be addressed include: (i) inadequate capacity to produce, gather, analyse, document lessons learnt, disseminate and share information at all levels; (ii) inadequate understanding of stakeholders on ASDP-2, ASLM policies, mandates and their roles in achieving ASDP-2 goals; (iii) long chain of communication between ministries and LGAs; (iv) WARC are few, have inadequate facilities that are not fully utilized; (v) low access, untimely and unavailability of agricultural information on inputs, credit facilities, markets, weather and other technologies; (vi) weak information sharing between district councils and ASLMs for immediate action on implementation of ASDP-2; (vii) weak coordination and collaboration within and among Communication units in ASLMs and LGAs; and (viii) weak and untimely feedback mechanisms. Knowledge management issues were incorporated with the intention of taping the programme's best practices, processes and successes for sharing with stakeholders in the country and beyond.

265. During implementation of ASDP-1, efforts were made to strengthen communication at all levels by establishing a Communication Thematic Working Group (TWG) with a mandate to coordinate communication and advocacy campaigns of ASDP. This TWG also established a CKM strategy aiming at using knowledge more effectively for improving the way of doing business to achieve greater impact. This strategy will continue to be implemented under ASDP-2 by ensuring that: (i) there is coordination of CKM activities in the sector; (ii) stakeholders receive appropriate messages through suitable channels; (iii) there is smooth two-way flow of information; and (iv) farmers are empowered in decision making and participate fully in formulation and implementation of the ASDP-

2.

266. **The CKM objective is to improve information flow, knowledge management, sharing, and learning and create good relationship between actors to achieve programme goals and impacts.** Specifically, the CKM intends to: (i) improve coordination of CKM activities among and within ASLMs and LGAs; (ii) strengthen institutional CKM capacity of sector ministries and LGAs; (iii) raise stakeholders' awareness and understanding of ASDP and other agricultural development projects/programmes; and (iv) improve information flow, access, availability, knowledge management and sharing among stakeholders. Proposed strategies involve among others: (i) build capacity on CKM to ASLMs, regions and LGAs; (ii) establish strong functional linkages for planning, implementation and M&E system with CKM functions at national and local levels; (iii) promote and strengthen public-private sector participation in agricultural development interventions; (iv) strengthen documentation of ASDP formulation process, implementation, achievements and challenges for future reference; and (v) strengthen publicity of ASDP and other agricultural sector initiatives at all levels, working with the media.

267. **Use of modern ICTs**, including Internet, mobile phones etc., enhances economic and social development, through improved access to information, knowledge sharing and service payment. The Government of Tanzania has started to integrate ICT applications into key development policies and strategies including National Strategy for Growth and Reduction of Poverty (NSGRP) and Tanzania Development Vision 2025. The Vision 2025 clearly recognizes promotion of ICT as central for competitive socio-economic transformation and a driving force for the realization of the vision.

268. **Objectives for Institutional Capacity strengthening.** This action area will support the strengthening of public institutions to enable them to work as an effective facilitator of inclusive agricultural development.¹¹³ Where not covered under the other ASDP-2 components, non-state actors will also receive capacity development support to encourage them to take a leading role in building commercialized agriculture in the selected commodities under the programme. Capacity building support is provided at local, regional and national levels. Continued support for capacity building is provided to all districts (at different levels) to build on ASDP-1 momentum and prepare districts to integrate ASDP-2.

269. At local level, ASDP-2 will continue to strengthen the DADP planning processes established under ASDP-1. The programme will help districts to strengthen CVC approaches within consolidated and resilient farming and marketing systems. A top-up to the basic level of District Agricultural Capacity Building Grant¹¹⁴ support will also be provided under ASDP-2 to all districts to help maintain and improve their planning and implementation capacities and systems and capacity for local planning, coordination of implementation and follow-up, reporting and application of regulatory functions.

270. In line with the concentration of investments foreseen under ASDP-2, capacity development support will be provided to 25, 50, 75, 100, 125 priority rural districts in ASDP-2 years 1 to 5 respectively, while all districts are expected to come on stream from Year 5 on. The districts will generate at least 20% of their capacity building budget from their own revenues. Districts not prioritized initially would receive a basic capacity building top-up under ASDP-2 until they join the investment mainstream, to strengthen their capacity to plan and implement CVC interventions for the district. Furthermore, these districts will also be able to receive support from other sources, including from revenues LGAs have raised locally, the general local government grant from central government, and from other agriculture-related projects funded outside ASDP-2.

¹¹³ Under ASDP-2 it is envisaged that farmers and the private sector, including NGOs and producer organizations, will undertake most of the investments, including investments for input provision, production, credit, marketing, processing and storage as well as extension services, in cooperation with public sector agencies. ASDP-2 public investments will nonetheless, align with government systems and procedures.

¹¹⁴ The Agriculture Capacity Building Grant will be a discretionary grant to support agricultural extension or other advisory services, capacity building, and to strengthen the planning and operational capacity of the LGA agricultural team at district, ward/village levels.

271. Support will be provided for: (i) capacity building of District and Ward Extension Teams and other stakeholders on comprehensive planning processes to identify critical challenges/ constraints to productivity and income growth and investments opportunities along priority CVCs; (ii) strengthening of institutional systems and capacity building at district level, targeting to improve analytical planning and M&E skills; (iii) enhancing the scope of DADP as a comprehensive sector coordination framework that integrates all projects and initiatives implemented at local level; and (iv) development of human resource capacity at LGA level for technical service delivery of agriculture professionals and other local service providers.

272. At national level, ASDP-2 targets staff within the ASDP-2 Coordination Team, the TWGs and other staff from ASLMs and from the regions, who require training to strengthen their understanding and potential support activities on different aspects, such as among others, commercialized agriculture, value chain approaches, participative extension and rural finance. Following identified requirements and demands of involved services, a training plan will be established and specialized short courses would be outsourced to suitable local institutes and universities who would prepare and deliver suitable subject matter on these topics, or sub-contracted to specialized local or international experts.

273. To build capacity to improve and adapt the DADP planning and reporting system, capacity building support will be provided to national and regional staff on data processing, analysis and report writing. Members of the ASDP Coordination Team, the TWGs would benefit, as would selected ASLM staff and staff from the priority regions. Support to policy analysis is another area that the programme will finance including through improved analytical capacity of ASLMs for planning and policy analysis, sector performance reviews and Public Expenditure Reviews (PERs)¹¹⁵. In conjunction with other government actions, the support will focus on improving value chain analysis and policy support, but also addressing policy and regulatory issues that affect related value chains. The Directors of Policy and Planning in the ASLMs will strengthen their work on analysing specific commodities and how to improve different areas of their respective value chains in close collaboration with other initiatives (MIRVAF and SAGCOT) and the private sector.

274. **ICT.** ASDP-2 support to the development and use of ICTs will require the involvement of specialized technical capacities to develop consolidated and effective systems to enable information exchange (forwarding and feedback) at all levels within ministries/institutions and across national, regional, district and local/village and final user levels. Technologies for open systems are improving fast while their costs are gradually reducing. The application domains for ICT in the agricultural sector are as follows;

275. **Leveraging ICT tools and methodologies** to support business operations and resource planning, management and practice along agricultural value chains. Under this activity, ASDP-2 will support the development and implementation of new systems that leverage use of ICT in providing services to stakeholders along the value chain to: (i) have better access to technical advice to improve farm management and farming practice; (ii) provide feedback and information to advisors and programme officers; (iii) establish marketing linkages with input suppliers and output purchasers through available information as made available; (iv) participate in potential e-services schemes (e.g., for input or mechanization services such as e-voucher, e-wallet, e-loans, etc.); and (v) improve business processes within government through use of ICT. Proposed ICT tools and methodologies will, among others:

- dramatically expand farmers and their advisors *access to a broad array of practical knowledge and information* including, but not limited to, agricultural input prices and availability, prices for farm products, local weather, agricultural and animal production practices, seed varieties and their characteristics, farm management practices and tools, etc.
- enable easy and systematic *flow of information from farmers and/or their advisors to public programme officers*—to facilitate collection of farm-level data for M&E purpose, but also

¹¹⁵ Complementing other initiatives such as MAFAP/FAO, the International Food Policy Research Institute (IFPRI) and Michigan State University (MSU).

allowing farmers to provide regular and timely feedback on the performance of public programmes.

- facilitate farmers in finding and *establishing input/output marketing linkages* with other farmers (bulking), potential suppliers and buyers.
- facilitate ‘automation’ of business processes within government so as to increase efficiency of public service delivery to the public through use of ICT tools.

276. Accordingly, ASDP-2 will support: (i) the development and implementation of the ICT system and its backbone architecture (comprehensive agricultural data, network services and integrated and optimized solutions); and (ii) the equipping of agricultural advisors/extension in selected areas with ICT tools (low-cost tablets for advisors, smartphones for lead farmers) and methodologies to enable enhanced access to technical and economic information and relevant information sharing networks. A backbone would include, *inter alia*, the following features: (i) consolidation of the government’s current agricultural data centres into one state-of-the-art facility; (ii) provision of the improved ICT infrastructure and standardized security services to external suppliers (i.e., firms) of e-services such as e-voucher and e-wallet; (iii) intercommunication between integrated solutions; and (iv) data collection, processing and cataloguing.

277. The ministry has designed an ICT Policy and Master Plan for the crops subsector, part of which is under early stages of implementation. To avoid duplication of efforts, this ICT Policy and Master Plan needs to be updated to incorporate other subsectors, particularly livestock and fisheries, but also marketing spearheaded by the Ministry of Industry Trade and Investment. Having a sector-wide ICT Policy and Master Plan will lead to sector-wide systems, addressing ICT needs of the sector.

278. **Communication between all levels** will be improved by supply of vehicles, motorbikes computers and related running expenses to the national coordination, RASs and district teams. Furthermore, communication tools (including low-cost mini-tablets or smartphones) will be piloted at ward level for programme management requirements, extension and marketing support, but also for the collection, receipt and dissemination of data for M&E. Arrangements with cell phone companies will be made to allow for forwarding technology or market related text messages to farmers, but also for dedicated free call numbers allowing farmers to call their extension worker or technical specialist at district level. While ICT may not be applicable to all areas due to lack of connectivity it is anticipated that the network will continue to expand and offer opportunities to wider farming communities.

279. Proposed action areas for institutional capacity strengthening, CKM and ICT are summarized in Table 45.

Table 45: Proposed interventions for CKM and ICT promotion

Action area	Proposed activities (draft)
Institutional strengthening	i. Training of national coordination, RAS and district technical/facilitation teams ii. Capacity building block grant (including 20% local participation) iii. Continued support to WARC
CKM action area	i. Repackage technical information (e.g., research information) into user friendly information for it to be shared with different stakeholders ii. Conduct formal and regular meetings on CKM among ASLMs and LGAs (awareness and progress) iii. Conduct training programme on CKM and IT at different level iv. Prepare and disseminate guidelines on CKM strategy implementation v. Provide technical backstopping and guidance in KM and communication to regional and LGAs staff, vi. Conduct media forums, workshops & seminars on agricultural sector issues vii. Produce promotional/educational material for target audience viii. Document ASDP lessons learned and establish best practices under SWAp for sharing with stakeholders ix. Participate in local and national events for publicity of ASDP/DADPs and other agriculture sector initiatives and dissemination of new innovations x. Curricula of students

Leveraging Strengthening use of ICT to improve efficiency in the sector	<ul style="list-style-type: none"> i. Update crops subsector ICT policy and ICT Master Plan developed by the ministry to incorporate livestock and fisheries subsectors ii. Design and build National Agricultural Information System that will incorporates information on agricultural production, research and extension, land use management and agriculture output marketing information (about <i>TZS 2.0 billion over 3 years</i>) iii. Computerize ASLM internal business operations such as agricultural projects and programmes management, financial management, assets control and inventory management and documents and files management. The government has centralized financial and human resource management which does not fulfil all ASLMs business requirements in those areas, and use of ERP tools will be used here (about <i>TZS 1.0 billion over 3 years</i>) iv. Equipment provision, enhance quality of ICT service delivery and building capacity of ATIs ICT training capacities. (about <i>TZS 1.0 billion over 3 years</i>) v. Design and equipping of ASLMs mini-data centres for sector information management, establishing and equipping LANs for reliable internal and external communications. ASLMs will also facilitate connection of wards to the fibre optic backbone (about <i>TZS 2.0 billion over 3 years</i>) vi. Put in place risks management measures related to ICT use (about <i>TZS 1.0 billion over 3 years</i>) vii. Promote use of mass media (i.e., mobile phones) for sharing agricultural information viii. Free call numbers for personalized advisory services ix. Pilot electronic work plan and monitoring (ward level) x. Publicity for the sector promotion (successful farmers, investors, radio/TV, skype/video, etc.)
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Note: The overall ASDP-2 investment (hardware and software) for promoting agriculture sector involvement into use of modern ICT is included in sub-component 4.2.

3. Sub-component 4.3: Food security and nutrition (including early warning and safety nets)

280. **Food security and nutrition**¹¹⁶ takes several forms, all of which affect the quality of life and productivity of rural people. Chronic, transitory and emergency food insecurity due to poor agricultural productivity, food inaccessibility and natural disasters all play a role. The Comprehensive Food Security and Vulnerability Analysis in Tanzania (2012) found that in 2010–2011 about 730,000 households (8%) were vulnerable to food insecurity, of these around 150,000 households (or 2% of all households) were considered as chronically food insecure. Northern and central regions were the worst affected and the level of food insecurity in some areas was high as 45%. Food security is highly dependent on rainfed agriculture which also is susceptible to the vagaries of weather, especially poor rainfalls prompting for regional food shortages. Therefore there is need to promote and embark on irrigated agriculture and diversification of crops (drought resistant crops) for greater reliability of food supplies. **Malnutrition** is one of the most serious constraints to human and economic development: chronic malnutrition in 2010 was very high with 42.0% stunting (DHS, 2010) of children younger than 5 years of age being stunted. Severe acute malnutrition is a rampant in Tanzania, especially among children under five and women of child bearing age. Child malnutrition is much worse in rural areas than in urban areas and much higher in the poorest quintiles, resulting from inadequate consumption and/or utilization of food. This is caused by inadequate knowledge on nutrition, food preparation and dietary practices, especially for children, and by women's heavy workload.

281. **The National Food Reserve Agency** (NFRA) was initially set up as a food reserve. It has gradually assumed the role of a buffer stock in an attempt to keep farm gate prices up despite good¹¹⁷ harvests. NFRA buys significant quantities of maize (300,000 tons in 2014) frequently at above-market prices from farmers. NFRA is likely to introduce more distortions in the sector, leasing some storage capacity from the private sector and thereby be reducing the ability of the private sector to

¹¹⁶ Food security means that all people at all times have physical and economic access to adequate amounts of nutritious, safe, and culturally appropriate foods, which are produced in an environmentally sustainable and socially just manner, and that people are able to make informed decisions about their food choices.

¹¹⁷ Source: Agriculture Sector and Public Expenditure Review—Tanzania Mainland 2014 (March 2015).

even out seasonal fluctuations¹¹⁸.

282. **Policy measures**¹¹⁹ to mitigate effects of possible food price spikes and food insecurity for vulnerable population segments will be increasingly important for stable socio-economic development. The Government of Tanzania will adopt measures to improve food access, including: (i) strengthen and improve the quality of Crop Forecast and Early Warning systems, within the overall framework of agricultural statistics; (ii) strengthen food reserve and distribution system by NFRA including improvement of storage facilities and effective collaboration with the private sector; (iii) regulate according to necessity food imports, with careful considerations on the food demand and supply; (iv) establish an active link with member countries in the EAC and SADC for monitoring regional food security situation, including use of Tanzania's food for emergency operations in the region.

283. **Safety nets.** 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. Crop and livestock production are directly affected by disasters, especially for smallholders at the limit of acute and/or chronic food insecurity and poverty. Impacts of climate variability and change are expected to become more significant in the future therefore immediate actions are required toward increased resilience in agriculture (see preventive measures in s/c 1.3). For preparedness and quality response to natural disasters, required interventions include: (i) improve the Crop Forecast and Early Warning system as well as pest and disease surveillance system for early detection; (ii) coordinate the country's meteorological information collection and sharing system; (iii) respond effectively to the warnings and improve the preparedness for emergency disasters; (iv) strengthen the collaboration with relevant organizations on migratory diseases and pests for early detection and effective and coordinated response; and (v) coordinate safety net activities in the agriculture sector to ensure vulnerable households needs are addressed.

284. **Nutrition Security.** Malnutrition is often inherited from one generation to the next: maternal malnutrition negatively affects the consequent educational achievement and improved productivity in adulthood. 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 actions, including: (i) promote awareness among rural households, especially focusing on child and maternal malnutrition, good nutrition and sanitation; (ii) more effective use of nutrition officers at local level who can be part of agricultural extension service and training on nutrition aspect under the DFT; (iii) strengthen and scale up food fortification of micronutrient; (iv) provide effective social safety net programmes¹²⁰ for vulnerable groups who chronically require protection against shocks (food/cash for work); and (v) enhance collaboration with related ministries on the school feeding programmes in rural areas where needed.

285. **Food security and nutrition are mainstreamed in several sector policies, strategies and programmes** (i.e., the Tanzania Agricultural Investment Plan, the Tanzania Social Action Fund (TASAF) or the Productive Social Safety Net, etc.). Within the Scaling Up Nutrition (SUN) movement, there is high level political attention to nutrition in Tanzania spearheaded by the High Level Steering Committee on Nutrition (HLSNC), which brings together permanent secretaries from nine relevant sectors, development partners, UN agencies, CSOs, university and business. A multi-sector Nutrition TGW chaired by the director of the Tanzanian Food and Nutrition Centre (TFNC) supports the HLSNC. All partners are fully engaged in scaling up nutrition efforts and participate in MSIP.

286. **The objective of this sub-component is to ensure sustainable food security and nutrition in Tanzania by involving all stakeholders in implementing strategies geared at ensuring food**

¹¹⁸ See further details in ASR-PER section.

¹¹⁹ See details in ASDS-2 (June 2015).

¹²⁰ For example, TASAF (Tanzania Social Action Fund) to be aligned with agricultural interventions for sustainability.

security and nutrition at all levels. The focus will be on ensuring sustainable food availability¹²¹, food accessibility¹²² and proper food utilization to be achieved through food production, stock management, trade/markets and adaptive strategies/measures against negative effects of disasters. Main strategic sector supports are centred on 4 action areas: (i) crop/livestock monitoring and early warning for increased food security; (ii) strategic NFRA; (iii) post-harvest management for reduced food loss; and (iv) contributions to nutrition improvement.

287. **Crop/livestock monitoring and early warning**¹²³. Since 1992/1993, the then MAFC developed and operated the food security assessment procedure, initially seasonally using a sample survey questionnaire. This was later expanded into use of a routine data retrieval system. Over time, sample surveys using the National Master Sample (NMS) from NBS have been used to address the challenges in district estimates through the routine reporting system. Initial interest was on forecasting and informing the government and the public, through AGSTATS for Food Security documentation (preliminary and final forecasts), other monthly food security situation and decadal rainfall reports. However, the system has been instrumental in providing basic data for the management of food and for the agriculture sector as a whole.

288. **The Intergrated Food Security and Nutrition Assessment System (IFSNAS), which is known in Kiswahili as *Mfumo wa Uchambuzi wa Uhakika wa Chakula na Lishe* (MUCHALI),** is to: (i) ascertain the impact of the food production shortfall from the year (x-1) on the livelihoods and food security and nutrition among the populations in LGAs previously identified by the then MAFC, MLFD, and food security and nutrition agencies; (ii) identify the food insecure and vulnerable populations resulting from the food access problems in year (x) and establish the magnitude of the problem; and (iii) determine and recommend appropriate interventions for the affected populations. The methodology involves a comprehensive livelihood-based food security and nutrition (LFSN) approach using the Integrated Food Security Phase Classification to guide the analysis and report writing. The LFSN approach involves integrated broad livelihood-based indicators such as crop, livestock and fish production, supplies and prices, nutrition, access to water, livelihood assets and coping strategies, as well as weather parameters, particularly rainfall, and other livelihoods systems. In addition, the prevalence of severe acute malnutrition and global acute malnutrition is measured. Overall, the annual report is provided in a timely manner to the decision-making authorities, but some challenges in achieving appropriate levels of accuracy and reliability continue to be areas of concern to be addressed. Therefore capacity building, rainfall data collection system, food security questionnaire1 (FSQ1), cooperation and technical meetings, and timely availability of funds, have been earmarked as critical issues to be tackled for improved implementation.

289. **Safety net and resilience.** A proportion of rural households will continue to need special support to help them achieve food security and protect them against shocks, principally droughts. It is expected that advancements in other areas of the ASDP-2 will progressively reduce the number of households requiring food aid and other forms of assistance to survive. The effectiveness of targeting social safety net programmes for vulnerable groups will be sharpened, and the prevalence of child and maternal malnutrition is expected to decline. As the size and cost of the safety net programme begins to decline, more resources will be available for disaster risk management including disaster preparedness and mitigation (see also resilience in component 1.3). Additional strategic interventions such as productive safety net and household asset protection will also be implemented to support productive investment through conditional transfers that provide pathways out of poverty via rural infrastructure development, market access, agricultural productivity improvement, education, health care and other services.

¹²¹ Food availability means ensuring sufficient food for all people through production, stocks and trade to be achieved through promoting food production, reducing post-harvest losses, ensuring appropriate food management at household level and strengthened coordinated food aid.

¹²² Food accessibility refers to the ability of household members to access food to meet their nutritional requirement, which depends on the food self-production and income level of the consumers.

¹²³ Integrated Food Security and Nutrition Assessment System (IFSNAS), which is known in Kiswahili as “*Mfumo wa Uchambuzi wa Uhakika wa Chakula na Lishe*” (MUCHALI).

290. NFRA and capacity of strategic food reserves. The capacity of strategic food reserves (on recurrent government budget) needs to consider: (i) an appropriate level of stocks to hold; (ii) transparent protocols and rules for the acquisition and release of stocks, stock rotation, and the use of financial instruments to complement physical stockholding; and (iii) policies and procedures for dealing with food price spikes of the type currently being experienced. Furthermore, higher levels of production systems resilience, transparent food crops markets and contracts with the private sector should allow for gradually decreasing levels of physical NFRA food reserve stocks to the minimum required level. Finally, the linkages between NFRA and crop forecast/early warning (improvement of an integrated system)—accuracy of data including private sector and farmer stocks—need to be strengthened by an efficient information exchange and stakeholder decision-making system.

291. Develop Livestock Early Warning System. For the livestock and fisheries sector, early warning against potential shocks is key to enabling the government to take appropriate measures to mitigate major impacts, especially on small-scale farmers. This includes among others the implementation of priority actions such as: (i) awareness creation among pastoralists and agropastoralists on mitigation and adaption strategies; (ii) training of district and community monitors for data collection; (iii) resource mapping, selection and setting of livestock safety net zones and sites, and purchase of equipment and facilities; (iv) training for new staff, refreshment courses for ongoing staff at headquarters and local level (community livestock early warning); (v) retooling towards field efficiency, data processing and analytical capacity; and (vi) efficient and cost effective monitoring system of pasture, water and animal feed resources.

292. Livestock feed security and resilience against shocks (*see also s/c 1.3*) will gradually be improved by: (i) construction of 10 dams, 20 boreholes and 20 charcoal dams; (ii) rehabilitation of 4 dams, 20 boreholes and 50 charcoal dams; (iii) reinforce and strengthen animal feed inspectorate services; (iv) training of pastorals and agropastorals on feed conservation and utilization; and (v) grazing land management plans in demarcated grazing lands in 40 LGAs.

293. Post-harvest management for reduced food loss. Post-harvest management systems target to achieve effective and efficient food and nutritive supply by addressing key issues between production and consumption of agricultural commodities. High post-harvest losses remain a central concern, as different research studies demonstrate that farmers lose up to 40% of produced cereals, although losses vary by crop type and geographical zone. The main issues are physiological degradation and infestation by fungus, insects and rodents during transportation, storage and processing, especially for highly perishable products (*see component 3.2*). There is a need to harmonize and align functions and support between the ministry's department responsible for Food Security and the Ministry of Industry Trade and Investment, especially for activities related to storage infrastructure and management, reduction of post-harvest losses, value addition and processing agricultural products.

294. Contribution to integrated nutrition improvement. The National Nutrition Strategy (NNS), finalized by the Tanzania National Food Centre (TNFC), addresses high levels of chronic malnutrition by working with multiple sectors and across government agencies. The NNS recognizes that increased food production does not necessarily translate into improved food security and nutrition outcomes, as households must also be provided with information and education about good nutrition and sanitation practices. Besides emergency support, additional interventions such as productive safety net and household asset protection will also be implemented by supporting productive investment and appropriate food preparation and utilization of nutrient rich food is key to improve food utilization levels. Within a cross-sectoral approach, better integration of dietary diversification and changes in nutrition behaviour will be integrated into all rural sector programmes, including education and health. In addition to producing more and better food, rural households, which are especially vulnerable, need to understand how to use the food that they have in the best possible way.

295. Better integration of dietary diversification and nutrition behaviour change into all agriculture sector programmes. Rural households need to understand the importance of diet in overall well-being and have the knowledge to use the food that they have in the best possible way. In this context there are potential tensions between policies that encourage agricultural

commercialization (often involving increased specialization) and the need to maintain diversification of farming systems and diets. Other aspects of food and nutrition policy include food safety and food fortification: current standards need to be improved including microbiology, pesticide residues, labelling standards and safe storage and transport. The food safety and new food fortification standards for oil, wheat and maize flour (and other food and indirectly feeds) need to be enforced: this is also important in accessing export markets and will be increasingly important in maintaining a competitive position in the high end of the domestic market. The summary of proposed interventions for food security and nutrition is given in Table 46.

Table 46: Proposed action areas for food security and nutrition

Action area	Proposed activities & investments
1. Early Warning System for improved food security	
Strengthened institutional capacity to undertake crop and livestock forecasting tasks and improved working environment	<ul style="list-style-type: none"> i. Long-term training for new staff, refreshment courses for ongoing staff and hands on training retreats for all ii. Retooling towards field efficiency, data processing and analytical capacity
Rainfall data collection and crop monitoring	<ul style="list-style-type: none"> i. Assessment and evaluation towards strengthening rainfall stations to fulfil early warning system interests (timeliness, reliability and accuracy) ii. Renovate critical rainfall stations (total of about 600) throughout the country (<i>automatic rainfall and temperature gages</i>)
Food Security Questionnaire1 (FSQ1) for crop forecasting with improved data accuracy and reliability	<ul style="list-style-type: none"> i. Improve and re-install this tool countrywide following the national master sample established in collaboration with NBS ii. Further integration of AASS, ARDS and early warning information collection iii. NMS should be correctly sized to enable acquisition of district level estimates (current regional estimates) iv. Adapt and strengthen MUCHALI timeliness and reliability
Reliability and accuracy of the information for policy decision-making	<ul style="list-style-type: none"> i. Strengthen existing cooperation between NBS and the Ministry of Agriculture Livestock and Fisheries (collaboration in short-term surveys) ii. Hold technical meetings with district and regional staff, strengthening of LGA capacity with support from central level
Livestock/fisheries early warning and mitigation	<ul style="list-style-type: none"> i. Training of district and community monitors for data collection; retooling towards efficient data collection, processing and timely reporting ii. Resource mapping (effective monitoring system of pasture, water and animal feed resources) selection and setting of livestock safety net zones and sites, and purchase of equipment and facilities iii. Awareness creation among pastoralists and agropastoralists on mitigation and adaption strategies iv. Livestock feed security and resilience against shocks to be improved by construction/rehabilitation of dams, boreholes & charco dams v. Reinforce and strengthen animal feed inspectorate services vi. Training of pastorals and agropastorals on feed conservation and use vii. Grazing land management plans in demarcated grazing lands (40 LGAs).
2. National Food Reserve Agency (NFRA)—Safety-nets	
Food reserve management	<ul style="list-style-type: none"> i. Store and manage minimum/appropriate level of national food reserve ii. Involve private sector in food reserve management iii. Promote community safety net systems for food, feed and seeds, where appropriate
3. Reduction of post-harvest losses (see also s/c 3.2: <i>Value addition and agroprocessing</i>)	
Large post harvest losses due to poor support systems/ technologies and limited handling capacity	<ul style="list-style-type: none"> i. Develop guidelines for appropriate post-harvest handling and storage practices for selected crops ii. Promote and disseminate technologies that promote better handling and improved storage and preservation of food and food products at all levels iii. Improved transformation/value addition and marketing support infrastructure for food quality and minimized food losses (see s/c 3.2)

4. Nutrition improvement	
Reduce malnutrition in Tanzania by improved food and nutrition availability, accessibility, stability and utilization (Five food insecure regions)	<ul style="list-style-type: none"> i. Mainstream awareness on food security and nutrition security issues at all levels in the agricultural sector (mainstreamed in extension) ii. Strengthen the food security and nutrition information system, data quality/relevance and mapping for providing timely warning signals iii. Promote diversify/multiple adaptive strategies for sustainable food security of households iv. Implement productive safety net and household asset protection by use of nutrient rich food for improved food utilization levels v. Promote consumption of protein-rich food for children & pregnant women vi. Promote food fortification and blending techniques of flour to improve nutrient contents (including bio-fortification—see research) vii. Encourage cost-effective technologies to reduce women's workload for more time for food preparation and childcare viii. Improve basic food safety especially with respect to the control pesticide residues and mycotoxins including aflatoxins ix. To empower LGA staff on the Food Security and Nutrition Analysis System (district nutrition focal person/officer to coordination all ministries)

4. Sub-component 4.4: ASDP-2 Sector Coordination

296. The greatest ‘policy’ challenge in ASDP-2 is effective coordination of agricultural development interventions, which includes all public good support and investments, implemented on- or off-budget. This requires a consolidated coordination framework under the strengthened leadership of ASLMs for all the sector stakeholders at both national and local levels. This also implies the need for enhanced cooperation of all agriculture sector programmes/projects in complying with SWAp under ASDP-2, whether they are on-budget or off-budget. ASDP-2 sector coordination will build on strengthened CKM at national, regional and local levels (see also s/c 4.2).

297. **ASDS-2 will broaden the scope of coordination to include basket and non-basket funded activities.** The sector strategy aims to have a more comprehensive approach to planning, budgeting, implementation and monitoring of activities in the agriculture sector, including activities of the private sector by: (i) establishing a coordination framework for all agricultural activities from planning, resource allocation, implementation and monitoring of activities; (ii) enhancing coordination of activities at national and local government level by enhancing engagement of Regional Administration as a link between the ministry and LGAs; and (iii) restructure some of the institutions for improved coordination, efficiency and effectiveness of service delivery in agriculture.

298. The strengthened ASDP-2 coordination framework will include: (i) widely disseminating clear common goals of ASDP-2 to all the sector stakeholders; (ii) consolidated efforts by all the sector stakeholders for achieving the goals of ASDP-2 based on better guidance by the ASLMs; (iii) sound M&E system with strong agricultural statistical data; (iv) sector performance review in which all sector stakeholders, including private sector, participate; (v) open dialogue system on critical policy issues and regulatory frameworks; (vi) well-established networking and information system on all the sector interventions; and (vii) strong capacity of the ASLMs for analytical and managerial aspects concerning the sector coordination.

299. **Institutional structures and coordination functions**¹²⁴. The implementation of ASDP-2 sector coordination will be mainstreamed and strengthened into the existing government systems and structures—while building on lessons learned from ASDP-1—to effectively support the implementation of the proposed operation. This will allow continuation of efforts to strengthen government systems at national and local levels for enhanced results and sustainability. However, ASDP-2 will also take account of off-budget programme components and the reporting system will be

¹²⁴ See further details for institutional and implementation arrangements in Section VI.

expanded to encompass such components that fall within the wider objectives of the programme.

300. Coordination at central level. The hierarchy of coordination organs and functions under ASDP-2 at central level includes: (i) National Agricultural Sector Stakeholders Meeting (NASSM); (ii) Joint Sector Review (JSR); (iii) Steering Committee; (iv) Technical Committee of Directors (TCD); (v) Thematic Working Groups (TWGs); and (vi) Coordination and Management Team (CMT). Table 47 shows the summary of ASDP-2 sector coordination components.

Table 47: ASDP-2 coordination organs, mechanisms, membership and functions (summary)

Organ/mechanism	Membership/participants	Functions and purpose
National Agricultural Sector Stakeholders Meeting (NASSM). Chaired by Minister of Agriculture	Central Government—ministers, permanent secretaries, DPPs from all ASLMs, and senior government officials; JDPAWG; regional secretariats (RSs); district executive directors (DEDs); DAICOs, DLFOs; research officials; training officials; academia representatives; commodity boards; private sector representatives; non-state actors; financial institutions; associations and cooperatives, commodity associations, and successive agriculture associations and SACCOS; representatives of other related stakeholder organizations	The agenda will be determined by stakeholders: <ul style="list-style-type: none"> - review conclusions drawn by the JSR on progress in implementation ; - advise the various government organizations, development partners, non-state actors, and private sector stakeholders on opportunities to foster agricultural transformation - Provide policy guidelines for implementation. - Annual meeting.
Joint Sector Review¹²⁵ of the agriculture sector by the Government of Tanzania, development partners and consultants	All ASDP-2 partners at national and local level (government, development partners, non-state actors and private sector)	Annual review following NBS and AASS but preceding NASSM to determine efficiency, effectiveness and impact of ASDP-2 and to inform the NASSM of the results and proposed corrective actions. Voice development partner opinion and provide guidance on ASDP-2 implementation
Agricultural Sector Consultative Group (ASCG) Meeting	Officials from ASLMs, JDPAWG, private sector and non-state actors	Coordinate dialogue regularly on sector policies and budget, and annual agriculture sector/public expenditure review (ASR/PER)
Steering Committee	Permanent secretaries of ASLMs and collaborating ministries, TCD, JDPAWG, representatives from private sectors, non-state actors	Advise NASSM and provide joint perspective and guidance to TWG quarterly meetings, immediately following those of the TCD
Technical Committee of Directors (TCD)	Directors of ASLMs	Direct TWGs, link policy to implementation on quarterly basis
Thematic Working Groups (TWGs) (various groups)	Selected technical staff of different ASLMs, non-state actors and CAADP country team representative	Bring cross-cutting expertise to issues arising. Troubleshooting of implementation process and guide and facilitate implementation of ASDP-2 and provide guidance to the Steering Committee and TCD, on a continual basis
Coordination and Management Team (CMT)	National Planning Coordinator, Agricultural Economist, Communications, M&E specialist	Joint planning, monitoring of progress, facilitating secretariat for ASDP-2 meetings; ensuring that ASDP-2 activities take place according schedule & reports are shared; training, production of manuals, guidelines and publicity; managing M&E functions; establishing and sharing best practices & lessons learnt under SWAp Continuous involvement

¹²⁵ Larger stakeholder group for mid-term review.

301. **PO-RALG.** LGAs are overseen and directed by the **PO-RALG**: the **Department of Sector Coordination** is responsible for management and support to LGAs by collaboration with regional secretariats (RSs). Vertical coordination from **PO-RALG** to RSs and LGAs has been established and worked well under ASDP-1 and ASDP-2 will continue to strengthen the same functions of PO-RALG.

302. **Regional Administrative Secretariats (RAS).** The role of RAS is to assist the LGAs in preparation of the DADPs, backstopping and supportive supervision on the implementation of the DADPs, and assisting in the submission of quarterly and annual reports in compliance with the DADP Guidelines. The Assistant Administrative Secretary for Economics and Production section within RS is directly responsible for supporting development activities within the region and is assisted in the task by the ASDP Regional Coordinator and fellow officers dedicated to specific sub-sectors. These officers will provide technical and managerial assistance to LGAs for ASDP-2 implementation. The RSs will closely work together with the relevant TWGs and the National Facilitation Team as the need for consultation and assistance arises.

303. **Coordination at local level.** ASDP-2 will strengthen structures for local activities established under ASDP-1. DADP will continue to be the key instrument for agricultural development at local level. The **District Executive Director (DED)** will hold overall responsibility for activities and funds used at local level. The **Council Management Team**, which is chaired by the DED and attended by all the department heads including **DAICO** and **DLFO**, is informed on the agricultural development issues and status under DADP.

304. DADPs are derived from the grassroots by villagers through the Opportunities and Obstacles to Development process and summarized in **Village Agricultural Development Plans**: this planning process is led by a Village Planning Committee, Village Agricultural Extension Officer (VAEO), Village Executive Officer (VEO) and supported by the District Facilitation Team according to the DADP guidelines. Proposals from individual villages are submitted to **wards** and consolidated by the Ward Development Committee, guided by the Ward Agricultural Extension Officer (WAEAO) under supervision of the Ward Executive Officer (WEO), for submission to the **DED**. Based on the submitted proposals, DADPs will be consolidated by DAICOs and DFLOs. The entire process will be guided by the DADP Guidelines and detailed instructions by ASLMs through PO-RALG, including alignment on ASDP-2 priorities.

305. As a key coordination mechanism at local level, **DCP** between sector stakeholders at LGA level will be in place (s/c 3.2). DCP brings major actors in priority local CVCs together to develop and drive the implementation of DADP activities that includes various aspects such as productivity improvement, value addition and market access. The stakeholders at local level include private sectors (traders, processors, transporters, financial institutions, etc.), NGOs, development partners as well as various public institutions that can provide various types of technical supports. It is therefore crucially important for a LGA to formulate a **comprehensive DADP** that includes on-budget and off-budget development activities within the LGA, with joint implementation management and follow-up.

306. **Off-budget Projects.** While the government anticipates that development partners will continue to contribute to development funding through budgetary support, ring-fenced funds, earmarked funds, discrete projects and off-budget activities, it requires that all projects, funded by whatever means, should be aligned with the ASDP-2. Development partners should engage in the government framework to ensure alignment with national objectives and to share experience and lessons learned. The activities of off-budget projects and programmes should be subject to agreement between the project and the government, as enshrined in the memoranda of understanding that would stipulate implementation modalities, including activity planning and follow-up.

Box 7: Inclusion of off-budget projects

Inclusion of off-budget projects into ASDP-2 framework

There is a view among government officials that NGOs perceive other development initiatives as a “threat” and are reluctant to talk to district authorities, resulting in lack of adequate effective communication in the planning, implementation and monitoring of development projects. This perception must be corrected by proactive involvement by NGOs with the development aspirations of ASDP-2 and other national programmes.

NGO contribution to development will be enhanced by improved coordination with ASDP, and mutual lessons may be learned and capacity of ASLMs may gain advancement through greater cooperation. To this end, NGO projects should be obliged at registration and be committed by memoranda of understanding to participate in collaborative meetings and to contribute performance data to the M&E exercises.

Development partner development activities in agriculture will also be included in M&E functions on behalf of ASDP-2, as will those that may be undertaken by the development partner projects for the benefit of evaluation to meet the needs of the partner.

5. Sub-component 4.5: Monitoring and Evaluation (M&E) and Agricultural Statistics

307. Data availability and reliability were major shortcomings experienced by the sector during ASDP-1 implementation. According to the Agricultural Statistics Strategic Plan (AASP; 2014), National Sample Census of Agriculture (NSCA), Annual Agricultural Sample Survey (AASS), and Agriculture Routine Data collection Systems (ARDS) need to be further consolidated and integrated towards an evidence-based decision-making and management tool. ASDS-2 intermediate result IR4.5 (*M&E and Agricultural Statistics Strengthened*) focuses priority areas on: (i) strengthening and rationalizing M&E to enhance evidence-based strategy development and design of programmes and projects; and (ii) improving the quality, cost effectiveness and timeliness of agricultural statistics.

308. **The objective of this sub-component is to ensure that there is an improvement in the timeliness, quality and relevance of available statistics and routine data systems in the agriculture sector, to provide the data needed to monitor the performance of the ASDP-2 Support Programme, starting with the indicators contained in its results framework**, as well as sector-wide statistical data. Under this sub-component, support will be divided in two thematic areas: (i) dedicated ASDP-2 M&E support; and (ii) support to agricultural statistics and sector M&E efforts¹²⁶.

309. **ASDP-2 Support Programme Monitoring and Evaluation.** One of the lessons learned from ASDP-1 was that the delays in implementing key surveys led to a deficit in the information available to properly monitor and evaluate the results of the first phase. It was therefore easy to assert that ASDP-1 had not achieved its results, that there had been no “impact” and that resources were spread too thinly. Many key performance indicators under ASDP-1 relied on the National Sample Census of Agriculture being completed on time and its results disseminated rapidly¹²⁷. There was confusion during the ASDP-1 monitoring between the project-specific and sector-wide outcomes data collection: because of clear connection to budgets, the former received in general more attention than the latter, resulting in relatively weak development of ASDP sector-wide monitoring.

310. **ASDP-2 provides and implements a results-focused framework for the agriculture sector.** As multiple actors implement their respective interventions and projects in ASDP-2, M&E

¹²⁶ Details for the proposed M&E system are provided in Annex III.

¹²⁷ The last National Sample Census of Agriculture and Livestock NSCA were held in 2002/2003, and then in 2007/2008. The results of the latter were made available in July 2012, while the 2012/2013 Sample Census has been postponed to 2014/2015. It is the main source of information for outcome indicators in the ASDP-1 M&E Framework.

needs strong coordination, data collection, processing, analytical and reporting capabilities. The M&E capacities of the M&E sections in the ASLMs, M&E TWG and CMT will need to be strengthened under ASDP-2 for stronger M&E coordination and a small M&E team be tasked with day-to-day operation and data processing tasks at each ASLMs. Reports on the state of data collection and overall state/performance of the sector should be submitted to ASDP-2 decision-making levels, and also widely disseminated through websites or any other means for the accountability of the programme¹²⁸.

311. The M&E TWG together with CMT will provide a baseline from secondary data available from different sources. The National Sample Census Survey of Agriculture (NSCA) to be implemented in 2016/2017 (thus the reference year is 2015/2016) and 10-year periodicity, in combination with AASS and TWG will provide the consolidated baseline and final levels of outcome and impact indicators for the sector programme. At mid-term an intermediate survey could be envisaged (as required) to allow for a revision of the results framework to adjust actual performance of the M&E of ASDP-2.

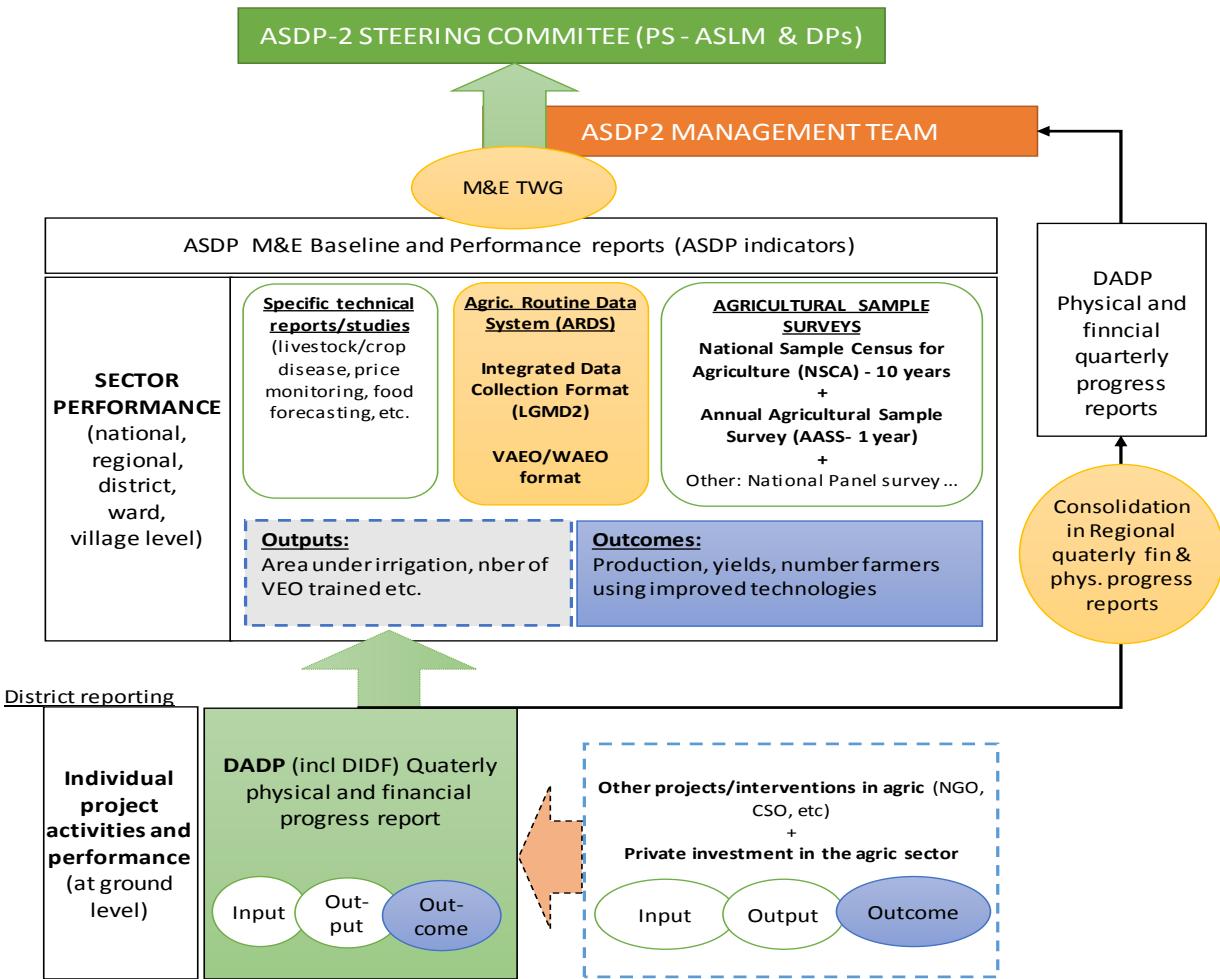
312. To allow tracking of key performance indicators identified in the results framework (see Annex I), intermediate outcome indicators will be evaluated yearly to provide useful feedback regarding the implementation of the ASDP-2 and progress toward measurable strategic objectives. Given that AASS will focus mainly on crop, livestock and fisheries productivity and production statistics, the options are to either: (i) integrate programme specific indicators into AASS with data representative of districts; or (ii) for the M&E TWG to organize a programme specific, short, stand-alone annual survey (in collaboration with the private sector tendered within PPP) to systematically evaluate intermediate indicators. Not all intermediate outcome indicators will need to be assessed annually. The sampling frame should be the same as for the baseline and survey results should be representative at district level: to produce quality data in a shorter time frame (ideally 3–4 months), the use of portable electronic devices will be promoted.

313. The overall M&E framework for ASDP-2 including impact/outcome evaluations, output monitoring and quarterly physical and financial reporting of LGAs will be carried out through PO-RALG administrative¹²⁹ channels.

¹²⁸ Sourced from discussions with M&E TWG.

¹²⁹ The capacity of PO-RALG teams will be strengthened as required (see institutional capacity building in s/c 4.2). Incentives

Figure 17: ASDP M&E system for sector and programme performance (adapted for ASDP-2)



Main proposed actions.

314. *Strengthening agricultural statistics, sector M&E and analytical capacity.* Based on the Global Strategy to Improve Agricultural and Rural Statistics, promoted in Tanzania by the United States Department of Agriculture (USDA), FAO and AfDB, and based on the ASSP being developed by the Agriculture Statistics Task Force, this sub-component will include the following priority activities: (i) co-financing of the National Sample Census of Agriculture and Livestock (NSCA), foreseen to take place in 2016/2017 (reference year 2015/2016); (ii) financing of AASS during the period of ASDP-2 implementation (2015–2025); (iii) strengthening the Agricultural Routine Data System (ARDS) and support to the M&E departments and TWG; and (iv) improve analytical capacity of ASLMs for planning and policy analysis, sector performance reviews, annual budgetary cycle, and PERs. These investments are deemed necessary under ASDP-2, given that it will be the largest public-sector financed programme in the sector, and that no other ongoing programme is providing financing in this area.

315. **National Sample Census for Agriculture (NSCA).** Given that ASDP-2 will be one of the few large-scale projects/programmes providing financing in agriculture through the public sector over the coming years, and given that financing for agricultural statistics is an ongoing discussion under the aegis of the Global Strategy to Improve Agricultural and Rural Statistics, several partners, including the government, have expressed willingness to participate in the financing of the NSCA. This is seen as the key survey and its regular implementation would go a long way in providing a common national

system to all projects operating in the sector in Tanzania. It is envisaged that the NSCA will be held every 10 years, and will provide up to regional-level¹³⁰ representative statistics on a wide range of variables, based on a sample size of 50,000 households. ASDP-2 will therefore co-finance the cost of the next NSCA, which is due to take place in 2016/2017.

316. Annual Agriculture Sample Survey (AASS). The Agricultural Statistics Strategic Plan developed by the Agriculture Statistics Task Force foresees that AASS will provide annual, regional level, production and productivity statistics for main crops and livestock species. The annual cost of AASS has not yet been fully defined and nor has the methodology¹³¹ been consolidated or the questionnaire been prepared. However, an annual survey is intended to capture necessary outcome indicators for monitoring the sector. Production and productivity are among those indicators, but there are some most necessary indicators like adoption of improved technologies and access to services. Under ASDP-1 these indicators were obtained from the National Sample Census of Agriculture which was conducted at 5-year intervals. Under ASSP, the NSCA has shifted from a 5-year interval to the global interval of 10 years.

317. Within Agricultural Statistics Task Force (NBS, ASLMs and technical assistance from USDA and FAO), there are ongoing methodological discussions regarding the sampling approach (area-based, list-based or a combination), the content of the questionnaire and the data representative level (regional and district), as there are concerns about the current statistical methodology being advocated by USDA. It is important that the integration of intermediate outcomes into the AASS questionnaire would fully streamline the ASDP-2 M&E into agricultural sector processes.

318. **Agricultural Routine Data System (ARDS)**¹³² is a key management information system that has been improved under ASDP-1. A lot of resources have also been invested to build a national database (known previously as LGMD2, but now called ARDS\LGMD2/ Web Portal) with information disaggregated at district level to clarify data flow, to develop data format, procedures for data collection at village and ward level and data dissemination from district to national level. The Japanese International Cooperation Agency (JICA) has provided long-term technical assistance and capacity building support to national ARDS roll-out¹³³. This system provides data on the output performance of the agricultural sector, and relies on front-line extension staff to provide monthly, quarterly and annual information, which is compiled at district level and entered into a web-based database, and made available to ASLM through regional secretariats and PO-RALG. ARDS now has a window for users in the web portal, “ards.go.tz” where potential users can access information by obtaining the User ID from the M&E TWG. There is a need to readjust the scope of the ARDS with other data sources, such as AASS and NSCA, but also the quarterly physical and financial reporting to avoid duplications and improve data quality, reliability and timeliness. It is also necessary to strengthen coordination among ARDS, within the early warning and other administrative data collection systems to improve efficiency of overall data collection.

319. **The M&E Thematic Working Group** compiles the ASDP Annual Performance Report which provides an update on all key performance indicators, at impact, outcome and output level¹³⁴ and participates in the JSR and PER (see s/c 4.4), which undertake an annual assessment of progress made under ASDP-2. BRN has its own M&E processes which should be integrated and aligned into the overall sector M&E framework, including JSR.

¹³⁰ FAO is planning to conduct “small area estimation method” study for Tanzania to utilize the results of NSCA and AASS and estimate district level data. For this calculation/model, ARDS data are expected to be used.

¹³¹ Methodologies for baseline and the final survey should be harmonized with NSCA as well as AASS so that data obtained can be comparable. For that matter, it is better to postpone an envisaged break from the normal list sampling frame to the area sampling frame and continue with the methodology which NBS and ASLMs are familiar with. The pilot conducted for the area frame method has so far indicated a lot of challenges that need to be tackled before rolling out.

¹³² ARDS needs to be aligned with AASS.

¹³³ Agricultural Routine Data System (ARDS): National Roll-Out Plan, ASDP M&E TWG, 2010.

¹³⁴ ASDP Annual Performance Report 2009/2010, March 2011; ASDP Annual Performance Report 2010/2011, November 2011; ASDP Annual Performance Report 2011/2012, draft in progress, April 2013.

320. ***Joint Sector Review.*** The JSR will comprise a key component of the M&E system and will be undertaken following finalization of the NBS Annual Agricultural Sample Survey (AASS) and immediately preceding the NASSM. It will be conducted by government, development partners and consultants to rigorously review the programme over several weeks on the basis of analysed national statistics as a professional annual evaluation exercise. It will include field visits in selected regions where the ASDP-2 is being implemented by way of sampling. JSR will be a forum for coordination and dialogue to enable shared vision and the opportunity to initiate corrective action in the management of projects. The conclusions of the JSR will be presented to the NASSM for discussion and corrective action. The report from this meeting will be summarized by the ASDP Coordination and Management Team and forwarded to the National Steering Committee for action.

321. Finally the ***Public Expenditure Review*** provides a further opportunity to monitor the progress and performance of the ASDP-2 in the wider context of the national economy.

G. CROSS-CUTTING ELEMENTS

322. In line with the ASDS-2 and CAADP principles, ASDP-2 integrates several cross-cutting issues within each thematic area. Gender and youth, governance, environment and HIV/AIDS are all issues that can affect the outcome of the planned investments. Policies and strategies covering these issues already exist in Tanzania or are under review, and ASDP-2 will support these. The key areas for mainstreaming cross-cutting issues into the investment plan are:

- i. **Promoting gender equity**—ensuring that women and other vulnerable groups have equitable access to resources. Gender mainstreaming needs to be strengthened to increase the benefits obtained from rural labour (men and women) and enhance value addition. In particular agribusiness investment policy needs to enable all groups to be involved at the high-value end of the market chain. Gender imbalances also need to be addressed at all levels of the institutional framework.
- ii. **Empowerment of vulnerable groups**—including HIV/AIDS, malaria and tuberculosis sufferers, through effective policies and incentives that target their ability to be active participants in the sector engaging in more commercial activities to raise household incomes and positively impact on their food security.
- iii. **Improved governance and accountability**—requiring capacity building through training for better management within public and private institutions and ensuring an effective M&E system to improve planning, implementation and monitoring, and evidenced-based decision making in the sector.
- iv. **Environmental management**—ensuring that all farmers have full access to knowledge about different farming systems for sound environmental management. Promoting efficient use of water and the control of air and water pollution, placing mechanisms and institutions within the sector to encourage efficient management of natural resources.

323. Strategic actions areas and outcomes are:

Table 48: Cross-cutting action areas and outcomes

<i>Specific objective</i>	<i>Outcome</i>	<i>Outcome indicators</i>
Strategic target groups mainstreaming¹³⁵ a) Woman/gender b) Youth c) Pastoralists d) Farmer organizations	Inclusive participation of FO, women, youth, pastoralists, involved in improved planning, implementation and access to benefits of ASDP-2	- % of target groups who are participating in decision making & implementation and benefiting from main programmes - Reduced disparities in access to benefits of major programmes (e.g., technologies, rural finance, access to markets) - % of target groups who are benefiting from grouped-based services (e.g., access marketing, credit, technical services) - level of satisfaction of target groups for technical and marketing services - % of target groups who benefited from: (i) capacity building in gender empowerment; and (ii) targeted participative support programmes
Improved governance & mutual accountability	Application of improved governance & accountability practices and mechanisms strengthened by key actors (<i>improved technical, organizational and financial management</i>)	- % strengthened capacities and consistent application of improved governance and mutual accountability practices/mechanisms by key actors (ASLMs, LGAs, development partners, private sector, FOs) - % of unqualified annual financial audits
Environmental conservation	Environmental conservation promoted, including use of indigenous knowledge	% of environmental laws and regulations enforced % of unqualified annual environmental audit

Cross-sectoral elements will be focused in TGW.

¹³⁵ This should take place through DADP planning process, at least, starting from there.

324. Summary of investments for component 4.

Table 49: Development budget / investment projection for component 4 (TSh million)

COMPONENT 4: STRENGTHENING OF SECTOR ENABLERS AND COORDINATION - BASE COST ESTIMATES (TSh million)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
4.1 Policy and regulatory framework											
a) Policy and Regulatory Framework	500	500	500	500	500	500	500	500	500	500	5,000
4.2 Institutional capacity development, CKM and ICT											
a) Facilities, equipment and training	1,761	1,467	1,491	1,500	1,500	1,700	1,700	1,700	1,700	1,700	16,219
b) Management and operation	1,638	2,524	3,190	3,190	3,190	3,300	3,300	3,300	3,300	3,300	30,232
Agriculture Capacity Building Grant (<i>Local and national financing</i>)	4,500	7,500	9,600	9,600	9,600	9,600	9,600	9,600	9,600	9,600	88,800
sub-total	7,899	11,491	14,281	14,290	14,290	14,600	14,600	14,600	14,600	14,600	135,251
4.3 Food security and nutrition											
a) Crops (including warehouses)	5,225	11,125	11,625	16,100	16,100	16,100	16,100	16,100	16,100	16,100	140,675
b) Livestock	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	70,000
c) NFRA grants	115,000	115,000	115,000	115,000	115,000	115,000	115,000	115,000	115,000	115,000	1,150,000
sub-total	127,225	133,125	133,625	138,100	138,100	138,100	138,100	138,100	138,100	138,100	1,360,675
4.4 ASDP-2 sector coordination											
a) Facilities, vehicles, equipment and training	19,063	13,283	6,695	3,598	3,627	3,700	3,700	3,700	3,700	3,700	64,766
b) Management and operation	5,456	7,923	8,823	8,823	8,823	8,500	8,500	8,500	8,500	8,500	82,348
c) PMORALG	5,068	5,499	6,434	7,510	7,687	7,687	7,687	7,687	7,687	7,687	70,633
sub-total	29,587	26,705	21,952	19,931	20,137	19,887	19,887	19,887	19,887	19,887	217,747
4.5 M&E and agricultural statistics											
NSCA, AASS, surveys and capacity building	8,000	6,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	42,500
Livestock M&E	1,050	1,177	1,377	1,611	1,805	1,985	1,985	1,985	1,985	1,985	16,945
sub-total	9,050	7,677	4,877	5,111	5,305	5,485	5,485	5,485	5,485	5,485	59,445
TOTAL COMPONENT 4	174,261	179,498	175,235	177,932	178,332	178,572	178,572	178,572	178,572	178,572	1,778,118

V. Programme Cost, Financing and Financial Management

A. Overall Programme Cost

325. By combining the base development budgets for each component, the overall investment costs of ASDP-2 were derived (**Table 50**). Data in **Table 50** show that the base cost of ASDP-2 is estimated at TSh 6,230 billion (USD 2,898 million) and annual investment base costs range from TSh 555 billion (USD 258 million) to 648 billion (USD 301 million) over a 10-year period. However, when NFRA grants and input subsidies are omitted, the programme base cost falls to TSh 3,788 billion (USD 1,762 million) and annual investment costs vary from TSh 340 billion (USD 158 million) to 433 billion (USD 201 million).

326. *Component 1*: Sustainable Water and Land Use Management is estimated at TSh 1,451 billion (USD 675 million) and a high proportion of this budget is allocated to irrigation development. Component 1 accounts for 23.3% of overall programme cost. The cost of *Component 2*: Enhanced Agricultural Productivity is estimated at TSh 1,518 billion (USD 706 million) or 24.4% of overall programme cost, but a very significant proportion of this budget will be used for input subsidies.

327. *Component 3*: Rural Commercialization and Value Addition (including DADG investments to promote priority value chain development) is estimated to cost TSh 1,483 billion (USD 690 million) or 23.8% of overall programme cost. Furthermore, the cost of *Component 4*: Strengthening Sector Enablers is estimated at TSh 1,778 (USD 882 million), or 28.5% of programme cost, with about 65% of the budget allocated to NFRA grants.

National and Local Level Budgets

328. The ASDP-2 base budget was divided between national and local level expenditures (**Table 51**). The total base budget at the national level is estimated at TSh 1,319 billion (USD 614 million) and this represents approximately 21% of the total base programme budget. Annual investment costs at the national level range from TSh 129 billion (USD 60 million) to 136 billion (USD 63 million) over a 10-year period.

329. With regard to the local level, the total LGA base budget (**Table 52**) is estimated at TSh 4,911 billion (USD 2,284 million) and this represents approximately 79% of the base programme budget. Annual investment costs to be applied at the local level range from TSh 423 billion (USD 197 million) to 515 billion (USD 240 million). The substantial budgets required for irrigation development (NIDF), input subsidies, NFRA grants, Agricultural Extension Block Grant, Agricultural Capacity Block Grant and DADG will be primarily invested at local level (LGAs)¹³⁶.

Crop and Livestock/Fisheries Sector Budgets

330. The ASDP-2 base budget was also divided between the crop and the livestock/fisheries sectors. Information in **Table 53** shows that the total base budget for the crop sector is estimated TSh 5,307 billion (USD 2,468 million) and this represents approximately 85% of the overall programme base budget. However, it is important to emphasize that the costs of irrigation development, input subsidies, and NFRA grants fall within the crop sector. Annual investment costs for the crop sector range from TSh 473 billion (USD 220 million) to 549 billion (USD 255 million) over a 10-year period.

331. With regard to the livestock and fisheries sector, **Table 54**, the total budget is estimated at TSh 923 billion (USD 429 million) and this represents approximately 15% of the overall programme budget. Annual investment costs for the livestock and fisheries sector range from TSh 80 billion (USD 37 million) to 99 billion (USD 41 million).

¹³⁶ The actual allocation of the budget is mostly at national level through ASLMs, but intervention actions are at the local level.

Table 50: Overall development budget for ASDP-2

ASDP-2 BASELINE COST ESTIMATES - at constant 2015 Prices (in TSh million)

Cost Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Component 1: Sustainable Water & Land Use Management											
1.1 Integrated water use & management (crops, livestock/fish)	130,160	130,970	121,561	122,306	122,921	119,395	120,027	120,027	120,027	120,027	1,227,418
1.2 Land use planning and sustainable soil management	19,115	19,626	19,893	20,213	20,163	20,163	20,163	20,163	20,163	20,163	199,825
1.3 Mainstreaming resilience for climate variability/change	1,840	1,970	2,150	2,330	2,510	2,510	2,510	2,510	2,510	2,510	23,350
sub-total	151,115	152,566	143,604	144,849	145,594	142,068	142,700	142,700	142,700	142,700	1,450,593
Component 2: Enhanced Agricultural Productivity											
2.1 Agricultural research for development (AR4D)	26,100	27,955	25,165	21,900	23,445	22,635	22,635	22,635	22,635	22,635	237,740
2.2 Extension, training and info services	16,220	16,596	15,507	13,241	13,746	13,091	12,946	13,311	13,176	12,396	140,230
2.3 Access to agricultural inputs	109,727	107,381	107,870	107,853	107,819	108,227	108,227	108,227	108,227	108,227	1,081,785
2.4 Access to mechanization services	4,985	5,886	6,053	6,533	6,083	5,733	5,733	5,733	5,733	5,733	58,205
sub-total	157,032	157,818	154,595	149,527	151,093	149,686	149,541	149,906	149,771	148,991	1,517,960
Component 3: Rural Commercialization and Value Addition											
3.1 Stakeholder empowerment and organization	1,455	2,250	2,750	2,750	3,250	3,250	3,250	3,250	3,250	3,250	28,705
3.2 Value addition and agroprocessing	11,742	11,160	14,557	15,315	16,114	16,882	16,882	16,882	16,882	16,882	153,298
3.3 Rural marketing	13,926	15,000	17,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	175,926
3.4 Access to rural finance	1,000	1,500	1,500	2,000	2,000	3,000	3,000	3,000	3,000	3,000	23,000
+ DADG—local value chain investments	45,000	67,500	90,000	112,500	112,500	135,000	135,000	135,000	135,000	135,000	1,102,500
sub-total	73,123	97,410	126,307	151,065	152,364	176,632	176,632	176,632	176,632	176,632	1,483,429
Component 4: Strengthening Sector Enablers											
4.1 Policy and regulatory framework	500	500	500	500	500	500	500	500	500	500	5,000
4.2 Institutional capacity development, CKM and ICT	7,899	11,491	14,281	14,290	14,290	14,600	14,600	14,600	14,600	14,600	135,251
4.3 Food security and nutrition	127,225	133,125	133,625	138,100	138,100	138,100	138,100	138,100	138,100	138,100	1,360,675
4.4 ASDP-2 sector coordination	29,587	26,705	21,952	19,931	20,137	19,887	19,887	19,887	19,887	19,887	217,747
4.5 M&E and agricultural statistics	9,050	7,677	4,877	5,111	5,305	5,485	5,485	5,485	5,485	5,485	59,445
sub-total	174,261	179,498	175,235	177,932	178,332	178,572	178,572	178,572	178,572	178,572	1,778,118
Total Baseline Cost in TSh million (constant prices)	555,531	587,292	599,741	623,373	627,383	646,958	647,445	647,810	647,675	646,895	6,230,100
Total Baseline Cost in USD million (constant prices)	258.4	273.2	278.9	289.9	291.8	300.9	301.1	301.3	301.2	300.9	2897.7
<i>Baseline cost, excluding subsidies and NFRA grants (TSh million)</i>	318,579	346,786	358,246	377,420	381,464	400,631	401,118	401,483	401,348	400,568	3,787,640

Table 51: ASDP-2 Base Development Budget at National Level

ASDP - 2 National level BASE COST estimates (Constant 2015 Prices, in TSh million)

Cost Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Component 1: Sustainable Water & Land Use Management											
1.1 Integrated water use & management (crops, livestock/fish)	32,540	32,743	30,390	30,576	30,730	29,849	30,007	30,007	30,007	30,007	306,855
1.2 Land use planning and sustainable soil management	4,779	4,907	4,973	5,053	5,041	5,041	5,041	5,041	5,041	5,041	49,956
1.3 Mainstreaming resilience for climate variability/change	607	650	710	769	828	828	828	828	828	828	7,706
sub-total	37,926	38,299	36,073	36,399	36,599	35,718	35,876	35,876	35,876	35,876	364,516
Component 2: Enhanced Agricultural Productivity											
2.1 Agricultural research for development (AR4D)	19,575	20,966	18,874	16,425	17,584	16,976	16,976	16,976	16,976	16,976	178,305
2.2 Extension, training and info services	3,244	3,319	3,101	2,648	2,749	2,618	2,589	2,662	2,635	2,479	28,046
2.3 Access to agricultural inputs	10,973	10,738	10,787	10,785	10,782	10,823	10,823	10,823	10,823	10,823	108,179
2.4 Access to mechanization services	997	1,177	1,211	1,307	1,217	1,147	1,147	1,147	1,147	1,147	11,641
sub-total	34,789	36,201	33,973	31,165	32,331	31,564	31,535	31,608	31,581	31,425	326,171
Component 3: Rural Commercialization and Value Addition											
3.1 Stakeholder empowerment and organization	364	563	688	688	813	813	813	813	813	813	7,176
3.2 Value addition and agroprocessing	2,936	2,790	3,639	3,829	4,029	4,221	4,221	4,221	4,221	4,221	38,325
3.3 Rural marketing	3,482	3,750	4,375	4,625	4,625	4,625	4,625	4,625	4,625	4,625	43,982
3.4 Access to rural finance	750	1,125	1,125	1,500	1,500	2,250	2,250	2,250	2,250	2,250	17,250
+ DADG—local value chain investments	2,250	3,375	4,500	5,625	5,625	6,750	6,750	6,750	6,750	6,750	55,125
sub-total	9,781	11,603	14,327	16,266	16,591	18,658	18,658	18,658	18,658	18,658	161,857
Component 4: Strengthening Sector Enablers											
4.1 Policy and regulatory framework	425	425	425	425	425	425	425	425	425	425	4,250
4.2 Institutional capacity development, CKM and ICT	1,975	2,873	3,570	3,573	3,573	3,650	3,650	3,650	3,650	3,650	33,813
4.3 Food security and nutrition	25,445	26,625	26,725	27,620	27,620	27,620	27,620	27,620	27,620	27,620	272,135
4.4 ASDP-2 sector coordination	14,794	13,353	10,976	9,966	10,069	9,944	9,944	9,944	9,944	9,944	108,874
4.5 M&E and agricultural statistics	7,240	6,142	3,902	4,089	4,244	4,388	4,388	4,388	4,388	4,388	47,556
sub-total	49,878	49,417	45,598	45,672	45,930	46,027	46,027	46,027	46,027	46,027	466,627
Total National level Base Cost in TSh million (constant prices)	132,374	135,519	129,970	129,502	131,452	131,966	132,095	132,168	132,141	131,985	1,319,171
Total National level Base Cost in USD million (constant prices)	61.6	63.0	60.5	60.2	61.1	61.4	61.4	61.5	61.5	61.4	613.6

Table 52: ASDP-2 Base Development Budget for LGAs

ASDP - 2 LOCAL level BASE COST estimates (Constant 2015 Prices, in TSh million)

Cost Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Component 1: Sustainable Water & Land Use Management											
1.1 Integrated water use & management (crops, livestock/fish)	97,620	98,228	91,171	91,729	92,191	89,546	90,020	90,020	90,020	90,020	920,564
1.2 Land use planning and sustainable soil management	14,336	14,720	14,920	15,160	15,122	15,122	15,122	15,122	15,122	15,122	149,869
1.3 Mainstreaming resilience for climate variability/change	1,233	1,320	1,441	1,561	1,682	1,682	1,682	1,682	1,682	1,682	15,645
sub-total	113,189	114,267	107,531	108,450	108,995	106,350	106,824	106,824	106,824	106,824	1,086,077
Component 2: Enhanced Agricultural Productivity											
2.1 Agricultural research for development (AR4D)	6,525	6,989	6,291	5,475	5,861	5,659	5,659	5,659	5,659	5,659	59,435
2.2 Extension, training and info services	12,976	13,277	12,406	10,593	10,997	10,473	10,357	10,649	10,541	9,917	112,184
2.3 Access to agricultural inputs	98,754	96,643	97,083	97,068	97,037	97,404	97,404	97,404	97,404	97,404	973,607
2.4 Access to mechanization services	3,988	4,709	4,842	5,226	4,866	4,586	4,586	4,586	4,586	4,586	46,564
sub-total	122,243	121,617	120,622	118,362	118,762	118,122	118,006	118,298	118,190	117,566	1,191,790
Component 3: Rural Commercialization and Value Addition											
3.1 Stakeholder empowerment and organization	1,091	1,688	2,063	2,063	2,438	2,438	2,438	2,438	2,438	2,438	21,529
3.2 Value addition and agroprocessing	8,807	8,370	10,918	11,486	12,086	12,662	12,662	12,662	12,662	12,662	114,974
3.3 Rural marketing	10,445	11,250	13,125	13,875	13,875	13,875	13,875	13,875	13,875	13,875	131,945
3.4 Access to rural finance	250	375	375	500	500	750	750	750	750	750	5,750
+ DADG—local value chain investments	42,750	64,125	85,500	106,875	106,875	128,250	128,250	128,250	128,250	128,250	1,047,375
sub-total	63,342	85,808	111,980	134,799	135,773	157,974	157,974	157,974	157,974	157,974	1,321,572
Component 4: Strengthening Sector Enablers											
4.1 Policy and regulatory framework	75	75	75	75	75	75	75	75	75	75	750
4.2 Institutional capacity development, CKM and ICT	5,924	8,618	10,711	10,718	10,718	10,950	10,950	10,950	10,950	10,950	101,438
4.3 Food security and nutrition	101,780	106,500	106,900	110,480	110,480	110,480	110,480	110,480	110,480	110,480	1,088,540
4.4 ASDP-2 sector coordination	14,794	13,353	10,976	9,966	10,069	9,944	9,944	9,944	9,944	9,944	108,874
4.5 M&E and agricultural statistics	1,810	1,535	975	1,022	1,061	1,097	1,097	1,097	1,097	1,097	11,889
sub-total	124,383	130,081	129,637	132,260	132,402	132,546	132,546	132,546	132,546	132,546	1,311,491
Total Local level Base Cost in TSh million (constant prices)	423,158	451,773	469,770	493,871	495,931	514,992	515,350	515,642	515,534	514,910	4,910,929
Total Local level Base Cost in USD million (constant prices)	196.8	210.1	218.5	229.7	230.7	239.5	239.7	239.8	239.8	239.5	2,284.2

Table 53: ASDP-2 Base Development Budget for Crop Sector

ASDP-2 BASE COST ESTIMATES for the Crop Sector (Base cost in TSh million)

Cost Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Component 1: Sustainable Water & Land Use Management											
1.1 Integrated water use & management (crops, livestock/fish)	127,226	127,226	117,180	117,180	117,180	113,080	113,080	113,080	113,080	113,080	1,171,389
1.2 Land use planning and sustainable soil management	12,415	12,926	13,193	13,513	13,463	13,463	13,463	13,463	13,463	13,463	132,825
1.3 Mainstreaming resilience for climate variability/change	920	985	1,075	1,165	1,255	1,255	1,255	1,255	1,255	1,255	11,675
sub-total	140,561	141,137	131,448	131,858	131,898	127,798	127,798	127,798	127,798	127,798	1,315,889
Component 2: Enhanced Agricultural Productivity											
2.1 Agricultural research for development (AR4D)	19,100	21,725	19,060	15,170	16,955	16,955	16,955	16,955	16,955	16,955	176,785
2.2 Extension, training and info services	6,215	8,521	9,982	9,786	9,731	9,731	9,731	9,731	9,731	9,731	92,890
2.3 Access to agricultural inputs	104,067	103,658	103,514	102,974	102,452	102,323	102,323	102,323	102,323	102,323	1,028,280
2.4 Access to mechanization services	4,237	5,003	5,145	5,553	5,171	4,873	4,873	4,873	4,873	4,873	49,474
sub-total	133,619	138,907	137,701	133,483	134,309	133,882	133,882	133,882	133,882	133,882	1,347,429
Component 3: Rural Commercialization and Value Addition											
3.1 Stakeholder empowerment and organization	1,000	1,500	2,000	2,000	2,500	2,500	2,500	2,500	2,500	2,500	21,500
3.2 Value addition and agroprocessing	2,660	5,000	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	67,660
3.3 Rural marketing	5,000	7,500	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	92,500
3.4 Access to rural finance	500	750	750	1,000	1,000	1,500	1,500	1,500	1,500	1,500	11,500
+ DADG—local value chain investments	36,000	54,000	72,000	90,000	90,000	108,000	108,000	108,000	108,000	108,000	882,000
sub-total	45,160	68,750	92,250	110,500	111,000	129,500	129,500	129,500	129,500	129,500	1,075,160
Component 4: Strengthening Sector Enablers											
4.1 Policy and regulatory framework	250	250	250	250	250	250	250	250	250	250	2,500
4.2 Institutional capacity development, CKM and ICT	5,213	7,584	9,425	9,431	9,431	9,636	9,636	9,636	9,636	9,636	89,266
4.3 Food security and nutrition	120,225	126,125	126,625	131,100	131,100	131,100	131,100	131,100	131,100	131,100	1,290,675
4.4 ASDP-2 sector coordination	19,527	17,625	14,488	13,154	13,290	13,125	13,125	13,125	13,125	13,125	143,713
4.5 M&E and agricultural statistics	8,000	6,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	42,500
sub-total	153,216	158,084	154,289	157,436	157,572	157,611	157,611	157,611	157,611	157,611	1,568,654
Total BASE Cost Crop Production /a	472,556	506,879	515,688	533,277	534,778	548,791	548,791	548,791	548,791	548,791	5,307,132

/a: This budget estimates crop investments of different Ministries and partners at national, regional and local levels

Outside Subsidies and NFRA grants	257,441	291,764	300,573	318,162	319,663	333,676	333,676	333,676	333,676	333,676	3,155,982
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Table 54: ASDP-2 Base Development Budget for Livestock and Fisheries Sector (Base Cost in TSh million)

ASDP-2 BASE COST ESTIMATES for the Livestock/Fisheries sector (constant 2015 Prices in TSh million)

Cost Item	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Component 1: Sustainable Water & Land Use Management											
1.1 Integrated water use & management (crops, livestock/fish)	2,934	3,744	4,381	5,126	5,741	6,315	6,947	6,947	6,947	6,947	56,029
1.2 Land use planning and sustainable soil management	6,700	6,700	6,700	6,700	6,700	6,700	6,700	6,700	6,700	6,700	67,000
1.3 Mainstreaming resilience for climate variability/change	920	985	1,075	1,165	1,255	1,255	1,255	1,255	1,255	1,255	11,675
sub-total	10,554	11,429	12,156	12,991	13,696	14,270	14,902	14,902	14,902	14,902	134,704
Component 2: Enhanced Agricultural Productivity											
2.1 Agricultural research for development (AR4D)	7,000	6,230	6,105	6,730	6,490	5,680	5,680	5,680	5,680	5,680	60,955
2.2 Extension, training and info services	10,005	8,075	5,525	3,455	4,015	3,360	3,215	3,580	3,445	2,665	47,340
2.3 Access to agricultural inputs	5,660	3,723	4,356	4,879	5,367	5,904	5,904	5,904	5,904	5,904	53,505
2.4 Access to mechanization services	748	883	908	980	912	860	860	860	860	860	8,731
sub-total	23,413	18,911	16,894	16,044	16,784	15,804	15,659	16,024	15,889	15,109	170,531
Component 3: Rural Commercialization and Value Addition											
3.1 Stakeholder empowerment and organization	455	750	750	750	750	750	750	750	750	750	7,205
3.2 Value addition and agroprocessing	9,082	6,160	7,057	7,815	8,614	9,382	9,382	9,382	9,382	9,382	85,638
3.3 Rural marketing	8,926	7,500	7,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	83,426
3.4 Access to rural finance	500	750	750	1,000	1,000	1,500	1,500	1,500	1,500	1,500	11,500
+ DADG—local value chain investments	9,000	13,500	18,000	22,500	22,500	27,000	27,000	27,000	27,000	27,000	220,500
sub-total	27,963	28,660	34,057	40,565	41,364	47,132	47,132	47,132	47,132	47,132	408,269
Component 4: Strengthening Sector Enablers											
4.1 Policy and regulatory framework	250	250	250	250	250	250	250	250	250	250	2,500
4.2 Institutional capacity development, CKM and ICT	2,686	3,907	4,856	4,859	4,859	4,964	4,964	4,964	4,964	4,964	45,985
4.3 Food security and nutrition	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	70,000
4.4 ASDP-2 sector coordination	10,060	9,080	7,464	6,777	6,847	6,762	6,762	6,762	6,762	6,762	74,034
4.5 M&E and agricultural statistics	1,050	1,177	1,377	1,611	1,805	1,985	1,985	1,985	1,985	1,985	16,945
sub-total	21,045	21,414	20,946	20,496	20,760	20,961	20,961	20,961	20,961	20,961	209,464
Total Base Cost Livestock and Fisheries /a	82,975	80,414	84,053	90,096	92,605	98,167	98,654	99,019	98,884	98,104	922,968

/a: This budget estimates livestock/fisheries investments of different Ministries and partners at national, regional and local levels

B. Financing Plan

332. With regard to the financing of the development budgets for ASDP-2, the main sources of funding will include the government, development partners and beneficiaries. For each programme sub-component, the proportions of the budget for which the respective financiers would provide funds were determined to derive a tentative financing plan for ASDP-2. The proportions of the development budgets financed by different sources are shown in **Table 55**.

Table 55: Proportions of the development budget financed by different funding sources

ASDP - 2 CONTRIBUTION ESTIMATES - Proportion of budget financed by different sources (%)

Cost Item	Gove rnme nt ^a	Devel opme nt partne rs on- budget	Devel opme nt partne rs off- budget	Benefi- ciary/ Farmers	Total	Per cent Base Cost	Investment level	
							Natio nal	Loca l
Component 1: Sustainable Water & Land Use Management								
1.1 Integrated water use & management (crops, live/fish)	15	60	15	10	100%	20	25	75
1.2 Land use planning and sustainable soil management	15	60	15	10	100%	3	25	75
1.3 Mainstreaming resilience for climate variability/change	10	30	55	5	100%	0	33	67
<i>sub-total</i>						23		
Component 2: Enhanced Agricultural Productivity								
2.1 Agricultural research for development (AR4D)	40	40	15	5	100%	4	75	25
2.2 Extension, training and info services	40	40	15	5	100%	2	20	80
2.3 Access to agricultural inputs	55	25	15	5	100%	17	10	90
2.4 Access to mechanization services	40	40	15	5	100%	1	20	80
<i>sub-total</i>						24		
Component 3: Rural Commercialization and Value Addition								
3.1 Stakeholder empowerment and organization	10	25	60	5	100%	0	25	75
3.2 Value addition and agroprocessing	15	40	40	5	100%	2	25	75
3.3 Rural marketing	15	40	40	5	100%	3	25	75
3.4 Access to rural finance	15	40	40	5	100%	0	75	25
+ DADG - local value chain investments	40	40	15	5	100%	18	5	95
<i>sub-total</i>						24		
Component 4: Strengthening Sector Enablers								
4.1 Policy and regulatory framework	40	15	45	0	100%	0	85	15
4.2 Institutional capacity development, CKM and ICT	25	25	45	5	100%	2	25	75
4.3 Food security and nutrition	55	20	25	0	100%	22	20	80
4.4 ASDP-2 sector coordination	45	40	10	5	100%	3	50	50
4.5 Monitoring & Evaluation and agricultural statistics	40	40	20	0	100%	1	80	20
<i>sub-total</i>						29		

^a Government at national and local level (LGA)

333. Based on the above assumptions, the base and total development budget for ASDP-2 summarized by financier is presented in **Table 56**. The analysis shows that the government would finance about 38% of the programme while development partners would provide 57% (37% on-budget) and beneficiaries about 5%. Government funds would total TSh 3,022 billion (contingencies included) over a period of 10 years.

334. With regard to funding by development partners, it is estimated that USD 1,362 million (contingencies included) would be financed on-budget, while a further USD 716 million (contingencies included) would be financed off-budget. Beneficiaries would provide the remaining TSh 394 billion (contingencies included), i.e., 5% of total financing, as a contribution towards the development of irrigation infrastructure, water resources for livestock and fisheries, watershed management and local investments (DADG) for priority value chain development.

335. Projected annual base and total ASDP-2 programme costs by financiers are provided by components (in TSh and USD) in **Table 58 A and B** respectively.

Table 56: Illustrative financing plan for ASDP-2 (summary of total costs in TSh million)

Cost Item	Govt	Development partners		Beneficiary Farmers	Total	% of Base cost
		on-budget	off-budget			
Component 1: Sustainable Water & Land Use Management						
1.1 Integrated water use & management (crops, livestock/fish)	184,113	736,451	184,113	122,742	1,227,418	20
1.2 Land use planning and sustainable soil management	29,974	119,895	29,974	19,983	199,825	3
1.3 Mainstreaming resilience for climate variability/change	2,335	7,005	12,843	1,168	23,350	0
<i>sub-total</i>	216,422	863,351	226,929	143,892	1,450,593	23
Component 2: Enhanced Agricultural Productivity						
2.1 Agricultural research for development (AR4D)	95,096	95,096	35,661	11,887	237,740	4
2.2 Extension, training and info services	56,092	56,092	21,035	7,012	140,230	2
2.3 Access to agricultural inputs	594,982	270,446	162,268	54,089	1,081,785	17
2.4 Access to mechanization services	23,282	23,282	8,731	2,910	58,205	1
<i>sub-total</i>	769,452	444,916	227,694	75,898	1,517,960	24
Component 3: Rural Commercialization & Value Addition						
3.1 Stakeholder empowerment and organization	2,871	7,176	17,223	1,435	28,705	0
3.2 Value addition and agroprocessing	22,995	61,319	61,319	7,665	153,298	2
3.3 Rural marketing	26,389	70,370	70,370	8,796	175,926	3
3.4 Access to rural finance	3,450	9,200	9,200	1,150	23,000	0
+ DADG—local value chain investments	441,000	441,000	165,375	55,125	1,102,500	18
<i>sub-total</i>	496,704	589,066	323,488	74,171	1,483,429	24
Component 4: Strengthening Sector Enablers						
4.1 Policy and regulatory framework	2,000	750	2,250	0	5,000	0
4.2 Institutional capacity development, CKM and ICT	33,813	33,813	60,863	6,763	135,251	2
4.3 Food security and nutrition	748,371	272,135	340,169	0	1,360,675	22
4.4 ASDP-2 sector coordination	97,986	87,099	21,775	10,887	217,747	3
4.5 M&E and agricultural statistics	23,778	23,778	11,889	0	59,445	1
<i>sub-total</i>	905,948	417,575	436,945	17,650	1,778,118	29
Base Cost in TSh million	2,388,526	2,314,908	1,215,056	311,611	6,230,100	100
<i>Contingencies (financial and physical)</i>	633,874	613,046	323,677	82,251	1,652,848	27
Total Cost in TSh million (contingencies included)	3,022,399	2,927,953	1,538,733	393,863	7,882,948	127
<i>Base Cost in USD million</i>	1,111	1,077	565	145	2,898	
<i>Total Cost in USD million (contingencies included)</i>	1,406	1,362	716	183	3,666	
%	38%	37%	20%	5%	100%	

Table 57: Projected development partner funding in the agricultural sector, constant 2015 prices (USD million)

Development partner	2015/16	2016/17	2018/19	2019/20	2020/21	Annual average
The World Bank	7.1	24.8	59.9	57.0	78.2	45.8
JICA	16.8	15.8	13.0	13.0	10.0	13.7
European Union	0.0	15.0	0.0	35.0	2.0	13.0
AfDB	5.5	5.5	5.5	5.5	5.5	5.5
UNDP	5.5	4.0	2.0			3.8
Irish Aid	4.5	3.8	1.0	1.0		2.6
FAO	0.4	0.4				0.4
Overall¹						84.8

Source: Development partners (private communication).

¹ Data are incomplete—overall funding by development partners does not include some donors such as IFAD and several bilateral funding agencies.

336. Information collected on projected development partner funding in the agricultural sector (see

Table 57) indicated that development partners have allocated an average of USD 84.8 million per annum over the next 3 to 5 years. This corresponds to the USD 86.8 million per annum required from development partners in the tentative financing plan for ASDP-2 (both on-budget and off-budget financing).

Table 58: Projected annual BASE and TOTAL ASDP-2 cost funding in the agricultural sector by financiers (TSh million)

A. ASDP - 2 Annual BASE COST FINANCING PLAN over 10 years (Constant 2015 Prices in TSh million)

A. Contribution Base Cost in TSh million (Gov+Benef)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Component 1: Sustainable Water & Land Use Management	37,595	37,945	35,686	35,979	36,147	35,266	35,424	35,424	35,424	35,424	360,313
Component 2: Enhanced Agricultural Productivity	87,123	87,125	85,748	83,465	84,165	83,593	83,528	83,692	83,631	83,280	845,350
Component 3: Rural Commercialization & Value Addition	25,802	36,245	47,624	58,201	58,435	68,914	68,914	68,914	68,914	68,914	570,876
Component 4: Strengthening Sector Enablers	90,957	93,289	90,905	92,452	92,633	92,673	92,673	92,673	92,673	92,673	923,598
Sub-total Government and Beneficiaries (TSh million)	241,477	254,604	259,963	270,097	271,380	280,445	280,538	280,702	280,641	280,290	2,700,137
B. Contribution Base Cost in USD (development partners-on/off budget)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Component 1: Sustainable Water & Land Use Management	52.8	53.3	50.2	50.6	50.9	49.7	49.9	49.9	49.9	49.9	507
Component 2: Enhanced Agricultural Productivity	32.5	32.9	32.0	30.7	31.1	30.7	30.7	30.8	30.8	30.6	313
Component 3: Rural Commercialization & Value Addition	22.0	28.4	36.6	43.2	43.7	50.1	50.1	50.1	50.1	50.1	424
Component 4: Strengthening Sector Enablers	38.7	40.1	39.2	39.8	39.9	40.0	40.0	40.0	40.0	40.0	397
Sub-total development partners—on and off-budget (USD million)	146.1	154.7	158.0	164.3	165.6	170.5	170.7	170.7	170.7	170.5	1,642
Total ASDP-2 (in TSh million)	555,531	587,292	599,741	623,373	627,383	646,958	647,445	647,810	647,675	646,895	6,230,100

B. ASDP - 2 Annual TOTAL COST FINANCING PLAN over 10 years (contingencies included, in TSh million)

A. Contribution TOTAL Cost—TSh million (Gov+Benef)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Component 1: Sustainable Water & Land Use Management	37,595	39,842	39,344	41,650	43,937	45,009	47,471	49,845	52,337	54,954	451,985
Component 2: Enhanced Agricultural Productivity	87,123	91,482	94,537	96,621	102,303	106,688	111,935	117,763	123,561	129,195	1,061,208
Component 3: Rural Commercialization and Value Addition	25,802	38,057	52,505	67,374	71,028	87,954	92,351	96,969	101,817	106,908	740,766
Component 4: Strengthening Sector Enablers	90,957	97,954	100,223	107,025	112,595	118,276	124,190	130,400	136,919	143,765	1,162,304
Sub-total Government and Beneficiaries (TSh million)	241,477	267,334	286,609	312,671	329,864	357,927	375,947	394,976	414,635	434,822	3,416,262
B. Contribution TOTAL Cost in USD (development partners-on/off budget)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Component 1: Sustainable Water & Land Use Management	52.8	55.2	53.7	56.1	58.3	58.9	61.2	63.3	65.4	67.7	592
Component 2: Enhanced Agricultural Productivity	32.5	34.0	34.3	34.0	35.7	36.4	37.6	39.0	40.3	41.5	365
Component 3: Rural Commercialization and Value Addition	22.0	29.4	39.2	47.8	50.0	59.4	61.4	63.5	65.7	68.0	506
Component 4: Strengthening Sector Enablers	38.7	41.5	42.0	44.0	45.6	47.3	49.0	50.7	52.4	54.2	465

Sub-total development partners, on and off-budget (USD million)	146.1	160.1	169.1	181.9	189.6	202.0	209.1	216.5	223.9	231.3	1,930
<i>Total ASDP-2 (in TSh million)</i>	555,531	616,657	661,214	721,632	762,588	825,700	867,638	911,533	956,910	1,003,546	7,882,948

C. Financing Arrangements

337. Under ASDP-1 programme financing is executed through a Basket Fund arrangement. The institutions responsible for implementation of the programme at national level component were MAFC, MLFD and MIT. Implementation at the local level was the responsibility of the then PMO-RALG and LGAs. The Basket Fund activities are coordinated through the ASDP Basket Fund Steering Committee, which comprises the permanent secretaries of all the ASLMs, the Vice President's Office and the Ministry of Finance as well as representatives from development partners contributing to the Basket Fund.

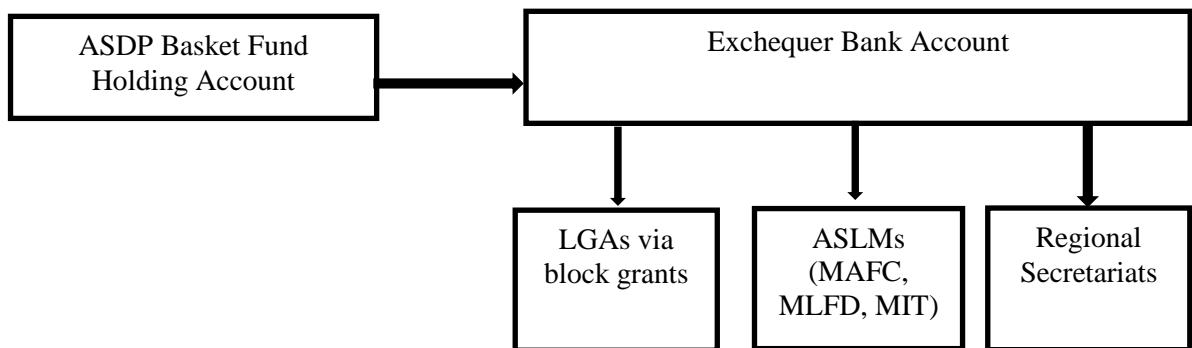
338. The Basket Fund system contrasts with the traditional practice of establishing separate project accounts in which deposited funds are managed by project implementation units (PIUs). ASDP-1 financing arrangements were fully integrated into existing government financial structures, which include planning, budgeting, accounting, reporting and auditing services.

339. The Basket Fund Steering Committee review work plans and budgets to be financed by the Basket Fund for approval and disbursements of funds against technical and financial reports. For the local level component, the Basket Fund Steering Committee recommends disbursements to the LGDG Steering Committee. Funds then flow from the ASDP holding account in the Bank of Tanzania, through an exchequer bank account to ASLMs, regional secretariats and LGAs. The chief accountants of the respective ministries are responsible for ensuring that the disbursements of funds and financial management of programme activities are undertaken in accordance with international accounting standards and the Memorandum of Understanding between the government and development partners.

340. The Steering Committee is also responsible for: (i) facilitating government and development partner contributions to Basket Fund activities before the respective budget year; (ii) transferring resources from the Basket Fund to ASLMs based on technical and financial reports and audits; (iii) policy directives governing the Basket Fund; and (iv) identification of LGAs which qualify for the grants and agreeing changes to the formula for LGA allocations. The LGDG Steering Committee is responsible for decisions on the LGA items, with the Basket Fund Steering Committee approving the submission of changes to the Steering Committee through the agriculture representative on the LGDG Technical Committee.

341. At the local level, the Basket Fund supports block grants, e.g., the Capacity Building Grant (CBG), and the Extension Block Grant (EBG) and District Irrigation Development Fund. These block grants are incorporated into the financing arrangements used by LGDG and are used to finance the local DADP. The flow of funds in ASDP-1 is presented in **Figure 18**.

Figure 18: Flow of Funds in ASDP-1



342. In addition to the Basket Fund for ASDP-1, agricultural projects can also be funded through on-budget financing whereby funds flow through the exchequer system. In addition, the projects can be directly funded by development partners through off-budget financing. However, off-budget financing is not recorded in the government's agricultural expenditure accounts.

343. With regard to the financing of ASDP 2 activities, the government preference is to continue with the Basket Fund arrangement established under ASDP-1. This is the most integrated and expedient financing mechanism to implement a comprehensive agricultural development programme, such as ASDP -2. The mechanism also avoids a fragmented system of financing with separate projects being funded by a range of different development partners.

344. ASDP-1 implementation demonstrated that the Basket Fund arrangement had been effective in implementing the LGDG system of delivering discretionary grants to LGAs (Agriculture Extension Block Grant, Agriculture Capacity Building Grant and DADG) which facilitated delivery of public support services and local investment through formula based approach. Therefore, the government preference is to continue with the Basket Fund arrangement to ensure effective delivery of support services (extension and research) and implementation of the Cluster Approach under ASDP-2 that is intended to promote priority CVC at zonal level.

345. In circumstances where development partner country policies are strictly not in favour of using the Basket Fund arrangement, the government would allow the flexibility in using ear-marked funds within the Basket Fund arrangement and stand-alone projects.

346. To integrate on-budget (budget support, Basket Fund, earmarked programmes and projects) and off-budget programme, core programme elements such as **coordination** (planning, implementing M&E) and **capacity strengthening** at national and local level will need to be financed either by the Basket Fund (government and non-earmarked development partner contributions) and/or contributions of 5% from each (on- and off-budget) programme and project in the sector.

347. In this regard development partners (both on-budget and off-budget) should contribute 5% of the funds towards coordination costs. The contributed fund would be channelled through a **joint account**. This account will be coordinated by the CMT responsible for programme coordination to ensure that ASDP-2 activities take place according to schedule and reports are shared. The CMT would utilize a single financial management system for accounting, reporting and auditing and therefore make better use of existing government resources such as staff, equipment and transport. There is also significant scope to improve the existing financial management systems through training and capacity building to mitigate many of the current weaknesses of the government's budgeting, accounting, reporting and auditing procedures.

348. Therefore, the government should establish a Basket Fund for ASDP 2 with support from participating development partners. In addition to the Basket Fund, the joint account will be established to allow participating development partners (both on-budget and off-budget) to contribute towards ASDP 2 coordination costs. These mechanisms would enable the government to capture all public and private investments in the sector and also meet the requirements of development partners who are unable to contribute in the programme through the Basket Fund mechanism.

349. **Fund flow:** As for the Basket Fund (non-earmarked and earmarked), the flow of ASDP 2 funds will be the same as for ASDP-1 (**Figure 18**). For the other funding arrangement that will be mutually agreed between the government and development partners, funds would flow from designated account to the implementing agency.

VI. Institutional and Implementation Arrangements

A. Implementation of ASDP-2 at National Level

350. Implementation of ASDP-2 will be undertaken using existing government structures of the ASLMs¹³⁷ that will be enhanced by further training and capacity building of staff. The interests associated with Natural Resources and Tourism, Land and Housing Infrastructure, Finance, Energy, Labour, Gender and Children Affairs, Water, Trade and Health and Social Affairs will all be included. The implementation process is summarized in Table 59 and further details of the mechanisms are provided in Annex II.

Table 59: Summary of ASDP-2 coordination organs, mechanisms, membership and functions

Organ/mechanism	Membership/participants	Functions and purpose
i) National Agricultural Sector Stakeholders Meeting (NASSM). Chaired by Minister of Agriculture.	Central Government—Ministers, permanent secretaries, DPPs from all ASLMs, and senior government officials; JDPAWG; RSs; DEDs; DAICOs, DLFOs; research officials; training officials; academia representatives; commodity boards; private sector representatives; non-state actors; financial institutions; associations and cooperatives, commodity associations, and successive agriculture associations and SACCOS; representatives of other related stakeholder organizations	The agenda will be determined by stakeholders; provide policy guidelines for implementation; annual meeting
Joint Sector Review ¹³⁸ of the agricultural sector by the Government of Tanzania, development partners and consultants.	JDPAWG, representatives of development partners	Annual review following NBS and AASS, but preceding NASSM to determine efficiency, effectiveness and impact of ASDP-2 and to inform the NASSM of the results and proposed corrective actions; voice development partner opinion and provide guidance on ASDP-2
Agricultural Sector Consultative Group (ASCG) Meeting	Officials from ASLMs, JDPAWG and non-state actors.	Coordinate dialogue regularly on sector policies and budget, and annual agriculture sector/public expenditure review (ASR/PER)
Steering Committee	Permanent secretaries of ASLMs and collaborating ministries, TCD, JDPAWG, representatives from private sectors, non-state actors	Advise NASSM and provide joint perspective and guidance to TWG quarterly meetings, immediately following those of the TCD (below)
Technical Committee of Directors (TCD)	Directors of ASLMs	Direct TWGs, link policy to implementation on quarterly basis.
Thematic Working Groups (TWGs) (Various groups)	Selected technical staff of different ASLMs, non-state actors and CAADP country team representatives	Bring cross-cutting expertise to issues arising. Troubleshooting of implementation process and guide and facilitate implementation of ASDP-2 and provide guidance to the Steering Committee and TCD, on a continuous basis
Coordination and Management Team (CMT)	•National Planning Coordinator •Agricultural Economist	Joint planning, monitoring of progress, facilitating secretariat for ASDP-2 meetings; ensuring that ASDP-2 activities take place according schedule & reports shared;

¹³⁷ ASLMs under ASDP-2 include the Ministry of Agriculture Livestock and Fisheries; the Ministry of Industry Trade and Investment; the Ministry of Water and Irrigation; the President's Office—Regional Administration and Local Government; and the Ministry of Land, Housing and Settlement Development.

¹³⁸ Larger stakeholder group for mid-term review.

	<ul style="list-style-type: none"> • Communications, M&E specialist 	training, production of manuals, guidelines and publicity; managing M&E functions; establishing and sharing best practices & lessons learnt under SWAp
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B. Regional level

351. LGAs will be coordinated by the **PO-RALG in collaboration with other ASLMs** through regional secretariats. The **Department of Sector Coordination** is responsible for management and support to LGAs by collaboration with RSs. Vertical coordination from the then PMO-RALG to RSs and LGAs has been established and worked well under ASDP-1 and ASDP-2 will continue to strengthen the same functions of PO-RALG.

352. For administrative aspect of ASDP-2, coordination among RSs, TCD through CMT, TWGs will be constantly maintained to realize smooth flow of information on the status of development activities and performance under ASDP-2.

C. Local Level

353. LGAs will be responsible for planning, designing and implementation of programme components under supervision of the RSs to promote social and economic development. They will ensure that laws and regulations are observed in implementation and maintenance and be responsible for the delivery of extension services and the administration of resources including land use planning in conjunction with private sector investors.

D. Coordination mechanisms and processes

354. The hierarchy of coordination organs and functions under ASDP-2 at national level are summarized below and detailed further in Annex II.

355. The **National Agricultural Sector Stakeholders Meeting (NASSM)** will be held once a year following the annual JSR performed by government, development partners, non-state actors, and the private sector to monitor sector progress. The report will inform the Steering Committee.

356. **The Steering Committee** will be the key management organ of ASDP-2 implementation and coordination. It will aim to approve the annual work plan, oversee the physical and financial progress, follow-up the audit results and discuss on key issues in regard to sector performance and coordination to guide the TDC and TWG.

357. **Technical Committee of Directors (TCD).** The TCD will advise the Steering Committee on technical issues in connection with development projects. It will be supported by CMT and the TWGs.

358. **Thematic Working Groups (TWGs).** Membership of TWGs will be drawn from experts within the relevant fields (i.e., departments) in each ASLM and should invite participation of development partners. The TWGs will guide the programme on technical and/or managerial matters and advise the TCD and follow the progress of recommended actions as indicated in annual work plans.

359. TWGs will also provide **National Facilitation Teams** (of one or more members) that will comprise members of the TWGs who will be dispatched on an *ad hoc* basis to assist in implementation or problem solving missions at project level.

360. The **ASDP-2 Coordination and Management Team (CMT)** will be directed by the National Programme Coordinator and will include selected officials from ASLMs and will have executive powers to call for meetings of other organs of the ASDP-2 structures and to direct implementation functions. It will be exclusively engaged in the ASDP-2 processes for the duration of the programme.

361. The Agricultural Sector Consultative Group Meeting (**ASCG Meeting**) will provide a forum for dialogue between the government (ASLMs), active development partners and non-state actors in

the agriculture sector and will coordinate regular dialogue on sector policies and budget, and on the annual agriculture sector/public expenditure review (ASR/PER). It will inform policy and review budgetary issues, facilitating sector dialogue on JAST and GBS.

E. Management Information System and monitoring

362. M&E is a vital component for the effective management of a programme. It must be clearly defined and structured at the onset of the programme to inform all sector stakeholders on the expectations for performance indicators. ASDP-2 will utilize available advanced technology (ICT) to increase the delivery and analysis of information from the field. This will involve the use of tablets, smartphones and computers to increase the capabilities of officers at field, district and regional level for computer literacy and quality data management.

363. Design of the M&E instrument demands a professional approach if it is to effectively serve its purpose. Attention to accuracy by correspondents will be enhanced when they receive feedback from analysis, which also helps increase their awareness of their own performance and to maintain interest in their development. Exchange of views resulting from discussion over data and data analysis also helps enhance coordination and improve transparency of management systems, expectations and performance.

364. With these conditions in mind, the CMT will apply an M&E framework and instrument template very early in the programme so as to be effective and efficient at guiding the programme. The framework must describe the pathway for information flow, the responsible parties in its execution, the timeframe, the analysis method in relation to the objectives of the process and the mechanism for response to the conditions that it reveals. Collaboration with the professionals in NBS will provide synergies and efficiencies in collection and analysis of data.

365. An M&E specialist will be integrated into CMT to manage the process and ensure its relevance and effectiveness: quarterly reports will conform to a template to specify the information required. Responses should be formalized, brief, numerical and, as far as possible, simplified to yes/no answers. Narrative, if needed, should be structured, unambiguous and confined to brief explanation. Data provided must inform the CMT and all components of the ASDP-2 institutional hierarchy of the progress toward national goals as expressed in the ASDP-2 objectives, as well as progress of projects, the efficiency of implementation and the impact on production, food security, resilience, capacity or capability depending on the objective of the projects.

366. The purpose of data collection must be clear to those demanding it and to those providing it so as to improve the usefulness of the exercise and to inform the need for response. Conclusions from analysis must inform NBS, PO-RALG, ASLMs, RSs, districts, wards and villages. As part of the annual budgetary process, it should improve performance of programme implementation, stimulate interest and engender a concept of national connectivity and common purpose.

367. Under the terms of the memoranda of understanding, information on activities and their achievements will also be collected from NGO projects or off-budget development partner projects to cover sector-wide performance and indicators of progress towards national objectives. Data collected at village level will be delivered in hard copy (paper forms) until advances in access and use of ICT solutions allow for electronic collection and transmission. Village data will be delivered to wards and from wards to districts.

368. At district level the results will be collated, consolidated and digitalized into a standardized format for electronic transmission to the RS. The RS will ‘clean’ the data by checking consistency and consolidate the information into standard format to form a local level consolidated report for transmission to PO-RALG, with a copy to CMT where further consolidation and analysis will contribute to national quarterly and annual reports.

369. Choice of indicators must be carefully considered and limited to useful information by key decision makers to avoid overburdening the generators of the information and creating superfluous and irrelevant data. Relevant results framework indicators should inform the progress towards

project/programme objectives and accommodate information on efficiency, effectiveness, relevance and impact so as also to be interpreted in terms of cost/benefit ratio. Data should also inform the programme about compliance with cross-cutting considerations and targets including gender and environment.

F. Safeguard Aspects—Social and Environmental management

370. Since “development” without considering environment or social advancement can be retrogressive in the long run it is important that thorough consideration of factors affecting them is entrenched in the process of project selection.

371. Environmental consideration may include a wide range of impacts including erosion, deforestation, air pollution, water-source contamination, flooding, soil degradation, noise, visual landscape deterioration, traffic congestion, health hazard from agrochemicals or accidents, rodent or pest infestation including malaria, schistosomiasis, trypanosomiasis etc. Social safeguards include gender equality, working conditions, family disruption, labour and child labour exploitation, disruption of schooling, personal security, nutrition, stress, exposure to accident and health hazard, civil strife due to wealth discrepancy, migration etc.

372. The safeguards are incorporated in a two-step process. First, by enumerating the criteria for selection of projects on the basis of environmental and social consideration. Second, for projects that may entail a risk, by undergoing environmental and social impact assessment (ESIA) by professional specialists in those fields before commitment to implementation.

373. Impact assessment specialists can be registered and dispatched to undertake the assessments as required under contract or, if there is sufficient demand, under long-term employment with the CMT. The cost of ESIA, where it is necessary, must be included in the implementation cost of the project.

374. **Regulatory Framework.** The principal national environmental law in Tanzania is the Environmental Management Act 2004, which stipulates the need to carry out an environmental impact assessment study before commencement or financing a project. The most relevant regulations, which will be used to guide environmental and social management under ASDP-2, are the Environmental Impact Assessment (EIA) and Audit Regulations of 2005. The regulations provide for the requirement and procedures for undertaking, reviewing, approval and auditing of EIA for different types of projects and their respective level of assessment required. The overall responsibility of overseeing environmental and social management at national level lies with the National Environment Management Council (NEMC) under the Vice President’s Office. The ministry has a full-fledged Environmental Management Unit, which coordinates and oversees the implementation of environmental and social management issues within the agriculture sector, including ASDP. At LGA level, environmental and social management will be coordinated by the District Environmental Management Officer (DEMO).

375. In accordance with Environmental and Social Impact Assessment (ESMF, RPF) and Audit Regulations, investments in the agriculture sector fall under Type A Projects, which are likely to have significant adverse environmental impacts. Therefore EIA are mandatory for agricultural projects and include in-depth studies to determine the scale, extent and significance of expected impacts and the identification of appropriate mitigation measures. The ASDP-2 support to production intensification and commercialization for selected commodities in different AEZs is likely to generate both positive and negative impacts, including by: (i) higher adoption of improved technologies and use of inputs; (ii) irrigation infrastructure development; and (iii) improved market efficiency by aggregating outputs (such as warehousing) and value addition to enhance income growth.

376. The positive socio-economic impacts envisaged from the ASDP-2 programme include: (i) increase in agriculture productivity and incomes to rural communities in selected districts in terms of creation of more and better entrepreneurship opportunities; (ii) reduced household vulnerability; and (iii) improved living standards and increased rural employment opportunities. These will lead to improved food security and nutritional status for participating districts, and improved livelihood

conditions, including improved access to socio-economic services. The programme will further enhance the capacity to mainstream environmental and socio-economic issues into development activities and improve stakeholders' environmental and social awareness in selected districts.

377. Potential negative impacts are likely to be associated with the implementation of CVC activities and irrigation infrastructure development and value addition sub-projects. Potential impacts may include: (i) point and non-point pollution of water sources, due to spillage of agrochemicals or waste water from processing facilities; (ii) soil erosion and increased loss of soil fertility and other issues from inappropriate use of agricultural inputs; (iii) noise and air pollution; (iv) spread of diseases (such as HIV/AIDS), especially during construction phase of sub-projects; and (v) land use conflicts, among others. Irrigation infrastructure rehabilitation and expansion appears most critical as it could lead to degradation of river catchments and riparian ecosystems/biodiversity, soil salinization, loss of forests and other vegetation diversity, reduction of environmental flows, degradation of ecologically sensitive areas in the wetlands, increased water borne diseases, and water contamination due to non-appropriate use of agrochemicals. Furthermore, infringement on property and access rights, population influx seeking employment or other livelihood opportunities, increased conflicts over water use within schemes and between upstream and downstream users also need to be considered. Strategic Environmental and Social Assessment (SESA) for the National Irrigation Master Plan (NIMP) and National Irrigation Policy of 2011 provides details of potential impacts and proposed mitigation measures for irrigation activities in the country.

378. **Capacity for Environmental and Social Management.** Over the years, capacity improvement to manage environmental and social issues has been done through implementation and training under several Bank-funded operations in the agriculture sector, such as ASDP-1, PADEP and AFSP. Nevertheless, institutional and technical capacity for environmental and social management at the district and lower levels of LGAs still need improvement. This deficiency will be addressed in detail during programme implementation at district level.

379. Under ASDP-1, a SESA was prepared. The SESA covers the country's national irrigation policy and national irrigation master plan, and it provides specific guidance for investments in irrigation. The SESA identifies potentially adverse environmental and social impacts emanating from the implementation of the national irrigation policy/national irrigation master plan and identifies strategic guidance on how to minimize and mitigate those impacts when implementing irrigation development projects/programmes in the sector. An environmental and social audit for ASDP-1, which is underway, will provide more insight and lessons on the capacity in the key implementing institutions with regard to environmental and social management.

VII. Benefits and Economic and Financial Analysis (EFA)

A. Summary of benefits

380. In line with the importance of the sector, agricultural transformation and accelerated rural development will make a major contribution to Tanzania's national development aspirations. The principal benefits of the programme will be: (i) increased and sustainable productivity and production of food and non-food agricultural commodities to improve rural incomes, boost rural households and national level food security, and provide raw materials for the agro-industrial sector; (ii) reduction in the prevalence of under-nutrition and malnutrition in rural communities and protection from the impact of natural disasters; (iii) accelerated commercialization of the rural sector generating increased cash incomes from farm and non-farm enterprises, especially by smallholders (comprising about 97.5% of rural households); (iv) protection and enhancement of the long-term productive capacity of Tanzania's natural resource base through more sustainable land and water management practices and measures to adapt to climate change; and (v) improved institutional capacity to mobilize and manage resources in support of agriculture sector development. Not surprisingly, considering the size of the planned investment over a 10-year timeframe, and the scope of activities to be funded, the range of benefits will be extensive¹³⁹. All of the above will contribute to Tanzania's higher level national development goals as expressed in Vision 2025.

381. Several other benefits are also expected to accrue as the sector develops including: (i) reduction in harvest and post-harvest losses; (ii) increased export earnings; (iii) diversification of production into higher value agricultural products; (iv) improved access to financial services by smallholder farmers and rural entrepreneurs; (v) reduced transaction costs and improved efficiency in pre- and post-farm gate value chains; (vi) increased participation in cooperatives and other forms of FO; (vii) improved access to markets through infrastructure development; (viii) increased rural employment; (ix) higher productivity and reduced vulnerability to droughts from expansion of irrigated agriculture; (x) maintenance of agricultural biodiversity; and (xi) improving the system of disaster risk management by exploring the use of innovative risk management tools.

382. **Functional networks between production and markets.** ASDP-1 emphasized generation and transfer and adoption of production technologies. Developing commercial skills and strengthening networks, linking farmers to markets were still limited. Therefore the formulation of ASDP-2 has focused on developing a network of functional and market-driven value chains, involving key stakeholders (farmers, marketers and agroprocessors) who are aware of their mutual linkages, as well as complementary investments, make a deliberate effort to improve them, and organize themselves in such a way that they can benefit from participation in the CVC. The ASDP-2 intervention is aimed at reducing isolation and encouraging and strengthening collective action and networking among value chain participants to enhance willingness to invest in new technology, infrastructure, production and processing for higher income.

383. **Economy of scale.** Economy of scale in production is a limiting factor. Smallholder's production and productivity relative to market opportunities in and outside the country is small. Scale of production is so small that buyers for large markets are not usually keen to form partnerships. Therefore the emphasis given to strengthening FOs and to promoting production under the programme is to enable product aggregation and to increase productivity to reach a scale that would make economic sense to participate in a value chain.

384. **Improved competitiveness.** Interventions aimed at overcoming market failure and improving productivity, markets and competitiveness will provide substantial benefit to all the participants in the value chain. Broadly, the following critical factors that affect competitiveness will be addressed

¹³⁹ The results framework in Annex I shows the linkages between various interventions and their strategic outcomes.

through the programme: technology constraints in production and post-production systems; access to markets; grants and information about credit; poor infrastructure; and paucity of effective FOs, producer associations, trade associations, and coordination mechanisms among stakeholders. Moreover, the programme interventions will yield direct benefits such as: (i) increased operating efficiency at farm level through improvements to production and marketing process, logistics, and market institutions; (ii) extended value addition at farm and/or post-farm level with greater integration between producers, traders and processors along the value chains; and (iii) increased market access. In addition, the programme's planned activities (agribusiness support services and training) will provide further indirect benefits in the form of: (i) stronger FOs that are able to actively and profitably engage with the market; (ii) more market-oriented and active agribusinesses with stronger links to producers; and (iii) more structured planning for value chain improvements at district and national level.

385. Impact oriented implementation mechanism. The programme's implementation mechanism, based on an initial selection of priority value chains within focused district clusters, together with a demand driven investment programme support is likely to result in substantial benefits, difficult to quantify at this stage. A pluralistic delivery system where private, public, and NGO service providers will participate in organizing the value chain participants, strengthening linkages and providing technical and business advisory services will have a sustainable positive impact. The construction of rural market infrastructure will be demand-based and financed jointly with the beneficiaries, leveraging substantial resource mobilization, including from the private sector.

386. Countering the impact of drought and climate change. The programme has a major irrigation development component. This is to counter the danger the agriculture sector and the Tanzanian economy at large face due to the unreliability of rainfed agriculture, which is the dominant mode of agriculture. Agriculture is affected by frequent drought, which leads to famine and has a significant negative impact on the country's GDP. Climate change is also expected to decrease precipitation and increase its variability in arid and semi-arid regions of Tanzania. Further to irrigation development, the priority interventions are also promoting integrated soil and water management, conservation agriculture and agroforestry to overcome these challenges and sustainably improve the sectors productivity and resilience under rainfed conditions.

387. Benefits will also arise from several of the cross-cutting thematic areas of the ASDP-2 including: (i) improved institutional capacity and human resources at all levels; (ii) more balanced participation of women and men (old and young) in development and income-generating activities and both household and community level decision-making processes; (iii) recognition of the special needs of rural households affected by HIV/AIDS and/or poor nutrition and efforts to improve household nutrition and curb the spread of the disease; and (iv) improving the adaptability of the agricultural sector to climate change and reducing Tanzania's contribution to global greenhouse gas emissions. A positive economic impact will be assured by requiring all proposed investments to be subject to thorough technical and financial feasibility studies to ensure that those likely to generate robust financial and economic returns are given high priority, and all proposed investments meet a minimum (hurdle) rate of return.

B. Economic and Financial Analysis

Introduction

388. An economic and financial analysis was undertaken to assess the viability of the investments proposed for ASDP-2. The main economic benefits of these interventions are expected to be: (i) increased crop production through improved crop yields, higher cropping intensity, and diversification to higher value crops; (ii) enhanced livestock and fish production; (iii) higher farm incomes from agricultural production; (iv) increased income from agribusinesses and greater value addition; and (v) higher export earnings.

389. It is estimated that farmers on 2,000,000 hectares of non-irrigated land will benefit from improved agricultural support services, development of farmer organizations, and better access to markets and rural finance. Furthermore, investments in land and watershed management will help to ensure that increases in crop production are sustained in areas which are vulnerable to soil erosion and

declining soil fertility. In addition, it is estimated that the improved irrigation infrastructure will benefit an irrigable area of 165,000 hectares, comprising 65,000 hectares of new and expanded irrigation schemes and 100,000 hectares of existing irrigation schemes which will be rehabilitated under ASDP-2.

390. For irrigated land, cropping intensity is expected to rise to 135% while for non-irrigated land it is assumed to increase to 100%. It is also anticipated that the average yields of paddy rice would rise from 1.75 to 3.0 tons/ha. The corresponding increases for other crops are: 1.35 to 2.20 tons/ha (maize), 1.0 to 1.4 tons/ha (oilseeds/pulses) and 15.0 to 25.0 tons/ha (vegetables).

391. The development of water resources for livestock as well as the provision of support services are expected to result in an increase in livestock productivity and farm incomes. Increases in livestock productivity will primarily arise from the adoption of improved pasture management, enhanced nutrition and better animal health. The proposed fisheries interventions are primarily aimed at increasing aquaculture production through the expansion of fish ponds as well as improved support services.

392. ASDP-2 also includes measures to expand farmers' access to rural markets, improve marketing systems and provide support to agribusinesses. These interventions are likely to provide significant economic benefits, such as enhancing CVCs, increasing value addition, and improving the income and employment opportunities of agribusinesses. However, the economic benefits of these interventions have not been quantified in the economic and financial analyses.

Financial Analysis

Crop Budgets

393. A financial analysis was undertaken to assess the likely impact of ASDP-2 interventions on farm incomes. Four budgets were prepared to represent the main crops grown in Tanzania, namely maize, rice, oilseeds/pulses and vegetables. Crop budgets were prepared for the present, future without project, and future with project situations.

394. The financial crop gross margins are summarized in **Table 60** and it is evident that, in the future with project situation, there is a significant improvement in the net returns for all types of crop. This reflects the notably higher yield levels which generate incremental returns in excess of the additional production costs. It is also apparent that net returns from vegetables are substantially higher than returns from other crops. However, the high returns from horticultural crops are moderated by the risks associated with very large seasonal price fluctuations.

Table 60: Financial Crop Gross Margins in Present, Future Without and Future With Project

	Gross margins (TSh per hectare)		
	Present	Future Without Project	Future With Project
Maize	67,088	119,831	216,550
Rice	322,500	423,844	709,375
Oilseeds/pulses	512,625	613,250	807,500
Vegetables	2,267,000	2,583,875	2,927,250

Source: Crop budget estimates

395. It is envisaged that the future with project yield levels would be fully achieved within two years of completing the strengthening of agricultural support services, implementation of improved land and watershed management, as well as the construction of irrigation infrastructure envisaged under the programme.

396. In the financial analysis, budgets were also prepared for two livestock enterprises, namely dairy production and beef fattening (**Table 61**). In the future with project situation, the improvements in net returns primarily reflect the higher levels of productivity.

Table 61: Financial Livestock Gross Margins in Present, Future-without and Future-with project

Livestock Enterprise	Financial gross margins (TSh per head)	
	Present and Future Without Project	Future With Project
Dairy Production	176,975	311,975
Beef Fattening	77,900	102,900

Source: Livestock budget estimates

Cropping Patterns

397. In the existing irrigated area, it is anticipated that the areas of rice, oilseeds/pulses and vegetables will increase in both the wet and dry seasons. In the proposed irrigated area, there will be a significant change in cropping pattern with a major expansion in the area of rice in the wet season and the introduction of maize, rice, oilseeds/pulses and vegetables in the dry season. Cropping intensity is expected to increase from 125% to 135% while, on the proposed irrigated area, cropping intensity will rise from 90% to 135%. For non-irrigated areas, cropping intensity in the future with project situation is estimated at 100%. Overall, cropping intensity in the ASDP-2 area is expected to increase from 92% to 103%.

Farm Budget Analysis

398. Farm budgets were prepared for an average sized farm of 2.0 ha and a summary of the net farm incomes for the different ASDP-2 areas is given in **Table 62**. Comparing the present and future with project situations, net farm income in the existing irrigated area is expected to increase from TSh 900,568 to TSh 2,665,228 (before irrigation O&M costs) while, in the non-irrigated areas, net farm income is estimated to rise from TSh 367,385 to TSh 1,158,275. Overall net farm income is expected to increase from TSh 436,699 to TSh 1,655,569 per annum.

399. When irrigation O&M costs are included, net farm income in the irrigated areas falls to TSh 2,229,994 per annum in the irrigated areas. However, as irrigation costs only account for about 16% of net farm income, farmers will have the ability to meet annual O&M costs.

Table 62: Net Farm Incomes in Present, Future-without and Future-with project

Irrigation Status	Net Farm Income (TSh per annum)			
	Present	Future Without Project	Future With Project	
			Excluding Irrigation O&M Costs	Including Irrigation O&M Costs
Rehabilitated irrigated area	900,568	1,138,498	2,665,228	2,229,994
New irrigated area	367,385	496,902	2,665,228	2,229,994
Non-irrigated area	367,385	496,902	1,158,275	
Overall	436,699	580,309	1,655,569	

Source: Farm budget estimates

Economic Analysis

Economic Pricing

400. Economic prices for internationally traded goods were derived from the World Bank commodity price projections for 2015. Local transport, handling, storage and processing costs were based on the current rates prevailing in Tanzania. However, these financial prices were converted to economic prices by applying the standard conversion factor (SCF) of 0.95. Labour costs were based on rural wage rates. However, given the high levels of underemployment, a shadow wage rate of 0.65 was used to determine the economic value of labour.

401. The economic analysis was undertaken over a 50-year period in 2015 constant prices and a

shadow discount rate of 12% was assumed. The Tanzania shilling was used as the unit of account and an exchange rate of TSh 2,150 to USD 1.0 (June 2015) was applied when converting to USD. It was anticipated that the programme would be implemented over a 10-year period.

C. Economic Benefits

402. In the estimation of agricultural benefits, economic crop gross margins per hectare were calculated by valuing the physical input and output quantities in terms of their respective economic prices. The economic gross margins per hectare were then multiplied by the respective crop areas to estimate net crop benefits in the present, future with and future without project situations. Net livestock benefits were also estimated for the three project situations (based on the respective livestock populations and economic gross margins).

403. As a result of these increases in crop and livestock production, net agricultural benefits to farmers within the project area were estimated to rise by TSh 626,572 million per annum (from TSh 245,152 million to TSh 859,700 million per annum at full development). It is envisaged that the future with project agricultural benefits would be fully attained within two years of programme completion. Benefits from crop production are estimate to account for 81% of the overall agricultural benefits.

D. Capital and Recurrent Costs

404. The financial and economic capital costs of the ASDP-2 components are summarized in **Table 63**. In financial terms, the base capital cost was estimated at TSh 6,230,100 million (USD 2,898 million) and when physical contingencies were included, the project cost increased to TSh 7,882,948 million (USD 3,666 million). Physical contingencies were estimated at 10%.

405. In the derivation of economic costs, government taxes/duties and subsidies were first omitted from the financial costs. The economic conversion factors were then applied to the financial costs of local materials, machinery/equipment and labour. The financial cost of foreign goods and services remained unchanged. The economic capital cost was estimated at TSh 3,812,350 million (USD 1,773 million).

Table 63: Financial and economic capital costs

Programme Components	Financial Cost (TSh million)	Economic Cost (TSh million)
Component 1: Sustainable Water & Land Use Management	1,450,593	1,233,004
Component 2: Enhanced Agricultural Productivity	1,517,960	607,184
Component 3: Rural Commercialization and Value Addition	1,483,429	1,260,915
Component 4: Strengthening Sector Enablers	1,778,118	711,247
Base Cost	6,230,100	3,812,350
Physical & Financial contingencies	1,652,848	1,011,418
Total Capital Cost	7,882,948	4,823,768

406. The long-term annual operation and maintenance costs of the irrigation infrastructure were also included in the economic analysis. The annual O&M cost of the infrastructure was estimated at TSh 38,915 million (USD 21.8 million). These financial costs were then converted to economic values, and the annual economic O&M costs were estimated at TSh 34,614 million (USD 16.1 million). In addition, the annual costs of support services were included in the analysis to ensure that agricultural production continues to grow after completion of ASDP-2. In total, economic recurrent costs after programme completion amounted to TSh 67,740 million per annum (USD 31.5 million per annum).

E. Economic Viability and Sensitivity Analysis

407. The results of the economic analysis indicate that the IRR of ASDP-2 is **14.8%** with a NPV of TSh 370,009 million (USD 172 million). These results show that the proposed project investment is

justified on economic grounds. Sensitivity analysis was also undertaken to test the economic viability of the proposed interventions to various changes in the cost and benefit streams. This analysis indicated that ASDP-2 is fairly sensitive to changes in benefits and costs and becomes uneconomic with an increase in capital and recurrent costs of 21%. Similarly, an 18% decrease in incremental project benefits would result in the EIRR falling below 12%.

408. The results of the sensitivity analysis are given in **Table 64** which shows that a decrease in capital and recurrent costs of 20% resulted in an EIRR of 18.8%, while a cost increase of 20% lowered the EIRR to 12.1%. Similarly, an increase in incremental benefits of 20% produced an EIRR of 18.0% and a benefit decrease of 20% reduced the EIRR to 11.6%. In addition, changes in the expected cropping intensity were also assessed and the analysis indicated that if a future with project cropping intensity of 100% is assumed (in comparison to 103% in the base case), the EIRR falls to 10.7%, while a cropping intensity of only 95% will further reduce the EIRR to 7.7%.

409. With regard to crop productivity, the analysis indicated that if yields of maize and rice only increased by 50% (in comparison to 57% and 67% in the base case), the EIRR falls to 10.7% and ASDP-2 becomes uneconomic. It should therefore be emphasized that the adoption of improved cropping practices and expected increases in crop yields (to maintain economic viability) will only be achieved if adequate agricultural support services, including extension/training and input supply as well improved access to markets and rural finance, are made available to farmers in an effective and efficient manner.

Table 64: Economic viability and sensitivity analysis

Scenario	EIRR (%)	NPV (TSh million)
Base Case	14.8%	370,009
Capital and Recurrent Costs -20%	18.8%	722,428
Capital and Recurrent Costs +20%	12.1%	17,589
Incremental Benefits +20%	18.0%	796,430
Incremental Benefits -20%	11.6%	-56,413
Costs -20% and Incr. Agric Benefits +20%	22.6%	1,148,850
Costs + 20% and Inc. Agric Benefits -20%	9.3%	-408,832
100% Cropping Intensity With Project	14.3%	299,966
95% Cropping Intensity With Project	11.8%	-21,536
50% Increase in Crop Yields	10.7%	-531,096
40% Increase in Crop Yields	7.7%	-165,650

F. Programme Sustainability

410. Long-term sustainability of the programme will be determined by the extent to which it delivers results, i.e., improving agricultural and agribusiness service delivery for sustainable productivity growth and subsequent gains in farm production, income and resilience, especially in rainfed production systems for crops and livestock. Improving the responsiveness of key services to respond to farmers' demand, together with supporting agribusiness investments, key infrastructure, professional services and adapted policy environment should improve the overall impact. In the medium term, smallholder farmer empowerment and the consolidation of their organizations will allow for strengthened voice and building-up of capacities for technical and economic service provision to their members.

411. ASDP-2 aims to achieve a sustainable increase in agricultural productivity and commercialization by most smallholders (at least 20%). This will be achieved through scaling up of technologies which are appropriate, affordable and profitable to smallholder farmers, and can be sustained without ongoing support in the long run. ASDP-2 will utilize the principles of sustainable agricultural intensification by enabling farmers to develop intensive diversified farming systems, and at the same time create an enabling environment for rural commercial development in which farmers can access commercial input and output markets, towards improved productivity and profitability of market-oriented farming.

412. ASDP-2 addresses the social dimension of sustainability through ensuring that household food and nutrition needs are satisfied and that rural people are protected from the impacts of natural disasters and acute food shortages, which can deplete household assets and reverse hard-won gains. Particularly, the programme addresses the high prevalence of under-nutrition and malnutrition, which limit productivity and threaten the sustainability of human development in rural households and communities. For Tanzania to achieve its development aspirations there is need to have a substantial upswing in the rate of investments in agriculture and food security. ASDP aims at providing additional resources for enhancing outcomes across all programme areas to achieve the programme development objective.

413. In summary, ASDP-2 sets out a clear roadmap for ongoing developments towards increased competitiveness and profitability of the sector and confirms government and donor responsibilities in meeting the challenges of transforming the agricultural sector within a coordinated approach.

VIII. Implementation modalities and Risks

A. Implementing agency and stakeholder assessment

414. The implementation of ASDP-2 will follow the government structures/systems for procurement, financial management and environmental and social safeguards. The proposed programme will require enhanced reporting on results and impact: the M&E system will include and be aligned with the proposed BRN results tracking system. Furthermore, the coordination of sector support under the ASDP-2 BRN need to be aligned with the overall ASDP-2 framework at national and local levels for efficient implementation and effective delivery of results.

415. **Building on ASDP-1.** ASDP-2 is building on experiences, achievements, capacities and systems developed during ASDP-1, in alignment with the government's priority investments for achieving quick results, through the BRN initiative. While the focus, approach and scope of the proposed ASDP-2 programme will significantly differ from ASDP-1, the delivery systems and structures will to a large extent remain the same, to be strengthened to enhance their capacity to deliver envisaged programme results. The design of the programme has integrated support for institutional strengthening of implementing agencies and capacity building activities for farmers and other key technical areas, including results monitoring and coordination.

416. **Programme Stakeholder Assessment.** Programme implementation will involve a range of sector stakeholders, partners and beneficiaries at different levels. This includes government institutions (national, regional and local levels), the private sector, namely input and output traders, PSPs, agro-industries/processors, FOs, NGO, financial institutions and others. The capacity of stakeholders varies across the implementation levels: the participation of the private sector in agriculture remains still weak and stakeholder coordination at local levels is inadequate. The sector-wide coordination framework currently under preparation will improve coordination among various players supporting the agricultural sector. There are also efforts to establish CVC platforms, especially at district (cluster) level, to enhance stakeholder coordination.

417. **The institutional and human capacity** developed during the first phase of ASDP will be utilized for implementation of the proposed operation. The ASLMs will be strengthened to improve its analytical skills and results orientation within strengthened programme management and coordination capacities. Fiduciary, M&E and other critical technical competencies, such as CVC analysis, need to be further strengthened for support effectiveness and sustainability. ASDP-2 will require much enhanced emphasis on real-time reporting on results and impact (in alignment with BRN). The coordination of sector support under the Programme at the national and local levels needs to be clarified and made more efficient in order to enhance delivery.

418. **Development Partners.** Most of the development partners have expressed interest in supporting the government's efforts towards agricultural development through a sector-wide approach such as ASDP-2 over the 2015/2016–2024/2025 period. However, some of these contributions are already earmarked or designed as stand-alone projects, such as contributions by JICA (mainly irrigation infrastructure and development), IFAD (Bagamoyo smallholder sugar project¹⁴⁰) and IDA (support the BRN initiative for irrigation development and COWABAMA). Therefore non-earmarked basket funding is expected to originate from development partners and from the Government of Tanzania budget. A memorandum of understanding stipulating principles for managing the Basket Fund will be signed by all Basket Fund development partners, including the coordination and harmonization mechanisms for earmarked and non-earmarked funds. A framework for coordinating and harmonizing the Basket Fund with non-basket (off- and on-budget)¹⁴¹ funded

¹⁴⁰ The ongoing preparation of a loan to support an out-grower sugarcane scheme in Bagamoyo is an attempt by IFAD to engage in a public–private sector partnership in Tanzania, based on experiences from palm oil in Uganda and sugarcane in Swaziland.

¹⁴¹ Most bilateral donors and NGOs will provide off-budget funding, such as among others USAID through a direct agreement with the Roads Fund to develop the rural road infrastructure in key SAGCOT districts.

projects/programmes and initiatives in the sector, including mutual contributions to the sector coordination and the common M&E.

B. Risks

419. The key risks associated with the programme are:

- (i) *The sector policy and economic environment has not been conducive for agribusiness partnerships.* This situation may lead to poor participation of agribusiness partners in programme activities, especially their envisaged role in value chain development with smallholder farmers' commercialization. To mitigate this risk, the programme has proposed introducing competitive matching grants for agribusiness to provide opportunities for district CVC stakeholders' platforms and agribusinesses to participate in programme activities. These matching grants will be used to catalyse financing of agribusiness investments identified by FOs in partnership with agribusiness. The district CVC platforms will serve as incubators for partnerships at local level. While the performance of district CVC platforms is essential to engendering programme success, the CVC platform functions are inherently difficult to measure and monitor and incentivize. Furthermore, the policy environment needs also to change, especially in relation to export and local taxes on agriculture products, *ad hoc* interventions such as tariff waivers and export bans, etc., for improved sustainability.
Inadequate policy incentives for participation of private agribusiness partners in programme activities, especially their envisaged role in value chain development will undermine achievement of programme objectives of commercialization. The ongoing dialogue on improving environment for private sector investment continues, and the government is committed to enhancing private investment in agriculture through initiatives like Kilimo Kwanza and SACGOT.
- (ii) *The programme will be implemented under a complex institutional structure, multi-sectoral, multi-donor Basket Fund environment, in parallel with several stand-alone projects (on- and off-budget).* This may lead to conflicting agenda and interests, and weaken local capacity to manage and coordinate programme activities. To mitigate this risk: (a) the programme activities have been aligned with a joint governments overall ASDP-2 programme/framework; (b) the sector-wide coordination framework, with supporting mechanisms at various levels, will enhance coordination and harmonization of projects and programmes in the sector; (c) the programme will support LGAs (under Component 4) to develop a comprehensive sector coordination framework that integrate activities of all projects in the sector at local level through DADPs; (d) a memorandum of understanding will be signed by all ASDP basket donors and the government to agree on principles for operating and managing support to the overall ASDP-2 programme/framework; and (e) institutional arrangements and coordination mechanisms for implementing agencies used in ASDP-1 will be strengthened.
- (iii) *The declining rate of budget execution,* delayed and incomplete releases of development funds, including foreign funds may result in cash flow problems to programme beneficiaries and thus undermine achievement of programme objectives. To address this challenge, the government has changed its budget cycle, to start earlier (in April) to enhance timely flow of funds and improve budget execution. However, the financial calendars of donor agencies are not always compatible with this timing and the release of donor funding may not always be in harmony with the execution of the national budget. Dialogue under the PRSC series includes these issues.
- (iv) *Results monitoring remains a challenge* in the sector due to weak capacity for data collection analyses and management. To mitigate this risk, the proposed programme includes support for institutional strengthening and capacity building to improve the M&E system for tracking, analysing and disseminating results. The BRN programme should also be aligned in a common government M&E system that emphasizes results management, transparency and accountability.

- (v) *The agricultural risk management perspective* could be formally included in the ASDP-2 since it has become clear that the realization of production and price risks are determinants of food insecurity and monetary losses for participants along major CVCs. Introducing a risk lens will contribute to the sustainability of the investments on productivity. Potential areas to be included for risk management need to be identified for each AEZ and production system. Crop diversification, small-scale irrigation development, conservation farming, integrated soil and water management, and climate smart agriculture have already been included under research and advisory services, and warehousing linked with a commodity exchange programme under commercialization/agribusiness activities. All these elements will contribute to resilience and sustainability of agricultural production systems.

ANNEXES

ANNEX I: ASDP-2: Results Framework and Monitoring

Note: This results framework currently mentions only a few key commodities as an example. The selection of CVC will be adjusted as needed once the framework develops. The ASDP 2 programme will extend over 10 years and milestones will be provided for every second year.

Programme Development Objective (PDO): Transform the agriculture sector (crops, livestock & fisheries) towards higher productivity, competitiveness, and commercialization level and smallholder farmer income for improved livelihood, food security and nutrition.												
PDO level results indicators	Core	Unit of measure	Baseline Y0 2015/2016	Cumulative Target Values					Frequency ^{142/}	Data source/methodology	Responsibility data collection	Description (indicator definition)
				Y 1	Y 2	Y 3	YR 4	Y 5 (2020)				
1. Agricultural growth rate		%	3.4 (2014)						Annually	Annually	NBS	
2. % of rural population below the poverty line		%	28.2 (2011/2012)								NBS	
3. % growth of agricultural exports (and breakdown by major commodity)		%									NBS	
5. Average annual yield of maize (MT/ha)	☒	MT/ha	Maize 1.6 (2014)					+80%	Annually	Annual Agricultural Sample Survey (AASS) AASS Baseline—National Sample Census for Agriculture (NSCA) 2016	NBS & ASDP-2 CMT M&E TWG	Average quantity of crop (metric ton) harvested per unit area of land
6. Average annual yield of paddy		MT/ha	Paddy 1.8 (2014)					+100%	Annually	AASS AASS Baseline NSCA 2016	NBS & ASDP-2 CMT M&E TWG	Average quantity of crop (metric ton) harvested per unit area of land
6. Average annual yield of sunflower		MT/ha	Sunflower 1.6 (2014)					+50%	Annually	AASS AASS	NBS & ASDP-2	Average quantity of crop (metric ton) harvested per unit

¹⁴² Baseline indicators will be included in NCSA to be implemented by NBS in 2016 during the 2015/2016 agricultural season. (baseline needs to be 2014/2015...., so Year 1 of ASDP-2 is 2015/2016).

									Baseline NSCA 2016	CMT M&E TWG	area of land
7. Average annual yield of milk		Litre/cow/day					+33%	Annually	AASS AASS Baseline NSCA 2016	NBS & ASDP-2 CMT M&E TWG	Average quantity of milk or meat per animal
8. Average annual yield of meat		Meat/animal/day					+20%	Annually	AASS AASS Baseline NSCA 2016	NBS & ASDP-2 CMT M&E TWG	Average quantity of milk or meat per animal
10. % increase in farmers' income from ¹⁴³ crop, livestock and fish (by class, gender)	☒	%		+0 %	+10%	+20%	Baseline End	NSCA 2016 End survey	NBS & ASDP-2 CMT M&E TWG	HHs that reports having an iron roof for their dwelling. (Baseline 2014/2015)	
11. Average share of consumer price kept by farmer for maize	☐	%			+10%		+20%	<u>Annually</u>	Consumer price Market Info System CPI data by NBS Producer price: AASS	MIT & NBS ASDP-2 CMT	Measure of marketing efficiency (monthly producer price)/consumer price (same period)
12. Average. share of consumer price kept by farmer for rice		%			+10%		+30%	<u>Annually</u>	Consumer price	MIT & NBS	Measure of marketing efficiency (monthly producer price)/consumer price (same period)
13. Average. share of consumer price kept by farmer for milk/meat		%			+10%		+20%	<u>Annually</u>	Market Info System	ASDP-2 CMT	Measure of marketing efficiency (monthly producer price)/consumer price (same period)
14. Average production of milk (litre/cow/day)- Tradition		Litre	2								

¹⁴³ Farmer stands for crop, animal and fish producers.

15. Average production of Milk (litre/cow/day)-improved		Litre	6–15								
16. Average price of live cattle		Tsh	350,000								
17. Average price of live goat & sheep		Tsh	40,000								
18. Average price of live chicken		Tsh	10,000								
19. Average price of live Pig		Tsh	300,000								
20. Total annual production of maize	<input type="checkbox"/>	MT	Maize 6,734,438		+20%		+40%	Annual	AASS	ASDP-2 CMT M&E TWG	Total production (MT) estimated by aggregating up from the household survey
21. Total annual production of Paddy		MT	Paddy 1,681,125		+20%		+40%		AASS	ASDP-2 CMT M&E TWG	Total production (MT) estimated by aggregating up from the household survey
22. Total annual production of milk		Litre	1,990,183 (2014)								
23. Total annual production of beef		MT	319,112 (2014)								
24. Total annual production of goat meat		MT	124,745 (2014)								
25. Total annual production of mutton		MT	120,199 (2014)								
26. Total annual production of pork		MT	54,360 (2014)								
27. Total annual production of chicken meat		MT	99,540 (2014)								
28. Volume of rice imported	<input type="checkbox"/>	MT	1,277,296 (2014)		-20%		-50%	Annual	Trade reports	TRA	Five-year average statistics
29. Volume maize exported		MT	1,056,559 (2014)		+10%		+30%	Annual	Trade reports	TRA	Five-year average statistics
30. % of females directly benefiting from programme	<input checked="" type="checkbox"/>	(%)	0 (-)	50%	(50%)	(50%)	(50%)	Annual	Implementing agency reports	ASDP-2 CMT M&E TWG	

31. % average household dietary score	<input type="checkbox"/>	%			+5%		+10%	Baseline/end	Programme HH survey ? Other?	TFNC	Count of different food groups that household consumed over preceding 24 hours	

Intermediate Results Component 1—Sustainable Water & Land Use Management (crops/livestock/fish) - Irrigation, pastures, ponds/cages, soil fertility management, & resilience												
Intermediate level results indicators	Core	Unit of measure	Baseline	Cumulative Target Values					Frequency	Data source/methodology	Responsibility for data collection	Description (indicator definition, etc.)
<i>Sub-component 1.1: Water use: Irrigation, water for livestock/fish development and management</i>												

1. Additional area under (improved) irrigation	<input type="checkbox"/>	Ha	461,326 (2015)	481,326	501,326	521,326	541,326	561,326	Quarterly	Programme reports ARDS	ASDP-2 CMT M&E TWG	Additional area brought under irrigation (might be completion of on-going works)
2. Average returns to irrigation investment		Returns/in vetement									ASDP-2 CMT M&E TWG	The indicator for average returns to irrigation investment is not applicable in Tanzania. This is because most of the irrigation schemes in Tanzania are incomplete. Hence, to determine the returns to the investment for the project/scheme that takes about 5 to 10 years is almost impossible.
3. % irrigation schemes managed by irrigator organizations		Number	442	542	642	742	842	942			ASDP-2 CMT M&E TWG	
4. % Increase in irrigators' contribution of to infrastructure maintenance		Number of bags (100 kg)	1,153,300	4%	8%	12%	16%	20%	Annual		ASDP-2 CMT M&E TWG	
5. % of supported WUA/IO that recover their O&M costs	<input type="checkbox"/>	%			40		85	Annual	Specific survey to be done	ASDP-2 CMT M&E TWG	NA (The indicators are not applicable in Tanzania because the stallholder irrigation schemes constructed are for small-scale farmers who cannot afford to recover O&M costs)	
6. Number of water points for livestock		Number	1,378 (2014)		2000						ASDP-2 CMT M&E TWG	
7. Fish farming (number of ponds)		Number	2,130 (2015)					Annual	ARDS	AASS & ASDP-2 CMT		
8. Average area per pond;		Area (m ²)	150 (2015)					Annual	ARDS	AASS & ASDP-2 CMT		
<i>Subcomponent 1.2: Land use planning: watershed management etc.</i>												
1. % are under improved pasture access in dry season		(ha)										
2. Number of farmers practising conservation farming	(Number and area)	Area (ha)	6,000	7,000	8,500	10,000	12,000	15,000				Numbers and area under conservation agriculture
		No farmer	10,000	12,000	14,000	16,000	18,000	20,000				
3. Number of farmers practising integrated soil fertility management	(Number and Area)	No farmer	1,500,000	2,000,000	2,500,000	3,000,000	3,500,000	4,000,000	Annually	AASS	AASS & ASDP-2 CMT	Number of farmers doing integrated soil fertility amangement
		Area (ha)	700,000	1,000,000	1,400,000	1,700,000	2,100,000	2,500,000				

<i>Subcomponent 1.3: Mainstreaming resilience for climate variability and change and natural disasters</i>												
1. Diversification of integrated farming systems	<input type="checkbox"/>	Number							Annually	AASS	NBS ASDP-2 CMT	Number of farming alternatives practised
2. Area under run-off water collection and management		No farmer	150,000	175,000 0	200,000 0	230,000 0	260,000 0	300,000 0				
		Ha	75,000	85,000	100,000 0	150,000 0	200,000 0	250,000 0				

Component 2: Enhanced Agricultural Productivity and Profitability. Increased productivity growth rate for commercial market-oriented agriculture for priority commodities (crops, livestock and fish value chains)

Intermediate level results indicators	Core	Unit of measure	Baseline	Cumulative Target Values					Frequency	Data source/methodology	Responsibility for data collection	Description (indicator definition, etc.)
				Y 1	Y 2	Y 3	Y 4	Y 5				
<i>Subcomponent 2.1: Research for Development (AR4D)</i>												
1. % increase in area under improved seed	<input type="checkbox"/>	%							Annual	AASS cross checked with input sales data	ASDP-2 CMT M&E TWG	% of area planted with use of improved technology disaggregated?
2. % increase in area under fertilizer application)		%							Annual	AASS cross checked with input sales data	ASDP-2 CMT M&E TWG	% of sampled area under fertilizer application
3. Number of improved paddy varieties released and (%) adopted by farmers		Number and %							Annual survey to be done		ASDP-2 CMT M&E TWG	
4. Number of improved maize varieties released and (%) adopted by farmers		Number and %							Annual survey to be done		ASDP-2 CMT M&E TWG	
5. Number of improved sunflower varieties released and (%) adopted by farmers		Number and %							Annual survey to be done		ASDP-2 CMT M&E TWG	
6. Number of trial farms		Number							Annual survey to be done		ASDP-2 CMT M&E TWG	
7. Number of technologies developed and disseminated		Number							Annual survey to be done		ASDP-2 CMT M&E TWG	
8. Number of trained		Number							Annual		ASDP-2 CMT	

extension staff									survey to be done		M&E TWG	
9. Farmer adoption rates (by major commodity)		%							Annual survey to be done		ASDP-2 CMT M&E TWG	
Subcomponent 2.2: Extension and information services												
1. Number of Ward Resource Centres established		Number	319	10	20	30	40	50			ASDP-2 CMT	
2. Number of Ward Resource Centres facilitated		Number									M&E TWG	
3. Increased number of village/ward extension staff		Number	10,089	3,000	2,000	1,136	-	-			ASDP-2 CMT	
4. % of private extension service providers providing advisory service		%	11	10	20	30	40	50			M&E TWG	
5. Average incomes for maize growers who adopted technologies through FFS		Tsh	319,365								ASDP-2 CMT	
6. Average incomes for rice growers who adopted technologies through FFS		Tsh	1,078,000								M&E TWG	
7. Increased residential houses for village/ward extension staff		Number	225	200	200	200	200	200			ASDP-2 CMT	
8. Provision of transport facilities (motorcycle) to village/ward extension staff		Number	2,343	150	150	150	150	150			M&E TWG	
Subcomponent 2.3: Access to agricultural inputs												
1. % farmers purchasing improved seeds	<input type="checkbox"/>	%	37						Baseline, end Annual	Programme HH survey AASS	ASDP-2 CMT M&E TWG	As defined under the NSCA
2. % farmers purchasing fertilizer			37									
3. % farmers purchasing insecticide/fungicide			37									
5. % farmers practising Artificial Insemination services	<input type="checkbox"/>	%	25 ¹⁴⁴			30%		40%	Baseline, end Annual	Programme HH survey / AASS	ASDP-2 CMT	As defined under NSCA

¹⁴⁴ NSCA 2007/08, Livestock National Report, March 2012

6. % age of households using inputs (improved seeds, fertilizers, agrochemicals, improved tools, feed supplements for dairy cattle etc.);		%	37						Annual	ASDP-2 CMT M&E TWG		
Subcomponent 2.4: Access to Mechanization services												
1. % of households accessing mechanization services through tractor and power tiller technologies		%	14 (2013)	17	22	28	33	40	Baseline, end Annual	Programme household survey	ASDP-2 CMT M&E TWG	Services include 2, 4-wheel power tillage, tractor, oxenization
2. % of Households accessing mechanization services through animal traction technologies		%	24 (2013)	23.5	23	22.5	21	19				
3. % of households/farmers with access to processing facilities for priority commodity value chain through grain milling machines		%	50 (2010)	52	55	57	58	59				
4. % of households/farmers with access to processing facilities for priority commodity value chain through oil milling machines		%	30 (2010)	31	32	36	38	42				
5. % of households/farmers with access to processing facilities for priority commodity value chain through fruits and vegetable machines		%	30 (2010)	31	32	33	35	37	Baseline, end Annual	Programme household survey	ASDP-2 CMT M&E TWG	
6. % of households/farmers with access to processing facilities for priority commodity value chain through roots and tubers machines		%	40 (2010)	42	43	45	46	48				

Component 3. Rural Commercialization and Value Addition (Building Competitive Commodity Value Chains). Improved & expanded rural marketing and value addition promoted by a thriving competitive private sector (PPPPs)												
Intermediate level results indicators	Core	Unit of measure	Baseline	Cumulative Target Values					Frequency	Data source/methodology	Responsibility for data collection	Description (indicator definition, etc.)
				Y 1	Y 2	Y 3	Y 4	Y 15				
Subcomponent 3.1: Stakeholder empowerment & organization												
1. % of supported FO that generate 50% of their revenues from membership fees	<input type="checkbox"/>	%				33%		66%	Annual	Intermediate outcome survey	ASDP-2 CMT	Programme household survey
2. % of farmers groups with access to FO trade facilitation services		% of total	49	50	53	57.5	61.5	65	Annual	Intermediate Outcome Survey	M&E TWG	No. and % of FOs rated Level A, B, C (assumes there is such a rating system
3. Number of farmers groups linked with markets		Number	528805	58 51 15	609,115	601,115	709260	730200	Annual	Intermediate Outcome Survey	ASDP-2 CMT M&E TWG	-contract farming, warehouse receipt system, domestic market, regional, international
4. Number of operational warehouse receipt systems linked with local, regional and international markets		Number	48 (42 maize, 6 rice)								ASDP-2 CMT M&E TWG	
5. Number of regional and international trade contracts linked to WHRS		Number	48 (42 maize, 6 rice)									The contracts exist but not legally bound
Subcomponent 3.2: Agribusiness development - value addition												
1. Share of production marketed by household/farmer (%)		%							Annual Survey			
2. % increase in Gross Margin per ha for: i) maize, ii) rice, iii) etc.	<input type="checkbox"/>	%							Annual survey		ASDP-2 CMT M&E TWG	Expressed in TSH/ha
3. No. of PP-producer partnerships established and operational (by value chain)		Number										
4. Number of emerging agroprocessing firms	<input type="checkbox"/>	Number (Small, Medium and Large)	63 30						Annually	Districts/, ARDS	AASS? ASDP-2 CMT M&E TWG	
Subcomponent 3.3: Rural Marketing												
1. Number of farmers using warehouse/ storage facilities for marketing		Number	44,400	78,000	109,500	141,000	172,500	204,000	Annually	ARDS?	ASDP-2 CMT M&E TWG	To be integrated in AASS

2. Share of price received by farmers selling through warehouse compared to non-warehouse users.	<input type="checkbox"/>	%		143					Annual	AASS NSCA	ASDP-2 CMT M&E TWG	Differential between average market maize price at harvest & average warehouse sale price). Quantities that are entered in a warehouse receipt system
3. % of farmers who access agric. market information		% Public % Private source							Annually	NSCA	NBS	???
Subcomponent 3.4: Access to rural financing												
1. % of farmers' groups with access to agricultural loans/credits	<input type="checkbox"/>	%	36.5	38.01	41.01	46.05	51.04	57.05	Annual		ASDP-2 CMT M&E TWG	

Intermediate Results Component 4 – Institutional Development and Crosscutting Themes (Programme Enablers and Coordination). Strengthen institutional roles, capacities and effectiveness at national and subnational levels to facilitate policy changes, intra and inter-institutional coordination, NRM/environmental aspects, food security and nutrition, planning, M&E of programme results in the agriculture sector

Intermediate level results indicators	Core	Unit of measure	Baseline	Cumulative Target Values					Frequency	Data Source/methodology	Responsibility for data collection	Description (indicator definition, etc.)
				Y 1	Y 2	Y 3	Y 4	Y 5				
Subcomponent 4.1: Policy and regulatory framework.												
1. Number of improved priority policies and regulations formulated, approved, operationalized.		Nº Policies Regulations	28									
Subcomponent 4.2: Food security and nutrition (incl. early warning, Food Vulnerability) (ensure consistency with Nut. And Food Security Policy/Strategy and their indicators...)												
1. Food Self sufficiency Ratio		Ratio/%	120 %							Crop Forecasting Survey	ASDP-2 CMT	Ratio, <100, deficit Between 100 and 119, self sufficient, above 120, surplus
2. Number of unique foods consumed by members of household	<input type="checkbox"/>	%	TBD		33%		66%	Baseline, end	Programme household survey	ASDP-2 CMT		
4. % Compliance with enhanced food quality and safety standards		%						Biannual	Respective Institution Approach	TFDA, TBS, DNFS, CPBT, PHS	% residuals	
3. Stunting rate		%	37%					Annually	TFNC Approach	TFNC	% of deficiency of important vitamins and minerals	
Subcomponent 4.3: Institutional Capacity building and Coordination (national, regional and local level). To strengthen local level institutional systems and capacities for strengthened participation, improved coordination, governance and service delivery.												
1. Results-based performance, participat & accountability by key actors of sector		Satisfaction level: Males Females	%							ASDP-2 CMT		
2. % DADP that meet revised assessment criteria % DADP which have a results framework (or at least for ag. sector)	<input type="checkbox"/>	%	n.a.	50	90		90	Annual	DADP Assessment	PMO-RALG	Criteria include: % of services that are outsourced; follow CVC approach	
3. % Submission of reports from LGA on quar-terly for ASDP use	<input type="checkbox"/>	%	50		75		100	Quarterly	PMO-RALG spreadsheet	DAICO Reg. Secretariat	LGA financial and physical report submitted to PMO-RALG	
4. Number of DADPs quarterly and financial progress reports submitted on time		%							Financial reporting	LGA/ PMO-RALG		

S/c 4.4: M&E and Agricultural Statistics. To strengthen national level results monitoring, national planning and sector coordination for ASLMs, Zonal Institutions and Regional Secretariats, and analytical capacity and information management											
1. Number of AASS implemented annually and results available within 3 months	<input checked="" type="checkbox"/>	Number	0	2	2	2	2	2	Annual	AASS	Agric. Statistics Task Force
2. M&E systems established and operational - National Level Sub-National Level	<input checked="" type="checkbox"/>	Number	1	1	1	1	1	1	Annual	ASDP-2, CMT	M&E design (framework and guidelines) needs to be prepared by M&E TWG
3. % of LGAs that provide reports (data) through ARDS LGMD2 on time	<input checked="" type="checkbox"/> <input type="checkbox"/>	%	20	60	75	80	90	100	Quarter Annual	LGA	Reports uploaded in LGMD2 by all districts
4. % of M&E framework short-listed indicators updated with reliable data in a timely manner	<input type="checkbox"/>	%	100	100	100	100	100	100	Annual	ASDP II Annual Performance Report	M&E TWG
5. Number of staff trained in various skills.										M&E TWG	Rather an output?

These "N" (not functional) and Yes (functional).

ANNEX II: Details of Coordination Mechanisms

(1) Coordination at central level

420. The hierarchy of coordination organs and functions under ASDP-2 at central level is as follows:

- (i) National Agricultural Sector Stakeholders Meeting (NASSM)
- (ii) Joint Sector Review (JSR)
- (iii) Steering Committee
- (iv) Technical Committee of Directors (TCD)
- (v) Thematic Working Groups (TWGs)
- (vi) Coordination and Management Team (CMT)

421. The **National Agricultural Sector Stakeholders Meeting (NASSM)** is the highest coordination event in the programme hierarchy and will be instrumental in coordinating and guiding the whole sector. It will be held once a year over one or two days as the culmination of the JSR, which will inform NASSM. The meeting will be held under the chairmanship of the Minister for Agriculture Livestock and Fisheries to review the ASDP-2 sectorial achievement and its contribution to national development and poverty reduction. The purpose of the NASSM will be to:

- Provide an open opportunity for all the stakeholder representatives to exchange their views and gain insights into the successes of the programme from the perspective of others
- Review conclusions drawn by the JSR on progress in implementation of the various agriculture projects within the programme towards achieving planned targets, outcomes and impact
- Advise the various government organizations, development partners, non-state actors, and private sector stakeholders on opportunities to foster greater agricultural transformation and accelerate achievement of ASDP-2 objectives and desired impact

422. **The NASSM** will be attended by:

- Central government—ministers, permanent secretaries and directors of Policy and Planning from all ASLMs, and other related high officials of the government
- Development partners—members of the Agriculture Working Group
- RS—selected regional officials
- LGAs—DEDs, DAICOs, DLFOs from selected LGAs
- Research—selected officials from agricultural, livestock and fishery research institutions
- Training—selected officials from agricultural, livestock and fishery training institutions
- Academia—relevant heads of departments from Sokoine University and other academic institutes
- Commodity boards
- Private sector representatives
- Non-state actor representatives
- Financial institutions concerned with agricultural activities and investments
- Associations and cooperatives—representatives of cooperative unions, commodity-wise associations, and successive agriculture associations and SACCOS
- Representatives of other related stakeholder organizations

423. The **JSR** that will lead up to the NASSM will be an intensive working process performed by both government, development partners, non-state actors, and private sector annually to monitor the sector progress. It will be conducted by the government, development partners and hired consultants to rigorously review the programme over several weeks on the basis of analysed national statistics as a

professional annual evaluation exercise. It may include field visits in selected regions where the ASDP-2 is being implemented by way of sampling, similar to Joint Implementation Review under ASDP-1. The JSR will be a forum for coordination and dialogue to enable shared vision and the opportunity to initiate corrective action in the management of projects. The report from this meeting will be submitted to the Steering Committee for follow-up. The conclusions of the JSR will be presented to the NASSM for discussion and corrective actions. The timing of implementing JSR needs to be carefully decided in consideration of AASS, Steering Committee, NASSM, government budget formulation cycle and other related events.

424. **The Steering Committee** will be the key management organ of ASDP-2 implementation and coordination. The core functions will be to approve the annual work plan, oversee the physical and financial progress, follow-up the audit results and discuss on key issues in regard to sector performance and coordination. The conclusion will guide the TDC and TWG on the subsequent actions. It will be held quarterly and chaired by the Permanent Secretary of the Ministry of Agriculture Livestock and Fisheries. The members are the permanent secretaries of ASLMs and collaborating ministries, the TDC members, development partners' Agriculture Working Group members, representatives of non-state actors, and representatives of private sectors. It will be facilitated by the CMT.

425. **Technical Committee of Directors (TCD).** The TCD will be maintained and will absorb some of the functions of the Inter-Ministerial Coordinating Committee (ICC)¹⁴⁵, which it will replace. It will advise the Steering Committee on technical issues in connection with development projects and will be chaired by the Director of Policy and Planning of the Ministry of Agriculture Livestock and Fisheries supported by the Coordination and Management Team and the TWGs. The TCD is a solely government committee and will comprise directors of ASLMs and other selected key officials of related government organizations (e.g., PDB representatives in relation to BRN). The committee will be supported by the CMT.

426. The TCD will meet quarterly and may be called for *ad hoc* meetings if need arises. The TCD will review quarterly reports and contribute to annual reports. They will provide oversight of implementation and monitoring of the performance of ASDP-2 to ensure achievement of the goals. The TCD will report and advise respective permanent secretaries of the ASLMs. The wider functions of the TCD will include:

- Reviewing the progress of all ASDP-2 interventions to ensure compliance with policies, macro and sector strategies and adherence to schedules through summarized physical and financial progress reports and take necessary corrective action
- Advising the Steering Committee on a regular basis on the progress of and requirements for implementation of the ASDP-2
- Overseeing the development and implementation of policy decisions underlying the ASDS-2 and ASDP-2
- Overseeing the preparation of the ASDP-2 Integrated Annual Work Plan and Budget
- Reviewing and recommending the budgetary proposals to the Steering Committee for endorsement and subsequent onward submission to Treasury
- Recommending to the Steering Committee the transfer of funds from the Exchequer Account to the implementing agencies
- Defining eligibility criteria for support of new programmes and projects under ASDP-2

427. **Thematic Working Groups (TWGs)** will be organized following the previous experience under ASDP-1. The members of the group will be drawn from experts within the relevant fields (i.e., departments) in each ASLM and, although the groups may coalesce or be redistributed or expand and contract to meet the needs of the issues at hand, core membership will remain intact. To enhance the better coordination among the wider stakeholders under ASDP-2, especially the private sector, TWGs

¹⁴⁵ The Inter-Ministerial Coordinating Committee (ICC) that existed under ASDP-1 will not be retained. Its functions will be taken over by the TCD.

should be expanded and invite participation of development partners who also support the thematic area, in addition to non-state and private sector actors involved in the thematic area. The TWGs will provide guidance to the programme on technical and/or managerial matters and advise the TCD. They will be called upon for periodic and *ad hoc* deliberation to manage overall activities under the TWG and resolve technical issues. They will meet at least monthly and the expanded meeting including development partners and the private sector could be held quarterly. They will refer to quarterly reports from the local level and other sources (including off-budget projects), and inform quarterly meetings of the TCD and Steering Committee of the progress of various interventions at a technical level. Another important function of TWGs will be to follow the progress of recommended actions agreed by the preceding JSR that should be indicated in their annual work plans. They will be required to ascertain whether actions directed by the TCD have been correctly and completely performed.

428. The range of TWGs will include:

- Policy, planning and institutional reform
- Water and land use and management
- Agricultural services (extension, research, training and information)
- Marketing, trade and value addition
- Food security and nutrition
- Finance and procurement
- Environment, climate change and disaster management
- M&E
- Information, communication and knowledge management

429. Members of the TWG will act as facilitators of the actions and will be called upon to extend their technical and/or managerial support to activities upon request from LGAs. Each TWG will contribute technical expertise according to the designation of the group and in response to demand. The core activities and duties of TWGs will include:

- Provision of programme progress implementation reports to the TCD
- Provision of technical expertise to ASDP-2 planning and implementation processes
- Providing solutions to implementation bottlenecks
- Analysis on technical grounds of the outcome

430. TWGs will also provide **national facilitation teams** (of one or more member) that will comprise members of the TWGs who will be dispatched on an *ad hoc* basis to assist in implementation or problem solving missions at project level.

431. The **ASDP-2 Coordination and Management Team (CMT)** will be directed by the National Programme Coordinator who will be directly answerable to the Permanent Secretary of the Ministry of Agriculture Livestock and Fisheries. It will constitute a professional management team with selected officials from ASLMs. The CMT will be vested with executive powers to call for meetings of other organs of the ASDP-2 structures and to direct implementation functions. The members will comprise;

- Senior Planning Coordinator with a high calibre of managerial skills who will be the **National Programme Coordinator**
- Agricultural Economist with wide experience of agribusiness
- M&E specialist
- Communications and knowledge management specialist
- Financial and budget specialist
- Accounting and procurement specialist
- Office staff with secretarial and personal assistant capabilities

432. They will also be given access to advisers on a consultancy basis as the need arises. Such advisers may be on short-term contract and may include international consultants.

433. The CMT will be served with specific Terms of Reference that will focus on the ASDP-2 sector coordination. Ideally, the team will be exclusively engaged in the ASDP-2 processes for the duration of the programme. Team members will be provided with transport facilities and necessary office and communications equipment to enable them to perform their role effectively. It will be responsible for:

- Serving as the secretariat to TCD, Steering Committee, and NASSM and attending all the meetings
- Close communications and interactions with the TWGs on their key activities
- Networking and information sharing among all the stakeholders on their interventions (including on- and off-budget activities); stakeholder mapping will be necessary
- Coordinate the preparation of the ASDP-2 Integrated Annual Work Plan and Budget in close cooperation with the TWGs, development partners supporting on- and off-budget activities, and other stakeholders
- Coordinate alignment, harmonization and implementation of agriculture sector projects and interventions within the framework of ASDP-2
- Facilitation of all ASDP-2 meetings and functions at national level (including JSR and ASCG meeting)
- Preparation of quarterly, semi-annual and annual ASDP-2 progress reports.
- Maintenance of ASDP-2 records and reports
- Absorption and coordination of all stakeholders into programme activities
- Developing mechanisms for collaboration and coordination across all stakeholders in ASDP-2
- Remaining fully informed of the progress of all ASDP-2 functions and proceedings
- Identifying appropriate interventions in pursuit of the objectives of ASDP-2 and government policies

434. Agricultural Sector Consultative Group Meeting (**ASCG meeting**) The ASCG will provide a forum for dialogue between the government (ASLMs), active development partners (as defined in the JAST) and non-state actors (CSO and PSO) in the agriculture sector. The ASCG will coordinate dialogue at two levels: regular dialogue on sector policies and budget, and the annual agriculture sector/public expenditure review (ASR/PER).

435. The objectives of ASCG are to:

- (i) Achieve sector objectives and results through dialogue and consultations to establish coherent agriculture sector policies, strategies and programmes in line with MKUKUTA and other national development frameworks
- (ii) Ensure that planning, budgeting and budget execution are in line with the agriculture sector policies, priorities, strategies and programmes
- (iii) Improve public financial management and accountability in ASLMs
- (iv) Implement agriculture sector specific JAST commitments
- (v) Implement agriculture sector GBS commitments as outlined in the PAF matrix and GBS Partnership Framework Memorandum
- (vi) Enhance domestic and mutual accountability

436. Functions of the ASCG are to inform: (1) policy (MKUKUTA, agriculture sector policies, GBS, JAST); and (2) to review budgetary (public expenditure) issues. ASCG meetings will remain one of the underlying structures for the two main national processes:

- (i) The MKUKUTA process
- (ii) The national budget/PER process

437. The group will facilitate sector dialogue on JAST and GBS issues, which are to be integrated as much as possible within the MKUKUTA and national budget/PER processes. It will serve as a forum for:

- (i) policy dialogue
- (ii) information sharing
- (iii) budget discussions and prioritization
- (iv) consultations on sector priorities, strategies and programme implementation, including linkages with other sectors such as natural resources
- (v) joint analysis and assessment of the agriculture sector issues/performance and launching baseline and follow up studies
- (vi) provision of advice on strategic, budgetary and other issues

438. Table A1 provides a summary of ASDP-2 sector coordination components.

Table A1: Summary of ASDP-2 coordination organs, mechanisms, membership and functions

Organ/mechanism	Membership/participants	Functions and purpose
i) National Agricultural Sector Stakeholders Meeting (NASSM). Chaired by Minister of Agriculture.	Central Government—ministers, PSs, DPPs from all ASLMs, and senior government officials; JDPAWG; RSs; DEDs; DAICOs, DLFOs; research officials; training officials; academia representatives; commodity boards; private sector representatives; non-state actors; financial institutions; associations and cooperatives, commodity associations, and successive agriculture associations and SACCOS; representatives of other related stakeholder organizations	The agenda will be determined by stakeholders; the meeting will provide policy guidelines for implementation and hold meetings annually
Joint Sector Review ¹⁴⁶ of the agricultural sector by Government of Tanzania, development partners and consultants	Joint Development Partners' Agricultural Working Group (JDPAWG), representatives of DPs	Annual review following NBS and AASS but preceding NASSM to determine efficiency, effectiveness and impact of ASDP-2 and to inform the NASSM of the results and proposed corrective actions. Voice development partner opinion and guide ASDP-2
Agricultural Sector Consultative Group (ASCG) Meeting	Officials from ASLMs, JDPAWG and non-state actors	Coordinate dialogue regularly on sector policies and budget, and annual agriculture sector /public expenditure review (ASR/PER)
Steering Committee	Permanent secretaries of ASLMs and collaborating ministries, TCD, JDPAWG, representatives from private sectors, non state actors	Advise NASSM and provide joint perspective and guidance to TWG quarterly meetings, immediately following those of the TCD (below)
Technical Committee of Directors (TCD)	Directors of ASLMs	Direct TWGs, link policy to implementation on quarterly basis
Thematic Working Groups (TWGs) (Various groups)	Selected technical staff of different ASLMs, non-state actors and CAADP country team representative	Bring cross-cutting expertise to issues arising, troubleshooting of implementation process and guide and facilitate implementation of ASDP-2 and provide guidance to the Steering Committee and TCD, on a continual basis
Coordination and Management Team (CMT)	<ul style="list-style-type: none"> • National Planning Coordinator • Agricultural Economist • Communications, M&E specialist 	Joint planning, monitoring of progress, facilitating secretariat for ASDP-2 meetings; ensuring ASDP-2 activities take place according schedule & reports are shared; training, manuals, guidelines and publicity; managing M&E functions; establishing and sharing best practices & lessons learnt under

¹⁴⁶ Larger stakeholder group for mid-term review.

(2) *Coordination at local level*

439. ASDP-1 structures for local activities will be strengthened and continue under ASDP-2. DADP will continue to be the key instrument for agricultural development at local level. The **DED** will hold overall responsibility for activities and funds used at local level. The **CMT**, which is chaired by the DED and attended by all the department heads including **DAICO** and **DLFO**, is informed on the agricultural development issues and status under the DADP.

440. DADPs are derived from the grassroots by villagers through the O&OD process and are summarized in the form of **Village Agricultural Development Plans**. The village planning process is led by a Village Planning Committee, Village Agricultural Extension Officer (VAEO), Village Executive Officer (VEO) and is supported by the District Facilitation Team according to the DADP Guidelines. Proposals from individual villages are submitted to **wards** that encompass three to six villages, on average. The proposals are consolidated by the Ward Agricultural Extension Officer (WAEO) under the supervision of the Ward Executive Officer (WEO) and guided by the Ward Development Committee that is led by the elected **Ward Councillor** and submitted to the **DED**. Based on the submitted proposals, DADPs will be formulated by DAICOs and DFLOs. The entire process will be guided by the DADP Guidelines and detailed instructions by ASLMs through PO-RALG. The focus of DADP needs to be in line with the priorities of ASDP-2. These activities are supervised by the regional agricultural coordinators, the National Facilitation Team and the relevant TWGs.

441. As a key coordination mechanism at local level, **DCP** between sector stakeholders at LGA level will be in place (s/c 3.2). DCP brings major actors in priority local CVCs together to develop and drive the implementation of DADP activities that include various aspects such as productivity improvement, value addition and market access. The stakeholders at local level include the private sector (traders, processors, transporters, financial institutions, etc.), NGOs, development partners and various public institutions that can provide different types of technical support.

442. It is therefore crucial for LGAs to formulate **comprehensive DADPs** that include not only on-budget development activities but also off-budget development activities extended through various projects within the LGA. For this purpose, it is inevitable to develop a mechanism ensuring that the contribution of each and every actor in the sector is well captured by respective LGA.

(3) *National Coordination at Local Government Authorities Level – PO-RALG*

443. LGAs are overseen and directed by **PO-RALG**. The **Department of Sector Coordination** is responsible for management and support to LGAs in collaboration with RSs. Vertical coordination from the then PMO-LARG to RSs and LGAs has been established and worked well under ASDP-1 and ASDP-2 will continue to strengthen the same functions of PO-RALG.

444. There are currently 25 regions in the country. Each RS is headed by a **Regional Administrative Secretary (RAS)**. The role of RAS is to assist the LGAs to prepare DADPs, backstop and provide supervision support on the implementation of the DADPs. The RAS also assists in the submission of the quarterly and annual reports in compliance with the DADP Guidelines.

445. The Assistant Administrative Secretary for the Economics and Production section within RS is directly responsible for supporting development activities within the region and is assisted in the task by the ASDP Regional Coordinator and fellow officers dedicated to specific sub-sectors. These officers will move around the region to provide technical and managerial assistance to LGAs. The RSs will work closely with the relevant TWGs and the National Facilitation Team as the need for consultation and assistance arises. For administrative aspects of ASDP-2, coordination among RSs, TCD through CMT, and TWGs will be constantly maintained to realize smooth flow of information on the status of development activities and performance under ASDP-2.

ANNEX III Monitoring & Evaluation and Statistics¹⁴⁷

Background

446. Under ASDP-1 (2006-2013), the ASLM established various TWGs, including one specializing in M&E TWG established in 2007. Its membership includes officials from planning departments in the various ASLMs and JICA technical assistants¹⁴⁸. The objective of this group focuses on tracking and providing overall technical guidance on the implementation of this M&E framework, with the aim of monitoring the ASDP, collecting data on the sector through improving the routine data collection system, and strengthening M&E capacity in ASLMs and at regional and district level.

447. The M&E TWG prepared the M&E framework document in 2008. This document identifies the main impacts for the ASDP as a whole, by outcomes and by strategic area (physical infrastructure, agricultural services, marketing system, institutional framework and cross-cutting issues), as well as the outputs of various proposed interventions. The first list contained 100 indicators, which were later reduced to 20–25 key indicators as shown in Annex I. However, this list was modified over time to capture critical issues such as empowerment, service reform and research¹⁴⁹.

448. One of the tasks of the M&E TWG is to prepare the annual ASDP-2 performance reports. The report: provides an update on the shortlist of key indicators at the three levels: impact, outcome and output levels), compares target and actual figures, wherever possible; and assesses causes for shortcomings. Data collection was done using a conventional method: (i) for local data, a questionnaire was sent to all LGAs and filling-up and submission was transmitted by telephone and email communications; and (ii) for national data, inquiries were made by telephone or direct visits to the relevant office by members of the M&E TWG. Without being presented to the ASDP Basket Fund Steering Committee, the report has had limited use in the ASDP M&E. Past reports, in addition to the mid-term evaluation of ASDP-1, show that while there has been progress regarding selected outputs, the picture is mixed at outcome and impact levels. For example, at impact level, the indicators include agricultural growth, rural poverty and value of agricultural exports, and progress has been slower than was anticipated, particularly regarding poverty reduction. At outcome level, key indicators such as use of improved technologies (seed, fertilizer, irrigation and mechanization) have not shown the desired improvements. However, the picture is generally positive in terms of physical delivery of services (infrastructure and capacity building).

449. The conclusion of the ASDP evaluation (June 2011) was that ASDP outputs had yet to fully mature into all the intended outcomes and impacts that were foreseen during preparation. The report stresses the importance of careful and speedy measurement of higher level results, through holding surveys more regularly.

450. The Planning and Implementation Technical Working Group (P&I TWG) focuses on supporting districts with the preparation of their DADP, and with the implementation and reporting of ASDP activities through the DADP. The PO-RALG ensures that all districts follow the guidelines and fulfill the minimum conditions under the Local Government Development Grant (LGDG). The LGDG assessment conducted under supervision of the then PMO-RALG incorporates the specific results from the DADP assessment into the overall assessment of minimum conditions and performance measures¹⁵⁰. A separate DADP Quality Assessment Report has been prepared for agriculture and could be used to illuminate indicators. This assessment was done by the P&I TWG together with

¹⁴⁷ (*Adapted from ASDP-2 proposal, 2013/14*).

¹⁴⁸ JICA is financing the second phase of a M&E capacity building project in the context of ASDP, which implemented by the International Development Centre of Japan (IDCJ).

¹⁴⁹ Evaluation of the Performance and Achievements of the Agricultural Sector Development Programme, June 2011.

¹⁵⁰ Annual Assessment of Minimum Conditions and Performance Measures for Local Councils under the LGDG System, PMO-RALG, May 2010.

regional ASDP coordinators.

451. Due to its demand-driven nature, ASDP-1 promoted a decentralized and bottom-up approach, where farmer groups, cooperative societies and user associations, prepare a “project” based on clear guidelines and criteria, and request financing from one of the block grants available at district level.¹⁵¹ These projects (rehabilitate dip tanks and small irrigation scheme, etc.) are then monitored quarterly by district officials. This information was consolidated by the then PMO-RALG and shared with ASLM Technical Committee of Directors, and submitted to the ASDP Basket Fund Steering Committee for their review and approval (or rejection/further design work required).

452. All districts need to report quarterly on the physical and financial implementation of ASDP funds. A set of template tables have been prepared by the P&I TWG¹⁵². These tables provide information by “project”, and focus on physical (output) and financial reporting, as well as providing information on the number of beneficiaries. An attempt was made to capture outcome information at project level, but this approach has not yet been implemented.

453. The **Joint Implementation Reviews (JIR)** undertakes an annual assessment of progress made, and brings together stakeholders from ASLMs, development partners, non-state actors and the private sector to share and discuss implementation performance, and related issues and priority actions. The JIR report highlights areas where progress has been made, and provides recommendations regarding the various issues affecting ASDP implementation. Figure A1¹⁵³ provides a summary overview of the M&E system being established under the ASDP-1 and adapted for ASDP-2 towards monitoring both the performance of the ASDP itself, as well as that of the Agriculture Sector in Tanzania.

454. Under this system, sector outputs will be monitored through the Agricultural Routine Data System (see M&E section), and/or through specific reports. Sector outcomes will be monitored mainly through the NSCA, the AASS and/or the National Panel Survey (NPS) agriculture module (see statistics section). The NSCA was meant to inform many of the key outcome indicators identified in the list of key performance indicators for ASDP.

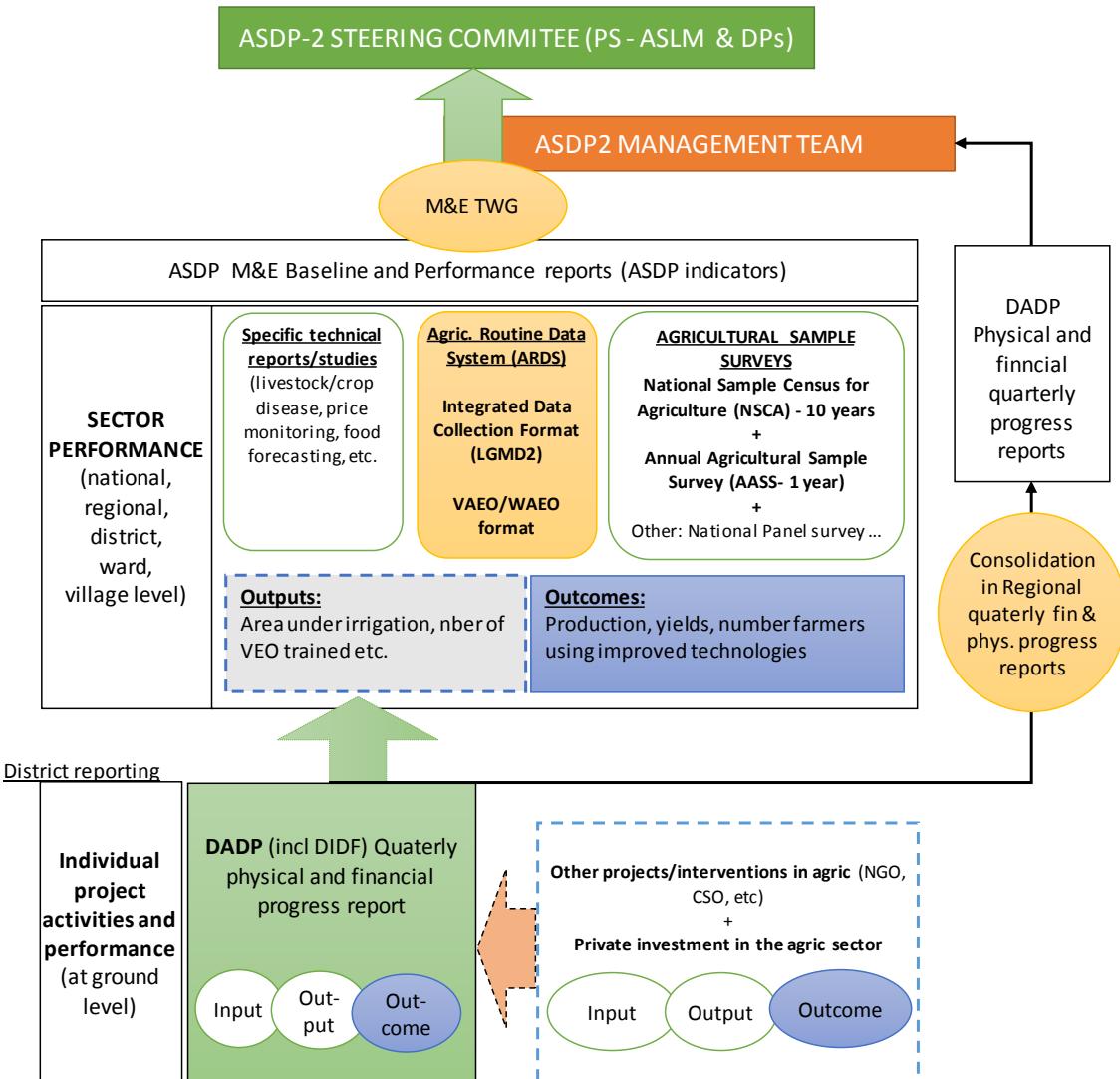
455. The performance of the individual projects will be captured through DADP physical and financial quarterly progress reports. Under ASDP-1 the system only captured projects implemented and financed under on-budget resources. Under ASDP-2 improved coordination within SWAp requires that all projects implemented in the sector are included in the integrated performance reporting, although non-budget projects have their own management and reporting system. The mechanisms to capture off-budget activities include: quarterly reports by each NGO project to be submitted according to requirements specified in memoranda of understanding with each NGO project, but excluding information on the source and application of funds unless volunteered to compare with projects within government programmes.

¹⁵¹ District Agriculture Development Grant (DADG), Capacity Building Grant (CBG), Extension Building Grant (EBG) and District Irrigation Development Fund.

¹⁵² Strengthening the Backstopping Capacities for the DADP Planning and Implementation under the Agricultural Sector Development Programme (ASDP), International Development Centre of Japan (JICA).

¹⁵³ Project for Capacity Development for the ASDP Monitoring and Evaluation System (phase 2), International Development Centre Japan, June 2012. There are two teams, one focusing on M&E for the whole of ASDP and the other focusing on planning and implementation at district level, which is supporting the PI TWG.

Figure A19: ASDP M&E system for sector and project performance (adapted for ASDP-2)



456. One of the lessons learnt from ASDP-1 was that the delays in implementing key surveys, such as the NSCA, which was meant to inform many outcome indicators, led to a deficit in the information available to properly monitor and evaluate the results of the first phase. In consequence, it was ‘easy’ to assert that ASDP-1 had not achieved its results, that there had been no “impact” and that resources were spread too thinly. Equally, the planned annual services delivery surveys that would have given regular estimates of intermediate outcomes such as adoption of improved technologies were not implemented, and this proved to be a serious gap. This pointed to the need to ensure that national surveys have sufficient resources to provide necessary analysis and results on time, including annual surveys that provide critical annual performance assessments. It also points to the fact that there should be a clear separation of use of M&E as a tool to track reform processes, as well as measuring conventional benefits such as production and technology adoption.

Monitoring and Evaluation

457. **Monitoring.** To monitor ASDP and performance of the agricultural sector, two data collection systems were developed under ASDP-1: (a) the Agriculture Routine Data System (ARDS) for

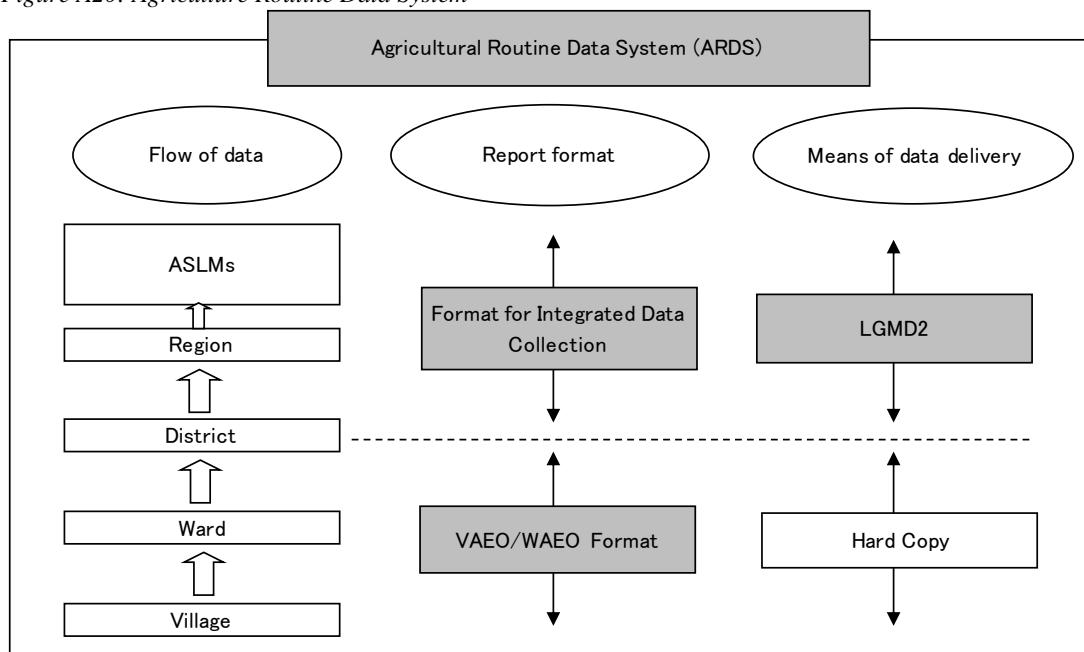
monitoring the performance of the sector, and (b) the DADP physical and financial quarterly progress reports regarding Basket Fund resources.

458. The ARDS is designed to provide district and regional level agricultural data to ALSMs on a quarterly basis. Village and/or ward agricultural extension officers (VAEOs/WAEOS) are required to submit monthly, quarterly and annual reports to their district agriculture and livestock development officers (DAICOs and DLFOs). They review the reports and aggregate the data to the district level. District reports are forwarded to regional secretariats, where they are reviewed and approved by regional agricultural officers, before submission to ASLMs. Compliance with the reporting mechanism will be monitored by the M&E specialist of the CMT.

With JICA support, the Routine Data System has been consolidated and linked to a web-based database, using custom-made software called Local Government Monitoring Database (LGMD 2)¹⁵⁴ that allows the data to be entered electronically at the district level and forwarded through subsequent approvals process. The aim is to replace the many existing different reports at district level into a single integrated format. However, data at village and ward level is still collected manually on paper.

Figure A20, sourced from ARDS review report).

Figure A20: Agriculture Routine Data System



459. While ARDS is supposed to deliver agricultural sector information from grassroots (village level) to districts and to ASLMs through regions every quarter, this system has not been functioning properly. However, the introduction of the LGMD2 is expected to improve this, as reporting forms, and flows are standardized and codified, through a web-based database.

460. With JICA support, guidelines have been prepared for VAEO and WAEOS on how to systematically collect the data required¹⁵⁵. However, one reason ARDS is too complex, is the fact that monthly, quarterly and annual reports monitor different variables. Monthly variables include weather conditions, crops prices, crop disease report and pesticide applied, number of animals slaughtered, meat and milk inspections, animal health (vaccinations and treatments) and livestock services

¹⁵⁴ LGMD2 is new version of the former LGMD system that was developed by PMORALG as a single database to capture assets and activities for the key poverty sectors. LGMD has been abandoned by the other sectors.

¹⁵⁵ Training guide for LGA, dated February 2011, includes training for VAEO and WAEOS sector reports, and guide for district officers on data consolidation, analysis and feedback.

(Artificial insemination, etc.). Quarterly variables include number of farmer groups/members, number of farmers trained, area under irrigation, area cultivated and crop yield and production. Annual variables include population data, instances of contract farming, area irrigated, number of IO, asset inventory of agriculture machinery and tools, number of FFSs, use of fertilizer, chemical, seeds, livestock population, livestock infrastructure, information on grazing land area. The Monitoring responsibilities at local level are as shown in table A2.

Table A2: Monitoring responsibilities at local level

VAEO/WAEO Monthly Report	VAEO/WAEO Quarterly Report	VAEO/WAEO Annual Report
1. Introduction (weather condition, activity summary) 2. Crop: Planted Area, Yield, Production and Prices 3. Plant Health Services 4. Livestock Slaughtered 5. Meat Inspection 6. Livestock Products 7. Livestock Health 8. Achievements and Challenges 9. Visitors	1. Village Food Situation 2. Farmers Groups/ SACCOs 3. Extension Services 4. Biological Control Measures 5. Irrigation (planted area, production, etc.) 6. Soil Erosion 7. Area Cultivated and Means of Cultivation	1. Introduction (Population and number of households) 2. Irrigation (water source, area, IO members, etc.) 3. Contract Farming 4. Agricultural, Livestock and Fishery Machines 5. Extension Services (FFS) 6. Input Use 7. Livestock Population 8. Livestock Infrastructure 9. Rangeland 10. Pasture 11. Area covered by TV, Radio and Telecommunication

461. As can be seen, some of these variables (e.g., productivity and technology adoption) should not be captured by a decentralized administrative data collection system, given that the system is open to stakeholder influence in the results obtained from the various data collection efforts. ARDS relies on VAEO/WAEO to provide the information, yet many posts are currently vacant, and VAEO/WAEO often have mobility challenges, thereby relying on village headman to provide the information.

462. In view of the potential overlap between ARDS and some national agriculture surveys, regarding the performance of the agriculture sector (foremost the production and productivity figures), a recommendation was made by a visiting statistics mission that ARDS focuses on a reduced number of indicators that are best captured through an administrative system, on a “need to know”, and not “nice to know” basis¹⁵⁶. While there is widespread consensus that the ARDS should focus on a reduced number of variables that can be easily captured at local level, this aspect was not satisfactorily addressed during the ARDS review conducted in late 2012¹⁵⁷, before ARDS roll-out. Unfortunately, the list of indicators was left untouched.

463. The roll-out of the ARDS was completed in March 2014, covering all 25 regions. However, the reliance on heavy paper forms at ward/village level is costly and may prove unreliable. More modern techniques, such as hand-held computers are proposed under ASDP-2 to assist the system to serve its purpose. After completing the national roll-out, ARDS has been officially authorized as a data collection system for the agricultural sector through a notification from the then PMO-RALG to the District Council/Coordinator, with a request that an aggregated ARDS report be submitted electronically on a quarterly basis.

464. The DADP quarterly financial and physical progress reports have been supported by the ASDP P&I TWG. DADP preparation and implementation guidelines were prepared in June 2006, with support from the JICA-financed capacity development project. The objective of these guidelines is to serve as an operational manual for the implementation of the Local Level Support Component of

¹⁵⁶ USDA Agricultural Statistics mission to Tanzania, Assessing Capacity for Agricultural Data Collection and Analysis in Support of Feed the Future July 2011.

¹⁵⁷ Assessment of the Improved Agricultural Routine Data System, Arun Srivastava et al, December 2012.

ASDP, for implementation of DADP. The TWG also prepares the Annual District Agricultural Development Plans (DADPs) Quality Assessment Report, which examines whether the DADP for the next three years has adhered to the established guidelines as well as the DADP Implementation Report using carried over funds.

465. A spreadsheet was prepared by PMO-RALG to compile information disaggregated by district, regarding individual projects approved in each district and financed by ASDP. These projects are part of the DADP, which is a three-year rolling plan. District staff contact project beneficiaries or the extension officer to have updated information regarding the implementation of the project (interventions, output indicators, comparing targets and actual). Financial expenditure is captured at district level, since each “project” has its own bank account.

466. Projects include small irrigation schemes, dip tanks rehabilitation, FFSs, etc. The spreadsheet monitors 70 different types of projects and provides the number of beneficiaries for each project. The spreadsheet also tracks the unspent balance at the end of each year, and the carry over funds needed to complete a specific project. The information is consolidated into a summary sheet that allows tracking by type of intervention, and allows you to add-up the intended beneficiaries, as well as the financial support per type of intervention.

467. Although efforts have been made, DADPs contain a limited depth of strategic vision for agricultural development at district level and do not provide a comprehensive picture of agriculture sector activities implemented at district level. One reason for the limited nature of DADPs, especially for the second limitation would be that LGAs considered DADPs as a budget application tool for DADP funds. However, there have been attempts to provide a more comprehensive plan, including information from other government and non-government resources.

468. This system naturally focuses on outputs delivered through the various interventions, however, because of the view that it would be important to capture and aggregate outcome information at project level, to be able to show the results that ASDP is achieving. Based on this, a separate spreadsheet has been prepared to provide information on project/intervention at outcome level.

469. The outcome spread sheet focuses on crop and livestock productivity and production increase, crop and livestock value addition, and accessibility to financial services, all of this at individual “project” or intervention level, however, it has not been rolled-out yet.

470. It is questionable whether this approach would make sense. The same concerns regarding possible stakeholder influence on the results obtained from this data collection effort. Outcome level information is normally best captured through surveys or studies, and not through administrative reporting systems. There was confusion during the ASDP—monitoring between the project-specific and sector-wide outcomes data collection. Because of clear connection to budgets, the project-specific outcomes received in general more attention than sector-wide outcomes, resulting in relatively weak development of ASDP Sector-wide monitoring. However, it is recognized that the ASDP-2 M&E system must maintain a strong link to budgetary and allocation monitoring requirements.

Statistics

471. The Tanzanian government uses various surveys and censuses to obtain information for agriculture and food security policy and planning decisions. The key institution is the National Bureau of Statistics (NBS, www.nbs.go.tz).

472. **The Tanzania Statistics Master Plan** (TSMP) was prepared for the period 2010–2014, to ensure improved coordination, raise statistical awareness and produce good statistics. It provides a national framework for the development of the national statistics system in the country. Coordination includes sectoral working groups. It includes an agricultural statistics component, which only covers the National Sample Census for Agriculture. The TSMP includes a budget of USD 64 million over 5 years and a Basket Fund mechanism supported by various donors (World Bank, Department for International Development (DFID), Canadian International Development Agency (CIDA)).

473. Tanzania is one of the countries included in the **FAO-led Country-STAT initiative**. In this context, a TWG has been established and comprises national experts from various institutions to

review and harmonize existing data. The major sources of agricultural data and their frequency are presented in Table A3:

Table A3: Key surveys and census for agriculture data

Name	Characteristics	Last conducted	Expected frequency
National Sample Census of Agriculture	Covers a wide range of variables, including number of households engaged in Agriculture, sources of income, area planted to crop, crop and livestock production and productivity, marketing and storage, irrigation and input use, access to extension services and credit, inventory of assets, food consumption. Sample size of 50,000 households, provides data at district level.	2002/2003 2007/2008	5 years ¹⁵⁸
National Panel Survey	Is in fact the Living Standards Measurement Study sponsored by the World Bank in many countries. Monitors progress on standards of living, and assesses impact of policies on households. Contains a module on agriculture and focuses on poverty. Sample size of 3,200 households, only allows for national estimates for rural Tanzania. Bridge between two Household Budget Surveys	2008/2009 2010/11	Every 2 years
Household Budget Survey	Data from the Household Budget Surveys is used to track progress resulting from the government's poverty-reduction policies. Provides official source of poverty determination in Tanzania	2001/2002 2007/2008 2011/2012?	5 years
National Population and Housing Census	Provides the population figures, and includes some information on agriculture. Results are just being made available. Total population of Tanzania is 45 million.	2002/2003 2012/2013	10 years

The above surveys provide the following strategic implications for enhancing the effective design and use of the M&E system to support ASDP-2:

474. Due to funding limitations, the national surveys have been providing inconsistent results and at infrequent intervals. The NSCA 2007/2008 national and regional results were made available in July 2012 and the 2012/2013 edition has been postponed to 2015/2016. The results for NPS 2, conducted in 2011 were released in September 2012.

475. A recent USDA Agriculture Statistics mission mentioned that: '*despite the importance of agriculture in the economy, agricultural statistics is not included in the core statistics, nor is it funded under the TSMP. Most of the data collection activities are donor-driven and donor-funded. Without adequate funding in the national budget to support key agricultural data collection activities, sustainability cannot be achieved*'¹⁵⁹. Additional constraints regarding the statistics system in Tanzania include unknown level of data accuracy, large inconsistencies in time series and discrepancies among various data sources, insufficient coordination and harmonization of data collection methods and instruments, lack of updated sampling frame, insufficient staff and lack of technical capacity and dependency on donor funding¹⁶⁰.

476. In view of the above, USDA has been collaborating with FAO, the World Bank and other countries' national statistical offices and ministries of agriculture on the development of the Global

¹⁵⁸ This 5-year interval is the old setting for the National Sample Census of Agriculture. In the current ASSP it has been set to be 10 years.

¹⁵⁹ USDA Agricultural Statistics mission to Tanzania, Assessing Capacity for Agricultural Data Collection and Analysis in Support of Feed the Future, July 2011.

¹⁶⁰ Aide Memoire Joint FAO/USDA mission 26 March–05 April 2012.

Strategy to Improve Agricultural and Rural Statistics¹⁶¹. An initiative of the UN Statistical Commission, the Global Strategy is a response to the declining quantity and quality of agricultural statistics worldwide. The Strategy provides a comprehensive framework to ensure the sustainability of agricultural statistics, and addresses emerging data needs. AfDB provides the RS for this initiative.

477. Two joint missions conducted by FAO, USDA and AfDB under the auspices of this initiative were fielded in January 2012 and March 2013¹⁶². The outcome of these missions was to develop a proposal to improve agricultural statistics in Tanzania, as defined in the Global Strategy. Elements of the proposal include: (i) update the ASSP; (ii) strengthen ARDS; (iii) develop sampling frame and sample design appropriate for generating agricultural statistics; (iv) design and implement an annual agricultural sample survey; and (v) build capacity to support agricultural statistics.

478. ASSP, which was prepared by the NBS in collaboration with ASLM, with technical support from FAO, defines the appropriate programme for fulfilling agricultural data needs using government resources, given due consideration to the frequency, level of aggregation, and level of precision required by data users. It also identifies appropriate data collection methods for each element of the system, then prioritize activities and identify resources needed for implementation. The resulting plan should link to the Global Strategy framework, and must be mainstreamed into the TSMP, and is contingent on GoT Resources being made available for implementation.

479. The AASS aims to provide timely and reliable crop and livestock production data on an annual basis. The recommendation from the joint mission was to focus on national and regional estimates for 8–10 crops and 3–5 livestock species. USDA is providing technical assistance to NBS and ASLM in this matter, and promoting an area-based sampling frame, using satellite imagery to identify spots, the higher the cropping intensity, the larger the number of spots, and then follow-up with interviews of the household farming that spot. The intent is to use GPS devices and hand-held electronic devices to speed up field data collection processes and ensure improved data accuracy. A first pilot survey was implemented in 2013, and a second one in 2014. The final report is expected to start rolling-out in 2015 or 2016 (depending on implementation of the National Agricultural Census).

480. The concern is to keep the questionnaire short, however, it is important to capture indicators of adoption of improved technology and access to strategic services (e.g., rural finance etc.), that should have been collected annually under ASDP-1 M&E framework. These will also be important outcome indicators in the Results Framework of the ASDP-2. Another concern is whether an area sampling frame is the best approach for an African farming context characterized by small plots, multi-cropping and shifting cultivation and extensive livestock areas. This also represents a break from the normal list sampling frame, with enumeration areas, which NBS is familiar with. Moreover, the cost of this methodology is apparently likely to be high, given the sample that it is expected to cover. These aspects require further discussions with NBS, ASLM, FAO and USDA.

481. To prepare the ASSP, an Agriculture Statistics Task Force consisting of a team of agriculture statistics experts has been established under the coordination of the TSMP Sector Working Group on Agriculture. A coordinator from NBS has been designated, and other members include statisticians from ASLM, to be released under a formal memorandum of understanding mechanism to work on priority activities. FAO has recruited a national consultant to act as the resident officer to follow-up on all the elements of this programme and support the Task Force, as well as an international consultant to provide support specifically on the ASSP preparation. The TSMP Agriculture Sector Working Group will supervise the work of the Task Force.

482. Before investments are made to improve agricultural statistics, donors wanted to clarify whether the government considers agricultural statistics a priority by including these among the core economic indicators and making necessary provisions in the national budget. This point was clarified

¹⁶¹ More information on the Global Initiative to Improve Agriculture Statistics in Africa can be found at http://www.fao.org/fileadmin/templates/ess/documents/meetings_and_workshops/ICAS5/Ag_Statistics_Strategy_Final.pdf.

¹⁶² Aide Memoire Joint FAO/USDA/AfDB mission, 28 January–01 February 2013.

during the second mission, when various high-ranking officials from NBS, Ministry of Finance, and the PMO confirmed that the Government of Tanzania is fully committed to improving agricultural statistics and willing to provide all the support needed. All parties stressed that NBS should lead the process, in accordance with its mandate in the Statistics Act, with national staff in the driving seat. Additional support should be built around already existing systems and procedures.

ASDP-2 Monitoring and Evaluation support under ASDP-2.

483. The objective of this sub-component is to ensure that there is an improvement in the timeliness, quality and relevance of available statistics and data in the agriculture sector, to provide the data needed to monitor the performance of the ASDP-2, starting with the indicators contained in its results framework. The results framework is provided in Annex I, and contains indicators such as farmers' income, crop yields, value of produce/exports, area under improved technology, area irrigated, etc. Under this sub-component, support will be divided in two thematic areas: (i) dedicated ASDP-2 Agricultural sector Monitoring and Evaluation support; and (ii) support to agricultural statistics and other sector related M&E efforts. The M&E specialist within the CMT will manage the M&E processes and ensure that they are conducted by NBS on schedule and in compliance with the terms of reference for the work. The M&E specialist will collaborate closely with the NBS on the construction of the monitoring templates to be used in the surveys.

484. **Baseline and final survey.** Given the uncertainty concerning the frequency, scope and funding of agricultural surveys, such as the NSCA, implemented through NBS, a specific baseline survey will be implemented aligned with 2014/2015 season to provide baseline data regarding the variables identified in the results framework. It will focus on ASDP-2 selected priority districts.

485. A total sample size of approximately 5,000 households is envisaged, in approximately 30 districts. This should be large enough to allow for information to be disaggregated by district. The sampling frame and questionnaire will be established in collaboration with the NBS, and will be based on the outcome of the Agricultural Statistics Strategic Plan, which foresees revisiting and improving current Sampling Frames & Sample Designs used for 2007/2008 NSCA and the 2012/2013 Population and Housing Census, to improve the definition and selection of enumerators areas. The use of a common sampling frame should allow comparison between the ASDP-2 baseline survey results, and the next NSCA results.

486. The sampling frame will also include non-beneficiary households with similar characteristics to those receiving ASDP-2 support, either in the same districts, or in neighbouring ones. This larger sampling frame will allow the completion of an impact evaluation, by comparing changes between households benefiting from ASDP-2 interventions, and those not benefiting from these changes. A final survey for the ASDP-2 will be harmonized with the NSCA and the AASS undertaken during the last year of the project, and will use the same sampling frame, and, to the extent possible, will try to visit the same households, through a panel survey.

487. It has been envisaged that the actual implementation of the baseline and final surveys would be contracted out to a reputable organization, either an academic institution or a private company through a competitive tender. However, the experience of ASLMs with contracted organizations has been disappointing and it is therefore proposed that the survey be conducted by NBS staff, but with oversight from an independent academic institution. Short-term enumerators will be hired for these two surveys, and will be supervised by NBS regional office staff. The use of portable electronic devices will be facilitated, so as to speed up data entry and cleaning, and disseminate the results rapidly. The questionnaire will be prepared in close collaboration with the Agriculture Statistics Task Force and the ASDP M&E Working Group. These baseline and final surveys are estimated to cost a total of TZS 4.8 billion (USD 3 million), or approximately USD 1.5 million each. These surveys will be implemented in case the NSCA, planned for 2016/2017 is postponed.

488. **Intermediate outcome surveys.** To allow tracking of key performance indicators identified in the results framework, intermediate outcome indicators will be evaluated yearly between the baseline and final surveys, so as to provide useful feedback regarding the implementation of the ASDP-2. The

intermediate outcome data will be derived from AASS, which will be expanded for the purpose from its exclusive collection of crop and livestock productivity and production statistics. The cost of the annual survey for intermediate outcome indicators is estimated to total TZS 2.4 billion. There should be a mid-term revision of the results framework (as part of ASDP-2) to adjust actual performance of the M&E of ASDP-2.

Support to agricultural statistics and sector M&E efforts

489. Based on the Global Strategy to Improve Agricultural and Rural Statistics, promoted in Tanzania by USDA, FAO and AfDB, and based on the ASSP being developed by the Agriculture Statistics Task Force, this sub-component will include the following activities:

- (i) co-financing of the National Sample Census Survey for Agriculture (NSCA-2015/2025);
- (ii) financing of AASS during 2015–2024);
- (iii) strengthening the Agricultural Routine Data System (ARDS); and
- (iv) limited support to the M&E Technical Working Group, over the same period.

490. **National Sample Census for Agriculture** (NSCA). Given that ASDP-2 will be one of the few large-scale projects providing financing in agriculture through the public sector over the coming years, and given that financing for agricultural statistics is an ongoing discussion under the aegis of the Global Strategy to Improve Agricultural and Rural Statistics, several partners, including the government, have expressed their interest for the ASDP-2 to provide financing for the NSCA. NSCA is considered as the key survey for the sector and its regular implementation would go a long way in providing a common national system to all projects operating in the sector in Tanzania.

491. It is envisaged that the NSCA will be held every 10 years, and will provide district-level statistics on a wide range of variables, based on a sample size of 50,000 households. The next NSCA is due to take place in 2016 (for the agricultural season 2015/2016). Given its high cost, around 10 billion TZS, it is hereby proposed that ASDP-2 will contribute for about 50% of this cost, while the balance will be co-financed by the Tanzania Statistics Master Plan (TSMP) Budget Support Fund.

492. **Annual Agriculture Sample Survey** (AASS). The ASSP being developed by the Agriculture Statistics Task Force foresees that the AASS will provide annual, regional level, production and productivity statistics for main crops and livestock species. The annual cost and the final questionnaire of the AASS has not yet been finalized, but will be consolidated at the end of the programme piloting (2014).

493. There are ongoing methodological discussions regarding whether this will be an area-based sample or a list-based sample, or a combination of the two. These discussions are taking place in the framework of the Agricultural Statistics Task Force, between NBS, ASLM, and specialized technical assistance in statistics from USDA and FAO. This group includes statisticians from MAFC, and MLFD, is chaired by the NBS, and will also be responsible for preparing the questionnaire. Based on the cost of the pilot, which is foreseen to take place in 2013 and 2014, the AASS annual cost has been estimated at 1.6 billion TZS.

494. Given that the TSMP is unlikely to provide financing for this annual survey, and given that this annual survey would allow the sector to have reliable production and productivity estimates, albeit at regional level (discussions are ongoing to look at opportunities for enhancing data reliability to district level), the ASDP-2 should provide the financing for this annual survey. However, there are concerns about the current statistical methodology being advocated by USDA, which would need to be discussed with the ASDP M&E TWG and ASCG.

495. **Agricultural Routine Data System** (ARDS). One of the key Management Information Systems that has been developed under ASDP-1 is the ARDS. Many resources have been invested to build a national web-based database with information disaggregated at the district level, to clarify data flow and approval, and to develop data format, procedures for data collection at village and ward level and data dissemination, from district to national level. JICA has provided long-term technical

assistance and capacity building support to national ARDS rollout, which will lapse in 2015¹⁶³. This system provides data on the performance of the agriculture sector, and relies on front-line extension staff to provide monthly, quarterly and annual information, which is compiled at district level and entered into a web-based database, and made available to ASLM through RSSs and PO-RALG.

496. A recent review has identified which variable can be collected with some reliability at village and ward level¹⁶⁴. However, this review fell short of ensuring that there are no overlap between the ARDS and other data sources, such as the AASS and NSCA, as recommended by the Joint USDA/FAO/AfDB mission held in 2012.

497. **The Agricultural Statistics Strategic Plan** (ASSP) envisages that the ARDS should be further streamlined, and focus on information that can reliably be reported by front line extension staff, but recognizes the usefulness of having a Management Information System for the sector. ASDP-2 will finance an ARDS review, in year 1, to assist the M&E TWG in ensuring that it is better integrated to the other data collection systems, and that the information it provides is more comprehensive and accurate. In addition to this study, the ASDP-2 has made a provision to finance the implementation of the ARDS, while local governments make a provision in their budget to provide that type of recurrent expenditure.

498. Cost for routine implementation of the ARDS has been estimated to be approximately 6 million TZS/district/year based on the assumption that one LGA has on average 15 wards. Recently, however, many LGAs increased the number of wards and thus have more than 20 wards per district. Under the assumption of 20 wards per LGA, expected costs for a LGA per year would be TZS 8 million. Total cost would thus be TZS 1.20 billion per year or TZS 6.00 billion over the 5 years (respectively USD 0.74 million/year and USD 3.7 million for the whole period). This budget includes allowances for the district M&E officer to travel (4 days a month), as well as fuel and bicycle maintenance for the WAEQ and the VAEQ respectively, stationery for both, distribution costs of the reports (bus fare), and printing and photocopying costs for the paper questionnaires used.

499. **M&E Technical Working Group.** The M&E TWG compiles the ASDP Annual Performance Report, which provides an update on all key performance indicators, at impact, outcome and output level¹⁶⁵ and participates in the JIR, which undertakes an annual assessment of progress made under ASDP, and also results in a report¹⁶⁶. ASDP-2 will make a provision to support the M&E TWG in its activities. This support has been budgeted at about TZS 100 million per year.

Proposed mode of M&E coordination under ASDP-2

500. Given the environment of ASDP-2 where multiple actors implement their respective interventions and projects, the ASDP-2 M&E needs strong coordination ability and data processing (collection, compilation, analysis and reporting) capability.

501. Although the institutional arrangement of ASDP-1, i.e., both M&E TWG and P&I TWG, may remain in ASDP-2, two additional features must be added to strengthen their working capacity: (i) authority above both TWGs to manage them together; and (ii) small group (two to three officers) from M&E, Statistics and IT units at each ASLM who are committed to and are exclusively responsible for day-to-day operation and data processing tasks. The former assures efficient and effective coordination among various data collections, while the latter enables ASLMs to extract proper information out of wide range of data.

502. In the coordination at the central operational level, the scope of coordination will be greatly expanded in ASDP-2 by including NBS and representatives of parallel interventions/

¹⁶³ Agricultural Routine Data System (ARDS) National Roll-Out Plan, ASDP M&E TWG, 2010.

¹⁶⁴ Assessment of the improved Agricultural Routine Data System, Arun Srivastava et al., December 2012.

¹⁶⁵ ASDP Annual Performance Report 2009/10, March 2011; ASDP Annual Performance Report 2010/11, November 2011; ASDP Annual Performance Report 2011/12, Draft in progress, April 2013.

¹⁶⁶ Seventh Joint Implementation Review Report, 5 May 2012–18 June 2012.

projects/programmes. In order to secure effective M&E under ASDP-2, regular (probably quarterly or by-monthly) coordination meeting is required, which would be facilitated by the M&E specialist of the CMT who would convene the meetings. These meetings should be attended by the dedicated Statistics and IT unit members of the ASLMs, and non-state actors such as farmer organizations, and MUVITA among others who should demand to be informed of progress. Reports on the state of data collection and overall state of the sector should be submitted to the coordination meeting to track the M&E activities under ASDP-2. Such reports as well as actual M&E data should be widely disseminated through websites or any other means for the accountability of the programme.

Table A4: Short-listed impact, outcome and output indicators for the ASDP-1

Indicators		Frequency	Disaggregation			Data source
			District	Region	National	
Impact (IM)	1. Real GDP growth rate per annum [MKUKUTA]	Annual			✓	NBS
	2. Headcount ratio in rural areas – basic needs poverty line [MKUKUTA]	Periodical		✓	✓	NBS (HBS)
	3. Value of agricultural exports	Annual			✓	TRA
Outcome (OC)	1. Food self-sufficiency ratio [MKUKUTA]	Annual		✓	✓	MAFC
	2. Production and productivity of crops and livestock.	Periodical	✓	✓	✓	NBS (NSCA)
	3. Proportion of smallholder households using improved technologies	Periodical	✓	✓	✓	NBS (NSCA)
	4. Flow of private funds into agricultural and livestock sectors	Annual		✓	✓	TIC
	5. Proportion of smallholder households using mechanization	Periodical	✓	✓	✓	NBS (NSCA)
	6. Ratio of processed exported agricultural products to total exported agricultural products	Annual			✓	TRA
	7. Proportion of smallholder households participating in contracting production and out-growers schemes [MKUKUTA]	Annual	✓	✓	✓	LGAs
	8. Proportion of LGAs that qualify to receive top-up grants	Annual			✓	PMO-RALG
	9. Proportion of LGAs that qualify to receive performance bonus	Annual			✓	PMO-RALG
Output (OP)	1. Number of agricultural production infrastructure	Annual	✓	✓	✓	LGAs
	2. Number of agricultural marketing infrastructure and machinery	Annual	✓	✓	✓	LGAs
	3. Number of extension officers trained on improved technological packages	Annual	✓	✓	✓	LGAs
	4. Value of loans provided by SACCOs for agriculture	Annual	✓	✓	✓	LGAs
	5. Number of agricultural marketing regulations and legislation in place	Annual			✓	MITM, MAFC, MLDF
	6. Number of markets where wholesale or retail prices are collected	Annual			✓	MITM
	7. Number of Inter-Ministerial Coordination Committee (ICC) meetings held	Annual			✓	ASDP Secretariat
	8. Proportion of quarterly progress reports submitted on time	Annual	✓	✓	✓	Regions, ASLMs
	9. Proportion of female members of Planning and Finance Committee	Annual	✓	✓	✓	LGAs

Note: Indicators with [MKUKUTA] are from the Poverty Monitoring Master Plan.

ANNEX IV: Financial and Economic Analysis

1 Introduction

503. A financial and economic analysis was undertaken to assess the viability of the investments proposed for ASDP-2. The main project interventions include: (i) rehabilitation and expansion of irrigation infrastructure; (ii) expansion of watershed management and conservation agriculture, (iii) development of water resources for livestock and fisheries, (iv) expansion and upgrading of agricultural research, extension and training services, (v) improved access to agricultural inputs and machinery (including input subsidies); (vi) development of farmer organizations and improved access to markets and rural finance; (vii) agribusiness development and enhanced value addition; and (viii) strengthening of policy/regulatory framework and institutional capacity; (ix) improved food security and nutrition (including NFRA grants); and (x) sector co-ordination and M&E.

504. The main economic benefits of these interventions are expected to be: (i) increased crop production through improved crop yields, higher cropping intensity, and diversification to higher value crops; (ii) enhanced livestock and fish production, (iii) higher farm incomes from agricultural production, (iv) increased income from agribusinesses and greater value addition, and (v) higher export earnings.

Crop Production

505. It is estimated that farmers on 2,000,000 hectares of non-irrigated land will benefit from improved agricultural support services, development of farmer organizations, and better access to markets and rural finance. Furthermore, investments in land and watershed management, as well as conservation agriculture, will help to ensure that increases in crop production are sustained in areas which are vulnerable to soil erosion and declining soil fertility. In addition, it is estimated that the improved irrigation infrastructure will benefit an irrigable area of 165,000 hectares, comprising 65,000 hectares of new and expanded irrigation schemes and 100,000 hectares of existing irrigation schemes which will be rehabilitated under ASDP-2.

506. Following the provision of agricultural support services, improved land and watershed management, as well as the expansion and rehabilitation of the irrigation infrastructure, the present overall cropping intensity of 92% is projected to rise to around 103% for 2,165,000 ha of cultivated land. For irrigated land, cropping intensity is expected to rise to 135% while, for non-irrigated land, the cropping intensity is assumed to increase from 90% to 100%.

507. With regard to improved crop productivity, it is anticipated that the average yields of paddy rice would rise from 1.75 tons/ha to 3.0 tons/ha. For maize, oilseeds/pulse and vegetables, the corresponding increases are 1.35 to 2.20 tons/ha (maize), 1.0 to 1.4 tons/ha (oilseeds/pulses), and from 15.0 to 20.0 tons/ha (vegetables).

508. This increase in overall crop production within the ASDP-2 area will lead to a notable improvement in the net farm incomes of smallholders. Furthermore, there will be an increase in income and employment opportunities resulting from an expansion of processing, transport and marketing of crops and crop by-products.

Livestock and Fisheries

509. The development of water resources for livestock and the provision of support services are expected to result in an increase in livestock productivity. Currently, livestock are a source of a wide range of products including milk, meat, and manure as well as cash income, but productivity is very low. In the future with project situation, increases in livestock productivity will primarily arise from the adoption of improved pasture management and better livestock husbandry practices particularly with respect to nutrition and animal health. This will notably improve milk yields and enhance the

efficiency of meat production through better live weight gains. The proposed fisheries interventions are primarily aimed increasing aquaculture production through the expansion of fish ponds as well as improved support services. This will enhance the livelihoods of rural communities engaged in fish production and marketing.

Farmer Organizations, Marketing and Agribusiness Support

510. ASDP-2 includes measures to expand farmers' access to rural markets, improve marketing systems and provide support to agribusinesses. These interventions are likely to provide significant economic benefits, such as enhancing CVCs, increasing value addition, and improving the income and employment opportunities of agribusinesses engaged in the transport, storage, processing and marketing of agricultural produce. However, the economic benefits of these interventions have not been quantified in the economic analysis.

511. Furthermore, due to the large annual and seasonal variations in agricultural prices, the possible increase in farm gate prices (resulting from better access to markets and improved efficiency of the marketing systems) has not been taken into account in the financial analysis.

2 Financial Analysis

Crop Budgets

512. A financial analysis was undertaken to assess the likely impact of ASDP-2 interventions on farm incomes. Four budgets were prepared to represent the main crops grown in Tanzania, namely maize, rice, oilseeds/pulses and vegetables. Crop budgets were prepared for the present, future without project, and future with project situations.

513. With regard to the future with project situation, the consultant estimated the expected crop yields and input usage, as well as the labour and machinery requirements for field activities. Increases in crop production will mainly arise from the provision of irrigation facilities as well as the adoption of improved crop production techniques by farmers on both irrigated and non-irrigated land. Furthermore, an increase in crop inputs is also anticipated, together with the adoption of improved farm machinery, which will significantly enhance crop production practices within the ASDP-2 area.

514. The average crop yields used in the analysis for the present, future without and future with project situations are summarised in **Table A5**. It is envisaged that the future with project yield levels would be fully achieved within two years of completing the strengthening of agricultural support services, implementation of improved land and watershed management, as well as the construction of irrigation infrastructure envisaged under the programme. To ensure that these long-term improvements are sustained, agricultural support services have also been included in the long-term recurrent costs.

Table A5: Crop yields in present, future without and future with project

	Average Crop Yields (tons per hectare)		
	Present	Future Without Project	Future With Project
Maize	1.35	1.50	2.20
Rice	1.75	1.95	3.00
Oilseeds/Pulses	1.00	1.10	1.40
Vegetables	15.00	16.50	20.00

Source: Crops Sector National Report (2012) and consultant's estimates

515. In the future without project situation, it is expected that crop yields will gradually increase due to the adoption of improved cropping practices. It is therefore anticipated that there will be an increase in crop yields at the rate of 1% per annum. The average crop yields in the future without project situation (given in **Table A5**) reflects the expected levels of productivity after 10 years.

516. On the basis of the crop yields, crop inputs, produce/input prices, wage rates, as well as labour, oxen and machinery requirements, financial crop budgets in the present, future without and

with project situations were prepared. By deducting production costs from crop revenues, financial crop gross margins were determined for each selected crop. In both the future with and without project situations, it has been assumed that farm gate prices (in constant terms) will remain unchanged from their present values. The financial crop gross margins are summarized in **Table A6**.

Table A6: Financial crop gross margins in present, future without and future with project

	Gross Margins (TSh per hectare)		
	Present	Future Without Project	Future With Project
Maize	67,088	119,831	216,550
Rice	322,500	423,844	709,375
Oilseeds/Pulses	512,625	613,250	807,500
Vegetables	2,267,000	2,583,875	2,927,250

Source: Crop budget estimates

517. It is evident from **Table A6** that, in the future with project situation, there is a significant improvement in the net returns for all types of crop. This reflects the notably higher yield levels which generate incremental returns in excess of the additional production costs. It is also apparent that the net returns per hectare from vegetables are substantially higher than the returns from maize, rice and oilseeds/pulses. However, the attractive returns from horticultural crops are moderated by the risks associated with very large seasonal price fluctuations.

Cropping Patterns

518. Present cropping patterns were determined for: (i) existing irrigated area, (ii) proposed irrigated area, and (iii) non-irrigated area under the programme. These cropping patterns are not expected to alter significantly in the future without project situation as only a small increase in cropping intensity is likely without an improved supply of irrigation water.

519. In the existing irrigated area, it is anticipated that the areas of rice, oilseeds/pulses and vegetables will increase in the both the wet and dry seasons as a result of ASDP-2 interventions. In the proposed irrigated area, there will be a significant change in cropping pattern (from rainfed to irrigated) with a major expansion in the area of rice in the wet season and the introduction of maize, rice, oilseeds/pulses and vegetables in the dry season. The cropping patterns used in the financial and economic analysis are presented in **Table A7**.

520. In the existing irrigated area, cropping intensity is expected to increase from 125% to 135% while, on the proposed irrigated area, cropping intensity will rise from 90% to 135%. For non-irrigated areas, cropping intensity in the future with project situation is estimated at 100%. Overall, the cropping intensity in the ASDP-2 area is expected to increase from 92% to 103%. The lack of an adequate and reliable supply of irrigation water will probably limit further increases in the cropping intensity during the dry season.

Table A7: Cropping patterns and cropping intensity

Crop Enterprise	Present and Future Without Project: Cropping Patterns (% of cultivated area)			
	Rehabilitated Irrigated Area	New Irrigated Area	Non-irrigated Area	Overall
<i>Wet Season</i>				
Maize	45	63	63	62
Rice	40	5	5	7
Oilseeds/Pulses	5	20	20	19
Vegetables	5	2	2	2
sub-total	95	90	90	90
<i>Dry Season</i>				
Maize	15	0	0	1
Rice	0	0	0	0
Oilseeds/Pulses	10	0	0	0
Vegetables	5	0	0	0
sub-total	30	0	0	1
Cropping Intensity	125	90	90	92

Crop Enterprise	Future With Project: Cropping Patterns (% of cultivated area)			
	Rehab. Irrigated Area	New Irrigated Area	Non-irrigated Area	Overall
<i>Wet Season</i>				
Maize	30	30	67	64
Rice	50	50	5	8
Oilseeds/pulses	10	10	25	24
Vegetables	10	10	3	4
	100	100	100	100
<i>Dry Season</i>				
Maize	10	10	0	1
Rice	5	5	0	0
Oilseeds/pulses	10	10	0	1
Vegetables	10	10	0	1
	35	35	0	3
Cropping Intensity	135	135	100	103

Source: Crops Sector National Report (2012) and consultant's estimate

Livestock

521. The livestock component of ASDP-2 is expected to improve the productivity of different types of livestock enterprises such as dairy cows and beef fattening. Increases in livestock productivity will primarily arise from the adoption of better livestock management practices and improved nutrition.

522. In the financial analysis, budgets were prepared for two livestock enterprises, namely dairy production and beef fattening. The livestock outputs and inputs were valued in 2015 farm gate prices to derive financial gross margins for each of the enterprises (**Table A8**). In the future with project situation, the improvements in net returns primarily reflect the higher levels of productivity.

Table A8: Financial livestock gross margins in present, future without and future with project

Livestock Enterprise	Financial Gross Margins (TSh per head)	
	Present and Future Without Project	Future With Project
Dairy Production	176,975	311,975
Beef Fattening	77,900	102,900

Source: Livestock budget estimates

Farm Budget Analysis

523. Farm budget analysis was undertaken to determine the impact of the project interventions on farm incomes. The farm budgets were prepared for an average sized farm of 2.0 ha. Based on the cropping patterns given in **Table A7**, the crop areas were calculated and then applied to the respective financial crop gross margins in order to derive the likely net returns to farmers in the present, future without and future with project situations. The net returns from the livestock enterprises were then added to determine an overall farm gross margin. Following the deduction of fixed costs (e.g. land rent, equipment/farm tools), net farm incomes were obtained. A summary of the net farm incomes for the different ASDP-2 areas is given in **Table A9**.

524. It is evident from **Table A9** that there are likely to be very significant increases in net farm incomes. Comparing the present and future with project situations, net farm income in the existing irrigated area is expected to increase from TSh 900,568 to TSh 2,665,228 (before irrigation O&M costs) while, in the non-irrigated areas, net farm income is estimated to rise from TSh 367,385 to TSh 1,158,275. Overall net farm income is expected to increase from TSh 436,699 to TSh 1,655,569 per annum.

525. When irrigation O&M costs are included, net farm income for the irrigated areas falls to TSh 2,229,994 per annum in the irrigated areas. However, as irrigation costs only account for about 16% of net farm income, farmers will have the ability to meet annual O&M costs.

Table A9: Net Farm Incomes in Present, Future Without and Future With Project

Irrigation Status	Net Farm Income (TSh per annum)			
	Present	Future Without Project	Future With Project	
			Excluding Irrigation O&M Costs	Including Irrigation O&M Costs
Rehab. Irrigated Area	900,568	1,138,498	2,665,228	2,229,994
New Irrigated Area	367,385	496,902	2,665,228	2,229,994
Non-irrigated Area	367,385	496,902	1,158,275	
Overall	436,699	580,309	1,655,569	

Source: Farm budget estimates

3 Economic Analysis

Economic Pricing

526. Economic prices for internationally traded goods (such as rice, maize, soya bean and fertilizers) were derived from the World Bank commodity price projections for 2015. These world prices were adjusted for sea freight, insurance and border charges, as well as local transport, handling and, if applicable, processing costs, in order to determine economic farm gate prices.

527. Local transport, handling, storage and processing costs were based on the current rates prevailing in Tanzania. However, these financial prices were converted to economic prices by applying the standard conversion factor (SCF) of 0.95. The SCF reflects the shadow exchange rate in Tanzania which is at variance with the official exchange rate due to distortions in the foreign exchange market. Economic prices for other non-internationally traded agricultural goods, such as vegetables and straw, were taken from the 2015 financial prices prevailing within the project area.

528. Labour costs were based on the rural wage rates which varied according to the type of farm activity but averaged around TSh 5,000 per day for most farm operations. However, given the high levels of underemployment within the project area, a shadow wage rate of 0.65 was used to determine the economic value of labour.

529. The economic analysis was undertaken over a 50-year period in 2015 constant prices and a shadow discount rate (opportunity cost of capital) of 12% was assumed. The Tanzania shilling was used as the unit of account and an exchange rate of TSh 2,150 to USD 1.0 (June 2015) was applied when converting to USD. It was anticipated that the project would be implemented over a 10-year period.

Economic Benefits

530. In the estimation of agricultural benefits, economic crop gross margins per hectare were calculated by valuing the physical input and output quantities in terms of their respective economic prices. The economic crop gross margins in the present, FWO and FW project situations are summarized in **Table A10**. The economic gross margins per hectare were then multiplied by the respective crop areas in order to estimate net crop benefits in the present, future with and future without project situations. The differences between the net crop benefits were then calculated to determine the economic impact of the changes in cropping patterns and improved crop yields.

Table A10: Economic crop gross margins in present, future without and future with project

Crop Enterprise	Economic Gross Margins (TSh per hectare)		
	Present	Future Without Project	Future With Project
Maize	-80,084	-37,321	42,813
Rice	98,649	185,461	359,371
Oilseeds/Pulses	416,142	511,441	697,594
Vegetables	1,589,450	1,860,013	2,115,150

Source: Crop budget estimates

531. Net livestock benefits were also estimated for the present, future without and future with project situations (based on the respective livestock populations and economic gross margins). These benefits were then added to the net crop benefits. Economic livestock gross margins are summarized in **Table A11**.

Table A11: Economic livestock gross margins in present, future without and with project

Livestock Enterprise	Economic Gross Margins (TSh per head)	
	Present and Future Without Project	Future With Project
Dairy Production	104,225	237,975
Beef Fattening	56,500	86,500

Source: Livestock budget estimates

532. As a result of these increases in crop and livestock production, net agricultural benefits to farmers within the project area were estimated to rise by TSh 626,572 million per annum (from TSh 245,152 million to TSh 859,700 million per annum at full development). It is envisaged that the future with project agricultural benefits would be fully attained within 2 years of programme completion. Benefits from crop production are estimate to account for 81% of the overall agricultural benefits.

Capital and Recurrent Costs

533. The capital investment required for the implementation of the four ASDP-2 components, i.e., sustainable land and water management, enhanced agricultural productivity, rural commercialization/value addition, and strengthening sector enablers, were compiled from the estimates made by the consultancy team. These capital costs were then distributed over a 10 year implementation period.

534. In financial terms, the base capital cost was estimated TSh 6,230,100 million (USD 2,898 million) and when physical contingencies were included, the project cost increased to TSh 7,882,948 million (USD 3,666 million). Physical contingencies were estimated at 10%.

535. In the derivation of economic costs, government taxes and duties as well as subsidies (e.g., farm input subsidies and NFRA grants) were first omitted from the financial costs, as these are transfer payments within the economy and so are not real resource costs. The standard conversion factor (SCF) of 0.95 was then applied to the financial costs of local materials, machinery/equipment and skilled labour. The cost of unskilled labour was also reduced by applying the shadow wage rate factor of 0.65. The financial cost of foreign goods and services remained unchanged. These economic conversion factors were then applied to the financial costs in order to determine the economic capital cost which was estimated at TSh 2,778,544 million (USD 1,292 million).

The financial and economic capital costs of the ASDP-2 components are summarized in **Table A12**.

Table A12: Financial and economic capital costs

Programme Components	Financial Cost (TSh million)	Economic Cost (TSh million)
Component 1: Sustainable Water & Land Use Management	1,450,593	1,233,004
Component 2: Enhanced Agricultural Productivity	1,517,960	607,184
Component 3: Rural Commercialization and Value Addition	1,483,429	1,260,915
Component 4: Strengthening Sector Enablers	1,778,118	711,247
Base Cost	6,230,100	3,812,350
Physical & Financial contingencies	1,652,848	1,011,418
Total Capital Cost	7,882,948	4,823,768

536. The long-term annual operation and maintenance costs of the irrigation infrastructure were also included in the economic analysis, as these recurrent costs will have to be met if the future benefits of the capital investment are to be sustained. The annual O&M cost of the infrastructure was estimated at TSh 38,915 million (USD 21.8 million). These financial costs were then converted to economic values, and the annual economic O&M costs were estimated at TSh 34,614 million (USD 16.1 million).

537. In addition, it was assumed that agricultural support services will also be required on an

annual basis over a 50-year period. The annual costs of support services were therefore included in the analysis to ensure that agricultural production continues to grow after completion of ASDP-2. In total, economic recurrent costs after programme completion amounted to TSh 67,740 million per annum (USD 31.5 million per annum).

Economic Viability and Sensitivity Analysis

538. By deducting the capital and recurrent costs from the economic benefit stream, an incremental net benefit stream for the programme was determined over a 50 year period (in constant 2015 prices). The incremental net benefit stream was then used to estimate the economic internal rate of return (EIRR) and net present value (NPV) calculated at a discount rate of 12%. The results of the economic analysis indicate that the EIRR of ASDP-2 is **14.8%** with a NPV of TSh 370,009 million (USD 172 million). These results show that the proposed project investment is justified on economic grounds.

539. Sensitivity analysis was also undertaken to test the economic viability of the proposed interventions to various changes in the cost and benefit streams. This analysis indicated that ASDP-2 is fairly sensitive to changes in benefits and costs and becomes uneconomic with an increase in capital and recurrent costs of 21%. Similarly, an 18% decrease in incremental project benefits would result in the EIRR falling below 12%.

540. The results of the sensitivity analysis are given in **Table A13** and it can be seen that a decrease in capital and recurrent costs of 20% resulted in an EIRR of 18.8%, while a cost increase of 20% lowered the EIRR to 12.1%. Similarly, an increase in incremental benefits of 20% produced an EIRR of 18.0% and a benefit decrease of 20% reduced the EIRR to 11.6%. The analysis also considered the possibility of a combination of a 20% benefit increase and a reduction in project costs of 20%. Under this scenario, the EIRR increases to 22.6%. In contrast, if a benefit reduction of 20% is combined with a 20% increase in costs, the EIRR falls to 9.3%.

541. In addition, changes in the expected cropping intensity were also assessed and the analysis indicated that if a future with project cropping intensity of 100% is assumed (in comparison to 103% in the base case), the EIRR falls to 14.3%, while a cropping intensity of only 95% will further reduce the EIRR to 11.8%.

542. With regard to crop productivity, the analysis indicated that if yields of maize and rice only increased by 50% (in comparison to 57% and 67% in the base case), the EIRR falls to 10.7% and ASDP-2 becomes uneconomic. Furthermore, if overall crop yields are only 40% higher after programme completion, the EIRR reduces to 7.7%. The economic viability of ASDP 2 is therefore very sensitive to achieving the expected yield levels. It should therefore be emphasized that the adoption of improved cropping practices and expected increases in crop yields (to maintain economic viability) will only be achieved if adequate agricultural support services, including extension/training and input supply as well improved access to markets and rural finance, are made available to farmers in an effective and efficient manner.

Table A13: Economic viability and sensitivity analysis

Scenario		EIRR (%)	NPV (TSh million)
Base Case		14.8%	370,009
Capital and Recurrent Costs	-20%	18.8%	722,428
Capital and Recurrent Costs	+20%	12.1%	17,589
Incremental Benefits	+20%	18.0%	796,430
Incremental Benefits	-20%	11.6%	-56,413
Costs -20% and Incr. Agric Benefits	+20%	22.6%	1,148,850
Costs + 20% and Inc. Agric Benefits	-20%	9.3%	-408,832
100% Cropping Intensity With Project		14.3%	299,966
95% Cropping Intensity With Project		11.8%	-21,536
50% Increase in Crop Yields		10.7%	-531,096
40% Increase in Crop Yields		7.7%	-165,650

Annex V: Risks assessment and Mitigation Strategies/Measures

Programme stakeholder risks Inadequate policy incentives for participation of private agribusiness partners in programme activities, especially their envisaged role in value chain development will undermine achievement of programme objectives.	Moderate	Dialogue on improving environment for private sector investment continues, and Government is committed to enhance private investment in agriculture through initiatives like Kilimo Kwanza and the Southern Agricultural Grow Corridor for Tanzania. The proposed District Stakeholders Commodity Value Chain Platforms under the overall government's programme will enhance the interactions and partnership among value chain stakeholders.
Operating environment risks Country Tanzania's growth remains vulnerable to external and domestic shocks that can be exacerbated by domestic structural constraints. There are continued risks of exogenous shocks from another global economic downturn and global fuel and food price hikes. Regional and domestic risks include droughts. The vulnerability risk against such exogenous shocks is compounded by the country's dependency on foreign aid, making the country extremely vulnerable to changes. The fiscal framework is increasingly vulnerable to risks embedded in the strategic choices adopted by the Government, including increasing use of non-concessional financing for investment projects, unbalanced allocation of resources between infrastructure and social sectors, and internal pressures on wages. The level of public debt has increased dramatically over recent years, reaching, approximately 40% of GDP. Limited capacity in the government system and its staff to implement and manage the reform agenda represents another risk. This includes, most notably, capacity constraints in PFM, including budget planning and execution. Serious PFM capacity constraint in the local governments is of particular concern, as the Government pursues its decentralization policy.		The PRSC series provides a platform from which the Bank can engage in a dialogue with the Government on macroeconomic and fiscal conditions so as to build resilience against external and domestic shocks, maintain fiscal sustainability and improvement of overall reform programme. This PRSC series, through its focuses on PIM and PFM including debt management, directly contribute to mitigation of risks related to use of excessive non-concessional lending, fiscal institutions, including debt management The dialogue process under the PRSC series, such as PER, addresses capacity constraints. Relevant knowledge work under the PRSC series to build analytical underpinnings will also maximize the participation of the Government and other national stakeholders, such as CSOs and the academic community, so as to enhance the analytical capacity and the knowledge-sharing environment in the country, which are essential to enhancing domestic accountability.
Sector and multi-sector The programme will be implemented under a complex institutional structure—multisectoral, multi-donor environment, in parallel with several standalone projects. This may lead to conflicting agenda and interests, as well as inadequate capacity to effectively manage and coordinate several activities under different projects	Mod	The programme is providing a framework for the implementation of the agreed government programme, using strengthened government systems. The sector-wide coordination framework will help to harmonize implementation various projects in the agricultural sector. A MoU will be signed between all donors supporting ASDP-2 (and the sector) to agree on principles for operating and managing support to the sector, in accordance to overall sector coordination framework.
Implementing agency risks Weak capacity on financial management, procurement, M&E and oversight of projects especially in local government may	High	The programme is aligned with (comprises) Government's BRN initiative which emphasizes results management and accountability. The Agricultural Delivery Unit will be established in the Ministry of

undermine accountability and tracking programme results.		Agriculture, Livestock and Fisheries to enhance accountability and tracking of results in the sector. In addition, there are on-going efforts by government to strengthen FM and procurement capacity through recruitment/assignment of staff and training. The proposed programme includes support for institutional strengthening and capacity building to programme implementers. Efforts to improve agricultural statistics and M&E system; and establishment of MIS under the programme will enhance flow of information and accountability. The communication strategy prepared under the first phase will improve management of information flow at different levels, decision-making, and accountability and strengthen M&E and quality of information.
Governance. Weak budget and accountability systems especially at local levels may undermine internal controls and funds may not be used efficiently and economically for intended purposes. Inadequate regulatory and unfavourable local tax regime could reduce programme benefits.	Mode rate	Each ASLM has functional internal audit and audit committee. The programme coordination unit will provide oversight for allocation and utilization of programme resources to ensure that funds are used for the intended purposes. Recruitment of qualified accounting staff, internal auditors, and procurement staff at national level has been done, and efforts to strengthen capacity of LGAs in accounting, internal audit and procurement are underway.
Governance risks, fraud & corruption There is potential for fraudulent bonus payment claims, especially on procurement activities, due to inadequate transparency and limited capacity to monitor and report fraud and corruption, especially at the local level.	Mode rate	Internal auditors of implementing agencies have been trained in value-for-money auditing. Other oversight mechanisms will include regular performance reviews and regular public expenditure reviews. Social accountability mechanisms will strengthen transparency and the quality and accuracy of results.
Programme risks		
Design. The national and local implementing agencies have inadequate capacity for value chain development and proposed commercialization models. This will affect the achievement of programme objectives. Limited capacity of private service providers and weak farmer organizations may impede commercialization of smallholder farmers, transfer of technologies and realization of optimal returns from value chain investments.	High	There are on-going efforts to develop capacity Value chain analysis/approach in ASLMs and LGAs. The overall programme will support capacity building of Agribusiness Service Providers. Additional support will be provided to strengthen farmer organizations and facilitate linkages with private service providers/agribusiness.
Social & environmental There is a risk of poor compliance with environmental and social safeguards policies related to implementation of programme activities, such as irrigation investments and use of fertilizers and other agrochemicals	Mode rate	The government has established an environment unit at central level and District Environment Officers at local level and Local Government Authorities are being trained on safeguard issues. Progress made so far on integration of environmental and Social safeguards in programme implementation will be strengthened further to meet the needs of the proposed programme. The existing ESMF/RPF, IPMP and INMP will be revised to provide guidance for mitigating safeguards risks. The Government Authorities have appointed District Environment Management Officers (DEMOs) responsible for coordination and supervision of local investments to ensure integration of safeguards issues. The DEMOs have been trained on application of ESMF/RPF principles, and the need to carry out Environmental and Social Impact Assessment (ESIAs) and preparation of Environmental and Social Management Plans (ESMPs) and/or Resettlement Action Plans (RAPs).

Programme & donor The programme will be financed in parallel with other donors supporting Government programme and stand-alone projects and initiatives funded by other non ASDP-2 donors and private sector. Inadequate coordination of sector activities will overburden the implementing agencies with competing demands, duplications and thus undermine the achievement of the overall programme objective.	High	The programme will support the agreed Government Programme. A memorandum of understanding will be signed by all ASDP-2 donors to agree on respective financing principles towards enhancing coordination among donors. The Government programme also includes support to LGAs to improve coherent sector planning; a common framework for tracking results, including sector targets and outcome indicators. This coordination will be implemented under the ‘expanded’ SWAp.
Delivery monitoring & sustainability. Long-term impact and sustainability of programme activities is likely to be constrained by limited capacity and low participation of private service providers in value chain development, limited M&E skills and inadequate community ownership of programme investments due to top-down nature of the BRN plans.	Modest rate	The programme will initially focus on high potential district clusters and enhance inclusive private sector investment at local level. The ASDP-2 BRN project includes support to capacity building on results monitoring, linked with BRN’s framework under ADD/PDB and the Agricultural Delivery Bureau. Most of the BRN proposals are built on ASDP-1 investments which were identified through participatory process, with adequate community ownership and high potential for sustainability.

ANNEX VI: Key Maps and Figures

Figure A21: Agro-ecological Zones

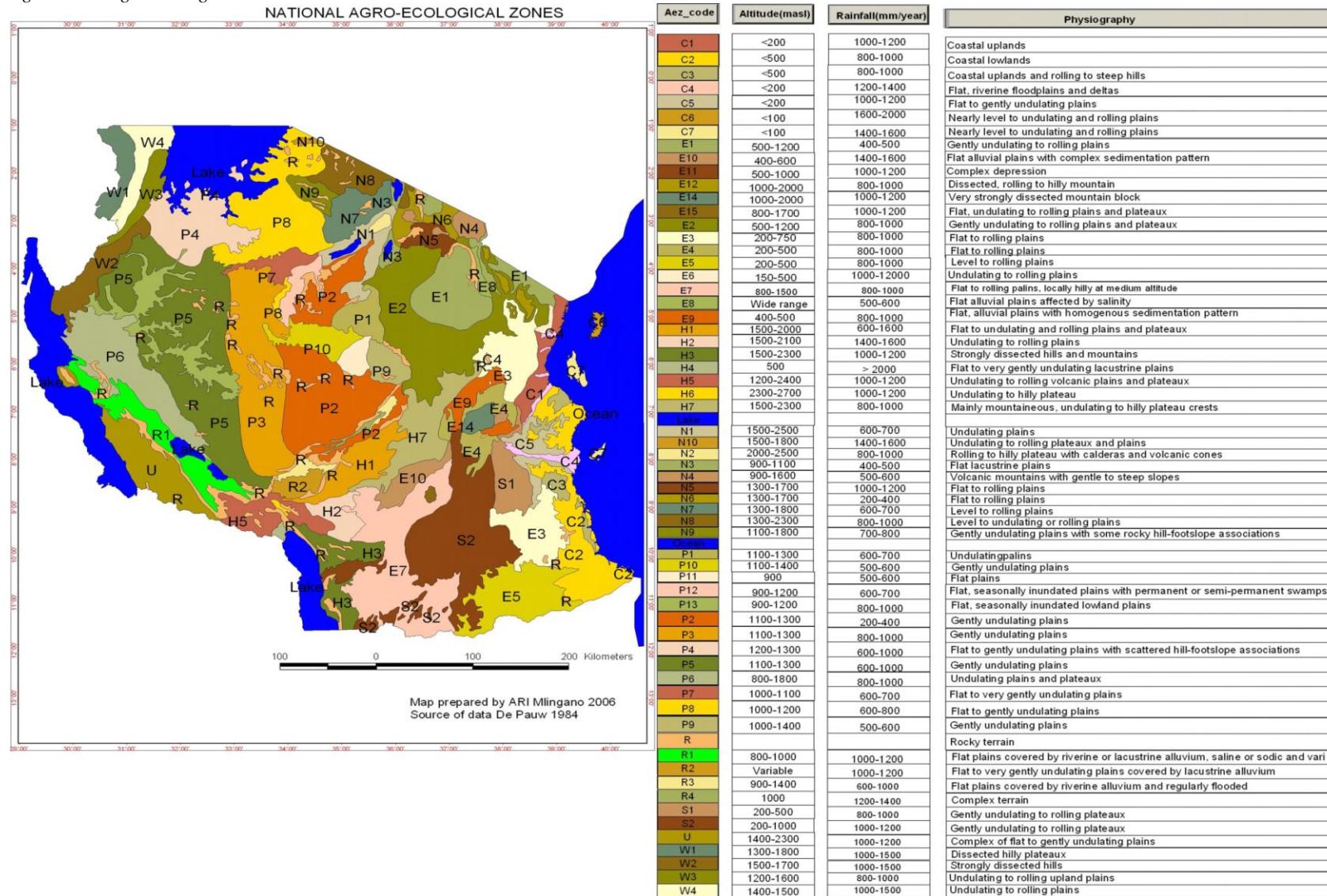


Table A14: Agro-ecological zones (AEZ), priority commodities and potential focus districts (tentative)

	AEZ	Priority Commodities	Regions	Districts	Potential focus district cluster
1	Arid Lands (unimodal 400–900 mm)	Meat-beef	Mara (E)	Musoma TC, Musoma DC, Serengeti, Bunda, Tarime, Rarya	Serengeti
			Dodoma (E)	Masai Steppe, Tarangire, Mkomazi, Pangani and East Dodoma	
			Simiyu	Bariadi DC, Maswa, Meatu, Itilima, Busega	Meatu
			Manyara (E)	Kiteto, Simanjiro	1. Kiteto
2	Eastern coast	Sesame, goats (unimodal)	Lindi	Lindi DC, Lindi MC, Liwale, Ruangwa, Kilwa, Nachingwea.	2. Mtwara DC 3. Ruangwa 4. Nachingwea 5. Newala
			Mtwara	Mtwara T.C, Mtwara DC, Masasi, Nanyumbu, Tandahimba, Newala	
		Rice, dairy (bimodal)	Tanga	Handeni, Kilindi, Korogwe DC, Lushoto, Muheza, Mkinga, Pangani, Tanga, Korogwe	1. Korogwe 2. Rufiji 3.
			Pwani	Kibaha TC, Kibaha DC, Bagamoyo, Mafia, Mkuranga, Kisarawe, Rufiji	
			Dar-es-Salaam	Ilala, Kinondoni, Temeke	
Alluvial Plains (Rice)		Kilombero (Morogoro)	Central clay plain with alluvial fans		1.
		Rufiji Coast	Mangrove swamp delta, alluvial soils, sandy upstream, loamy floodplain		
		Usangu (Mbeya)	Seasonally Flooded clay / alluvial soils		
		Wami (Morogoro)	Moderate alkaline black soils, alluvial fans, well drained black loam (W)		
3	Northern Highlands (bimodal)	Maize, dairy	Arusha (S)	Arusha DC, Meru, Arusha MC, Karatu, Monduli, Longido, Ngorongoro	2. Karatu 3. Meru 4. Hai 5.
			Kilimanjaro (N)	Moshi D. C., Hai, Siha, Moshi M. C., Mwanga, Rombo, Same	
			Manyara (E)	Babati TC, Babati D.C Hanang, Mbulu	
4	Plateaux (unimodal)	Maize and pulses	W: Tabora, Rukwa/Kata vi	Tabora M C, Igunga, Nzega, Sikonge, Tabora(Uyui, Urambo Mpanda DC, Mpanda TC, Mlele	1. Mpanda 2. Igunga 3. Sikonge
			Mbeya (N)	Chunya (partie N)	1.
			Ruvuma + Morogoro (S)	Songea T. C, Songea D.C, Namtumbo, Mbinga, Tunduru, Ulanga (Mo)	4. Songea DC 2.
			Mwanza	Mwanza CC, Magu, Geita, Ukerewe, Missungwi, Sengerema, Kwimba	5. Kwimba
			Geita	Geita DC, Chato, Bukombe, Nyang'wale, Mbogwe	6. Chato 7. Bukombe
5	Central semi-arid (unimodal)	Sunflower, meat	Dodoma (W)	Kondoia, Dodoma MC, Mpwapwa, Kongwa, Bahi, Chamwino	1. Kondoia DC 2. Ikungi DC 3. Iramba DC 4. Kongwa
			Singida	Singida DC, Singida MC, Manyoni, Iramba, Ikungi, Mkalama	
			Shinyanga	Shinyanga M C Shinyanga D.C, Kishapu ,Kahama	6. Kahama
			Morogoro	Morogoro M C, Morogoro DC, Mvomero	7.
6	Southern & highlands	Maize, meat, dairy	S-Mbeya	Mbeya MC, Mbeya D. C, Mbarali, Kyela, Rungwe, Mbozi, Ileje, Chunya (S)	1. Chunya 2. Ludewa DC 3. Mbozi DC
			S-Iringa	Iringa DC, Kilolo DC, Iringa (S), Mufindi,	4. Mufindi
			Njombe	Makete, Ludewa, Njombe TC, Njombe DC, Makambako,	5. Kilombero
			Morogoro NW	Kilombero, Kilosa	6. Kilosa
7	South Western highlands	Maize	Rukwa	Sumbawanga D.C, Sumbawanga TC, Nkasi, Mpanda DC, Mpanda TC	1. Sumbawanga DC
8	Western highland	Maize, local beef (bimodal)	Kigoma	Kasulu, Kibondo, Kigoma DC, Kigoma TC	2. Kigoma DC
			Kagera	Biharamulo, Bukoba D. C, Misenyi, Bukoba T. C, Karagwe, Muleba, Ngara	3. Kibondo 4. Karagwe

Source: ASDP-2 BF (2013)—ARD; Tanzania CSA Programme (2015) and de Pawn (1984)

Table A15: Agricultural production—Food crops

Year	'000 metric tons										
	2003/20 04	2004/20 05	2005/20 06	2006/20 07	2007/20 08	2008/20 09	2009/20 10	2010/20 11	2011/20 12	2012/20 13	2013/20 14
Maize	3,157	3,219	3,423	3,302	3,556	3,326	4,475	4,341	5,104	5,288	6,734
Sorghum	757	714	712	971	861	709	789	807	839	782	883
Millets	201	221	228	194	203	220	372	312	214	292	363
Rice	688	759	805	872	875	868	1,700	1,461	1,170	1,342	1,681
Wheat	67	102	110	83	92	95	62	113	109	102	167
Pulses	879	886	1,050	1,156	1,126	1,116	1,254	1,632	1,827	1,871	1,697
Cassava	1,480	1,846	2,053	1,733	1,797	1,972	1,464	1,549	1,821	1,878	1,664
Bananas	734	991	1,169	1,028	982	1,073	975	1,048	842	1,317	1,064
Potatoes	874	931	1,396	1,322	1,379	1,392	1,231	1,710	1,418	1,808	1,761

Table A16: Agricultural production—Cash crops (in metric tons)

	2004/20 05	2005/20 06	2006/20 07	2007/20 08	2008/20 09	2009/20 10	2010/20 11	2011/20 12	2012/20 13	2013/20 14
Tea	32,000	30,000	34,446	32,698	34,165	33,160	35,000	33,000	33,700	33,000
Sugar cane	229,620	263,317	192,535	265,434	276,605	279,850	317,000	260,055	286,380	293,011
Tobacco	51,970	56,500	65,299	55,567	58,702	60,900	78,000	126,624	74,240	100,000
Cotton	344,210	376,591	130,565	200,662	368,229	267,004	260,000	225,938	351,151	246,767
Pyrethrum	1,000	2,800	1,500	2,800	3,280	3,320	5,000	5,700	6,100	7,000
Sisal	26,800	27,794	30,934	33,039	33,208	26,363	35,000	33,406	23,344	41,104
Coffee	54,000	34,334	48,869	43,000	62,345	40,000	60,575	33,219	71,200	48,599
Cashew	81,600	77,158	92,232	99,107	79,068	74,169	121,070	160,00	121,704	127,939
Fruits					557,400	3,297,910	3,751,170	3,938,730	4,096,280	4,416,690
Vegetables					602,000	766,570	858,740	901,680	937,750	1,005,305
Flowers						8,670	9,100	9,850	10,200	10,790
Spices					6,865		7,150	7,370	8,125	8,377

Figure A22: Tanzania Agricultural research zones and NARS institutes (Central, Eastern, Lake, Northern, Southern, Southern Highlands and Western zone)

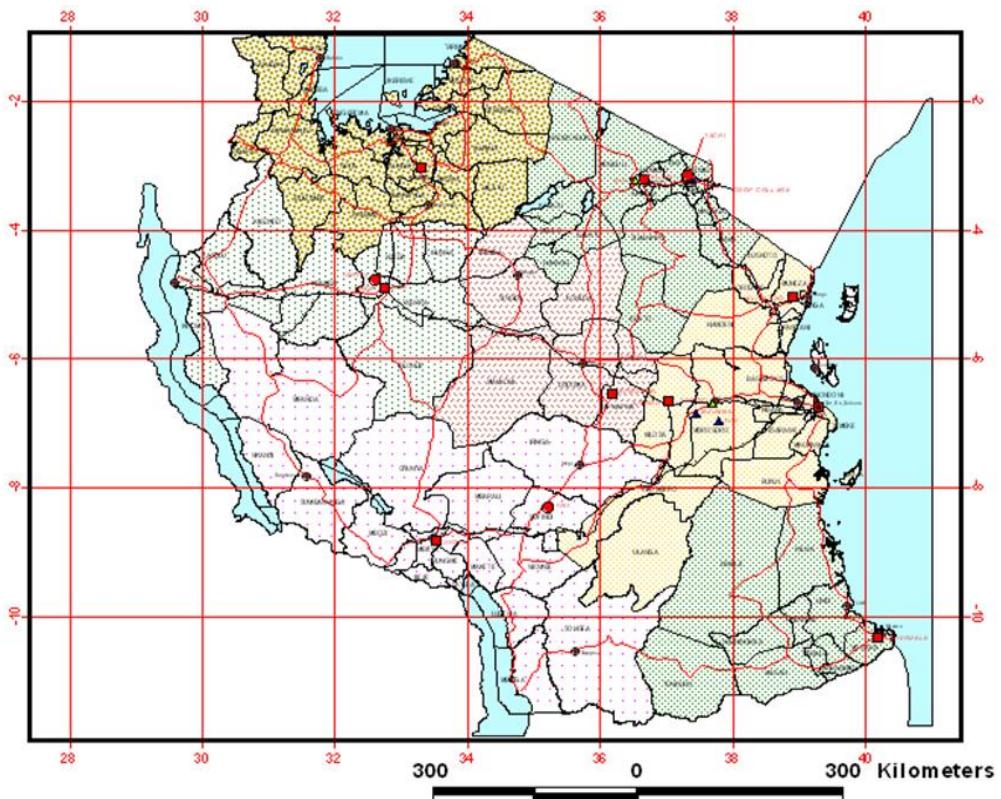


Figure A23: Tanzania AEZ

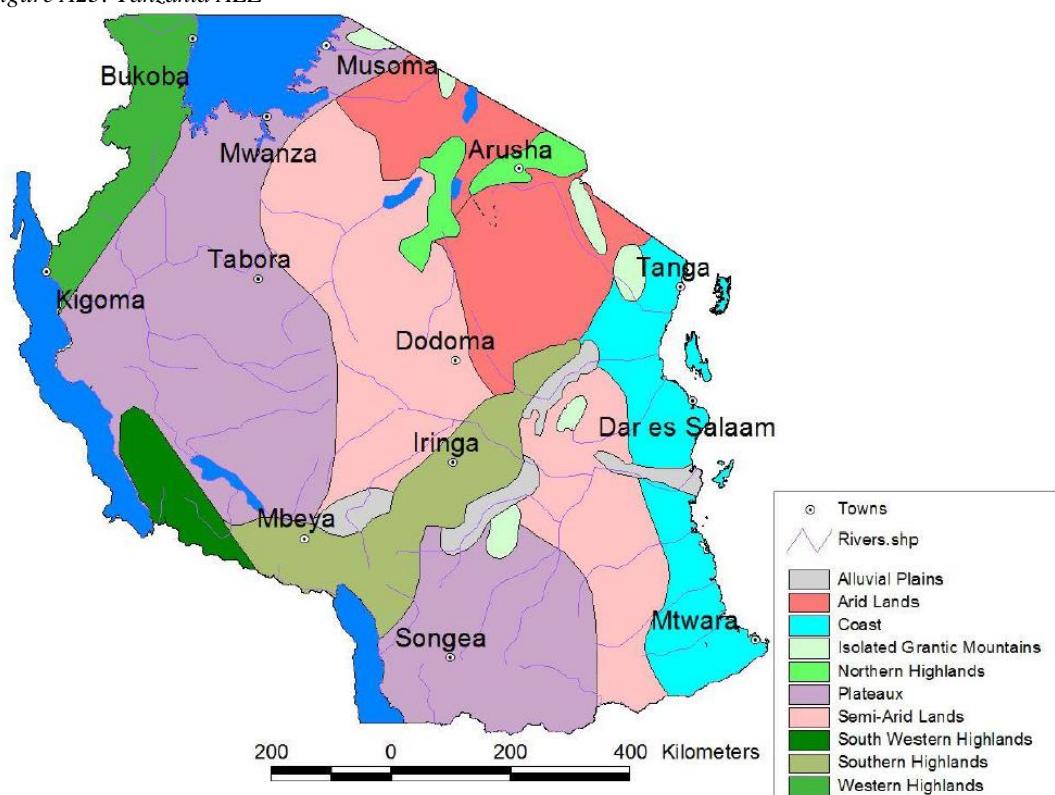


Figure A24: Tanzania livelihood zones

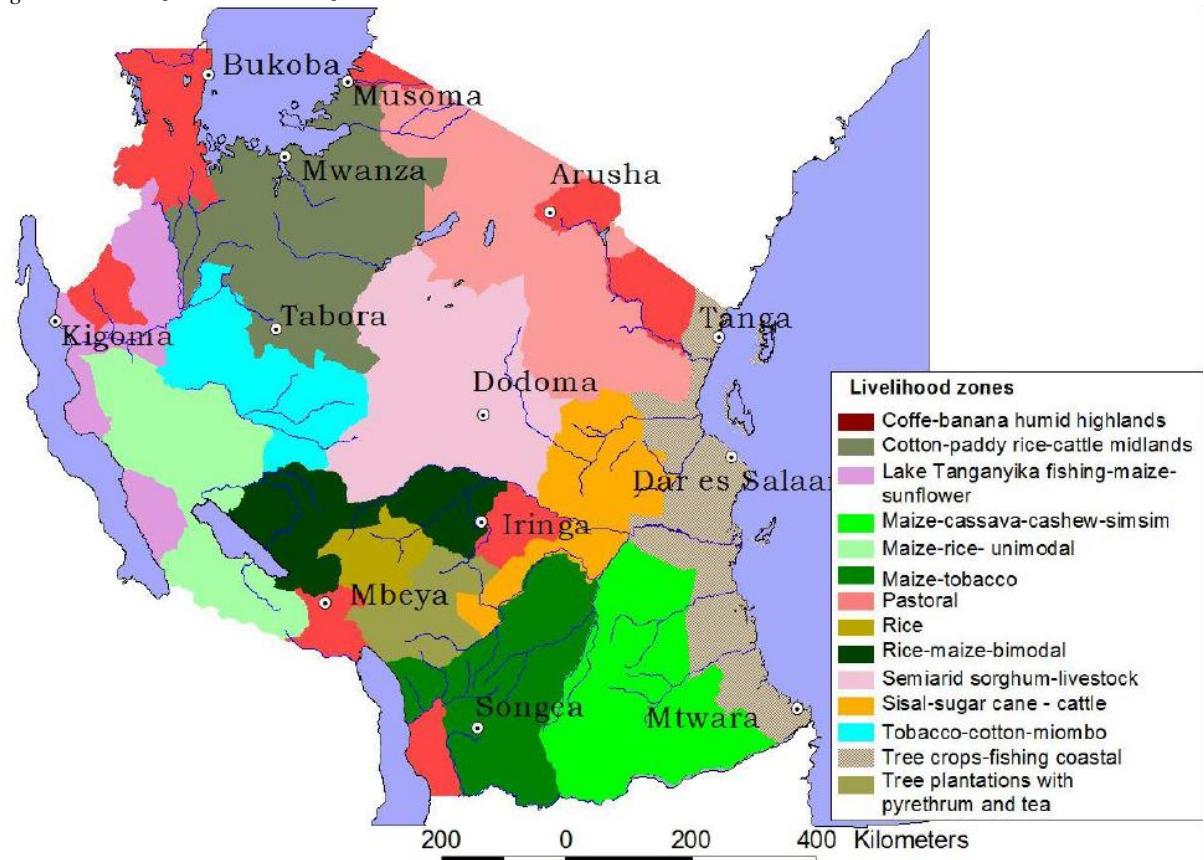


Figure A25: Map - Food insecure districts (2006-13)

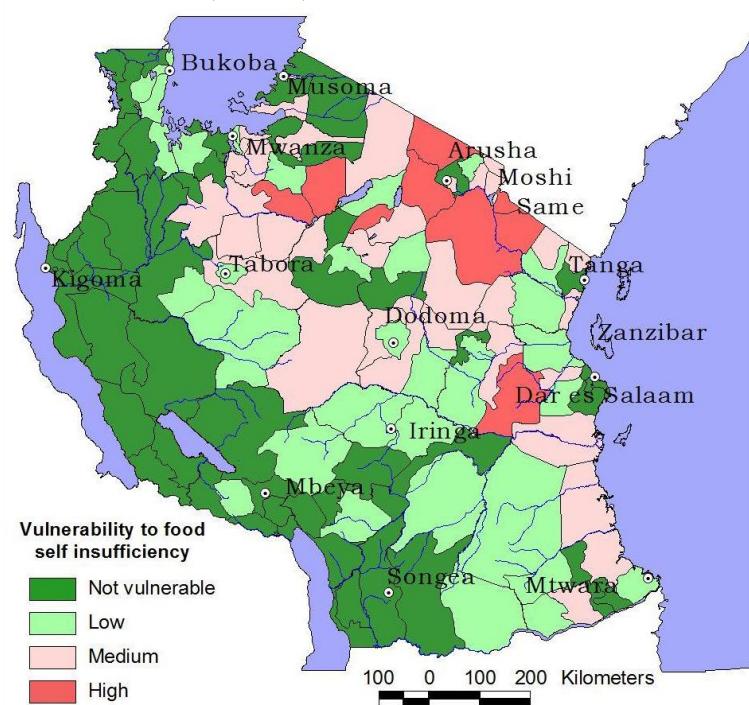
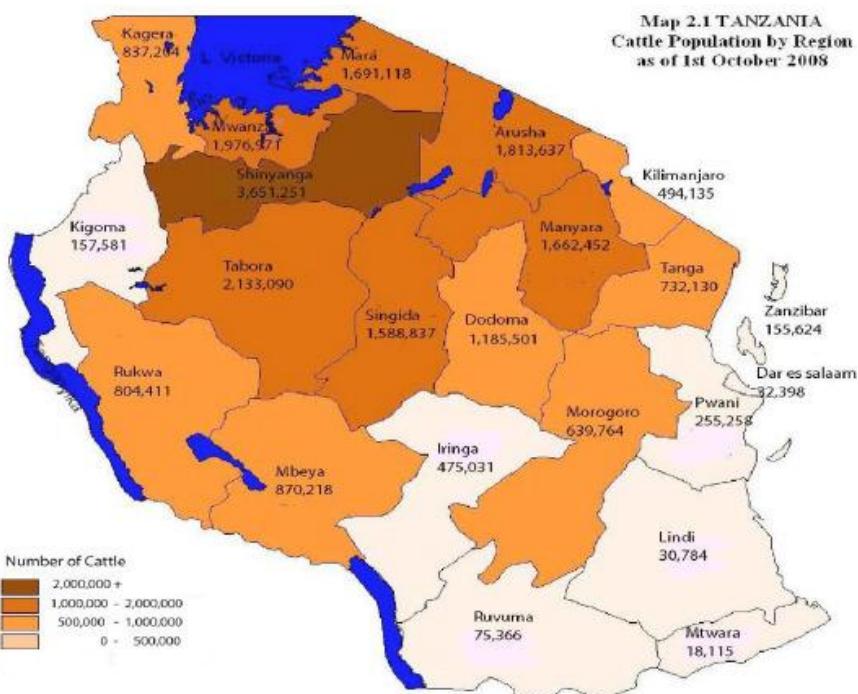


Figure A26: Map – Tanzania Cattle Distribution by 2008



ANNEX VII: Selection Criteria for Participating Districts¹⁶⁷

Criteria for selecting the targeted districts (within zonal commodities in AEZ¹⁶⁸)

- a. AEZ (see table with primary and secondary value chain)
- b. Current per cent marketed for targeted CVC
- c. Per cent in their farming system (% of revenue)
- d. Complementing BRN (out-grower / contract farming in sugar cane etc.)
- e. Food security and nutrition
- f. Investment absorption capacity over the past five years
- g. NGO support especially in value chain development
- h. FO structuring (strength?)

Approach. For the purpose of focusing on required services in the upstream and downstream of production, production clusters (grouping three to six districts each) will be established for selected strategic commodities as growth poles within each agro-ecological zone (seven). The cluster approach enhances delivery of essential services, exploitation of economies of scale, development of required infrastructure, bulking of produce, agroprocessing and reduction of transaction costs. A commodity cluster will be a coherent area comprising of three to six districts, where there is already a proven potential for that specific commodity, as well as the presence of value chain actors (e.g., producers, traders, processors and service providers), a MSIP and basic market infrastructure. The project will target maize, rice, oilseeds and strategic commodities import substitution and /or for export to the regional markets.

Through a value-chain approach, the programme will support access to and utilization of yield enhancing technologies (improved seeds, fertilizers, mechanization and water for agricultural production) as well as infrastructure and agribusiness services for marketing and value addition. The capacity of private sector actors, including farmers' organizations and cooperatives, will be strengthened to improve stakeholders' access to the required inputs, marketing and agroprocessing services. Supporting improved input use in complement to research and advisory services is a cost-effective response for increased productivity and farm income, but also a mean to prevent potential risks from climate change and land degradation. Broader access to adapted varieties and seeds, integrated soil fertility management and timely land preparation will also help farmers to move towards sustainable agriculture and overcome climate risks. Gradual adoption of appropriate mechanization technologies for production and post-harvest operations will not only increase rural labour productivity but also attract young entrepreneurs in the sector.

Programme Scope and Focus. The programme will focus in one /or two priority commodities (crop and livestock) per agro-ecological zone. In each zone potential districts (three to six) will be identified for programme implementation based on the agreed criteria.

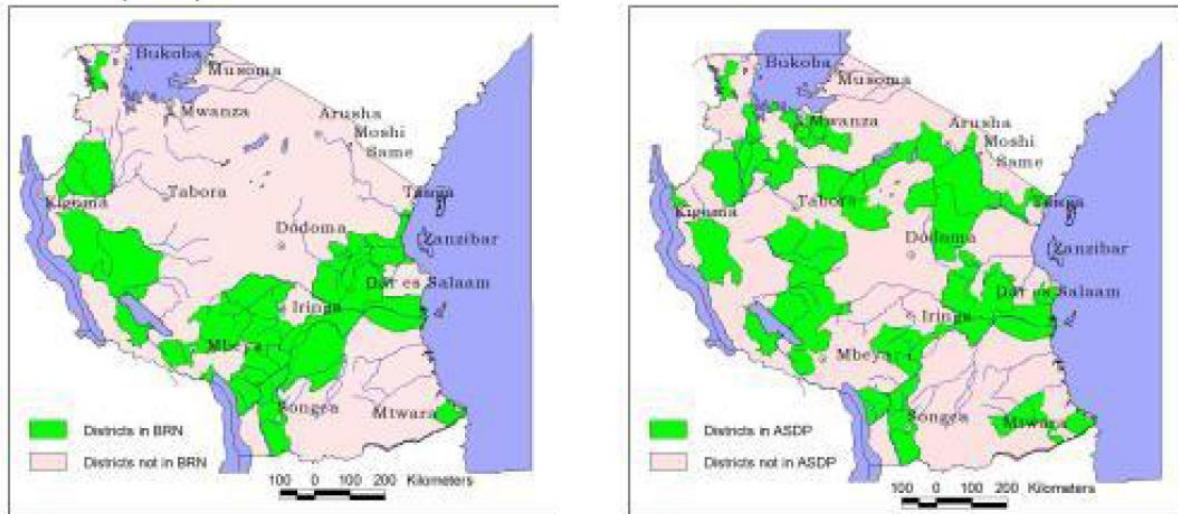
Proposed selection criteria

1. Agricultural production potential of the target commodities (arable land/arid/semi-arid/, rainfall spell period, etc.)
2. Access to productive and marketing infrastructures (road, railways, electricity, etc.)
3. District historical background of beneficiaries contribution/involvement in development initiatives
4. Availability of private sector supporting value chain of target commodity
5. Production levels of target crops/livestock population by category
6. Other ongoing initiatives (programmes) in the areas to avoid duplication

¹⁶⁷ Note summarizing diverse contributions from ARD, Sokoine University of Agriculture, the Ministry of Agriculture Livestock and Fisheries—DPP, ASDP Coordination team, etc.

¹⁶⁸ Some new developments consider eight and some nine AEZ, especially for crop research activities (adaptations to be done if needed).

Figure A27: Maps (i) BRN and (ii) ASDP-2 targeted priority districts



Attachment 1: Operationalization of clustering approach

1. ASDP-2 focuses on the cluster approach. A commodity cluster comprises three to six districts with high potential CVC, as well as the presence of value chain actors (e.g., producers, traders, processors and service providers).
2. The DCP/MSIP will be formed to facilitate the operation of clusters under the supervision and **coordination of the Region through the Economic and Productive Sectors Section.**
3. If a cluster includes districts from more than one region, then the responsible regions will select a front-runner region to supervise and coordinate cluster activities.
4. The role of DCP will be to facilitate the dialogue among major commodity actors (Producers, Traders, Processors, Public and Private Service Providers-PSP) to develop a common strategy, work plan and M&E so as to improve the performance of targeted CVCs.
5. Moreover, DCP will be critical in terms of establishing formal or even *ad hoc* mechanisms to encourage value chain connectivity between private and public stakeholders and drive innovations/changes towards higher levels of commercialization in targeted priority value chain (or group of complementary CVC).

ANNEX VIII: Climate Change and Action¹⁶⁹—Agriculture Climate Resilience Plan (ACRP)

The Ministry of Agriculture Livestock and Fisheries is taking action on climate change in Tanzania. In line with the National Climate Change Strategy (2013), which calls for all climate-sensitive sectors to develop action plans to implement the Strategy's strategic interventions, The Ministry of Agriculture Livestock and Fisheries has prepared the Agriculture Climate Resilience Plan (ACRP) to identify and respond to the most urgent impacts posed by climate variability and climate change to the crop subsector. The ACRP will serve as a roadmap for mainstreaming climate change within current agricultural policies, plans, and practices, as well as identifying gaps where new investments may be needed. It will be the guiding framework for a more comprehensive and consistent approach for confronting one of the major risks to current crop productivity and future investments.

Why is climate change a concern for crop agriculture? Agriculture is a dominant sector of the Tanzanian economy, generating 25% of GDP, 24% of exports, and is the mainstay of 75–80% of livelihoods in the country including the majority of the poor. It is a sector of contrasts: despite having a relatively rich base of land and water resources and a favourable climate in many areas for the majority of years, it is hampered by low productivity and persistent poverty. Crop diversity is high, but the majority of households engaged in the sector grow a limited number of food crops for subsistence, and despite the resource endowments these households are vulnerable to food security and economic shocks. Though the Tanzanian economy and in the agriculture sector have experienced economic gains, little has translated to the poor, who still depend on rudimentary technologies and erratic rainfall for their livelihood and food security.

These factors influence the impact climate variability and climate change will have on the agriculture sector, as well as the capacity to adapt to current and changing conditions. The strategic direction of the agriculture sector is to modernize through promoting large-scale commercial farms, irrigation expansion, strengthening value chains, and improving linkages with smallholders. Rural poverty reduction, economic growth, and food self-sufficiency are anticipated, but this will add pressure on natural resources that already face high levels of inefficiency and degradation due to agriculture, as well as competing uses.

Tanzania's climate is highly variable and complex, and climate trends already indicate that temperatures are rising and rainfall is becoming more erratic. Recent models show that average annual temperatures will rise by 1°C by 2050, and changes in rainfall patterns could cause dramatic shifts in agro-ecological zones, increase uncertainty in the onset of the rainy season, and increase the severity of droughts and floods. Other issues such as the emergence of pests and diseases moving into new geographic ranges are already suspected as indirect impacts of changing weather patterns. Weather-related risks are already costing the agriculture sector at least \$200 million per year (World Bank, 2013), and without urgent adaptation these costs are likely to increase with rising climate variability.

Most agriculture in Tanzania will continue to depend on rainfall in the foreseeable future. Looking ahead, rainfall decreases of 10% have been correlated with a 2% decrease in national GDP,² and temperature rise of 2°C could reduce maize yields by 13% and rice by over 7%,³ both of which are probable in Tanzania over the next century. Climate risks will exacerbate the existing and projected pressures on water resources, soil erosion and health, and land degradation: water shortages and significantly reduced stream flows and water quality changes are already felt in key agricultural investment areas due to low water use efficiency and competing uses, and some climate models show that these are the same areas where rainfall is expected to decrease, yet these areas are slated for investment in water intensive crops such as rice and sugarcane as well as irrigation expansion.

As a cross-sectoral issue with far reaching economic, social and environmental implications, climate change planning cannot happen in isolation. At the same time, a robust process must acknowledge more uncertainty, given long term time horizons and limitations of climate and crop models to predict the impacts of temperature rise combined with precipitation changes on crop yields. One way to address these limitations is to adopt a more participatory risk-based approach, as has been done for the ACRP. The ACRP process has involved experts in environment, climate change, land use planning, mechanization, hydrometeorology, soil science, water resource management, pest management, rural development and advocacy, among others, to work collaboratively to develop an action plan and investments that respond to the risks but are tailored to fit the Tanzanian context from the policy level to the farm level.

¹⁶⁹ Source Tanzania: Agriculture Climate Resilience Plan 2014–19 (September 2014)

How could a changing climate change Tanzania's agriculture? Three risks emerged from the adaptation planning process, that are key to increase resiliency to climate variability in the short term and given long-term climate change scenarios:

1. **First, climate change will amplify the existing pressures on water resources from poor management, degradation and competing uses.** Irrigation alone will not be sufficient to adapt to climate change, and can indirectly drive vulnerability if water resources are not well managed. Adaptation measures for improved water, soil and land management are urgently needed to build resilience to current variability and future climate change by both smallholders and commercial farms.
2. **Second, yields of key cereal crops are mostly likely to decline due to temperature rise and decreasing water availability, with significant implications for commercial investment, small-scale farmers, and food security.** Adaptation measures should focus on boosting productivity of cereal crops, especially building capacity of smallholder farmers to increase yields to the point of “best management practice”, and researching the impact of temperature rise and rainfall variability on key crops.
3. **Third, smallholder farmers are among the most vulnerable to even small variations in the climate, with major impacts on livelihoods and food security.** Adaptation measures need to consider how to reduce climate shocks to smallholder farmers, promote agricultural practices that boost productivity and safeguard natural resources, and appropriately target vulnerable areas.

These messages, reflecting stakeholder inputs, current climate science and analyses of agricultural risks in Tanzania, that were central to informing and prioritizing actions to build resilience to climate impacts.

How can agriculture adapt to a changing climate? In order to mitigate the risks, priority actions and investments have been developed, to set the foundation for resilience over the next five years. These were identified as the areas with the highest level of vulnerability to risks, and the biggest payoffs for building resilience. Agricultural stakeholders recommended adaptation options that would help to integrate resilience in agricultural policy decisions, influence planning processes, and implement investments on the ground.

1. **Action 1: Improve agricultural water and land management.** Priority investments include water use efficiency and water storage, improvements in catchment management in agricultural planning, and adoption of sustainable agricultural land and water management to reduce degradation.
2. **Action 2: Accelerate uptake of climate smart agriculture.** Priority investments include building an evidence base for climate smart agricultural practices and incentives to offset the cost of adoption, promoting practices at the District level, and generating awareness and capacity for these practices.
3. **Action 3: Protect the most vulnerable against climate-related shocks.** Priority investments include measures to prepare for and respond to emergencies and weather related shocks—and better integration of pests and diseases into these measures, building resilience through livelihood diversification activities targeted to the most vulnerable areas, and piloting risk management instruments such as finance instruments.
4. **Action 4: Strengthen knowledge and systems to target climate action.** Priority investments include filling key research gaps, undertaking a comprehensive climate change and agriculture vulnerability assessment, developing systems for information management and communication campaigns, especially more accurate and timely weather and climate information, and strengthening gender considerations into climate change action for agriculture.

Table A17: Action areas investments and priorities: ACRP (underlined considered as high priority)

Priority action & investments	Action areas	Key investments/actions	S/C
1. Improve agricultural land and water management (Sustainable Land and Water Management)	<i>Water use efficiency (irrigation efficiency, SRI etc.)</i>	<ol style="list-style-type: none"> 1. <u>Guidelines for including climate change in irrigation expansion/rehabilit. designs</u> 2. <u>Update policies to improve water use efficiency and embed climate change</u> 3. Stocktaking on water lifting, harvesting, storage techno. & use efficiency 4. <u>Environ. assessment integrating water availability & climate change in irrigation plans</u> 5. Promote sustainable use of groundwater for irrigation 6. <u>Support traditional & modern rainwater harvesting</u> 7. Support on farm water storage facilities 8. Promote sustainable irrigation & water use efficiency technologies, 9. <u>Support innovative paddy rice production techniques</u> 	Sc 1.3
	<i>Rainwater harvest & integrated soil & water management</i>	<ol style="list-style-type: none"> 10. Develop agricultural land/water coordination mechanism 11. <u>Conservation management plans up- & downstream of irrigation schemes</u> 12. <u>Protect water catchment areas for agricultural intensification</u> 13. Develop guidelines, curriculum and capacity building training for WUA 14. <u>Increase uptake of soil & water conservation on irrigated & dry-land</u> 	
	<i>Land and catchment management</i>	<ol style="list-style-type: none"> 15. Develop guidelines on sustainable soil and water management. 16. Build local capacity to plan, implement & monitor Sustainable Land and Water Management 17. <u>Village land management plans to guide sustainable land use</u> 18. <u>District land use planning & monitor of subsistence/commercial farming</u> 19. Increase awareness of sustainable farmland and water management, 20. Promote appropriate agroforestry technologies 21. Promote sustainable farming systems, IK & initiatives under similar AEZ 	
2. Accelerate uptake of climate smart agriculture: increase yields, safeguard NRM and build resilience to climate change	<i>Farming practices conservation agriculture, Soil & water management; Resilient vars.: Cropland; Soil fertility Agroforestry</i>	<ol style="list-style-type: none"> 1. <u>Build the evidence base to promote CSA</u> 2. Develop guidelines and policy briefs for CSA technologies and practices 3. Establish an emissions baseline for the agriculture sector 4. <u>Build district capacity to mainstream CSA in planning</u> 5. <u>Promote CSA in DADPs planning process</u> 6. Establish a monitoring system for CSA interventions, 7. <u>Develop incentives to offset CSA costs for smallholders</u> 8. <u>Increase awareness and train for CSA practice use</u> 9. <u>Demonstrate good CSA practices in the field</u> 	
3. Protect the most vulnerable against climate/weather related shocks	<i>Climate change risks for agricultural productivity & food security (risk mitigation transfer & coping)</i>	<ol style="list-style-type: none"> 1. <u>Implement the TAFSIP disaster management plan</u> 2. <u>Integration of pests/diseases in monitoring and early warning systems</u> 3. Communication of weather and early warning info to farmers 4. Draw lessons from EWS, DRM, and social safety net projects & scale up 5. <u>Research on building resilience through postharvest value addition</u> 6. Develop program to establish value adding industries for farm products 7. Develop program on risk management for smallholder agriculture 	
4. Strengthen knowledge & systems to target climate action	<i>Evidence for climate smart strategies & communicate key messages to target stakeholders</i>	<ol style="list-style-type: none"> 1. <u>Draft and implement a CC and agriculture research programme</u> 2. Develop a framework to target climate adaptation in vulnerable areas 3. Comprehensive assessment on gender and CC in the agriculture 4. <u>Develop/operationalize an MIS & web portal for CC in agriculture</u> 5. Establish stakeholder engagement and communication networks. 6. Develop a gender and agriculture coordination mechanism in The Ministry of Agriculture Livestock and Fisheries 7. Raise awareness and disseminate targeted climate/weather info (ICT) 	

Mainstream!! Integrate other ASMLs (livestock, fisheries, environment, Land) into strategy and action plan.

Much is already being done to build resilience in the agriculture sector. The ACRP has identified many existing initiatives and investments that consider climate change either directly—however, these are generally small-scale, discrete interventions. The ACRP investments are geared to build on existing activities, significantly scale up successes, and fully mainstream climate change into The Ministry of Agriculture Livestock and Fisheries activities at every level.

Table A18: Intervention levels and strategic actions for climate smart interventions

Intervention levels	Strategic actions
Adaptation strategic actions	Crop vulnerability/resistance in different AEZ; assess comparative advantage of traditional export crops; promote appropriate irrigation systems; early maturing crops; enhance agro-infrastructure systems; KI, IPM, crop insurance; weather forecast; reduce crop loss & promote value addition; improved soil management
Mitigation strategic actions	Promote agroforestry, management of agric wastes, minimum tillage and efficient fertilizer use; promote good agricultural practices and conservation agriculture
Strategic intervention for water resources for agriculture	Protect/conserve water catchments, extraction of underground water, water recycling and reuse, rainwater harvesting

Way forward: Strategies for Sustainable Agricultural Intensification

ASDP-2, promotes the development of farming systems, which are both more productive and more sustainable economic development. Main strategies are:

- 1. Institutional strengthening (and leadership)** to implement the ACRP within ASDP-2 involving public (ASLM), private and associative stakeholders at national and local levels
- 2. The Ministry of Agriculture Livestock and Fisheries will need to leverage additional funds for building resilience**, about an additional USD 25 million investment per year when compared to current losses estimated at USD 200 million.
- 3. Robust monitoring and evaluation will be key to demonstrating results (mainstreamed systems).**

ANNEX IX: Strategic Options for Stimulating Investment in Improved Agricultural Inputs¹⁷⁰

Despite more than a decade of subsidies supporting the delivery of agricultural inputs to smallholder farmers, the rates of adoption of improved seed, chemical fertilizer and related agricultural inputs remains relatively low, especially for fertilizer. Except for maize, most farm households still cultivate traditional varieties by hand using a hoe. Furthermore, some livestock inputs (vaccines) are provided free of charge as a public good.

The National Agricultural Input Voucher Scheme (NAIVS), has proven that farmers desire to adopt improved technologies and can obtain significant productivity gains: while improving adoption rates for seed and chemical fertilizer, the scheme also contributed to strengthening of private input supply chains. Evidence indicates that some farmers are successfully graduating from subsidized to fully commercial input purchases (two-thirds of seed and one-third of fertilizer beneficiaries). However, while targeting mainly better off producers, farmers still complain that seed and chemical fertilizer are too expensive, in terms of access (initial payment), but also in terms of return (efficiency of use).

Inputs to implement new/improved technologies include: (i) crops—seeds, fertilizer, agrochemicals, land preparation/planting mechanization services; (ii) livestock—pasture seeds, feed, vaccines, veterinary drugs, mechanization for pasture maintenance, hay collection etc. and (iii) fisheries—fingerlings, feed, drugs, improved tools/nets, etc. The objectives of public support need to be clarified to identify best approaches for public supports (public good) to be provided while targeting specific objectives of input use knowledge, availability and farmer access:

Specific objectives	Priority action	Stakeholders
1. <u>Knowledge</u> of new technology for improved productivity	-Adaptive research (AE4D) -Extension (public and private)	Research/extension (public & private) + Training & ICT
2. <u>Availability</u> : build commercial supply chains for inputs and service	-Build professional agrodealer network	Linkages between agrodealer, producer/importers and banks
3. <u>Farmer access</u> to known technologies/inputs and services:	-Access to credit -Accumulation of work capital -Farmer seed production?	Contract farming Banks; cooperatives/SACCO Revolving
4. <u>Sustainable</u> (profitable) use of improved inputs:	-Continued technical (AR4D) -In-/output market development Risk management (assurance?)	Improve ability to apply efficiently for generating profitable return from intensification.

Generally farmers face some combination of technical, financial and marketing constraints, and adoption may be viewed as a two-step process of first learning about new technologies and second consistently applying these technologies in a commercial production system. The NAIVS was designed¹⁷¹ to promote the introduction of new seed and chemical fertilizer technologies for maize and rice to 2.5 million maize/rice smallholder farmers that did not yet apply, but who could afford to pay a 50% of the costs of seed and fertilizer. This involved a three year graduation strategy, assuming that farmers would be knowledgeable but also capable of continuing purchases on their own (ability to reduce risks and to accumulate some capital from increased productivity). Options for future support actions along specific objectives/priorities are:

Action 1. Speeding the introduction of new varieties for food security (and nutrition) – Targeted distribution of OPV and/or starter packs. Most of the 3.5 million farm households¹⁷² who have not been assisted by the NAIVS, (and even some of those who have been assisted), struggle to produce enough grain and other foods to meet their household food security and nutrition. Any supplementary production derived from improved adapted technologies offers the prospect of major gains in food security and nutrition but also ‘some’ marketing

¹⁷⁰ Sources: AFSP implementation documents and discussions (supervisions 2014)

¹⁷¹ The NAIVS was not designed to resolve farmers’ capital constraints nor the broader difficulties of assuring profitability of the commercial market (one of the main issues limiting the output).

¹⁷² These households are poor and without possible access to credit, given that most additional production will be consumed rather than marketed, thus not allowing for credit repayment.

(reducing food aid when production falls short). The most obvious opportunity for assisting these households is to provide rapid access to improved open and self-pollinated improved varieties (OPV): improved seed offers a relatively cheap source of productivity gain. Released varieties need to be multiplied on a significant scale and distributed once for farmer testing, self-multiplication and use, to generate many years of productivity gain. If rejected, farmers' feedback would allow for better targeting of breeding programs to resolve farmers' identified issues.

The Ministry of Agriculture Livestock and Fisheries ought to: (i) complete an inventory of new open and self-pollinated varieties for all food crops, and (ii) organize a rapid multiplication and dissemination program aiming to assure all farmers in the country obtain access to varieties adapted to their AEZ and the opportunity to achieve sustained gains in productivity; (iii) monitoring effort linked back with national breeding efforts to assure that crop breeders integrate farmers needs and preferences; and (iv) enhance farmer training for seed selection and preservation.

New varieties of non-hybrid seed may be provided for free (small starter packs) in order to speed farmer testing and adoption: administrative costs for farmer (partial) payment in most cases are higher than the potential revenue to be generated. Actions could evolve with a shifting set of new varieties each year, starting with a set of key grain varieties and continuing with other available varieties for legume seed, cassava, sweet potato and banana.

Action 2. Speeding up the adoption of a wider array of new technologies towards intensive production systems. Farmers learn by seeing (demonstration, etc.) but generally get convinced by doing. The subsidy, in effect, offsets both the costs and the risks (including weather/climatic, sustainability) facing each individual farmer in trying a new technology. Three years of assistance in NAIVS helped farmers better understand the level of investment returns possible, and allow then to build a small capital base for investing on their own: the economic return for government investment in subsidies was very high. Furthermore, the multiyear support encouraged private commercial investment in building supply chains for the delivery of seed and fertilizer through a growing number of regional wholesalers and village retailers.

The same logic may apply to many cropping technologies, such as mechanized soil preparation/planting, manure application, weed control, water harvesting, IPM etc. A subsidy could offset the risks underlying the investment and convince farmers about the investment return. This approach tries to solve knowledge and access constraints for farmers' use of improved technologies/inputs: electronic vouchers would allow for improved targeting, gradual decrease of voucher value and improved scheme governance (M&E).

Action 3. Sustaining the adoption of improved technology with credit and market support. Farmers are convinced of the value of a new technology, but experience difficulty obtaining the cash necessary to make the investment. Farmers' perceptions of high input costs also reflect the high ratio of input to product prices. Possible support actions are:

- a) **Reduced credit interest:** subsidies on interest rates of commercial credit, further backed by loan guarantees, may be justified temporary until a critical mass of investment is achieved to assure sustained competitiveness or as income support for poor rural households (but credit for food insecure producers should be avoided).
- b. **A loan guarantee** to reduce risk estimated by banks for agricultural loans by commonly preferred strategies such as: (i) contract farming (mainly cash crop like tobacco, cotton, coffee or tea); (ii) group lending with collective liability (a significant level of selling of commodities is needed to allow for sustainable guarantee systems); and (iii) credit guarantee line.
- c. **Bulk supply** of inputs and services by apex farmer organizations, private sector, etc., to reduce transaction costs an input prices

ANNEX X: Principles for responsible Investment in Agriculture (FAO, August 2014)

- Principle 1: Contribute to food security and nutrition
- Principle 2: Contribute to sustainable and inclusive economic development and the eradication of poverty
- Principle 3: Foster gender equality and women's empowerment
- Principle 4: Engage and empower youth by access to productive resources, services, education and innovation
- Principle 5: Respect tenure of land, fisheries, and forests and access to water
- Principle 6: Conserve and sustainably manage natural resources, increase resilience and reduce disaster risks
- Principle 7: Respect cultural heritage and traditional knowledge, and support diversity and innovation
- Principle 8: Promote safe and healthy agriculture and food systems
- Principle 9: Incorporate inclusive and transparent governance structures, processes and grievance mechanisms
- Principle 10: Assess and address impacts and promote accountability

ANNEX XI: Key Reference Documents

- 01-1 ASDS 2001
- 01-2 ASDS-2 Revised draft 2014 October
- 01-3 ASDS-2 Review of Implementation Indicators – Version 24 August 2013 (ESRF)
- 02-1 ASDP-2 Programme Document
- 02-2 ASDP-1 M&E_Framework_Revised_March 2011
- 03 TAFSIP Final version 2012
- 04 CAADP COMPACT Final 07 07 2010
- 05-1 National Agricultural Policy 2013
- 05-2 Livestock-Policy 2006
- 05-3 Agricultural Marketing Policy 2008
- 06-1 ASDP-1 Irrigation impact assessment
- 06-2 ASDP-1 Extension impact assessment
- 06-3 ASDP-1 Local Infrastructure impact assessment_July 2014
- 06-4 ASDP-1 Final Report (Agricultural Support Service) TEAGASC Review Group 13-02-11
- 06-5 Final Environmental and Social Audit Report 2014 December
- 06-6 ASDP EVALUATION Final Report June 2011
- 06-7 ICR ASDP Draft Final July 2014
- 07-1 Agricultural BRN - Executive Summary
- 07-2 Agricultural BRN 2013 (6 June) Agric Lab (detailed report)
- 07-3 Agricultural BRN - PDB - Stakeholder engagement meeting
- 08-0 ASR-PER-2014_TZ-Mainland_v0 Annex1
- 08-1 ASR-PER 2011-12 Final Submitted
- 08-2 ASR-PER 2010-11 Final Report Edited and Submitted March 2011 (2)
- 09-0 RBA Agriculture 2014 Background Note
- 09-1 RBA Agriculture 2013 Background Note -Near Final Draft (2) 2013-11-05
- 09-2 RBA Agriculture 2012 Agriculture RBA2012_9 Jan2012
- 10-1 Tanzania Development Vision 2025
- 10-2 MKUKUTA_II_01
- 10-3 LTPP_2012-03-19_PRINT
- 10-4 5-Year Plan Draft (June 2011)
- 11-1 MAFAP Preliminary_Analysis_of_Public_Expenditures_in_Tanzania_Jan 2013
- 12-0 PHC-2012 National Socio-Economic Profile_ 26 APRIL 2014
- 12-1 PHC-2012 Census General Report - 29 March 2013_Combined_Final for Printing
- 13-1 NSCA v2 Final Crops National Report 11 June 2012
- 14-1 DGP-Macroeconomic data
- 15 ASDP Basket Fund 2 preparation 2013 June
 - PD Draft 25 Jun-2013 Draft final - Main text
 - PD Draft 25 Jun-2013 Draft final – Annexes
- 16 ASDP Basket Fund 2 preparation 2013 August revised
 - ASDP 2-BF version 5.2
 - Comments ASWG- 31-07 2013 response to comments
 - Master 4 Annex ASDP-2-BF-BRN
- 17 TZ Mainland ASDP-2 workshop report 2013 September
- 18 Bank of Tanzania report
 - MER Monthly Economic Review October 2014 [1]
 - QEB Quarterly Economic Bulletin June 2014 [1]
- 19 National Sample Census of Agriculture. 2007–2008 (from National Bureau of Statistics)
 - 13-1 NSCA Final Crops National Report 11 JUNE 2012
 - Table 2.1.4 Types of Ag HH by types and size 1
 - Table 2.1.8 Types of Ag HH by types and size 2

- Table 5.8 Crop production (short & long rainy season) by regions
 - Table 5.11 Crop production by household
 - Table 5.14 Crop production (yield in t/ha)
- 20 PER_NAIVS_ National Ag. Input Voucher System (NAIVS)
➤ Tanzania_Final_Report-March_2014Feb
➤ 21 Tanzania_NAIVS Agricultural PER 2013_4
- 22 2011-12 HBS Main Report (Household Budget Survey)
- 23-1 General Report on Donor Funded Projects 2011-12
- 23-2 General Report on Donor Funded Projects 2010-11
- 24-1 Donor Mapping List (AWG)
- 24-2 Donor Mapping List (TAN-AIM)