



Republic of Uganda

Ministry of Agriculture, Animal Industry & Fisheries

***Agriculture for Food
and Income Security***

**Agriculture Sector
Development Strategy
and Investment Plan:
2010/11-2014/15**

July 2010





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Foreword

The agricultural sector has performed modestly, growing at 2.6 percent and 1.3 percent in 2008/09 and 2007/08, respectively. These rates of growth are below the population growth rate of about 3.4 percent per annum. This means that per capita food production in the country has declined. Furthermore, growth in agriculture is below the target growth rate of 6 percent per annum that was set in Maputo, Mozambique, in 2003 under the African Union's Comprehensive Africa Agriculture Development Program (CAADP). Growth projections indicate that if agriculture continues to grow at the recent average of 2.3 percent, Uganda will exceed the Millennium Development Goal (MDG) halving poverty by 2015. But, because of population growth, the number of absolute poor will increase from 8.45 million in 2005 to 10.15 million by 2015. However, if more investments are made in agriculture and it grows at 6 percent per year, Uganda will not only surpass the MDG target, it will also reduce the number of the absolute poor by 2.9 million, from 10.15 million to 7.25 million. Therefore, mobilizing farmers and increasing investments in agriculture is a sure way of effectively reducing poverty in Uganda.

The government has pursued previous policies and strategies under the Plan for Modernization of Agriculture (PMA) – a multi-sectoral framework aimed at transforming subsistence farming to commercial agriculture. Despite government efforts in the PMA, progress was made mainly in two of seven pillars of the PMA - research and agricultural advisory services, while limited progress was achieved in the other five pillars. As such, government has identified areas of weakness in the PMA framework and addressed them in this five year Agricultural Sector Development Strategy and Investment Plan (DSIP) 2010/11 – 2014/15 which is in line with the agricultural priorities in the National Development Plan (NDP) and aims to contribute to achievement of Prosperity for All (PFA) development objectives. The DSIP aims to raise rural household incomes and improve food and nutrition security of all Ugandans.

Four main challenges face the agricultural sector in Uganda: low production and productivity; low value addition to agricultural produce and limited market access; weak implementation of agricultural laws and policies; and weak public agricultural institutions. As such, the DSIP has been designed to address these constraints in four investment programs – increasing agricultural production and productivity; increasing access to markets and value addition; creating an enabling environment for the private sector in agriculture; and strengthening agricultural institutions at the centre and in local governments. In implementing these programs, the government is committed to pursuing a private sector led strategy by addressing key constraints that hinder more investment in the agriculture. During DSIP implementation, government will pursue and support public-private partnerships where appropriate.

The government is committed to increasing funding to agriculture over the next five years, guided by the priorities in the DSIP, and also in line with the CAADP principle of increasing spending to the sector. However, increased funding to agriculture must go together with improved resource utilization, and well as institutional strengthening in the sector.

Although the primary responsibility for implementing this plan lies with the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), some of the necessary investments that support agriculture lie outside MAAIF, for instance rural roads, agricultural finance, and electricity. This calls for improved multi-sectoral coordination across relevant government ministries and agencies and other key stakeholders in order to bring about agricultural transformation. I call upon the private sector, farmers and farmer organizations, civil society organizations, research and academic institutions, and development partners to support MAAIF in DSIP implementation. Finally, I wish to commend MAAIF and its staff for preparing this plan. I salute them and pledge government's commitment to its implementation,

FOR GOD AND MY COUNTRY

Yoweri K. Museveni
President of the Republic of Uganda
June 2010

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Acronyms & Abbreviations

APD	Agricultural Planning Department of MAAIF	MoH	Ministry of Health
APEP	Agricultural Productivity Enhancement Project	MoLG	Ministry of Local Government
ASPS	Agricultural Sector Programme Support	MoPS	Ministry of Public Service
BFP	Budget Framework Paper	MTEF	Medium Term Expenditure Framework
BMU	Beach Management Unit	MTTI	Ministry of Tourism, Trade and Industry
BBW	Banana Bacterial Wilt	MWE	Ministry of Water and Environment
CAADP	Comprehensive Africa Agriculture Development Programme	NAADS	National Agricultural Advisory Services
CAO	Chief Administrative Officer	NAGRIC	National Genetic Resource Information & DB Centre and Data Bank
CDO	Cotton Development Organisation	NARS	National Agricultural Research System
CGS	Competitive Grant System	NDP	National Development Plan
COMESA	Common Market for East and Southern Africa	NEMA	National Environmental Management Authority
CSO	Civil Society Organisation	NEPAD	New Partnership for Africa's Development
DDA	Dairy Development Authority	NGO	Non-Governmental Organisation
DP	Development Partner	PEAP	Poverty Eradication Action Plan
DSIP	Development Strategy and Investment Plan	PFA	Prosperity for All
EU	European Union	PMA	Plan for Modernisation of Agriculture
FAO	Food and Agricultural Organisation of the United Nations	PPP	Public Private Partnership
GDP	Gross Domestic Product	PRDP	Peace, Recovery and Development Programme of Northern Uganda
GMO	Genetically Modified Organism	RDS	Rural Development Strategy
GoU	Government of Uganda	SLM	Sustainable Land Management
GTZ	German Development Agency	SWAp	Sector Wide Approach
HACCP	Hazard Analysis Critical Control Point	SWG	Sector Working Group
HQ	Headquarters	TPM	Top Policy Management
IAR4D	Integrated Agriculture Research for Development	UBOS	Uganda Bureau of Statistics
IDPs	Internally Displaced Persons	UCDA	Uganda Coffee Development Authority
IFAD	International Fund for Agricultural Development	UFPEA	Uganda Fish Processors and Exporters Association
IFPRI	International Food Policy Research Institute	UGX	Uganda Shillings (UGX 2,000 approximately equals USD 1.00)
JICA	Japanese International Cooperation Agency	UHT	Ultra Heat Treatment
LGs	Local Governments	UIRI	Uganda Industrial Research Institute
M&E	Monitoring and Evaluation	UNADA	Uganda National Agro-Input Dealers Association
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries	UNCCD	United Nations Convention To Combat Desertification
MDA	Ministries, Departments and Agencies	UNDP	United Nations Development Programme
MEMD	Ministry of Energy and Mineral Development	UNFFE	Uganda National Farmers Federation
MLHUD	Ministry of Lands, Housing and Urban Development	UNHS	Uganda National Household Survey
MoFPED	Ministry of Finance, Planning and Economic Development	USAID	United States Agency for International Development
		USD	United States Dollar
		USTA	Uganda Seed Traders' Association
		WHO	World Health Organisation
		WTO	World Trade Organisation
		ZARDI	Zonal Agricultural Research and Development Institute

Executive Summary

1. MAAIF's new DSIP comes at a critical time for Uganda. There is a renewed recognition of the fundamental importance of agriculture to the Ugandan economy and of the central role it has to play in development, economic growth and poverty reduction. Technocrats and politicians are both engaging strongly with agricultural issues and a number of major initiatives are underway. These include the Prosperity for All policy with its goal of improving the lives of all Ugandans and the five year National Development Plan that prioritises agriculture among the key productive sectors driving growth in the economy.
2. Also of great significance is the Maputo Declaration on the Comprehensive Africa Agriculture Development Programme (CAADP). In the CAADP, Uganda has committed, firstly, to the principle of agriculture-led growth as a main strategy; secondly, to the pursuit of a 6 percent average annual growth rate for the agricultural sector; and thirdly, to increase the share of the national budget allocated to the agricultural sector to reach an eventual target of 10 percent. This DSIP is the foundation document for the CAADP Compact that was signed on March 31, 2010. DSIP implementation will simultaneously achieve both the national and CAADP outcomes and targets.
3. The underlying analysis on which the DSIP is based reveals mixed performance in the sector. Real growth in agricultural output has declined steadily, from 7.9 percent in 2000/01 to 0.7 percent in 2007/08 (although it did show signs of recovery in 2008/09, with a 2.6 percent growth rate). With 73 percent of all households and the majority of the poor in Uganda depending directly on agriculture for their primary livelihood, this is a serious challenge in the drive to eradicate poverty. The food and nutrition security situation has also been far from satisfactory. The average caloric intake per person per day has improved but only from 1,494 in 1992 to 1,971 in 2005. This is still less than the World Health Organisation (WHO) recommended level of 2,300 calories per person per day. The number of people who are food insecure has increased from 12 million in 1992 to 17.7 million in 2007, an obvious consequence of the high population growth rate. In contrast to this, however, poverty estimates reveal a significant improvement with headcount poverty declining, from 38 percent in 2002 to 31 percent in 2005. Agricultural exports have also significantly increased in scope and scale, particularly when informal cross-border trade is taken into account.
4. With a mixed picture at the macro level, the agricultural sector faces a daunting set of output-level challenges. The most important among these are:
 - low levels of productivity across most enterprises;
 - declining soil fertility coupled with low application rates of productivity-enhancing inputs;
 - high losses due to pests, vectors and diseases;
 - over-exploitation of fish stocks;
 - uncertain land rights leading to under-investment in agricultural land;
 - the struggle to comply with increasingly demanding international quality standards for traded food and agricultural products;
 - inadequate infrastructure for value addition processes including marketing, storage and distribution;
 - inadequate access/feeder roads;
 - multiple policy frameworks and an associated uncertain environment for investors;
 - uncoordinated efforts among public sector implementing agencies; (xi) the

- poor *quality* of public investment in agriculture;
 - inadequate institutional coordination and linkages;
 - negative consequences of climate change;
 - degradation of the natural resource base; and
 - capacity constraints in MAAIF to effectively address these issues.
5. Notwithstanding the challenges, there are also many important opportunities in the sector and this DSIP outlines how GoU intends to exploit them. It provides a 'roadmap' to guide government, the private sector, farmers' organisations, other civil society stakeholders and Development Partners to make public interventions that will help meet the key objectives of growth, food security and poverty reduction in the agricultural sector. As such, it is a combination of policies and programmes around which stakeholders can build a consensus and then mobilise the resources needed. The DSIP is based on a vision of the future which is to have "*A Competitive, Profitable and Sustainable Agricultural Sector*".
 6. Agricultural growth, however, cannot be achieved by programmes and activities managed by the sector ministry and its agencies alone. Significant public investments in rural roads, railways, electricity, and telecommunication infrastructure are needed if the 6 percent agricultural growth target is to be achieved. The budgets for these sectors are implemented by other ministries implying a need for MAAIF to collaborate closely with these MDAs to rally support for other complementary investments. Cross-sectoral coordination needs to be improved between MAAIF and other sectors that provide complementary investments to agriculture.
 7. The Development Objectives of the DSIP are: (i) rural incomes and livelihoods increased; and (ii) household food and nutrition security improved. The Immediate Objectives are (i) factor productivity (land, labour, capital) in crops, livestock, and fisheries sustainably enhanced; (ii) markets for primary and secondary agricultural products within Uganda, the region and beyond developed and sustained; (iii) favourable legal, policy and institutional frameworks that facilitate private sector expansion and increased profitability along the entire value chain developed; and (iv) MAAIF and Agencies functioning as modern, client-oriented organisations within an innovative, accountable, supportive environment.
 8. The underlying logic is that if long run productivity can be improved, through existing or new enterprises and/or farmers can be helped to move "up" the value chain by public investments in value addition activities, then rural incomes and livelihoods and general prosperity will rise. At the same time, parallel but associated investments around staples and basic foods, usually with a different target group, will deliver improved food security at the household level. The agricultural sector will then move towards greater profitability and an improved capacity to compete.
 9. Achieving the DSIP objectives entails promoting private sector investment and raising farmer productivity. This will be done through establishing a policy framework to create the enabling environment for farmers, entrepreneurs and investors to make informed and value-enhancing decisions. In addition to appropriate policies, creating an enabling environment includes investing in the efficient and effective delivery of core public goods and services that are the mandate and functions of MAAIF. These include: agricultural research; agricultural advisory services; pest and disease control; regulatory services; promoting value chain development; policy formulation and planning; operationalising the improved use of water for agricultural production, and; supporting and supervising service delivery in local governments.
 10. Investments under DSIP have been packaged under four Programmes representing the

key areas of opportunity: (i) enhancing production and productivity; (ii) improving access to markets and value addition; (iii) creating an enabling environment, and; (iv) institutional strengthening in the sector. Detailed descriptions of the programmes, sub-programmes, components and activities are given. In all cases, the primary role of the public sector will be to remove constraints that prevent the private sector from investing in the value chain.

- *Programme 1: Enhancing Production and Productivity.* To realise the sector vision and objectives, factor productivity (land, labour, and capital) will have to be raised substantially. Eight Sub-Programmes will be pursued with the following objectives : (i) improved agricultural research and technology development; (ii) better delivery of advisory services and improved technology; (iii) improved disease, pest and vector control; (iv) enhanced productivity of land through sustainable management of soil and water resources; (v) increased use of water for agricultural production; (vi) promotion of labour saving technologies and mechanisation; (vii) improved agricultural livelihoods in Northern Uganda; and (viii) promotion of selected strategic enterprises.
- *Programme 2: Improving Market Access and Value Addition.* Enhancing production and productivity must be augmented by significant improvements in market performance. Five Sub-Programmes will be implemented to enhance market access and value addition with the following objectives : (i) improved capacity for regulation and enforcement especially in safety standards and quality assurance ; (ii) improved access to high quality inputs, planting and stocking materials; (iii) increased participation in value addition activities; (iv) expanded network of rural market infrastructure; (v) strengthened farmers' organizations in management, entrepreneurship, and group dynamics especially for collective marketing.
- *Programme 3: Improving the Enabling Environment for the Agricultural Sector.* This program comprises the whole body of statutes, regulations and standards, as well as the mechanisms in place to operate or modify them. DSIP investments will focus on removing critical constraints to private sector growth; supporting opportunities that improve market efficiency, and; improving the incentive environment facing the private sector in the key market chains. Six Sub-Programmes will be implemented with the following objectives: (i) establishing a clear, predictable and functional policy framework; (ii) undertaking planning and policy responsibilities to improve formulation of new policies, strategies, programmes and projects; (iii) improved public education and communication around key agriculture and natural resource issues; (iv) public coordination responsibilities are undertaken in a coherent manner leading to improved management of sector policies and programmes; (v) strengthening agricultural statistics services to provide timely and appropriate information to sector stakeholders; (vi) improving capacity for decision-making in planning and budgeting processes
- *Programme 4: Institutional Development.* The poor agriculture sector performance of recent years has been compounded by the institutional challenges that have become almost entrenched. These challenges are many but the major ones include; a sub-optimal MAAIF structure; inadequate numbers and low skill levels of staff; high transaction costs arising from the isolated and scattered location of MAAIF and its departments; weak coordination mechanisms with a weak management information system, and; a low sector budget allocation. DSIP institutional investments are focused on ensuring that an optimal MAAIF institutional arrangement is put in place and housed in a more suitable location.

DSIP Summary Matrix

The Vision	A Competitive, Profitable and Sustainable Agricultural Sector		
Development Objectives	<ul style="list-style-type: none"> • Rural incomes and livelihoods increased • Household food and nutrition security improved 		
Immediate Objectives	<ul style="list-style-type: none"> • Factor productivity (land, labour, capital) in crops, livestock, and fisheries sustainably enhanced. • Markets for primary and secondary agricultural products within Uganda, the region and beyond developed and sustained • Favourable legal, policy and institutional frameworks that facilitate private sector expansion and increased profitability along the entire value chain developed • MAAIF and Agencies functioning as a modern, client-oriented organisation within an innovative, accountable, support environment 		
Programme 1: Production and Productivity	Programme 2: Markets and Value Addition	Programme 3: The Enabling Environment	Programme 4: Institutional Strengthening
<i>Sub-Programme Objectives</i>			
<p>1.1 Enhanced contribution of agricultural research to sustainable agricultural productivity, competitiveness, economic growth, food security and poverty eradication.</p> <p>1.2 Increased farmer access to relevant information, knowledge and technology through effective, efficient, sustainable and decentralized extension service coupled with increasing private sector involvement in line with government policy.</p> <p>1.3 Reduced losses through improved control of pests, vectors and diseases.</p> <p>1.4 Enhanced productivity of land through sustainable use and management of soil and water resources.</p> <p>1.5 Water resources developed for agriculture on the basis of sustainable irrigation, water for livestock and aquaculture.</p> <p>1.6 Increased use of labour saving technologies including appropriate mechanisation and other farm management related investments.</p> <p>1.7 The war-affected population of Northern Uganda engage in productive and profitable agricultural and agri-business activities to ensure food security and increase household income.</p> <p>1.8 Accelerated production of selected strategic enterprises on the basis of specialization and agro-zoning.</p>	<p>2.1 Improved capacity for regulation and enforcement especially in safety standards and quality assurance across crops, livestock and fisheries.</p> <p>2.2 Farmers have improved access to high quality inputs, planting and stocking materials.</p> <p>2.3 Increased participation of the private sector in value addition activities and investment.</p> <p>2.4 Expanded network of rural market infrastructure including appropriate structures to improve post harvest losses.</p> <p>2.5 The capacity of existing farmers' organizations built up in management, entrepreneurship, and group dynamics so they can engage in value-chain activities especially collective marketing.</p>	<p>3.1 Clear and predictable policy framework established and functioning.</p> <p>3.2 Planning and policy responsibilities are undertaken in an efficient manner leading to improved formulation of policies, strategies, programmes and projects, more cost-effective interventions and increased efficiency of public expenditure.</p> <p>3.3 Improved public education and communication around key agriculture and natural resource issues.</p> <p>3.4 Public coordination responsibilities are undertaken in a coherent manner leading to improved management of sector policies and programmes.</p> <p>3.5 Functioning Agricultural Statistics service providing timely and appropriate information to sector stakeholders.</p> <p>3.6 Capacity for decision-making in planning and budgeting processes improved by accurate and up-to date climate information and analysis.</p>	<p>4.1 MAAIF and related agencies, strengthened, appropriately configured and equipped.</p> <p>4.2 MAAIF HQ relocated to Kampala.</p> <p>4.3 Productivity of sector personnel improved.</p>

To this end, three Sub-Programmes will be implemented. Their objectives can be summarised as follows: (i) MAAIF and related agencies, strengthened, appropriately configured and equipped; (ii) MAAIF HQ relocated to Kampala; (iii) The productivity of sector personnel improved.

11. MAAIF is moving forward with restructuring, and a new macro structure was presented to, and approved by MAAIF stakeholders in early 2010. The main features and characteristics of the new macro structure are: (i) A Directorate for Fisheries Resources to be created; (ii) A Directorate of Agricultural Support Services to be created; (iii) *The Policy Analysis Unit* and the Agricultural Planning Department to be merged to form a Department of Agricultural Planning; (iv) A Department of Agribusiness to be created; (v) Regulatory Services Departments to be established in each of the three 'commodity' directorates (Crop Resources, Animal Resources and Fisheries); (vi) A Department of Infrastructure and Water for Agricultural Production to be created under the Directorate of Agricultural Support Services; (vii) The Finance and Administration Department to be re-configured by merging the Personnel Section with the Human Resource Development function; (viii) Two stand-alone specialist units responsible for the internal audit and procurement functions to be created. The new structure will involve an increase from the current 411 approved posts to 641 posts.
12. The budget for DSIP is presented in two iterations: the "Ideal" Budget and the MTEF related budget. The "Ideal" Budget (the sum of the budgets of all the Sub-Programmes in this plan) totals UGX 2,731 billion (approximately USD 1,365 million) over the five years, with first year costs starting at UGX 457.9 billion. This is the budget needed for MAAIF to implement all its planned activities and to realise the intended outputs and outcomes.
13. The DSIP has, however, to be operationalised through the Medium Term Expenditure

Framework (MTEF) which provides five year budget ceilings for the sector and for some of the agencies and sub-sectors within it. For FY 2010/11, the MTEF for agriculture has been agreed at UGX 342.2 billion. This has to be the working budget for the DSIP in FY 2010/11. Further prioritisation was done within the "Ideal" budget so that it would fit within the actual resources available. Under the MTEF-related budget, funds are spread across the four programmes, such that 60 percent of the total budget goes to the Production and Productivity programme, 31.6 percent to the Market Access and Value Addition programme, 5.4 percent to the Enabling Environment programme and 3.0 percent to the Institutional Strengthening programme. The largest Sub-Programmes are Agricultural Advisory Services, Agricultural Technology Development (Research), Value Addition, Pest and Disease Control and Regulatory Services. These five Sub-Programmes can therefore be deemed the priority areas.

14. There will, of course, be active and robust rounds of prioritisation each year as part of the preparation of the annual Budget Framework Paper (BFP). It is during this latter process that MAAIF and the sector stakeholders will make the final short run investment decisions and the choices made will be dictated by a mixture of the degree of urgency of issues of the moment, the MTEF set for that year, the likely rates of return to any given investment and the fit between the objectives of any given investment and the underlying vision of the DSIP.
15. In the last twenty years, agriculture has rarely received more than 4 percent of the national budget. The intention now is that, by demonstrating its capacity to prepare plans and to implement them, this DSIP will show MAAIF's commitment to efficient and effective spending in the sector and thereby make its case for a larger share of the national budget. In time, this share will rise, closer to the 10 percent level stipulated under CAADP and in the Maputo Declaration.

16. One of the key coordinating institutions is the Sector Working Group (SWG) composed of MAAIF, other relevant ministries and agencies, the private sector, farmer organizations, civil society organisations and development partners. This is the forum for budget monitoring and assessment and sector policy deliberations. Initiatives to strengthen the SWG process will be pursued under the DSIP. The intention is that the SWG, *inter alia*, undertakes the following: (i) Review DSIP sector strategies and investment programmes; (ii) Review mechanisms for maximizing resource allocation within existing budget constraints; (iii) Identify solutions to structural, institutional and other constraints to effective DSIP implementation; (iv) Review mechanisms for enhancing stakeholder participation in implementing the DSIP; (v) Review the annual Agriculture Budget Framework Paper as a basis on which the budget for the sector is compiled; (vi) Identify policy issues for consideration and action by the Ministry Top Policy Management; (vii) Provide information for Joint GoU-Donor Reviews.
17. Actual implementation of a large proportion of DSIP activities will take place at district level and will fall under the responsibility of local governments. MAAIF and its agencies will therefore strive to improve the links with these entities. The local governments will need to establish the necessary coordination institutions and linkages with other stakeholder organisations including sub-counties, CSOs, private sector actors and farmers. Key institutions at the LG level will include the CAOs, Production Departments, Planning Units and the production sector committees. Horizontal linkages are envisaged between ULGA, ARDCs and ZARDIs.
18. An M&E system will be developed and integrated into all stages of the programme cycle, from identification through to evaluation. At each stage it will seek to answer the questions “Are we on track?” and “Did we achieve what we wanted to achieve?” Throughout the duration of the programme, the M&E system should generate timely reports on progress, indicate problems that need to be tackled, and provide management with the necessary information to help keep the programme running efficiently. The general approach will be three-pronged: (i) Data Collection by MAAIF staff; (ii) Partner participation; (iii) Surveys and special studies.
19. The DSIP presents the macro picture of the sector, essentially the vision, objectives, strategic/priority areas of investment, key outputs and activities. It does not prescribe the day-to-day activities and strategies to be implemented for each of the Sub-Programmes. These will be prepared by the implementing agencies in line with the resources allocated to each Sub-Programme each financial year. Development Partner support (both on- and off-budget) has historically made a significant contribution to overall funding of agriculture sector expenditure. Discussions between GoU and the DPs active in the agricultural sector have indicated a continuing commitment to the sector, the consensus being that the support should as soon as practicable, be aligned with, and contribute to, the implementation of the DSIP on the basis of a Sector-Wide Approach (SWAp) and Sector Budget Support (SBS).
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1 Introduction

1.1 Background

This is the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)'s Development Strategy and Investment Plan (DSIP) for the agriculture sector, covering the period 2010/11 to 2014/15. It is a revision of the 2005/06-2007/08 DSIP and comes at a critical juncture for agriculture in Uganda. This DSIP consolidates and harmonizes all the existing parallel policy frameworks in the agricultural sector into one coherent plan. The DSIP sets the priorities for the five year period and these will be used as a basis for defining spending plans each year under the Medium Term Expenditure Framework (MTEF).

Agriculture is arguably the most important sector of the Ugandan economy. It contributes up to nearly 20 percent of GDP, accounts for 48 percent of exports (UBOS, 2008) and provides a large proportion of the raw materials for industry. Food processing alone accounts for 40 percent of total manufacturing. The sector employs 73 percent¹ of the population aged 10 years and older (UBOS, 2005). Agriculture will be the key determinant in the country's efforts to reduce poverty in the immediate years ahead.

After many years in which agriculture has been sidelined in the development debate, there is a new recognition across the world of the vital role agriculture plays in economic growth and poverty reduction. The World Bank's recent World Development Report on agriculture (World Bank, 2008) states that "it is time to place agriculture afresh at the centre of the development agenda, in a vastly different context of opportunities and challenges". The report is unequivocal that while agriculture alone will not be enough to reduce poverty, it has proven to be uniquely powerful in that task.

This renewed interest in agriculture also comes in the context of volatile global food prices and the urgent need for Uganda to implement suitable measures to

address this problem. Most of the factors adjudged to contribute to the situation are related to increased global demand for food commodities, as well as supply-side issues (the rise of biofuel production and growing meat consumption in the emerging economies of China and India), developments in global trade policy and climate change. In fact, Uganda's food commodity markets are relatively isolated (and so shielded) from global markets (Benson et al., 2008) but if higher world food prices are sustained, as seems likely, food prices in Uganda will also increase, often through secondary impacts. This can be an opportunity as well as a challenge, with new markets opening up for the net sellers of food crops in the country.

All parties clearly recognise that if the performance of agriculture improves, farmers' livelihoods and economic growth will improve and poverty will reduce. Three important elements of this new commitment are:

1. *The National Resistance Movement (NRM)'s 2006 Election Manifesto that contains a vision of Prosperity for All (PFA) with agriculture as a major component. The goal of PFA is to improve the lives of all Ugandans in all aspects - higher incomes, better nutrition, improved access to services such as health, education, water, and reliable physical infrastructure. The vision as outlined in the manifesto is being pursued vigorously across the country.*
2. *The Maputo Declaration for Comprehensive Africa Agriculture Development Programme (CAADP), committed to by GoU in 2003. CAADP is an initiative of the New Partnership for Africa's Development (NEPAD), itself an initiative of the African Union. The main goal of CAADP is to help African countries reach a higher path of economic growth through agriculture-led development on the basis of a set of key principles and targets. The pertinent ones are:*
 - Agriculture-led growth as a main strategy to achieve the Millennium Development

¹ The proportion of women employed in agriculture is higher (83%) than for men (71%).

Goal (MDG) of halving poverty and hunger by 2015;

- The pursuit of a 6 percent average annual growth rate for the agricultural sector at the national level;
- The allocation of 10 percent of the national budget to the agricultural sector.

The work on the DSIP has strengthened GoU's engagement with the CAADP process and Government intend to sign the CAADP Compact on the basis of this DSIP in the near future.

3. *The formulation of the National Development Plan (NDP).* In 2008, the long-standing and widely respected cornerstone of Uganda's policy framework, the Poverty Eradication Action Plan (PEAP), expired. The evaluation that followed noted inadequate investment and low productivity of agriculture during the PEAP period (1997-2008) and recommended a refocusing on the sector (Oxford Policy Management, 2008). The NDP, which was launched in April 2010, recognises agriculture as among the key productive sectors driving the economy and hence the Government will give it extra attention over the next five years. The NDP is the basis for this DSIP, which translates the broad public sector interventions outlined in the national plan into a sector-wide plan with specific sub-programmes, activities and targets, each with a set of clear budgets.

The renewed attention to agriculture comes at a time when Uganda faces considerable national and global challenges. With a population growth rate of 3.2 per annum, Uganda has the third highest rate of population increase in the world. The population that was 6 million in 1969 is now 30 million. A country that was once known for high levels of soil fertility is facing degradation of its land resources, top soil losses of as much as 5 tonnes per hectare being reported in some areas. Opportunities for opening up new land are much reduced and problems associated with climate change are becoming more pronounced. Average temperatures in Uganda are likely to increase by up to 1.5°C in the next 20 years and by up to 4.3°C by the 2080s (DFID, 2008). Such rates of increase are unprecedented. More frequent periods of intense rainfall, heat waves, droughts, floods and storms are predicted. These trends have significant implications for water

resources, food and nutrition security, natural resource management, human health, settlements and infrastructure with a potential to halt or reverse the country's development trajectory. The poor and vulnerable are likely to be impacted most as they have limited coping mechanisms. Climate change has serious implications for the nation's economy, with for example, a shift in the viability of coffee growing areas potentially wiping out 40 percent of export revenue (some USD 265.8 million).

1.2 The DSIP Formulation Process

The development of the agricultural sector DSIP for the period 2010/11 – 2014/15 has been a participatory and inclusive process involving consultation with key stakeholders in the agricultural sector including the private sector, government officials at national and local levels, development partners and civil society representatives.

Stakeholders were involved through participation in four Thematic Working Groups, where important issues and ideas were identified, discussed, analysed and agreed upon for incorporation into the DSIP document. Another significant involvement of stakeholders was in the review of various drafts of the DSIP document.

The formulation of this DSIP has also benefited from a number of studies, which either brought in new information or informed discussions around different ideas. These studies include the Competitiveness and Investment Climate Strategy (CICS, 2006); the World Bank's Country Economic Memorandum (2006); the PMA Secretariat's studies on commodity value chains and farmer categorization based on farmer needs assessments (2008), a two-phase Public Expenditure Review of agriculture (GoU, 2007-9); the NAADS Impact and Performance Evaluations (2008); CAADP studies on National Agricultural Stock Taking and the Identification of Agricultural Growth and Investment Options (2008) and the Review of the MAAIF Restructuring and Reform Process (GoU, 2010).

The DSIP document was prepared by a drafting team, led by the Agricultural Planning Department (APD) of MAAIF and consisting of staff from other

departments as well as from the PMA Secretariat, NAADS, and NARO. This team submitted regular reports to the Top Policy Management and the Agriculture Sector Working Group for review, approval and quality control.

1.3 The DSIP Structure

The DSIP document comprises seven chapters. Chapter 1 is a short introduction while Chapter 2 is the Situation Analysis, presenting the performance and state of the sector with an examination of the factors that define this state, including the key opportunities and constraints. Following that, Chapter 3 presents the main elements of the strategy with the four strategic public components packaged

into four broad Programmes and twenty-two Sub-programmes. Each of these Sub-programmes is presented in detail, by investment area and activity, with their associated costs. The overall budget for DSIP is presented in Chapter 4 with a discussion of the Medium Term Expenditure Framework (MTEF) and its implications, as well as other financing issues. Chapter 5 covers the Implementation Framework and the arrangements required for successful delivery of the DSIP. Chapter 6 presents an outline of the proposed Monitoring and Evaluation framework that will measure progress towards results. Finally, Chapter 7 deals with the immediate actions needed to start implementation.

2 Situation Analysis

2.1 Contribution to the National Economy

2.1.1 Economic Growth

Over the years 1987 to 2005, agriculture in Uganda performed well, growing at an average 3.8 percent, faster than population growth at that time. The sector was thus a major contributor to the success of Uganda's poverty reduction efforts in the 1990s. Relative to other countries (in the region and worldwide), Uganda's long term agricultural growth trend has been impressive (World Bank, 2006). This long and sustained period of growth earned Uganda the distinction of being one of the most successful countries in terms of achieving high rates of poverty reduction. It also demonstrates the success of the policy framework adopted and maintained by Uganda - a conducive macro-economic policy environment and clear progress with stabilisation and market liberalisation.

However, the evidence suggests that, more recently, the performance of the sector has been less impressive than was expected.² Real growth in agricultural output declined from 7.9 percent in 2000/01 to 0.1 percent in 2006/07 (UBOS Statistical Abstract, 2009), before recovering to 1.3 percent and 2.6 percent in 2007/08 and 2008/09, respectively. This rate of growth has been below the population growth rate of 3.2 percent, implying that per capita agricultural GDP has been declining. It is also far short of the 6 percent growth target for the agricultural sector set by African Governments under CAADP.

Agriculture exerts considerable influence on overall GDP Growth. While the share of agriculture in GDP has declined as industry has grown (evidence

² The quality of data in the sector is generally low. This is mainly because since the early 1990s there has been no census of agriculture or representative surveys to update the figures. Many of the current figures are based on projections spanning almost two decades. A new Census of Agriculture was undertaken in 2009 and when the data is ready, significant revisions are likely to be made to the sector's statistical base.

of structural transformation of the economy) it still made up 21 percent of the observed growth between 2001-2005 and also accounts for a significant proportion of growth indirectly, that is through forward and backward linkages with the service and industrial sectors (World Bank, 2006).

As shown in Table 2.1, the decline in growth was evident in all the sub-sectors of agriculture. Given that 73 percent of all households in Uganda are engaged in agriculture,³ a declining performance matters greatly for their livelihoods and represents a setback in the drive to eradicate poverty and create wealth.

2.1.2 Poverty Reduction

Household surveys for the years 1992, 1999, 2002 and 2005 indicate that national poverty fell from about 60 percent in 1992 to 34 percent in 1999, rising again to 38 percent in 2002 and falling to 31 percent in 2005. The fiscal year 1992/93 was a particularly bad year for agricultural production and corresponds to the highest measured poverty rate. The year 1999/00, which saw a large decline in the poverty rate, was the second in a row of three very good years of agricultural production. The year 2002/03 demonstrated positive but below average growth for the sector and this corresponded to the small rise in the poverty rate that year. These trends suggest that positive agricultural performance is strongly related to poverty reduction. Experience also suggests that one of the best ways of reducing rural poverty is agricultural production for the market and thus this DSIP takes market-orientation as a guide to its investments.

Research by IFPRI (Benin, 2007) has demonstrated that if agriculture in Uganda grew at 6 percent per annum, the national poverty headcount level would fall from 31.1 percent in 2005 to 17.9 percent by 2015. This would be well below the 28 percent Millennium Development Goal target. Moreover, the absolute number of poor persons in Uganda

³ Based on the 2005/06 Uganda National Household Survey - see page 10 of the Agricultural Module.

Table 2.1: Growth Rates of Industry, Services and Agriculture 2003/4 -2008/9

Sector	2003/4	2004/5	2005/6	2006/7	2007/8	2008/9
Agriculture	1.6	2.0	0.5	0.1	1.3	2.6
<i>Cash crops</i>	7.3	-5.5	-10.6	5.4	9.0	1.7
<i>Food crops</i>	-1.5	-0.2	-0.1	-0.9	2.4	2.9
<i>Livestock</i>	4.7	3.0	1.6	3.0	3.0	3.0
<i>Fisheries</i>	9.6	13.5	5.6	-3.0	-11.8	-0.1
<i>Forestry</i>	-	6.5	4.1	2.0	2.8	3.2
Industry	8.0	11.6	14.7	9.6	9.1	3.8
Services	7.9	6.2	12.2	8.0	10.2	9.4

Source: Background to the Budget 2008/09 FY, MoFPED June 2008; UBOS, 2009 Statistical Abstract

would decline from 8.4 million in 2005 to 6.9 million in 2015. With population growth and the 2.7 percent rate of growth averaged over the years 2000-8, however, the absolute number of poor people is still projected to increase, from 8.5 million in 2005 to 10.2 million in 2015. This is the context in which agricultural development is so urgently required.

2.1.3 Food and Nutrition Security

In aggregate, Uganda is food secure. Most people have enough food to eat and also enjoy a varied diet. However, the food and nutrition security situation is unsatisfactory. While, between 1992 and 1999, the country's average caloric intake per person per day improved, from 1,494 to 2,193, it declined again, to 2,066 in 2002 and then to 1,971 in 2005. Although the overall trend is still clearly positive, the average intake is less than the recommended daily calorie intake of 2,300.⁴ As for the proportion of the Ugandan population that is food insecure, this reduced from 83 percent in 1992/93 to 59 percent by 1999/2000 (Ssewanyana, 2006), before rising back to 63 percent and 66 percent in 2002/03 and 2005/06 (UBOS, 2007).

At the same time, the indicators of nutritional status, unsatisfactory as they are, have improved a little. The prevalence of stunting among children aged 5 years and below declined from a national average of 45 percent in 1988/89 to 38 percent in 1995

and the rate has remained much the same since then (although it ranges as high as 54 percent in Karamoja and 50 percent in the South-West region). This means that one in three children in Uganda is stunted,⁵ the result of which will be long lasting negative impacts on their cognitive outcomes as well as on the labour productivity of their households.

There is also a widespread lack of knowledge on food and nutrition issues despite there being functioning channels of communication. This may be reflected in other problematic indicators. Iron Deficiency Anaemia is at 65 percent in children less than 5 years and at 30 percent in all women; vitamin A deficiency is at 28 percent in children less than 5 years and at 52 percent in all women (MAAIF/MoH, 2005). There is also obviously a high incidence of vulnerability to hunger and starvation amongst the IDPs, neglected children, orphans, and refugees, those most susceptible to the shocks of weather, climate change, price fluctuations etc.

The background to the situation is partly that the population of Uganda has tripled since 1969 and now stands at 31 million people. A recent study by MoFPED (Population Secretariat, 2009) showed two scenarios for future growth. The High Fertility Scenario showed total births per woman falling slightly from the current 6.7 to 6.0 while the Declining Fertility Scenario showed the figure falling to 2.2 births per woman. While under Scenario 1, the population can be expected to triple again by

4 Food caloric intakes vary geographically: Kapchorwa has the highest caloric and protein intake, followed by others in Western Uganda – notably Mbarara, Ibanda and Bushenyi. The least amount of caloric intake is found in Karamoja and Acholi sub-regions. Districts in Northern Uganda show relatively higher rates of protein intakes than those in Central Uganda. EPRC, 2009. Understanding the Determinants of Food Insecurity in Uganda 2005/06.

5 The highest rates of stunting are in South-western Uganda (43%) followed by the North and Western sub-regions at about 34%. UBOS and Macro International Inc, 2007. Uganda Demographic and Health Survey 2006 Calverton, Maryland.

2037 (to 89 million), under Scenario 2, it will 'only' reach 62 million. The point is that with 50 percent of the population currently under 15, the low scenario, startling as it seems, is already in the pipeline and every year there will be at least another million mouths to feed.

Between 2006 and 2008, poor households in Uganda faced additional stresses due to food price increases, experiencing cuts in their purchasing power of between 10-15 percent. Some households probably went hungry. It is sometimes suggested that rural Ugandans should be insulated from global price shocks because they still have a high level of food self-sufficiency, because rural and urban Ugandans consume a diverse array of staple foods, and because, as a land-locked country, Uganda has weak links with world markets. However, as world prices for grains and rice increased between 2006-2008, so between October 2007 and October 2008, prices of every staple food in Uganda (except sweet potatoes) also rose substantially (World Bank, 2009). As a result, consumers faced substantial reductions in purchasing power. Over this period (2006-8), urban poverty increased by up to 3.6 percentage points over the 2005/6 baseline estimates, and increased the depth of poverty in urban areas by about 25 percent. Rural households also lost purchasing power and it seems poverty increased there by up to 2.4 percentage points (about 7 percent more households in poverty). To the extent that households resolved this problem by eating fewer calories, malnutrition may have increased.

For most of the malnourished, the lack of access to food is a greater problem than food availability. As always, "starvation is a matter of some people not having enough food to eat, and not a matter of there being not enough food to eat." (Sen, 1981). The irony is that most of the food insecure live in rural areas where food is produced, yet they are net food buyers rather than sellers. According to an IFPRI study (Benson, 2008), only 12 percent of households in Uganda are significant net sellers. In contrast, 66 percent of households are net buyers of food and rely on the market for more than 25 percent of the value of the food they consume. Even in rural areas, over 60 percent of households purchase more food, by value, than they sell. This implies that strategies to improve food and nutrition security must pursue enhancing incomes through on-farm and off-farm activities. Rural households need to increase their

purchasing power (and, where possible, have food prices kept stable). Agriculture's ability to generate income for the poor, particularly women, is more important for food security than its ability to increase local food supplies.

An appropriate policy response is therefore a mix of mitigation and encouraging supply. In the medium term, broad-based economic growth could be expected to lift many of these people back out of poverty as their incomes begin to increase. In particular, rural households that are able to increase production and yields of staple foods should see substantial income improvement.

Higher productivity in both the food and non-food sectors is at the core of poverty reduction (and the broader growth process). There has been debate as to whether, as a consequence of the urgency of the food security situation, the development strategy should focus on food crops or exports crops but this is not a helpful formulation of the options open. Rather, it is necessary, given the current structure of the economy and the strategic importance of both the food and export crops, to focus on both the supply and demand sides. On the supply side, raising farm productivity highlights the role of agricultural technology (generation and dissemination), while improving market efficiency will involve enhancing incentives for producers through higher real producer prices. What is needed is balance and a downward pressure on real food prices. This requires productivity gains and improved marketing efficiency to lower prices for consumers and make Ugandan products more competitive.

Government has produced the National Food and Nutrition Policy (MAAIF/MoH, 2003) and the National Food and Nutrition Strategy (MAAIF/MoH, 2005). Work continues to operationalise and implement them. A legal and institutional framework is being considered by Cabinet, before submission to Parliament. It is described in a draft Food and Nutrition Bill that provides for establishment of a National Food and Nutrition Council (NFNC). Once passed into law (as an Act of Parliament), the NFNC shall serve as the Apex Body for guidance and coordination of all food and nutrition activities in the country.

Table 2.2: Exports from Uganda by Value (USD million), 2004-8

	2005	2006	2007	2008
Total Exports	812	912	1,336	1,724
Agricultural Exports	494	516	632	785
Percentage Share	61%	56%	47%	46%

Source: UBOS : 2009 Statistical Abstract; Uganda Revenue Authority; UCDA

2.1.4 Exports

Although its share in total exports is declining (as industry grows), the agriculture sector is still the biggest earner of export revenues. In 2008, exports of primary agriculture commodities contributed 46 percent of Uganda's formal exports earnings (see Table 2.2). When combined with informal trade in agricultural produce (believed to be considerable) the contribution of agriculture to export revenue may be much higher.

Furthermore, while agriculture's contribution to growth has been disappointing, the export data suggests a slightly different picture. The value of exports of primary agriculture actually grew 16 percent per year on average over the period 2003-2008 (UBOS, 2009). Part of this is accounted for by increasing exports of food staples to Kenya, Rwanda, and, more recently, to southern Sudan and the Democratic Republic of Congo. Exports of maize and beans to Kenya alone more than doubled from 2004 to 2008 and, in 2008/09, Uganda exported a quarter of its total marketable maize production, supplying half of Kenya's import demand. Between 2001 and 2007, the COMESA market emerged as the largest market for Uganda's exports. Indeed, in 2007, COMESA accounted for 38 percent of total exports

compared to 24 percent for the EU, once the largest market (see Table 2.3).

2.1.5 Employment

Agriculture is the largest employer in Uganda. The sector has increased its share of the working population from 66 percent in 2002/03 to 73 percent in 2005/06 (as against manufacturing at 4.2 percent and services at 23 percent)⁶. This increase in the share of the labour force is a challenge because, while structural change evident in the economy (as the share of agriculture in GDP declines and that of industry grows - see Section 2.1.1 above - labour appears to be still stuck in agriculture). Contrary to expectation, faster growing sectors of the economy are not contributing significantly to the labour market and the agriculture sector remains the mainstay for unskilled labour. This is probably due to the fact that industry is becoming more capital intensive as machines replace human labour but, whatever the cause, the larger labour force in the agricultural sector has not resulted in more growth in the sector. More analysis is needed to understand this phenomenon.

⁶ Additionally, the fisheries sector directly employs over 300,000 people with up to 1.2 million more depending on fisheries as a source of income and livelihood (PEAP, 2004).

Table 2.3: Exports by Geographical Market (USD '000), 2001-7

Region	2001	2002	2003	2004	2005	2006	2007
COMESA	122,040	107,493	147,793	177,995	249,336	283,747	506,509
Other Africa	33,465	55,141	45,963	37,823	38,931	37,763	87,745
EU	128,237	156,386	140,529	184,301	252,708	263,752	324,395
Other Europe	75,662	73,206	79,033	111,131	82,466	49,074	91,361
North America	8,348	10,549	14,635	19,185	18,340	16,442	23,777
Middle East	9,898	9,138	18,489	37,060	88,111	198,544	190,847
Asia	52,953	42,255	49,797	59,025	61,180	75,194	71,937
South America	1,138	1,286	342	379	1,005	899	2,472
Rest of World	20,023	1,505	2,334	80	566	297	159
Unknown	0	10,646	35,191	38,111	20,214	36,483	37,465

Note: Export values are total exports, including non-agricultural exports, but agricultural exports dominate. Source: UBOS

2.2 Agricultural Sector Performance

2.2.1 Crops

Between 1999/2000 and 2005/06, the production trends of the major crops are inconsistent (Table 2.4). While positive increases were recorded for cereals (maize, millet, rice and sorghum), beans and simsim, significant declines were noted for root crops (cassava, Irish and sweet potatoes) and export crops (cotton and coffee).

The performance of crop in terms of yields also varied significantly (PMA Secretariat, 2008).⁷ Between 1999 and 2006 eight major crops showed substantial reductions in yield while only four crops registered increased yields. Of these four, only simsim had a significant increase (see Table 2.5).

The PMA Evaluation (OPM, 2005) found the main explanation for the increase in crop output was an increase in the total area cultivated. However, the World Bank analysis makes it clear that 'continued reliance on extensification of agriculture as a source of growth is likely to be environmentally disastrous and lead to enormous conflicts with diminishing grasslands and other areas for cattle grazing for the pastoralists. This implies that future growth will have to rely on a combination of more intensive agriculture and movement of labour out of agriculture' (World Bank, 2006).

Another critical point to note is that, for most crops, yields at farm level are well below those at the research stations (see Table 2.6). This means farm level productivity is far below the attainable potential and that there is much room for improvement.

2.2.2 Livestock

Livestock and livestock products play a key role in raising incomes of households and providing a source of protein to many families. Indeed according to analysis of poverty trends using the UNHS

time series data (UBOS, 2007), it is apparent that households that include livestock in their enterprise mix tend to be generally less poor (see Table 2.7).

The Livestock Census (UBOS, 2009) estimates the national herd at 11.4 million cattle, 12.5 million goats, 3.4 million sheep, 3.2 million pigs and 37.5 million chickens. For every category this is a significant increase on earlier estimates. Total cattle ownership is estimated to have increased by 54 percent since 2005. Nonetheless, current production levels in the sub-sector can still only meet half the domestic and regional demand. The potential for the export market is high and opportunities exist for the expansion of dairy and meat; hides, skins and leather; apiculture and sericulture.

Regarding the impact of livestock keeping on poverty, it should be noted that Western Uganda with 30 percent of the total cattle herd, as well as 73 percent of the total exotic herd, has the lower poverty incidence.

Only 4 percent of the estimated 8 million goats in Uganda are improved breeds (UBOS, 2009). Given that exotic goats command a premium price on the market, this would suggest there is an opportunity to increase ownership of exotic goats and so help improve household incomes.

With regard to milk, MAAIF estimates that, over the period 2002-2007, milk production increased at an annual growth rate of 8.4 percent and that average domestic milk consumption is now around 25.4 kg per capita per year (DDA, 2010). Growth in the dairy sector is a result of the favourable macroeconomic environment as well as policy and institutional reforms. Specifically, over the 10 years to 2006, improved dairy breeds have increased in number while imports of milk and milk products have declined from more than UGX 50 billion by value in 2001 to less than UGX 10 billion in 2006. Uganda is now exporting UHT milk to Tanzania and Kenya (about 1.5 million litres exported in 2007). However, DDA also estimates that approximately 27 percent of all milk produced is lost: 6 percent is wasted at the farm level, while 11 percent and 10 percent is either lost to spillage or spoilage during transport or marketing. The value of these losses is calculated at USD 23 million a year.

⁷ The data is based on surveys in only two years so there is room for some scepticism about the size of the variation and to what extent this represents the underlying trend.

Table 2.4: Production of Major Crops, 2000 and 2006 (mt)

Crop	1999/2000	2005/2006	Change (%)
Maize	739,177	2,440,000	230
Millet	184,197	188,800	3
Sorghum	113,240	162,400	43
Rice	41,896	880,000	2000
Beans	495,652	665,000	34
Groundnut	125,617	219,000	74
Simsim	97,000	166,000	71
Cotton	21,439	18,870	-12
Irish potato	208,359	154,600	-26
Coffee	154,700	120,139	-22
Sweet potato	2,620,065	1,696,000	-35
Cassava	2,245,882	1,656,000	-26
Matooke	6,129,724	5,360,500	-13

Source: External Monitoring Unit of ASPs (EMU), 2007: Reports on the Agricultural Modules; UCDA 2006
 Note: Cotton data obtained from CDO in bales, converted to kg @ 1bale=185kg and divided by 1000 to get equivalent in tonnes.

Table 2.5: Change in Yields of Major Crops 1999-2006

Crop	Avg yield (kg/ha)	Avg yield (kg/ha)	Change (%)
Simsim	114	278	144
Cassava	401	544	35
Sweet potato	1,664	2,070	24
Millet	583	719	23
Groundnut	680	636	-6
Irish potato	1,457	1,003	-31
Rice	1,385	734	-47
Cotton	628	292	-53
Maize	1,400	551	-61
Beans	988	358	-64
Coffee	1,215	369	-70
Matooke	8,594	1,872	-78

Source: EMU 2007

Table 2.6: Yield Gap of Selected Crops (kg/ha)

Crop	On farmers' fields	On Research station	Yield gap (%)
Maize	550	5,000 - 8,000	810 - 1,350
Beans	360	2,000 - 4,000	460 - 1020
Groundnuts	640	2,700 - 3,500	320 - 450
Bananas	1,870	4,500	140
Coffee	370	3,500	850

Source: EMU 2007

Table 2.7: Poverty Headcount Index by Sub-Sector, 1992-2005/6

	Poverty Headcount Index				
	1992	1998	2000	2004	2005/06
National	56	45	34	38	31
Crop agriculture	64	53	39	50	37
Non-crop agriculture	52	37	42	34	28

Source: UBOS UNHS 2005/06

Export of other livestock products in Uganda is limited to raw and semi-processed hides and skins. Inadequate disease control and the absence of the relevant quality and processing infrastructure are some of the factors which limit the expansion of beef and dairy products exports.

Perhaps the major opportunity for the future is that per capita domestic consumption of animal products is still well below the recommended WHO and FAO figures. This suggests that, as economic growth continues in the country, consumption will rise and current investment in the industry will be justified. There are however, several major constraints that need to be tackled if higher performance is to be realised:

- Production constraints such as endemic disease, poor quality breeds and inadequate feed and water;
- Marketing constraints arising from poor infrastructure and lack of information on opportunities for value addition;
- Institutional constraints manifested in weak enforcement of policies, laws, regulations and standards leading to the spread of disease, substandard inputs and products in the market;
- Insufficient research into livestock problems and opportunities;
- Inadequate advisory and veterinary services;
- Lack of investment in productivity enhancing and value addition activities many of which are beyond the capacity of ordinary farmers.

Most of the contribution of the livestock sector to GDP is accounted for by pastoralists. This is because pastoralists and communal grazers hold about 95 percent of all the cattle. Cattle owned by pastoral and communal grazers also produce some 85 percent of all the milk in the country (most of it for own consumption). However, the “cattle corridor”, the main area where pastoralism is practiced, is characterised by extended drought periods leading to insufficient water to sustain agricultural activities such as food/cash crop and

livestock farming.⁸ This means pastoralists are under pressure to take up opportunities offered to them outside their traditional place to hire, buy and/or lease land. Where the offered land is communally owned and all stakeholders are not fully involved in the transaction, there can be conflict. Recent such problems have led to the setting up of a Select Committee of Parliament that was required to make a comprehensive investigation and recommendations on the issue. The urgent need at present is to put in place a pastoral development policy with a strategic plan of action to stabilize and increase production and productivity of pastoral activities, and to improve food security and household incomes in a sustainable and predictable way.

2.2.3 Fisheries

About 20 percent of Uganda’s surface area is water and catch fisheries is one of the country’s key industries. The main export is Nile perch (fresh or frozen fillets) from Lake Victoria. Small amounts of tilapia are also exported. The sector is estimated to employ about 250,000 people directly (with the processing sector about 5,000). Fishing activity is artisanal and based on traditional small vessels and canoes.

The problem is that while exports increased dramatically after 1991 (Table 2.8), they have recently declined sharply, falling from a peak of 39,201 tons in 2005 to about 24,965 tons in 2008 (Mwijagye, 2009). This seems to be a consequence of declining catches, falling stocks and over-fishing.

There are several issues that need to be considered:

- In addition to the formal market channels, a recent survey (BOU, 2007) indicated that fish worth USD 33 million were exported ‘informally’,

⁸ The main areas include the lower parts of Bundibugyo, the drier parts of Masaka, the lower, drier parts of Kapchorwa and drier parts of Kasese where a migratory type of livestock keeping may be practiced. In totality, this area covers an estimated 75,400 km²

much of it illegally, to the neighbouring countries of the Democratic Republic of Congo, Sudan, Kenya and Rwanda in 2006. This was 14 percent of all informally traded goods from Uganda in that year.

- Between 1991 and 2007, the number of people depending on the sector increased from 700,000 to over 1.2 million people.
- While catches from Lake Victoria are dwindling fast, the situation for the other lakes is even worse. Lake Kyoga catches have dropped from over 167,000 tonnes in the 1980s to less than 55,000 tonnes in 2006.
- Eight out of the 18 fish processing factories have closed and others are threatened with closure.

Since 2003, some action has been taken to try to address these problems. Fisheries management has shifted from a “command and control” mode by the centre to a system based on recognising the role communities can play. Co-management institutions have been put in place: e.g. Lake Management Organisations have been established on Lakes Kyoga and George and some 630 Beach Management Units (BMUs) have been established and legally recognised on both major and minor lakes. There are, however, many pressing challenges:

- Inadequate knowledge on the status of fish stocks in all water bodies on the basis of which to establish sustainable levels of fishing;
- Loss of biodiversity;
- Inadequate facilities for seed multiplication and artificial propagation for restocking and stock enhancement;
- Breeding and nursery grounds are not identified, mapped and gazetted;
- Inadequate capacity of BMUs in fisheries management;
- The resurgence of water hyacinth and the emergence of new weeds;
- Lack of species-specific management plans;
- Prevalence of HIV/AIDS in the fishing communities;
- Inadequate mechanisms for fishing communities to save and invest;
- Lack of clear understanding on the economics of fisheries development; and
- Lack of feeds to sustain the real opportunities in aquaculture.

To reverse the declining fortunes of the industry, interventions are urgently required to halt illegal

Table 2.8: Trends in Fish Exports

Year	Tonnes	USD million	Percent of total exports
1990	1,664	1.4	0.8
1991	4,687	5.3	2.9
1997	11,819	27.8	4.7
2002	28,000	80.0	18.8
2003	25,080	86.8	17.0
2004	29,830	101.0	16.0
2005	39,201	143.0	17.6
2006	36,461	145.8	15.2
2007	31,681	124.7	9.3
2008	24,965	124.4	7.2

Source: MAAIF, UFPEA & UBOS, 2009

activities and to exploit existing opportunities. Under the DSIP, Government will focus on strengthening controls of illegal fishing, promoting and supporting aquaculture and cage farming, especially of tilapia (currently at negligible levels but with clear potential for export to neighbouring countries), and stocking of small water bodies including dams. Emphasis will also be placed on ensuring fish quality at all levels.

2.3 The Agricultural Policy Framework

2.3.1 Background

Recently, there have been a number of different policy frameworks operating in the agriculture sector, sometimes in parallel, and this has raised concerns with regard to issues of policy consistency and the extent to which this might affect the performance of the sector. It is useful to trace the evolution of these different paradigms.

The cornerstone of Uganda’s policy framework was the long-standing and widely respected Poverty Eradication Action Plan (PEAP) which was first drawn up in 1995 and expired in 2008. This is being replaced by the National Development Plan (NDP) which is expected to be approved this year. Under the theme, Growth, Employment and Prosperity, the NDP will have as its objectives: (i) Increase household incomes; (ii) Enhance the quality and availability of gainful employment; (iii) Improve the stock

and quality of economic and trade infrastructure; (iv) Increase access to quality social services; (v) Promote innovation and industrial competitiveness; (vi) Harness natural resources and the environment for sustainable development; and (vii) Strengthen good governance and improve human security.

Restoration of agricultural growth as an engine for employment creation, poverty reduction and industrialization are central in the NDP. This perhaps follows from the last PEAP evaluation which noted inadequate investment in, and low productivity of, agriculture during the PEAP period and recommended a refocusing on the sector (OPM, 2008). The NDP now recognises agriculture as among the key productive sectors driving the economy and hence the Government will give it extra attention over the next five years. The NDP is the basis for this DSIP, which translates the broad public sector interventions outlined in the national plan into a sector-wide plan with specific sub-programmes, activities and targets, each with a set of clear budgets.

As for the agriculture sector itself, investments have, since 2000, been guided by the Plan for Modernisation of Agriculture (PMA) whose main objective was poverty reduction through agricultural commercialisation. The PMA was designed as a multi-sectoral approach to agricultural development, based on the recognition that some of the investments needed to make a difference in agriculture lie outside the mandate of MAAIF. Examples included roads, financial services, energy, natural resource management and agricultural education. However, comprehensive and appealing as it was, implementing the PMA proved more difficult than was envisaged because of problems in coordinating the activities of some thirteen ministries and agencies. As a result, the seven interventions under the PMA, namely, agricultural research, advisory services, rural finance, agro-processing and marketing, rural infrastructure, agricultural education, and sustainable natural resource management were not all implemented to the extent envisaged during formulation. While the National Agricultural Research Organisation (NARO) and the National Agricultural Advisory Services (NAADS) made progress with Acts of Parliament supporting their implementation, the other PMA pillars lagged behind. As NAADS implementation expanded to cover most districts by 2005, glaring

gaps had emerged in two main areas: (i) The need to provide financial services to farmers to enable them to purchase agricultural inputs; and (ii) The need for farmers to add value to their products as well as to improve access to markets. While both rural financial services and agro-processing and marketing were pillars of the PMA, little progress was made on their implementation.

Partly in response to these gaps, MoFPED, in 2005, designed the Rural Development Strategy (RDS). This had three main objectives: (i) Increasing farm productivity of selected commodities; (ii) Increasing household output of selected agricultural products, and (iii) Adding value and ensuring a stable market for agricultural products (MoFPED, 2005). The actions that were proposed to achieve the objectives of RDS included: (i) Provision of support to farmer groups; (ii) Enhancing rural micro-finance service provision; (iii) Establishing a community information system (CIS); (iv) Enhancing market access for agricultural produce; (v) Facilitating delivery of agricultural inputs through market mechanisms, including produce dealer/processor credit; (vi) Enhancing agricultural productivity through demand-driven agricultural extension; (vii) Agro-industrial development through enhanced support to research and development of agro-processing prototypes and implementing appropriate processor-producer linkages; and (viii) Enhancing quality control and assurance through support to the Uganda National Bureau of Standards. In fact, with the exception of the CIS, all these RDS interventions were already in the PMA framework, but the RDS was intended to give them more focus and to generate more public sector support than did the PMA.

2.3.2 Prosperity For All

Since then, Government has developed a new vision for the country, Prosperity for All (PFA), a programme that derives from the NRM manifesto of 2006. The cardinal principle of PFA is to identify and support economic enterprises that will enable households to earn daily, periodic and long-term incomes, with a target of UGX 20 million per household per year. To achieve the PFA vision, all government agencies and local governments must implement existing programs in an integrated manner and with a higher level of efficiency in order to bring about economic transformation, especially in rural areas. It is important to point out

that the PFA is not introducing new programmes but rather establishing more effective supervision and coordination of existing programmes with a common vision and target. Despite the PFA being a vision, emphasizing enterprise selection and mix at farm level and seeking improved coordination across government, there is a tendency to perceive it as a new programme with separate funding. The reality is that PFA will be achieved through improved implementation of existing government programs.

2.3.3 The National Agricultural Policy

As of 2010, MAAIF is developing a new agricultural sector policy for Uganda. The National Agricultural Policy (NAP) will be guided by six principles that are derived from the country's experiences, with lessons learned from implementing the PEAP, the PMA, and the Local Government Act.

1. The Government of Uganda is pursuing a private sector led and market-oriented economy. In doing this the government will work on constraints that hinder the private sector to invest more in agriculture. Government will support existing, or form new, partnerships with the private sector. Government actions shall aim to strengthen the private sector by providing high quality public goods to remove constraints to private sector investments. Annex 1 provides some examples of the typical delineation of public-private sector roles by some of the key programmes.
2. Agricultural development will be pursued according to the 2004 zoning strategy by MAAIF that divided the country into ten agricultural production zones. Commodities that are best suited for each zone will receive extra public sector support. Efforts will be made to support the value chain development of selected strategic commodities in the different zones in order to create viable agro-industrial development.
3. Agricultural development services will be provided to all farmer categories as individuals or in groups, ensuring gender equity. Focusing on some strategic commodities in different zones will be in addition to providing general agricultural services to all of agriculture as is

currently done through government agencies and local governments.⁹

4. Government will continue to provide agricultural services through the decentralized system of government and will work to strengthen it. In particular, MAAIF will increase its collaboration with, and support to, district and sub-county local governments to improve the quality of service delivery to farmers. MAAIF shall also improve its supervisory and monitoring functions in local governments.
5. Government interventions will pursue growth and equity. In so doing agricultural interventions will be balanced across the different regions, agricultural zones and across gender. Where necessary, government shall pay special attention to parts of the country with specific needs and marginalized groups.
6. Government will ensure that key agricultural resources including soils and water for agricultural production are sustainably used and managed to support current and future generations.

The NAP is to be completed this year and will focus on achieving the following objectives:

- Ensure household and national food and nutrition security for all Ugandans
- Increase incomes of farming households in crops, livestock, fisheries and all other agricultural related activities
- Support stakeholder-led identification and development of value chains that are strategic and profitable and offer scope for complementing general, broad-based development efforts.
- Promote domestic, regional and international trade in agricultural products
- Ensure sustainable use and management of agricultural resources

⁹ The PMA Secretariat recently conducted a study of 2,054 households in nine of the ten agricultural production zones (Needs Assessment Study of Farmer Categories, PMA Secretariat, 2009). The study classified farmers as small, medium and large according to household land holding and by zone and established that while farmers' needs vary by land holding in different zones, the basic constraints (discussed in Section 2.3) are common to all farmers and zones. This finding was key to deciding that investments under DSIP should target all farmer categories in all agricultural production zones.

It is from this objective hierarchy that the DSIP objective and sub-programme structure has been derived.

2.4 Institutions in the Sector

2.4.1 MAAIF and its Agencies

1. *The Structure*

The Ministry of Agriculture, Animal Industry and Fisheries consists of MAAIF headquarters and seven 'semi-autonomous' agencies. MAAIF HQ consists of two commodity-based Directorates (Animal Resources and Crop Resources) each with three Departments, two stand-alone Departments (for Planning and Finance and Administration) and three other specialist units. The agencies are NARO, NAADS, the Uganda Coffee Development Authority (UCDA), the Cotton Development Organisation (CDO), the PMA Secretariat, the Dairy Development Authority (DDA), the National Genetic Resource Information Centre and Data Bank (NAGRIC&DB), and the Coordinating Office for the Control of Trypanosomiasis in Uganda (COCTU). Each of these agencies, operating at both national and sub-national levels, is responsible for the execution of approved plans and resources in their budgets, leaving MAAIF HQ to concentrate on agricultural policy formulation, support and supervision (especially of Local Governments), sector planning, regulation, standard setting, quality assurance and sector monitoring and guidance. A map of MAAIF and its relations with its many stakeholders is shown in Figure 1.

This structure dates back to the 1998 post-constitutional restructuring put in place in response to the legal and policy changes that followed the enactment of the Local Governments Act (1997). In a bid to further improve the structure, and in light of changes arising from the establishment of the PMA framework, a Core Functional Analysis of MAAIF was undertaken in 2001. This made clear the sub-optimal nature of the Ministry at that time and proposed a new structure. However, this was not implemented, largely because of lack of consensus within MAAIF and other key ministries. The result is that a structure which was judged inappropriately

configured in 2002 is still in place now as MAAIF gears up to address the major challenges ahead.

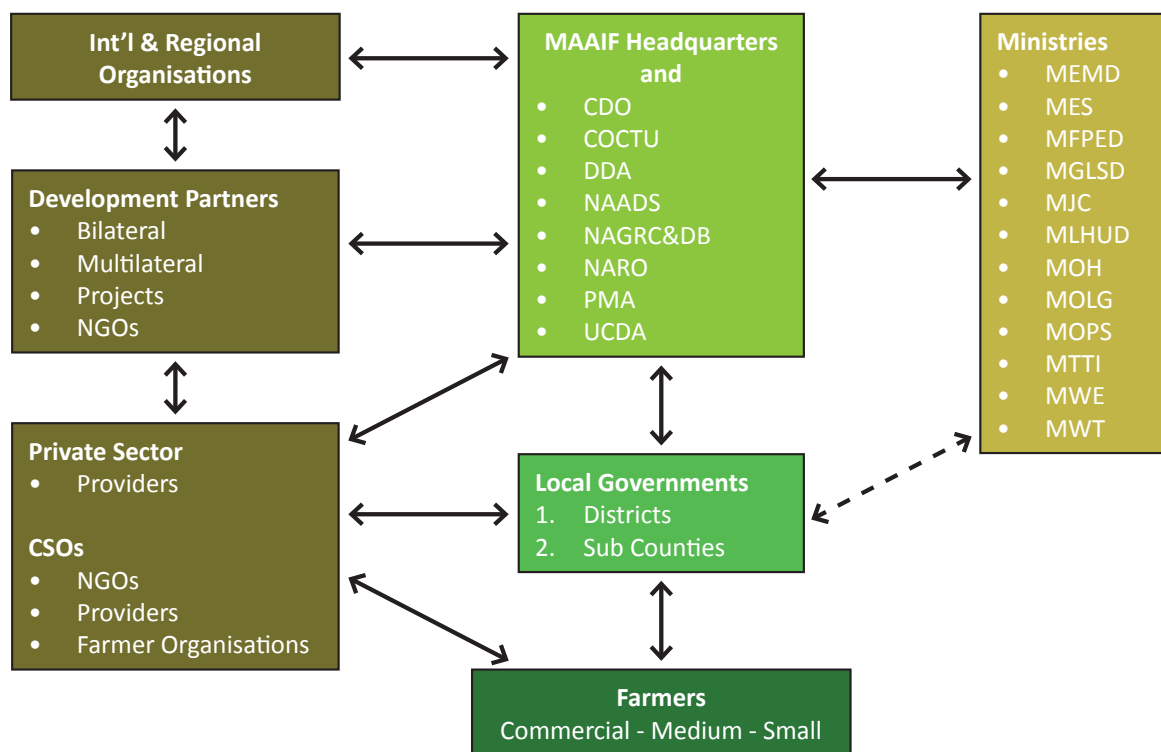
The Ministry has responded already however, by mounting a number of studies to try to forge a way forward. In 2009, a MAAIF Restructuring Report (MRR) was submitted to the Ministry of Public Service (MoPS), recommending changes to the structure. In the course of the dialogue with MoPS, a further study (the Review of the MAAIF Restructuring and Reform Process - GoU, 2010) was undertaken and, following wide consultations with MAAIF stakeholders, and having regard to previous efforts at restructuring, the work developed a modified structure to the one proposed in MRR. Essentially this was based on a four Directorate structure with two new Directorates (Fisheries Resources and Agricultural Support Services) being created. The proposals were presented at a MAAIF Restructuring Workshop on 4th February 2010 and the MAAIF Top Management team and the Development Partners (DPs) approved the proposed macro-structure. This will be described and elaborated in Programme 4 below, along with the plan for how to transition to this new structure.

2. *Links with Local Government*

Since 1992, decentralisation policy has sought to strengthen local governance structures by devolving service delivery, promoting participation and empowering local people. MAAIF HQ's responsibility in this regard is to support and build capacity district authorities so that they can better deliver regulatory and quality assurance services and can collect agricultural statistics and information. This is done through two Vote Functions in the annual budget.¹⁰ Under the Agriculture Advisory Services Vote Function, funding is provided to the districts: (i) To increase farmer access to improved technologies, advisory service delivery, and "proactive participation in value chain development for profitable agricultural production", and; (ii) To empower farmers to demand for advisory services and technologies, and quality assurance services. Under the District Production Services Vote Function, funding is provided to: (i) strengthen Local Government capacity in the delivery of services relating to regulatory services, quality assurance services, agriculture statistics and information,

¹⁰ The Agriculture sector budget is organised according to nine "Vote Functions", seven at the national level and two at the district level.

Figure 1: Institutions in the Agriculture Sector



Source: GoU, 2010. Review of the MAAIF Restructuring and Reform Process

and capacity building for local governments; (ii) strengthen disease, pest and vector control and quality assurance services; improve the agriculture statistics and information system; and build capacity in local government.

The reality is that the link between MAAIF HQ and the districts is very weak, exacerbated by the limited numbers of staff. The current MAAIF HQ establishment has a total of 411 positions out of which only 279 (67 percent) are filled. Even where the positions are filled, the established posts are not sufficient to meet the minimum numbers necessary to cultivate the links. This is especially critical in regard to the regulatory and pest and disease control functions, which require minimum resources for effective execution of the function.

The major link with the districts is through NAADS where the parish, district and sub-county councils have assessment and general oversight roles and are expected to supervise counterpart financial contributions and NAADS' performance. NAADS' link at the district level is through the District Production Departments, which are supervised by the Production Committee (comprised of councillors). As the Impact Evaluation (GoU, 2007)

stated, the district level technical teams play a vital role in implementing NAADS, without which the NAADS programme would not operate. The district technical team ordinarily consist of the District Production Coordinator (who provides oversight of the work of the NAADS District Coordinator), the District NAADS Coordinator, the District Veterinary Officer, the District Entomologist, the District Forest Officer, the District Agricultural Officer, the District Fisheries Officer, the District Planner, the Internal Auditor, the District Information Officer, and the District Community Development Officer. The Production Department typically has a number of divisions: Entomology, Crops, Livestock, Commerce, Fisheries and, in some cases, Forestry. Many of these posts are unfilled.

Capacity in these district Production Departments has been negatively affected by a delay in implementation of planned reforms and, over five years now, personnel have either retired or resigned but have not been replaced due to a suspension of recruitment. This situation has been further aggravated by the formation of new districts that has resulted in existing staff having to be shared, thereby spreading the available human resources ever more thinly. Very clearly, there is need to strengthen both

LG capacities and MAAIF-LG coordination and plans to do this will be elaborated under DSIP.

3. *Intra-Sector Policy Co-ordination*

The complex nature of the sector institutional set-up and the need for engagement with other sectors and institutions places significant coordination responsibilities on MAAIF and its agencies. The design of the PMA multi-sectoral framework recognised this critical need and made elaborate provision for coordination arrangements between and within sectors. However, as has already been made clear, implementation was problematic. The causes have been reported to include fixed mindset, poor role appreciation, and limited commitment to coordination. This coordination problem has led to cases of duplication as, for example, is the case with CDO and UCDA, both still carrying out extension functions that are under the purview of NAADS.

Part of the problem with regard to coordination also revolves around the uncertain relationship between MAAIF HQ and its semi-autonomous agencies. The legal framework that specifies these relations is not always consistent and a common perception is that, by delegating specific functions to its agencies, the ministry has relinquished control over these functions, which is not the case. Another problem is that the responsibilities for implementation of various MAAIF activities are often shared amongst more than one institution. This does not necessarily reflect a duplication of effort but is simply because some activities are undertaken by more than one institution. In this situation, a specific level of coordination is required which should necessarily be provided by MAAIF HQ.

A detailed institutional appraisal of all MAAIF's sector agencies, to assess possible changes in the structure, as well as the optimum level of resources and the mechanisms for co-ordination, is urgently required. It is understood that MoPS is planning a comprehensive review of all Ministries, Departments and Agencies (MDA) in the near future. It is expected that such a review will address issues of duplication and institutional inefficiencies in the MAAIF agencies.

4. *Inter-Sector Policy Co-ordination*

At the inter-sector level, policy coordination is vital for two key reasons:

- There are a number of agricultural initiatives that are implemented outside MAAIF such as the Poverty Alleviation Programme in the Office of the President; the Promotion of Rice-growing in the Office of the Vice President; the IFAD-funded Area-Based Agricultural Modernisation Programme, the Community Agriculture Infrastructure Project and the District Livelihoods Support Project, all in the Ministry of Local Government (MoLG). These interventions need to be implemented within the agricultural policy framework for which MAAIF is the lead agency.
- Success in agricultural development, as has been stated, requires the contribution of other support sectors including energy, transport, agricultural finance, agricultural training, natural resource use and management. Without action by these support sectors, agriculture is not likely to achieve its objectives. Hence a coordination mechanism that links MAAIF and these relevant support sectors is essential.

The current framework for inter-sector policy coordination was initiated with the establishment of the PMA Steering Committee chaired by MoFPED, with technical support provided by the PMA Secretariat in MAAIF.¹¹ Besides the PMA Steering Committee, the PMA also established a number of sub-committees (on Projects, Poverty and Gender, Agricultural Finance etc.) and these were instrumental in bringing together stakeholders from outside the sector to pursue a common agenda. For instance, the PMA Sub-Committee on Agricultural Finance brought together both private and public sector stakeholders to pursue promising initiatives along the agricultural commodity value chain.

5. *The Sector Working Group*

One of the key institutions in the sector is the Sector Working Group (SWG) composed of MAAIF, Civil Society Organisations (CSOs) and Development Partners (DPs). In particular, the SWG has responsibilities for evaluating MAAIF investments in line with sector priorities; reviewing the annual Agriculture Budget Framework Paper (BFP) as a basis for budgeting in the sector; identifying policy issues for consideration and action by the TPM; providing information for Joint GoU/DP Reviews.

¹¹ In the early 1990s, this had been done through the Agricultural Policy Committee chaired by MoFPED with its Secretariat in the Bank of Uganda.

The role of the SWG in the DSIP is further elaborated in Section 5.

6. *The Sector Budget*

Just as important as the sector institutions is the sector budget. This is organised according to nine Vote Functions, seven at the national level (Crops; Animal Resources; Agricultural Support Services; Agriculture Advisory Services; Agricultural Research; Coffee Development; Cotton Development) and two at the district level (Agriculture Advisory Services and District Production Services.). The key points to note about the current MAAIF budget, are how its structure determines its impact:

- The entire 'development budget' is under 'projects', some 25 of them, although much of it is recurrent spending;
- Less than 20 percent of the entire MAAIF budget is capital spending (GoU/EPRC, 2009). Of that capital spending, some 45 percent is undisbursed. Of what is spent, there are a number of serious inefficiencies (GoU/EPRC, 2009).
- Disbursement challenges are a function of the project-based nature of implementation: the problems include overlaps between projects, suggesting duplication of effort and waste of resources; delays of a year or more while pre-conditions are fulfilled (e.g. Parliamentary approval); the inclusion of credit components that are difficult to operationalise; unrealistic cost estimates; non-release of counterpart funds; the need to refer procurement decisions to the DP's headquarters, and; the way in which the development of projects creates little islands of authority in the sector (GoU,2007);
- All the capital budget is provided by the DPs.

The intention is that, during the period of the DSIP, MAAIF's budget structure becomes rationalised around the DSIP's priority based, programme-structured logframe. It is to be expected that this will bring significant increases in the efficiency of service delivery as well as deliver considerable savings.

2.4.2 The Ministry of Finance, Planning and Economic Development

The Ministry of Finance, Planning and Economic Development (MoFPED) is responsible for ensuring that sectoral developments are well coordinated

and appropriately funded. The principal mechanism is the Medium Term Expenditure Framework (MTEF) which is meant to provide a reliable, rolling 3-year guide to overall, sector and sub-sector budget allocations. In practice, from year-to-year there have been major changes to the MTEF ceilings as well as to the allocations to individual sector votes. This makes medium-term planning difficult to implement and undermines the predictability of the two outer years. There are also frequent modifications to the MTEF and budget ceilings during the sector BFP preparation stage and, later, when the proposed budget is being considered by Cabinet and Parliament. MoFPED insists that the substantive new budgeting procedures introduced during FY 2008/09 will lead to more performance monitoring and better budget discipline.

2.4.3 Other Sector Ministries and Agencies

Agriculture sector goals and aspirations cannot be achieved in isolation: policies and investments outside the mandate of MAAIF are vitally important for successful implementation of agriculture sector plans and activities. In this regard, the roles of several other institutions should be recognised. These include:

- The Parliamentary Committee on Agriculture is responsible for the review and approval of proposed policies and strategies for the sector;
- The Ministry of Water and Environment (MWE) is responsible for formulation and review of appropriate water and environment policies, standards and regulatory frameworks;
- The Ministry of Tourism, Trade and Industry (MTTI) is responsible for the formulation of appropriate trade policies, standards and regulatory frameworks; negotiations and implementation of trading arrangements relating to international and national treaties; development and implementation of practical, effective and efficient trade and market information mechanisms;
- The Ministry of Education and Sports (MoES) is responsible for primary, secondary and tertiary education;
- The Ministry of Local Government (MoLG) is responsible for coordinating and supporting LGs so that they provide sustainable, efficient, and effective services, building the capacities of LGs

for planning, budgeting, implementation and monitoring;

- The Ministry of Energy and Mineral Development (MEMD) is responsible for providing energy resources, guidance in the use of energy resources and oversight of the rural electrification initiative; linking petroleum refinery with production of agricultural fertilizers;
- The Ministry of Gender, Labour and Social Development (MGLSD) is responsible for community empowerment, promotion of the rights of vulnerable groups, gender sensitive development, adult education and labour;
- The Ministry of Public Service (MoPS) is responsible for personnel management and development;
- The Ministry of Lands Housing and Urban Development (MLHUD) is responsible for land use policy, land laws, awareness raising among stakeholders and land reform;
- The Office of the Prime Minister (OPM) is responsible for cross-sectoral monitoring and reporting. This is critical for DSIP implementation in areas that are key for agriculture, but are not the mandate of MAAIF;
- The Ministry of Information and National Guidance is responsible for guiding the general population on various issues, including development.

These ministries also have agencies that are critical for the agriculture sector activities, like the Uganda Bureau of Statistics (UBOS), the Uganda National Bureau of Standards (UNBS), the Uganda National Council of Science and Technology (UNCST) and the National Environmental Management Authority (NEMA), among others.

2.4.4 Private Sector, NGOs and Farmers Institutions

The private sector comprises of service providers in agriculture, CSOs and NGOs, and farmers and farmers' organisations, the latter involved in a range of activities, from advocacy and provision of inputs to financial services and marketing.

2.4.5 Development Partners

From around 2000 onwards, the PEAP framework shaped a new relationship between GoU and DPs at the economy-wide level. Since then, there has been a shift from project-focused aid to sector programmes. The MTEF/BFP process provided the framework for this, with DPs and also NGOs participating in the Sector Working Groups through which sector plans and budgets evolved. The funding modalities also changed, with key DPs providing either general or sector-earmarked budget support, based on dialogue with GoU about policies and targets, rather than earmarking to specific projects. Unfortunately, in the agriculture sector, because of its special and inherent problems, the shift to sector wide support is somewhat behind the trend. As stated in Section 2.5.1, almost all DP support is still provided through projects and this has created challenges. It is planned that the approval of this DSIP will augur in a real move towards sector budget support.

There are six major DPs involved in support to public sector agriculture:

1. The World Bank has supported NARO for ten years and NAADS for five, years and has been preparing for a new phase of support to both of these key agencies, eventually as part of a wider support to DSIP implementation.
2. The African Development Bank (ADB) began assisting Uganda's agriculture sector in 1974 and the portfolio has grown steadily thereafter. Currently there are a handful of projects, representing a large share of the ministry's development budget. Issues with disbursement on these projects have encouraged the move towards a SWAp.
3. IFAD has been supporting MAAIF through three projects including NAADS and has been supporting the SWAp process;
4. The EU is contributing to the current NAADS and NARO baskets, is funding some of the MAAIF projects, and has been supporting the SWAp process;
5. Danida is the biggest bilateral supporter of agriculture and has a long history of support, providing about 10 percent of all overseas development assistance to agriculture between 1997 and 2004. The Agriculture Sector Programme Support (ASPS) was in place for ten years until June 2009. A new programme of support to rural development

(U-Growth) came on stream in January 2010; and

6. JICA supports two projects under MAAIF: Dissemination of NERICA and Improved Rice, and Sustainable Irrigated Rice Production in Eastern Uganda.

In addition, several other development partners – USAID, GTZ, FAO, UNDP, WFP, Irish Aid, and the Peoples’ Republic of China, among others – provide support to the sector through private sector-oriented interventions focused both on strengthening the agricultural livelihoods of Ugandan households and on expanding agri-business across Uganda. For example, USAID’s interventions since the early 1990s have achieved widespread impacts particularly in the area of agricultural productivity and competitiveness. Despite its off-budget support, USAID is an active participant in the sector working group and has aligned its project interventions with the government’s strategies. The next phase of its support will be closely linked with the DSIP.

Notwithstanding the significant contribution of the various DPs, it is understood by all parties that projects are not the most efficient way to support the sector. This is why, under this DSIP, it is vitally important to make the move to a sector wide approach, financed by a common pool of funds contributed by GOU and DPs and implemented, supervised, and monitored through Government structures, processes and procedures.

2.5 Challenges to Agricultural Performance

While there are many opportunities for the sector as a whole, there are many constraints as well. Some of these are discussed in the sections above, notably the policy and institutional limitations. In this section, other constraints are briefly reviewed. The review is done according to the four Programme Areas under which the DSIP is presented: Production and Productivity, Market Access and Value Addition, the Enabling Environment, and the Institutional Framework.

2.5.1 Production and Productivity Constraints

1. *Agricultural Technology Development*

Uganda’s agriculture is characterised by low yields and this is partly a function of low application of modern technology. Fertilizer use, for instance, at an average of 1 kg of nutrients per hectare is among the lowest in the world, compared to 4 kg/ha for farmers in Mozambique, 6 kg/ha in Tanzania, 16 kg/ha in Malawi, 32 kg/ha in Kenya and 51 kg/ha in South Africa (MAAIF, 2000). The use of other improved inputs is also minimal as shown in Table 2.9. The use of improved seeds stands at 6.3 percent of farmers, while agrochemicals is at a meagre 3.4 percent.

International experience shows that agricultural productivity has grown rapidly where modern varieties and fertilisers have been widely adopted¹² and NARO is working on these types of improved technology. Indeed, since 2003, NARO reports it has developed up to 218 improved varieties, breeds and prototypes for increased yields, food security and incomes. Other productivity-reducing constraints have also been addressed including maize streak virus, groundnut rosette virus, cassava mosaic virus; and coffee wilt disease while advances have been made in upland rice production, water management on smallholdings, small stock for women and children, new varieties of rice, apple and wheat, and hybrid sunflowers.

However, as has been shown in Section 2.1, the productivity gains have not been sufficient either to substantially raise the contribution of the agriculture sector to the economy or to meet the needs of the growing population. The capacity to develop new agricultural technology has to be improved and indeed will be critical to the future prosperity of the nation. Even as it is currently used in Uganda, natural fertilizer is, according to the World Bank (2006), associated with on average a 40 percent increase in production, all other factors held constant. Similarly, improved seeds increase production on average by about 21 percent.

¹² It should be noted, however, that, in those parts of Asia and Latin America where promoting seed and fertilizer use led to dynamic commercial input markets, complementary investments in irrigation, rural roads, marketing infrastructure, financial services etc. had a major role in making using seed and fertilizer profitable.

Table 2.9: Farmers using Agricultural Inputs in 2006 (%)

Region/Inputs	Improved seeds	Manure	Chemical Fertilizer	Pesticide, Herbicides Fungicides
Central	5.5	8.7	1.3	4.8
Eastern	11.9	4.1	1.1	4.7
Northern	7.6	0.5	0.7	2.6
Western	2.2	9.6	0.6	1.5
National	6.3	6.8	1.0	3.4

Source: UBOS (2007): UNHS 2005/06 Agricultural Module, April 2007

2. *Agricultural Technology Delivery and Adoption*

Producing new technologies is one thing but having them adopted by farmers is another. This is the challenge for agricultural advisory services in Uganda. Indeed, over the last ten years, there has been much debate about the appropriate approach, coverage and performance of the extension system; of ways to improve its quality and impact; of how to improve its linkage with research; and how to support rural people to be more effective in exerting demand on the service providers. This debate has taken place within the evolving context of the National Agricultural Advisory Services (NAADS) programme, an innovative extension delivery approach that targeted the development and use of farmer institutions, and in the process empowered them to better procure advisory services and manage linkages with marketing partners.

Evaluations of NAADS have been consistently favourable. In 2005 an independent study (OPM 2005) observed the positive impact of NAADS on increasing the use of improved technologies, marketed output, and the wealth status of farmers involved in the programme. More recently, two more major independent evaluations described the programme as successful (Performance Evaluation, ITAD, 2008; Impact Evaluation, Benin/IFPRI, 2009). The latter found “clear positive impacts on adoption of improved technologies, productivity and per capita incomes.” It also undertook a benefit-cost calculation that, even including the cost of agricultural input distribution and interest on the loans acquired to finance the programme, showed a rate of return of 240-270 percent.

However, despite these successes, a number of challenges have emerged. The key institutional issue at the end of Phase I was the limited integration of the NAADS programme into the local government

system. This is a major challenge since the success of NAADS is critically dependent on the commitment and on the involvement of the stakeholders at district, sub-county and community levels. This issue has affected service delivery at the sub-county level especially in regard to the uncertain interface with frontline extension workers. Then, at the operational level, the main problems are:

- Inadequate numbers and technical capacity of service providers in local governments. This is especially acute in marketing and value chain development. As farmers increase production, the need for agribusiness services (input supplies, financial services, marketing and market linkages, support to agro processing and value addition etc) becomes ever more significant;
- The limiting nature of the MTEF ceilings and the inconsistent flow of funds which jeopardises crop agriculture activities at the peak season. If farmers are to utilise resources efficiently, government must ensure that releases to sub-counties are according to the two main production seasons and not according to the quarterly financial schedule.
- Lack of accountability, poor transparency and corruption in procurement, especially at lower implementation levels. This has impacted negatively on the public perception of NAADS;
- The need to embed the advisory services much better within the technology development system. DSIP will address this by strengthening the farmer-extension-research linkage; and
- Rigid procurement processes which slow down programme implementation and contribute significantly to the reluctance of suppliers to engage with NAADS. This, in turn, leads to higher prices for technologies supplied under NAADS.

Implementation in Phase I of NAADS tended to rely on a few prescribed approaches to institutional development, farmer enterprise development, and service delivery. However, it is now clear that a programme like NAADS, which is evolving and operating in very diverse settings, should adopt pluralistic approaches that allow flexibility. For example, it is apparent that the promotion of an enterprise mix which is optimal to each agro-ecological zone will result in higher productivity (and better conservation of the natural resources) than when single enterprises are promoted. It is also clear that service delivery should blend both private and public capacities.

3. *Poorly Functioning Pest, Vector and Disease Control*

Pests, vectors and diseases are perhaps the main cause of losses in the agriculture sector. Improved pest and disease control could therefore be a major contributor to increasing agricultural production and productivity. It will certainly be a pre-requisite to accessing international markets for virtually all commodities and products.

Until the details of the 2008 Livestock Census are available, the best existing estimates¹³ suggest that losses from animal disease are as high as USD 86.3 million a year through morbidity (58 percent), mortality (30 percent), post-slaughter condemnations (10 percent) and poor quality detection during milk processing (2 percent). As a result, Ugandan livestock farmers may each be losing a startling USD 155 a year due to disease. In addition, the inability to control endemic disease outbreaks means that Uganda fails to meet international trade standards and so loses many market opportunities. It is estimated that the overall loss of calves in indigenous cattle due to tick borne diseases (TBD) is about 30 percent nationwide, while mortality in untreated exotic breeds can be up to 100 percent. The problems with animal health are a function of poor transboundary and epidemic disease control; weak control of zoonoses; poor veterinary public health services, and; vector borne diseases (GoU, 2010). These in turn follow from inadequate legislation, poor surveillance and reporting; poor command structure; and inadequately managed laboratories. Most of these problems flow from a lack of political will and a lack of funds.

¹³ Livestock Development Programme, MAAIF.

It might also be noted here that, while Uganda is famously gifted by nature, it is host to the most dangerous and epidemic diseases of the world such as Ebola, Marburg, Tuberculosis, Rift Valley Fever and Anthrax; and neighbours the vast Congo-Sudan-Uganda Albertine ecosystem which is the world's largest reservoir of known and unknown viruses. Given that at least 70% of the human and animal pathogens affecting animal production, public health, global trade and security are found in Eastern and Central Africa, the region is a risk incubator for both Africa and the rest of the world. Recent Ebola strikes paralysed Uganda's business, tourism, and transport industries costing the country billions of shillings. Bio-security; the protection and defence of populations, farms, facilities and systems against dangers of deadly biological agents and disease germs; is of major significance to public health and is the basic reason for the international sanitary standards of the WTO. MAAIF is working on an Animal Health Master Plan and improving biosecurity will inevitably feature high on the list of priorities.

In the crop sub-sector, the main pest and disease challenges are (i) Coffee Wilt Disease (CWD), which started in 1993 and has destroyed about 56 percent or 160 million of the old Robusta trees, equivalent to some 1.5 million bags or about USD 170 million; and (ii) Banana Bacterial Wilt (BBW) to which all banana cultivars are susceptible and which has an incidence of 70-80 percent in many plantations, with yield losses of 90 percent reported on some farms and a potential national loss estimated at a staggering USD 360 million p.a. (World Bank, 2008). There are also many other economically significant crop diseases: Napier grass stunt disease, cassava brown streak disease, cassava mosaic virus disease, fruit flies (*Bactrocera invadens*), striga, the larger grain borer (LGB), banana nematodes, weevils and black sigatoka, and panama wilt.¹⁴

In the fisheries sector, the infestation of fishing grounds by water hyacinth and other aquatic weeds has interfered with fishing activities and disrupted fish breeding and the infestations appear to be getting worse. At the same time other new weeds

¹⁴ In terms of production losses, the 'normal' pests and diseases (field and postharvest) of the dozens of cereals, vegetables, fruits, roots and tubers might well be higher than the losses caused by BBWs, and CWDs.

are also appearing while diseases are appearing in the growing aquaculture industry.

4. Degradation of Land Resources

Land degradation in Uganda is widespread, varying from one part of the country to another, depending on farming practices, population pressure, vulnerability of the soil to denudation and local relief. In 1991, studies estimated that soil erosion alone accounted for over 80 percent of the annual cost of environmental degradation representing as much as USD 300 million per year (NEMA, 2004). In 2003 the annual cost of soil nutrient loss due primarily to erosion was estimated at about USD 625 million per year.

Land degradation is most pronounced in the dry lands of the cattle corridor where sustainable land management is threatened by overgrazing by local and mobile pastoralist herds, deforestation by excessive use of fuel wood resources and poor and inappropriate agriculture on marginal land. These threats are further exacerbated by low and unreliable rainfall, frequent drought and precarious water supply, seasonal fires, and endemic poverty. Land degradation in the cattle corridor is characterized by decreasing vegetative cover often resulting in bare soil with no, or low, regeneration capacity, and severe runoff. This often results in overall loss of ecosystem integrity and productivity. These biophysical impacts translate to human outcomes such as poverty, food insecurity, reduced household incomes and reduced national earnings.

Unfortunately, there are many barriers that impede addressing the situation. These include

- *Structural barriers:* With limited or no income, poor people have little chance to broaden their investment and consumption choices. With little capacity to invest in small and medium off-farm enterprises, they continue to till the land or graze their livestock as their main economic occupation. Without new technologies, the land and fodder become exhausted not least because of excess carrying capacity. This is where Sustainable Land Management (SLM) interventions can help reduce over-dependence on natural resources.
- *Policy failures:* Probably the biggest barrier to progress is dealing with the complexity of issues around land tenure and access to land. Land tenure systems in Uganda are complex, reflecting

changes in land ownership and land use over the last hundred years. In the past, much of the cattle corridor districts were under customary ownership, largely by cattle keepers, many of whom were mobile. Over the years, however, land has been parcelled out to individuals and institutions; there has been immigration by cultivators from high-density areas; and an increasing proportion of pastoralists have adopted some land for sedentarisation. *Mailo* owners, who are mainly absentee landlords, live outside the districts and their main interest in the land is income from renting. Thus, they lack motivation to conserve the fertility of their land while the tenants (the actual users) do not feel secure enough to make any long term investment (tree planting, soil conservation etc). The result is the mining of the land including rampant tree cutting without replanting. Although the recently approved Land Use Policy is expected to improve SLM in the cattle corridor, there is still no land policy for the country as a whole. There is also no rangeland policy or pastoral code for the pastoralists who graze their cattle in the dry lands. Uganda has witnessed several tribal clashes involving pastoralists in the last few years. These conflicts relate mainly to the harsh conditions in the cattle corridor which are influenced by frequent droughts, land degradation, rapidly changing land tenure regimes including changing life styles, conversion of large chunks of land to private ranches, etc. Government has tried to intervene to reserve rangelands for their best use with minimal response due to the absence of a comprehensive rangeland policy. There is therefore an urgent need to put in place a rangeland policy which will define the framework for protecting these areas from further degradation while promoting sustainable, economically-advantageous production in the face of growing human population and increasing demands for land for cultivation.

- *Institutional barriers:*¹⁵ Land degradation is a function of socio-economic, biophysical and environmental factors and efforts to address

¹⁵ Behind these institutional barriers there are, of course, the more difficult issues of political will (the short time horizons of political leadership), the inability to reconcile targets through incentives; and the short-term economic benefits from the status quo (e.g. high charcoal demand driving the clearing of vegetation).

these must involve several institutions. Planning related to land use in Uganda is mainly carried out by the Ministry of Lands, Housing and Urban Development (MLHUD) as well as MAAIF. There are other institutions which play important roles within their mandates such as Departments within the Ministry of Water and Environment (MWE), the Ministry of Energy and Mineral Development (MEMD), the National Forestry Authority (NFA), the National Environment Management Authority (NEMA), the Department of Disaster Preparedness and Refugees in the Prime Minister's Office, the Ministry of Tourism, Trade and Industry, the Research and Training Institutions; Non-Governmental Organizations (NGOs) and the private sector. In the past, many of these institutions have tended to address issues of land degradation in an uncoordinated manner. In order to catalyse an integrated approach to SLM, an Inter-Ministerial Framework for Cooperation on the Development and Implementation of a Country SLM Investment Framework for Sustainable Land Management was signed in 2007 by four Government Ministries, namely MAAIF, MWE, MEMD and MLHUD. The objective of the cooperation framework is to facilitate harmonization of activities among various players at national and local levels through the SLM Country Investment Framework. Investments under the DSIP will contribute to agricultural related aspects of SLM as well as to the implementation of the cooperation framework through support to the United Nations Convention to Combat Desertification/ National Action Programme (UNCCD/NAP) Focal Point Office and the inter-ministerial co-operation framework on SLM.

5. *Dependence on Rain-fed Agriculture*

Due to a number of factors including climate change, there is now so much volatility in precipitation that rain-fed agriculture may not be enough to guarantee production from one season to another. Whenever there is drought, which now comes with a higher frequency, production falls dramatically. Uganda does not have preparedness plans for adapting to these climatic changes and therefore remains exposed and vulnerable. According to a study carried out by Japanese International Cooperating Agency (JICA) (ADB, 2009), potential irrigable area in Uganda is approximately 202,000 ha with 14,418 ha under formal irrigation and 67,000 ha under

informal irrigation, much of it for rice. The study indicates further that while the total renewable water resources in Uganda is over 66 km³ only some 22 km³ is being utilized (for both small and large scale initiatives). There is therefore great potential to harness the available water in order to increase production and productivity. Under DSIP, GoU will pursue these possibilities vigorously.

6. *Farm Power Constraints*

The hand hoe is still the predominant means for land tillage and other secondary operations in Uganda's agriculture. It is used by virtually all smallholder farmers. The lack of more efficient farm power at the household level has a substantial negative impact on agricultural production and household food security. Many households respond to their shortage of farm power by scaling down their activities, by reducing the area under cultivation (by up to 50 percent) (Bishop-Sambrook, 2003) and by growing a limited range of crops. They struggle to keep pace with the seasonal calendar, which results in taking short cuts in one season, with adverse knock-on effects in the next. There is no doubt that the productivity of the labour-force is compromised by a lack of physical energy and poor quality tools.

In the past, Government operated tractor hire schemes but these ceased with the recognition of their high costs and inherent problems and when MAAIF's mandate changed to that of supporting a private sector led and market-oriented economy. At the same time the old stock of draught animals had been lost to disease and cattle rustling. The question now is how to promote a new wave of mechanisation in order to achieve higher production and productivity. It is recognised first that there are many constraints to expanding mechanisation in Uganda: e.g. uncertain economics of production, limited markets for outputs, limited access to financial services, lack of availability of complementary inputs, limited back-up and support for plant and machinery. These constraints need to be addressed if widespread mechanisation is to be achieved.

International experience suggests that inappropriate mechanization initiatives (mainly around tractors and heavy machinery) can lead to financial losses, environmental degradation and even lower agricultural production. In this way, mechanization can become a burden on the national budget and the farming community rather than being

a productive input. This has especially been the case where mechanization was heavily subsidized through the provision of government operated machinery services. With this in mind, great care will be taken as the GoU pursues what is seen as a vitally necessary step.

7. *Lack of Agricultural Finance*

The ability of agricultural enterprises and rural households to invest for the long term and make calculated decisions for risky income flows is partly shaped by the availability of financial services. Despite some development of financial services in Uganda, the majority of smallholders remain without access to the services they need to compete in the market and to improve their livelihoods. Access to financial services, in particular savings and credit products, would expand their opportunities for more efficient technology adoption and resource allocation.

Financial constraints are more pervasive in agriculture and related activities than in many other sectors, reflecting both the nature of agricultural activity and the average size of firms. Financial contracts in rural areas involve higher transaction costs and risks than those in urban settings because of the greater dispersion of production, lower population densities, the poor quality of infrastructure, and the seasonality of rural production activities. So banks and other traditional for-profit financial intermediaries tend to limit their activities to urban areas and to more densely populated, affluent, commercial areas of the rural economy. Operating costs in these areas are lower, loan sizes large enough to cover fixed transaction costs, and legal contracts are more easily enforced. There is thus a tremendous need for financial innovations that can place smallholder farmers on a ladder of ascending financial market access as well as for innovations that can complement financial services by managing the systemic risks that undercut their supply.

The root of the problem is that lenders tend to offer only a limited menu of products, mainly with heavy collateral requirements. Wealthier farmers can obtain larger loans at lower cost from formal lenders because they can credibly pledge assets or future cash flows. Asset-poor households, by contrast, are limited to considerably smaller loans at much higher rates because they have to turn to lenders who must substitute costly monitoring for collateral. Poor farmers may also

turn down loans, even if they qualify, because they are unwilling to bear the risk of losing collateral

While agricultural finance is not directly within the mandate of MAAIF, the ministry can contribute to reducing many of these concerns, and hence encourage investment and assist in lowering interest rates.

8. *Inadequate Agricultural Infrastructure*

Infrastructure that supports agriculture goes well beyond the MAAIF mandate into transport, lands, water, trade and industry. On the other hand, the MAAIF mandate does cover categories of infrastructure like primary processing, water for production-related infrastructure (irrigation, livestock and aquaculture), disease control infrastructure, research infrastructure, quality assurance infrastructure including laboratories, market infrastructure, and institutional infrastructure (e.g. offices). The state of much of this infrastructure is generally inadequate.

In a bid to promote the livestock industry, Government has over the years invested in the construction of water infrastructure for livestock production. This effort contributed to the construction of about 1,000 valley dams and tanks. However, the majority of these reservoirs are now in very poor condition due to lack of maintenance, vandalism and siltation. Perhaps 20 percent are functional. At the same time it is estimated that livestock receive only 33 percent of their daily water requirements and this suggests that investment in new infrastructure, to raise the supply of water necessary to improve livestock production, would have a positive return.

Building infrastructure is however not always the solution. Developments at the National Seed Certification System (NSCS) laboratories and the Uganda Fisheries Laboratory (UFL) are a salutary lesson. Laboratories are key infrastructures for quality assurance for both inputs and outputs and the Government of Uganda, with support from DPs, established the UFL at the Department of Fisheries Resources, with the aim of backing up certification of the quality and safety of fish and fishery products for export in compliance with the Fish Act, 1964. However, despite its funding, the laboratory is yet to receive accreditation because of inadequate equipment and manpower. It is much the same with the NSCS laboratories. Despite substantial funding

over several years, it has still not been possible to acquire ISTA accreditation, which is essential if NSCS is to offer credible seed certification. These challenges will therefore be tackled squarely in this DSIP.

2.5.2 Market and Value Addition Constraints

1. Poorly Functioning Regulatory Services

The development of quality assurance standards in Uganda is governed by three international conventions, namely: the International Plant Protection Convention (IPPC) for plant disease and health standards; Codex Alimentarius Commission (CODEX) for food safety standards; and the International Office of Epizootics (IOE) for standards for animal health and animal products. However, a considerable number of laws, rules and legislations are now obsolete and need to be revised in the light of current conditions. Across the board, the review process is on-going but very slow. This is partly because the implementation of much of the legislation lies in the hands of several ministries or authorities with no proper co-ordination. A quick summary gives an indication of several laws, rules and legislations:

- Food Legislation: The existing food acts, related legislation, and statutory instruments, include the following: The Dairy (Marketing and Processing of Milk and Milk Products), 2003; The National Meat Policy, 2003; The Food Safety Bill (Draft); The Public Health (Meat Rules), 1964; The Meat Inspection Code of Uganda, 1973.
- Plant legislation: The Department of Plant Protection in MAAIF is solely responsible for the implementation of plant legislations that include: The Plant Protection and Health Bill, 2003; The Seed and Plant Act, 2006; The Control of Agricultural Chemicals Statute, 2003; The Plant Variety Protection Bill (Draft).
- Animal Legislation: Although the Department of Livestock Health and Entomology in MAAIF is the main implementer of animal legislation, MoLG also plays a significant role, especially during enforcement. The existing animal legislation includes: Animal Diseases (Amendment) Act, 2006; Animal (Prevention of Cruelty) Act, 1964 (Under review); The Cattle Traders Act, 1964; The Hide and Skin Traders Act, 1964; The Veterinary and Para Veterinary Bill (Draft); The Meat Industry Development Bill, 2003 (Draft); The Animal Feeds Bill (Draft).
- Fisheries Legislation: The Department of Fisheries Resources in MAAIF executes the following fisheries legislation: The Fish (Beach Management) Rules, 2003; The Fish (Aquaculture) Rules, 2003; The Fisheries Bill, 2005.

Other food-related legislation pending and in various stages of development includes:

- The Control of Agricultural Chemicals Act (Draft) that would separate the regulation of pesticides from that of fertilizers, to address food safety concerns about pesticide residues along the food chain.
- The Biosafety Act and Regulations (Draft), pertaining to GMOs;
- The Plant Protection and Health Act which seeks to adjust the Ugandan legislation to the International Plant Protection Convention (IPPC);
- The Fisheries Act (Draft) that would modify present regulations concerning fish and fisheries.

MAAIF has four departments and a number of agencies involved in regulatory service provision:

- The Crop Protection Department is in charge of all matters related to plant health, including issuance of import and export phytosanitary certificates for live plant material and horticultural crops, as well as for plant pest prevention or eradication programmes. The department is also responsible for enforcing regulations on registration and the use of pesticides and other agrochemicals. The service is weak and staff need training in food safety and HACCP to a level recognised by the international regulatory bodies. Inspection and certification is supposed to be undertaken at the point of exit but this is rarely done because of lack of resources. Internationally recognised auditors to undertake inspection and certification are nonexistent in the sector.
- The Department of Animal Production and Marketing oversees animal production programmes and has responsibility for good animal husbandry practices.
- The Department of Fisheries Resources is the authority responsible for the certification of fish and fish products intended for local

consumption and for export. It is responsible for enforcing fisheries regulation, including carrying out inspection of factory premises, processing lines, landing sites, fish transport and export points for adherence to safety and quality requirements, as well as maintaining a national fish inspection and a quality control system. The authority granted to this department and described in the Fish (Quality Assurance) Rules (1998) originated in the late 1990s ban imposed by the EU on imports of Nile perch from Lake Victoria after various reports of unsanitary conditions and microbial contamination.

- The Department of Livestock Health and Entomology is entrusted with responsibilities in all areas of animal health, including national animal disease prevention and eradication programmes. The department also oversees development and certification programmes for organic honey, now an important export product.
- UCDA licenses coffee roasters, processors and exporters, and carries out quality inspection and regulation. All coffee exports must be quality checked and certified prior to export. UCDA also carries out training of quality controllers, cup testing and some extension among processors. The UCDA is funded from a 1 percent cess which is levied on the value of all coffee exports and 40 percent of which is allocated towards research and development. Exporters are widely reported to be willing to pay a higher cess if the services they get can be improved.
- Other regulatory agencies under MAAIF include the Cotton Development Organisation (CDO) and the Dairy Development Authority (DDA).

While regulatory services are typically thought of as a public activity, some private companies such as ACE and Cotecna and even some producer/exporter associations operate voluntary private sector standards and codes of practice. For example, the Uganda Honey Beekeepers Association (UHA) is the national apex body with the aim of promoting the development of bee keeping. It trains beekeepers in good practices and quality control and provides material and resources. The flower sector is another interesting private sector case where the Uganda Flower Export Association (UFEA) has been active in reducing input prices, cutting costs of airport handling and freight, developing a unique Research and Training Centre (funded through the sales of

roses); and soliciting contributions from European breeders in return for research results.

In summary, the public capacity for ensuring quality assurance, regulation and food safety is very far from adequate. One pressing and topical concern is that the current Food Act does not provide for new technological developments in the food industry, for example, the safety of Genetically Modified Organisms (GMOs), foods, food additives and contaminants, packaging and other SPS requirements. Other capacity gaps include:

- Gaps in human resources which range from inspectors in local government to laboratory staff and enforcement staff at international entry points. There is a need for more Analysts/Laboratory Technicians to cope with the workload.
- Poor Infrastructure for quality assurance, regulation and food safety. There is a need for modern state of the art laboratories and hygienic landing sites for fisheries.
- Inadequate Financial Resources: Quality assurance and regulation enforcement are expensive and the current allocation of funds falls far short of the level of service required. Alternative funding mechanisms including allowing generated funds to be used at source as appropriation in aid have not borne fruit. This requires a bill to be passed by Parliament or permission from MoFPED granting authority to use funds generated from laboratories.
- Lack of co-ordination amongst responsible agencies.

2. *Sub-Optimal Inputs Market and Distribution System*

Input markets in Uganda have been difficult to develop for a number of reasons. To begin with, demand for agricultural inputs is highly variable in time and space. The demand for seed is highest when farmers are growing hybrids, whose seed must be replaced regularly. It is lowest when farmers are growing varieties whose seed can be saved from the harvest and replanted for several cropping seasons. In addition, the quality of seed in the market may be unknown as quality cannot be determined through visual inspection. The low demand for fertilizer follows much the same reasoning: lack of knowledge, information asymmetries, liquidity constraints, risk and uncertainty, and high opportunity costs. Profitability tends to weigh heavily in farmers'

decisions because the cost of fertilizer often represents a large share of cash production costs. When cost factors and risk factors act in tandem, as they do in a rainfed environment like Uganda, the impact on demand can be very significant.

A study by IFPRI in 2004 indicated that one cause of low input use in Uganda was the low participation of input traders in the distribution system. The reality is that the incentives for private firms to invest in producing and distributing seed depend on the potential profitability of these activities as well as on the ability of the public research programmes to provide new varieties. With farmers producing seeds on-farm and, with the market that does exist largely unregulated, the incentives for private seed companies are low. As with fertilizer, seasonally variable and geographically dispersed demand discourages potential suppliers because markets are small, making low-cost procurement difficult. Producing, importing, and transporting fertilizer entail major economies of scale. Importing fertilizer, for example, is most cost effective in lots of 25,000 tons, considerably above the annual demand for the country in one year. Transport costs are also very high because of the poor road and rail infrastructure.

The IFPRI study found that, among households who were aware of modern inputs or technologies and had received advice on their use, adoption rates were significantly higher than households who were also aware of these inputs or technologies but had not received advice on their proper usage. This is a significant finding in that appropriate advisory services, not only on enterprise selection but also on input use, can have a significant productivity impact.

The issue is how to address these various constraints. There is considerable international experience in this area and it needs to be drawn upon as Implementation Plans are designed.¹⁶ There is also much experience in Uganda itself. Over 12 years, smallholder linkages to private sector led markets for both high value and low value crops in Uganda have been intensified through the efforts of the IDEA and APEP projects, funded by USAID. The projects

16 Farm Input Promotions Service Africa (FIPS-Africa) with the support of the Rockefeller Foundation, DFID and USAID achieved widespread impact in Kenya through the dual approach of stimulating the demand for farm inputs by increasing farmer awareness, while improving the availability of inputs through retailers and private sector partnerships

had some success in expanding rural economic opportunities in the agricultural sector by increasing food and cash crop productivity and enhancing market linkages. The projects operated on a series of value chains with emphasis on creating economies of scale to catalyse the transformation of agriculture, from low input/low output farming to commercially competitive agriculture. The projects stimulated the formation of producer organisations that could supply agribusiness with necessary commodities.¹⁷ The Danida RALNUC project, a voucher scheme under the Agriculture Sector Support Programme ASP5II 2005-9, also demonstrated how technical support to input dealers and farmers can come together in a virtuous circle to improve markets and farm level productivity.

3. *Lack of Value Addition*

Despite evident potential for value-added products, the proportion of Uganda's agricultural commodities and products which is processed is believed to be no more than 5 percent. Increasing this is a challenge because of:

- Poor links between different stakeholders, especially those providing facilitative services to producers and investors;
- Low capacity of farmers to participate in value chains;
- Inadequate market information to guide farmers in market oriented farming;
- Inadequate quantity and poor quality of goods produced;
- Limited availability of (and access to) production/productivity enhancing inputs (not least finance), equipment and machinery.

Specialized niche markets are now on the increase, with specific characteristics and requirements. Such markets call for prior planning of production and value addition infrastructure so as to match farmers' supply with market demands. Thus, there is a growing need to link producers with those value chain players involved in agro-processing and marketing. But, such linkages, if available, are sometimes weakly organised or in some cases are absent altogether.

17 This is written up in, among others, Ferris S and Laker-Ojok R, (2006). Growth Prospects for Services within Selected Agricultural Sectors in Uganda. CIAT

4. *Inadequate Market Infrastructure*

Successful produce marketing requires good feeder roads, communication facilities, consistent and competitively-priced electricity, pre-cooling and pack houses, cold and dry storage facilities, refrigerated trucks, air freight facilities, and so forth. However, the poor state of market infrastructure in Uganda was a consistent theme in almost all the analyses done for DSIP. Additionally, the high transport costs of moving produce from the farm gate to primary and secondary markets remain a challenge, adding, as they do, much more in proportional terms to the post-farm gate costs than the transport between urban markets. Another problem of agricultural marketing is commodity storage. Intra-year price rises have become less pronounced over time (World Bank, 2006) but the absolute magnitudes of inter-temporal margins are still quite high. Distance to district towns is an important determinant of market access, with households closer to towns marketing *less*, while probably relying more on non-farm income for their cash requirements. This all suggests the need for a renewed focus on improving transport and market infrastructure to reduce marketing costs so that households in more remote areas can benefit more from commercialisation.

5. *Low Incidence of Collective Marketing*

Farmer institutions are important forums for mobilising farmers around a common objective, most obviously the delivery of services and the formulation of policies that support agricultural development. Farmer institutions form key entry points for service delivery to individual households or communities. An example of this is the network of district and commodity farmers organisations that form the membership of the Uganda National Farmers Federation (UNFFE). Under NAADS, various farmer organisations (such as farmer groups, farmer forums and Higher Level Farmer Organisation - HLFO) play a role in resource mobilization, technology promotion, market organisation and value addition. There are also commodity specific farmer's organisations that do this, including national level players such as the coffee farmers association (Nucafe), the seed traders association (USTA), the oilseed producers organisation (UOSPA), as well as smaller organisations with a specific common interest such as Beach Management Units (BMUs) and dairy farmers' groups. In general, however, Ugandan farmer institutions are characterized by a low capacity to fully and effectively perform their

roles and to demand better delivery of advisory, research and regulatory services. Under the DSIP, Government efforts will focus on strengthening the capacity of these institutions to strengthen their participation in commodity value chain development and resource mobilization and management. This will build on the existing capacity and experience gained in a number of programmes that have long supported farmers' organisations, including Danida's ASPs I and II and NGOs like Trias and Vedco.

6. *Non-tariff barriers in Export Markets*

Throughout the globe, tariffs are now waning under the influence of the World Trade Organization (WTO). But, non-tariff barriers continue to pose a big challenge to Uganda's exports. For example, in markets, where Uganda's products enjoy preferential treatment, such as the US Africa Growth and Opportunity Act market, entry still remains difficult on grounds of quality, packaging, handling and so forth. Even at the regional level, non-tariff barriers continue to affect Uganda's exports in the form of delayed procedures, unwarranted excuses for rejection of entry of goods, and the deliberate misinterpretation of Common Market for East and Southern Africa (COMESA) and other trade provisions.

With the politico-socio-economic complexities characterizing international trade, key competencies are needed in doing business in other countries. Exporters should be able to negotiate and execute export orders properly as well as having reasonable knowledge in strategic export planning, management and marketing. At the moment, there is no established institution in Uganda that is responsible for training exporters on essential and basic export skills.

2.5.3 Enabling Environment Constraints

1. *Uncertain Policy Environment*

The existence of different, sometimes parallel, policy frameworks is a major issue and has been discussed at length in Section 2.3.

2. *Lack of Capacity for Policy-making and Planning*

Despite the Core Functional Analysis of 2001, which recommended the raising of the profile of the planning and policy functions, these MAAIF units have never exercised the authority they should while, at the same time, they have been faced with

increasing demands for service delivery. As a result, the staff are over burdened and over stretched in their efforts to deliver the required services. It is now recognised that the policy and planning functions in MAAIF must be urgently strengthened so that the ministry can:

- Improve the development and coordination of sector policies, plans, programmes and projects so that a more conducive enabling environment can be institutionalised, one in which the private sector can operate more effectively.
- Improve on the generation, provision and analysis of agricultural data and information to enhance the capacity of the sector to take advantage of and compete in the regional and global agricultural market.
- Improve on monitoring the implementation, and impacts of, public programmes and projects to ensure value for money and enhanced attainment of sector objectives

More specifically, it is useful to highlight particular issues related to the budgeting function. The Public Expenditure Review of 2007-9 highlighted a number of issues that have been problematic in relation to DSIP implementation in the past.

- There was a mismatch between the allocation of funds to the priority areas identified in MAAIF's first DSIP and the actual expenditure. This trend was corroborated in a subsequent study in 2008/9 (GoU, 2009a) that indicated wide variation in budgeted, approved, disbursed and expended resources in the sector. The verdict was that the DSIP was not being used in its intended role as a guide to ensure that resource allocations were in line with MAAIF's and the PEAP's priorities and objectives;
- There has been inadequate involvement of the Sector Working Group in the preparation and supervision of the Budget Framework Paper (BFP). In practice most drafting is done by a few members of the Agriculture Planning Department under very tight time constraints and presented to the SWG for endorsement in a similarly rushed manner. This has compromised the quality of the BFP and matters are not helped by the fact that MoFPED does not provide any feedback on the submissions.

1. Inadequate Public Education around Key Agriculture Issues

Poor communication has been a persistent challenge for the sector which has long been characterised by limited flow of information between the ministry and the public, between HQ and the agencies, between the centre and the districts, between management and staff, and between individuals and units.

Addressing this challenge must go beyond 'calling upon' sector entities to ensure effective communication between, within and beyond the sector. Instead, MAAIF will make a commitment to address this challenge head on. It will ensure that it builds on past efforts, for example the Local Government Communication strategy.

2. Weak Intra and Inter Sector Coordination

The need for engagement with other sectors and institutions and the currently weak coordination mechanisms have been discussed in Section 2.4.

3. Lack of Agricultural Statistics

The main objective of agricultural statistics is to provide information on agricultural production, to give feedback on the major trends in the sector and to provide benchmarks against which progress (or otherwise) can be measured. In Uganda, there are several agencies charged with the collection of food and agricultural statistics (FAS), notably UBOS and MAAIF. In reality, however, very few agricultural statistics are currently collected and this is a major omission. Among the most important statistics for which there is no regular and current information are crop area, yield, and production. UBOS and MAAIF and their predecessor institutions have never succeeded in putting in place statistical systems to collect annual, nationally representative, agricultural production data. While attempts have been made, the systems eventually broke down.

The current system collects information along the sub-sector operations and disseminates the information through UBOS, annual publications and electronic media. However, there are concerns about the quality of the data collected and how it is used for sector planning and prioritisation processes in the absence of robust data collection tools, analysis, storage and retrieval systems. MAAIF is committed to revitalisation of agriculture statistics and recognises that the momentum behind ongoing efforts, e.g. the censuses for livestock and crops, needs to be

maintained if an effective and efficient system is to be established and institutionalised. Furthermore, MAAIF recognises that the focus should not only be on setting up new structures for statistics collection but on improving existing systems.

4. *Lack of Capacity for Climate Change Analysis and Decision Making*

Of all the world's regions, Africa is likely to be hardest hit by the impacts of global warming (IPCC, 2006). Climate models differ, but according to the Hadley Centre for Climate Change, a leading producer of global climate change estimates, temperature increases in parts of Africa could be double the global average increase. The East African region, that includes Uganda, has already experienced a warming of up to 1 degree in the last century, and model projections for future warming range from an increase of between 2 degrees and more than 4 degrees in 2100 (IPCC 2006). Given the heavy dependence on agriculture, the effects of climate change could clearly put millions of people at greater risk of poverty and hunger.

Climate change issues clearly impact on almost all the sub-programmes under DSIP (research for climate tolerant technologies, extension to assist farmers with evolving coping strategies, strategies to resist emerging pest and disease threats, soil conservation under new precipitation regimes etc.) and DSIP does encompass an effort to better think about and plan for the future.

2.5.4 Institutional Development Constraints

The agriculture sector institutional arrangement is critical for efficient and effective delivery of sector goals and objectives but it has faced and continues to face a number of challenges and constraints that have led to low performance.

1. *Weak Institutional Framework and Incapacity to Implement the DSIP*

The many problems with the MAAIF structure are discussed in Section 2.4.

2. *Geographically Fractured State of MAAIF and its Agencies*

A factor which can no longer be overlooked in the ministry's recent underperformance is the

geographically fractured state of MAAIF's key departments and units. MAAIF HQ works from its base in Entebbe while many of its agencies and other departmental units are in Kampala (not to speak of other ministries and departments, development partners and civil society organisations). The consequence of this is an inordinate efficiency loss made up of: time spent by professional staff (particularly the Permanent Secretary, the Ministers and officers of APD) travelling from Entebbe to Kampala during normal office hours; challenges in organising face-to-face interaction with colleagues in other key ministries especially around policy and implementing the budget; difficulties in recruitment; the scattering of planning and policy staff among MAAIF HQ, the PMA, NAADS and the other semi-autonomous agencies.

3. *Low Productivity of Sector Personnel*

The low productivity of sector personnel is partly a function of the sub-optimal MAAIF structure (see Section 2.4) and the geographical scattering of MAAIF's key departments (see (ii) above). It also follows from an inadequate incentive structure and a long-running under-funding of technical training, management training, and supervision. In particular there has been

- Failure to implement training and other capacity building programs developed since 2000 with the assistance of programmes such as ASPS I and II;
- Weak communication and management systems which have contributed to under performance;
- A lack of the appropriate tools and equipment to enable personnel to effectively execute their roles and responsibilities.

2.6 Cross-cutting Issues

As well as the specific subject area issues, there are also a range of wider, cross-cutting concerns that must be addressed in the investment portfolio: gender and youth, the environment, HIV/AIDS, northern Uganda, and climate change.

2.6.1 Gender

According to the Uganda 2002 Population Census, the agricultural sector employed a higher proportion of women (83 percent) than men (71 percent). At the same time, a substantial amount of women's time

is taken up in providing care activities. Investments in improving smallholder agriculture will therefore help women more than it would in most other areas of investments. If the investment is carefully targeted, the gender benefit can be considerable. A multi-country study by Blackden and Bhanu (1998) is often cited in this regard but it bears repeating:

- In Kenya, if women farmers received the same level of agricultural inputs and education as men, their yields would increase by more than 20 percent;
- In Tanzania, reducing the time burden of women increased household cash incomes for smallholders by 10 percent, labour productivity by 15 percent, and capital productivity by 44 percent;
- In Zambia, if women could invest in agricultural inputs, including land, to the same extent as their male counterparts, total output could increase by up to 15 percent.

Two key constraints to women's participation in commercial agriculture in Uganda are well-rehearsed but also need repeating here:

- With their uncertain relations to land and the limited returns available to them, women lack the incentive to undertake long term investment
- With the lack of a level playing field, women prefer petty trading to agriculture and are deterred from agricultural investment.

These are areas where MAAIF can make a difference by regulating and promoting value for money services to *all* clients. If that could be done better, the benefit to women farmers would be enhanced and the total welfare gain significant. A recent study by MoFPED (2008) concluded that a 1 percent improvement in productivity in agriculture in Uganda would not only disproportionately benefit women but also contribute an extra 0.4 percent growth to GDP.

2.6.2 Youth

With a population growth rate of 3.2 percent it is no surprise that there is a very high proportion of young people and that it is a challenge for them to find gainful employment especially in the rural areas. This DSIP is prioritising production and productivity gains among its core targets with the specific intention of helping create an improved environment for the employment of youth.

A specific issue for this DSIP is that the capacity for involvement of young people in agriculture is quite limited. This is partly attributed to issues of access to, and control over, productive resources (land and capital), as well as limited knowledge and skills in modern farming techniques. But the fact is that the majority of youth is already engaged in small income-generating activities such as “*boda-boda*” riding, brick making, petty trade and service sector work and will be reluctant to persevere in agriculture. With the population growth rate likely to stay high for some time, however, it will become increasingly urgent that ways are found to engage with this untapped labour force.

2.6.3 Environment

Agricultural activities can have a major impact on land use, soil, water, biodiversity and the landscape. Specifically, there are a number of environmental issues in agriculture with significant implications on the performance of the sector. These include:

- Land degradation including erosion, compaction and overuse. Productivity losses per year for maize from soil erosion have been estimated in some places as high as 190 kg/ha/ i.e. a loss of UGX 57,000 per ha per annum.
- Agro-chemical pollution of ground and surface water;
- Loss of forests and wetlands leading to loss of biodiversity;
- Increasing livestock numbers imposing pressure on rangeland ecosystems and water systems;
- Loss of biodiversity in agricultural landscapes through the introduction of non-native varieties;
- Expansion of agro-based industries (including fish processing) without an adequate regulatory framework leading to increased stress on soils, wetlands, and fisheries.

The 1995 Constitution and some of the subsequent legislation committed the Government of Uganda to integrating the integration of environmental management in all its development programmes.¹⁸

¹⁸ Notably the National Environment Act and regulations there under, such as the Environmental Impact Assessment (EIA) regulations 1998, the National Environment (Standard for Discharge of Effluent Water or Land) Regulations, the National Environment (Waste Management) Regulations, the National Environment (Hilly and Mountainous Areas Management) Regulations, the National Environment (Wetlands, Riverbanks and Lake Shores Management) Regulations, the National

These will be used as guides for future investment in the agriculture sector.

2.6.4 HIV/AIDS

The HIV/AIDS epidemic has had a multiplicity of negative impacts on agricultural production:

- Forced selling by farmers of produce and stock at inopportune times to meet medical costs;
- Diverted household expenditure towards medical bills from other household needs;
- Reduced labour availability due to sickness and increased care obligations;
- Reduced household income due to falling productivity, leading to reduced school attendance, reduced food security and nutrition, all tending towards the downward spiral of livelihoods;
- Loss of the most productive workforce (15-40 years);
- Dismantling of the family set up, resulting in a decline in production and productivity, food insecurity, low incomes, increased health care costs, greater job insecurity.

In response to the pandemic, MAAIF has developed an Agricultural Sector HIV/AIDS Policy. The purpose of this policy is to empower stakeholders' to prevent the spread of HIV/AIDS by adopting positive behavioural change, mitigating the adverse effects of the disease on agricultural production and overall socio-economic development. MAAIF has also developed Guidelines for Mainstreaming HIV/AIDS in Sector Programmes.

However, the implementation of the policies and application of the guidelines remains weak. Under this DSIP, concerted efforts will be made to strengthen the implementation of HIV/AIDS policies and strategies partly through the integration of preventive measures and partly by advising on and promoting agricultural practices, techniques and technologies which mitigate against the wider impact of the epidemic.

2.6.5 Northern Uganda

The prospects for peace continue to improve in Northern Uganda and GoU has prepared the Peace, Reconstruction and Development Plan (PRDP) as a framework through which public investment will be made in the continuing recovery. The PRDP is structured around four Strategic Objectives one of which is the Revitalisation of the Economy. This, in turn, has three priority programmes which focus on production, infrastructure and natural resources management. Since the PRDP was completed, MAAIF has been working on producing guidelines for implementation of the agriculture investments under the plan and a document was produced in draft in August 2009.

There are good prospects for agricultural development in the north, with real agro-ecological potential and a ready market for produce, from Kampala to Southern Sudan. Small and large-scale trading and processing companies have established themselves throughout the region, in particular for sunflower, cotton, sesame and groundnuts. However, before economic recovery can take place, some issues need to be addressed: returnees lack basic assets and capital, rural infrastructure is insufficient, skill levels are low, services are scarce and physical access to markets is poor. The DSIP will make a particular effort to address these problems.

2.6.6 Climate Change

Vulnerability to climate shocks will influence the performance of many sectors: agriculture, fishery, forestry, water, sanitation, energy, and industry. For this reason, this DSIP has been formulated in the context of an assessment of the risks from climate change, as they are currently understood, and not least in the context of their potential burden on the national budget. The issue is that decision-making must be improved and that national planning and budgeting processes (under DSIP, NDP, BFPs - both at the sector and local levels) will be informed by better analysis resulting in better identification of priorities and more capacity to address the most vulnerable areas first.

MAAIF has begun the process of planning for climate change and this will accelerate under DSIP. Trainings have already been conducted for both HQ and LG staff, in association with other ministries and agencies including MWE and the Department of

Environment (Management of Ozone Depleting Substances and Products) Regulations, and the National Environment (Minimum Standards for Management of Soil Quality) Regulations.

Meteorology. Specific impacts have been identified as causes of concern:

- Increasing frequency of drought: analysis of the data from 1900-2000 shows significant drought episodes increasing from every 20 years to 16 years and now to 5 years;
- Dramatic reductions in the snow cover in the Rwenzori range;
- Rapid spread of banana bacterial wilt disease, probably associated with temperature increases;
- Coffee mealy bugs have reappeared probably for the same reason;
- Lower water levels in the lakes expose fish breeding grounds which affects the numbers of fish for subsequent seasons.

More generally, there are other impacts of climate change that need to be guarded against including:

- Silting of dams;
- Flooding, affecting agricultural land and settlement areas;
- Increased pollution from chemical-pesticides and fertilizers during the rainy season, especially around industries like flower farms. The chemicals end up in the food chain: from algae to fish to humans;
- Crop yields negatively affected by increases in invasive species;
- Disappearance of biodiversity with changes in the ecosystem;
- Reduction in soil fertility and subsequent soil erosion;
- Crop destruction by extreme climate events like storms;
- Higher post harvest losses with temperature increases;
- Loss of farm land to erosion;
- Roads and infrastructure destruction due to landslides, affecting transportation and market opportunities;
- Increases in mosquito and malaria incidence due to increased temperatures;
- Increased conflict over available land and resources.

These impacts span a number of sectors but, for those falling under the agricultural sector, action will be taken in this DSIP to address them through interventions such as sustainable land and water management and building capacity for climate change adaptation.

Climate vulnerability is not, of course, limited to biophysical impacts. Essentially climate change is just one of a number of stress factors (food insecurity, conflict, malaria, energy deficit etc). It is therefore important to understand the relationship between climate change and the prevailing socio-economic conditions and development challenges. Certain socio-economic conditions heighten vulnerability in that resilience to climate impacts is reduced because of socio-economic factors. For example, in areas where livelihoods are almost totally dependent on agriculture, people are more vulnerable to climate impacts than communities that enjoy employment in less directly impacted sectors, such as construction and manufacturing. It has already been described how the number of the food insecure in Uganda has increased from 12 million in 1992 to 17.7 million in 2007. These people are (i) unable to provide sufficient food for the household throughout the year; (ii) unable to supply basic household essentials, or to afford education and medical costs; (iii) sometimes forced to sell assets, such as land, livestock and produce meant for household consumption, in order to meet basic household needs; (iv) among the most vulnerable to negative impacts of climate change. It is for people in these circumstances that improved national agricultural (and climate) planning is so important.

2.7 Summary of Key Issues to be Addressed by the DSIP

The broad conclusion emerging from Section 2 is that the agriculture sector has performed below its potential in the last decade and is beset by a number of serious threats.

- Real growth in output declined from 5.6 percent in 1999/2000 to -0.6 percent in 2004/05, then to 0.5 percent in 2005/06, 1.3 percent in 2006/07 and 2.6 percent in 2007/08;
- Since 1992, the country's average caloric intake per person per day has improved but only from 1,494 in 1992 to 1,971 in 2005, well below the WHO recommended figure of 2,300;
- Farmers' yields, which are typically less than one-third of yields from research stations, did increase (by 34 percent 1996-9) but have flattened out thereafter;

- The population that was 6 million in 1968 is now 30 million. The number of people who are food insecure increased from 12 million in 1992 to 17.7 million in 2007;
- In some regions, 60-90 percent of the land area is reported to be affected by soil erosion. Dreschel et al. (2001) estimated that the costs of land degradation amount to 6-11 percent of agricultural GDP in Uganda annually.
- The amount of fertilizer used in Uganda is among the lowest in the world. While Kenya used 32 kg/ha and Ethiopia 16 kg/ha annually, between 1996 and 2002, only 0.6 kg/ha were applied in the same period in Uganda (Jayne et al., 2003).
- Pests, vectors and diseases are a major cause of losses in the production and productivity of agricultural products and livestock. Coffee Wilt Disease has destroyed about 56 percent of the old Robusta trees. Banana Bacterial Wilt has an incidence of 70-80 percent in many plantations and yield losses of 90 percent have been reported.
- The land, water, forest and animal resources upon which future generations will depend are under extreme pressure from rural economic activities. “Unchecked, the present negative environmental trends will end in economic disaster for the country” (African Development Bank, 2005). Such trends, largely unquantified, include: agro-chemical pollution, loss of biodiversity, increasing livestock numbers, pressure on water availability; increased stress on wetlands and fisheries.

Nonetheless, there are many opportunities in the sector and there is a broad consensus of stakeholders now ready to get behind a coherent drive to increase productivity, improve markets and develop competitiveness. The time is right for a consistent push to develop the sector and enhance its contribution to national welfare and poverty reduction.

3 Strategy and Investment Programmes

The Agricultural Vision and Mission

The DSIP and the proposals outlined in the section below are government's plan to put agriculture on the path to irreversible transformation. They constitute a "road map" that will guide public action and investments in the agricultural sector over the next five years. They are based on a matrix that summarises the progression from objectives and vision to outcomes, sub-programmes and investments in the sector.

The vision of the agricultural sector is: *"A Competitive, Profitable and Sustainable Agricultural Sector"*. The mission is to *"Transform subsistence farming to commercial agriculture"*.

Objectives

To realise the above vision and mission, the following objectives will be pursued.

1. Sector Development Objectives
 - Rural incomes and livelihoods increased; and
 - Household food and nutrition security improved;
2. Immediate objectives
 - Factor productivity (land, labour, capital) in crops, livestock, and fisheries sustainably enhanced;
 - Markets for primary and secondary agricultural products within Uganda, the region and beyond developed and sustained;
 - Favourable legal, policy and institutional frameworks that facilitate private sector expansion and increased profitability along the entire value chain developed
 - MAAIF and Agencies functioning as modern, client-oriented organisations within an innovative, accountable, support environment.

The underlying logic is that if long run productivity can be improved, through existing or new enterprises and/or farmers can be helped to move "up" the value chain by public investments in value addition activities, then rural incomes and livelihoods and general prosperity will rise. At the same time, parallel but associated investments around staples and basic food production and marketing, usually with a different target group, will deliver improved food security at the household level. The agricultural sector will then move towards greater profitability and an improved capacity to compete.

Investment Programmes

The investments under the DSIP will focus on the core mandate and functions of MAAIF and the sector. The aim is to ensure efficient and effective provision of critical agricultural public goods, services and support and so release the pent-up potential that is judged to be there. Investments have been packaged under four Programmes representing the key areas of opportunity: (i) Enhancing Production and Productivity; (ii) Improving Access to Markets and Value Addition; (iii) Creating an Enabling Environment, and; (iv) Institutional Strengthening in the Sector. Detailed descriptions of the programmes, sub-programmes, components and activities follow.

Table 3.1: DSIP Summary Matrix

The Vision	A Competitive, Profitable and Sustainable Agricultural Sector		
Development Objectives	<ul style="list-style-type: none"> Rural incomes and livelihoods increased Household food and nutrition security improved 		
Immediate Objectives	<ul style="list-style-type: none"> Factor productivity (land, labour, capital) in crops, livestock, and fisheries sustainably enhanced. Markets for primary and secondary agricultural products within Uganda, the region and beyond developed and sustained Favourable legal, policy and institutional frameworks that facilitate private sector expansion and increased profitability along the entire value chain developed MAAIF and Agencies functioning as a modern, client-oriented organisation within an innovative, accountable, support environment 		
Programme 1: Production and Productivity	Programme 2: Markets and Value Addition	Programme 3: The Enabling Environment	Programme 4: Institutional Strengthening
<i>Sub-Programme Objectives</i>			
<p>1.1 Enhanced contribution of agricultural research to sustainable agricultural productivity, competitiveness, economic growth, food security and poverty eradication.</p> <p>1.2 Increased farmer access to relevant information, knowledge and technology through effective, efficient, sustainable and decentralized extension service coupled with increasing private sector involvement in line with government policy.</p> <p>1.3 Reduced losses through improved control of pests, vectors and diseases.</p> <p>1.4 Enhanced productivity of land through sustainable use and management of soil and water resources.</p> <p>1.5 Water resources developed for agriculture on the basis of sustainable irrigation, water for livestock and aquaculture.</p> <p>1.6 Increased use of labour saving technologies including appropriate mechanisation and other farm management related investments.</p> <p>1.7 The war-affected population of Northern Uganda engage in productive and profitable agricultural and agri-business activities to ensure food security and increase household income.</p> <p>1.8 Accelerated production of selected strategic enterprises on the basis of specialization and agro-zoning.</p>	<p>2.1 Improved capacity for regulation and enforcement especially in safety standards and quality assurance across crops, livestock and fisheries.</p> <p>2.2 Farmers have improved access to high quality inputs, planting and stocking materials.</p> <p>2.3 Increased participation of the private sector in value addition activities and investment.</p> <p>2.4 Expanded network of rural market infrastructure including appropriate structures to improve post harvest losses.</p> <p>2.5 The capacity of existing farmers' organizations built up in management, entrepreneurship, and group dynamics so they can engage in value-chain activities especially collective marketing.</p>	<p>3.1 Clear and predictable policy framework established and functioning.</p> <p>3.2 Planning and policy responsibilities are undertaken in an efficient manner leading to improved formulation of policies, strategies, programmes and projects, more cost-effective interventions and increased efficiency of public expenditure.</p> <p>3.3 Improved public education and communication around key agriculture and natural resource issues.</p> <p>3.4 Public coordination responsibilities are undertaken in a coherent manner leading to improved management of sector policies and programmes.</p> <p>3.5 Functioning Agricultural Statistics service providing timely and appropriate information to sector stakeholders.</p> <p>3.6 Capacity for decision-making in planning and budgeting processes improved by accurate and up-to date climate information and analysis.</p>	<p>4.1 MAAIF and related agencies, strengthened, appropriately configured and equipped.</p> <p>4.2 MAAIF HQ relocated to Kampala.</p> <p>4.3 Productivity of sector personnel improved.</p>

Programme 1: Enhancing Production and Productivity

Agriculture in Uganda is characterised by low production and productivity across all sub-sectors of crops, livestock, and fisheries. To realise the sector vision and objectives, factor productivity (land, labour, and capital) should be increased substantially by removing constraining factors while concurrently exploiting available opportunities. To this end, eight sub-programmes will be implemented, with their respective goals as follows:

- Enhanced contribution of agricultural research to sustainable agricultural productivity, competitiveness, economic growth, food and nutrition security and poverty eradication;
- Increased farmer access to improved technologies and better advisory services delivery with proactive farmer participation in value chain development for profitable production;
- Reduced losses through improved control of pests, vectors and diseases;
- Enhanced productivity of land through sustainable use and management of soil and water resources;
- Water resources developed for agriculture on the basis of sustainable irrigation, water for livestock and aquaculture;
- Labour saving technologies developed and promoted including appropriate mechanisation and other farm management related investments;
- The war-affected population of Northern Uganda engaged in productive and profitable agricultural and agri-business activities to ensure food security and increase household income; and
- Accelerated production of selected strategic enterprises on the basis of specialization and agro-zoning.

Sub-programme 1.1: Agricultural Research and Technology Development

Since its establishment 16 years ago, NARO has made real progress in generating technologies for improving the productivity of crops, forestry, fisheries and livestock. Its performance in terms of returns to investment in agricultural research and development has been rated third behind Ethiopia

and Morocco (World Bank, 2008). Impact studies conducted in Uganda indicate that investments in agricultural research have made more impact on poverty than investments in the road, health and education sectors (IFPRI, 2006). This success has been attributed to the provision of technologies that enhance production and productivity by agricultural research institutions in Uganda. Despite the above, significant challenges still prevail for instance:

1. Although the ratio of spending on agricultural research to agricultural GDP in Uganda grew, from 0.06 percent in 1990 to 0.71 percent in 2000, it is still well below the Maputo Declaration target of 6 percent.
2. While the National Agricultural Research System (NARS) has been able to generate a number of technologies, most farmers have not been able to access them and poverty levels still remain unacceptably high. To address this, NARS will be strengthened so that it can:
 - Generate more technologies further along the value chain;
 - Improve Uganda's ability to compete in the global knowledge market;
 - Coordinate and assure the quality of the services provided by an increasing number of participants in the NARS,¹⁹ and;
 - Ensure continuity in research capacity for pursuing cutting edge science.

The NARS, through the NARO Council, has developed a Ten-Year Strategic Plan (2008-2018) for agricultural research in Uganda: "Towards Improved Agricultural Research Service Delivery." Some of the key principles involved are:

¹⁹ NARS was established by the National Agricultural Research Act 2005 as an institutional framework that: (i) separates funding from service delivery; (ii) creates opportunities for public and non-public organization to access public resources for research; (iii) empowers stakeholders to demand information and technologies and also to participate in the governance of research processes. The NARS is composed of all interested research bodies put principally: 1. The National Agricultural Research Organisation (NARO)'s Public Agricultural Research Institutes, of which there are 6 NARIs and 9 ZARDIs; 2. Other public research institutions such as universities; 3. Commercial enterprises and private sector firms; 4. Civil Society Organizations and professional associations; 5. The organized farming public; 6. International organizations and regional partners

- Decentralization of research services and reaching a balance between subsidiarity, stakeholder involvement and the need to maintain a critical mass of scientists;
- Mainstreaming the Integrated Research for Development (IAR4D) concept, thoroughly piloted during ARPTII, in collaboration with Makerere University and NAADS;
- Further enhancement of the quality of the service-providing process aimed at improving products and services to farmers; and
- Developing and maintaining a core strategic programme of advanced science to feed the adaptive research activities at zonal level.

This sub-programme derives from the Ten Year Strategic plan and the work for the Agricultural Technology and Advisory Services Project (ATAS), which will bring a second 5-year phase of funding to NARO. The objective of the sub-programme is *“Enhanced contribution of agricultural research to sustainable agricultural productivity, sustained competitiveness, economic growth, food and nutrition security and poverty eradication.”* To achieve this objective, activities will be implemented under three components.

Component 1.1.1: Generation of new technologies, practices and strategies

This component will support the core research activities of NARO as well as expanding and strengthening the existing Competitive Grants System (CGS) for the whole of NARS. The component will finance strategic, national and zone-specific programmes to maintain ongoing research as well as to undertake new work (including activities in climate change and sustainable land management). It will also strengthen interaction with key value-chain and innovation system stakeholders, notably small-scale processors, based on the IAR4D principles of joint diagnosis and planning, interactive learning and multi-dimensional assessment. The activities to be pursued under this investment area are outlined below:

1. Demand-driven, market-oriented, and innovation-focused research priority setting process strengthened.
 - Designing and implementing mechanisms for stakeholder needs identification and response;
 - Holding annual priority setting exercises;

- Training stakeholders in demand articulation;
 - Designing impact assessments of NARO projects and programmes; and
 - Developing innovative methods for the diagnosis of constraints and opportunities.
2. Core strategic research programmes implemented
 - Generate technologies, strategies and practices addressing core national and zonal priorities;
 - Develop a cassava centre of excellence;
 - Liaise and undertake joint research with other regional centres of excellence in rice, wheat and dairy; and
 - Share information and research outputs with other regional centres of excellence.
 3. Research programmes on emerging issues of a strategic nature (including Climate Change and nutrition) initiated
 - Identify, develop and implement projects for emerging issues
 - Provide short maturing and high producing seed and cuttings for planting food and cash crops in pastoral areas;
 - Improve livestock and crops in terms of resistance to drought, disease and pests and in terms of increased yields in a shorter time; and
 - Develop drought resistant pasture and forage for animals in pastoral areas.
 - Develop nutrient dense crops and innovative farming systems for improved household food security and nutrition.
 4. Non-core research priorities implemented through the Competitive Grant Scheme
 - Prepare and fund research projects through CGS;
 - Allocate funds for the CGS programme; and
 - Generate technologies, strategies and practices from the CGS projects

Component 1.1.2: Improved uptake of new technology and knowledge

A key issue with new technologies is not just their generation but their adoption by farmers and other stakeholders. For this to be improved, formal programmes and financing mechanisms to facilitate

more effective research-extension linkages must be developed along with other links to service providers, farmers' organizations, processors, and marketing agents. At this point, it is anticipated that emphasis will be given to the multiplication of breeder and foundation seed as well as public-private partnerships in germplasm dissemination and technology commercialisation. The broad activities under this investment area will include:

1. Formal mechanisms for joint operation between NARO and NAADS established. This will involve developing and implementing frameworks between NARO and NAADS at all levels including plans, budgets and monitoring and evaluation programmes.
2. Functional partnerships for technology promotion between research and other stakeholders established and functioning effectively
 - Hold review, planning and budget meetings and implement joint activities involving partners in the research and development process;
 - Jointly develop appropriate dissemination products/packages; and
 - Undertake mentoring of IAR4D learning cycles in all research programmes;
3. Public and private advisory service providers trained on research and development issues (including Climate Change)
 - Train district Adaptive Research Support Teams (composed of District Subject Matter Specialists);
 - Train and organize refresher courses for private advisory service providers; and
 - Involve both public and private service providers in value chain learning alliances
4. Multi-stakeholder innovation platforms for key priorities established
 - Develop multi-stakeholder platforms for guiding innovation processes on production, processing, marketing, service delivery, enabling policies;
 - Facilitate the review and analysis of existing policies and topics that will emerge from the IAR4D approach and produce policy briefs;
 - Support joint services on agricultural information, documentation, assembly and storage, such as the Agricultural

Research and Extension Network (ARENET); and

- Support joint publications in (inter) national journals to contribute to the global knowledge pool.

Component 1.1.3: Strengthened effectiveness of the National Agricultural Research System

The reform processes for the NARS will be accelerated which will entail strengthening human, financial, infrastructural and organisational capacity at all levels and especially at the ZARDIs. The component will support the governance structure of NARO by strengthening Planning and M&E, including quality control systems at the Secretariat and PARI level. The activity areas under this component will include:

1. Critical mass of public and private research service providers created
 - Update the functional analyses of NARS (including public and private institutes) and examine roles, capacities and needs;
 - Update NARO's human resource development and management policy;
 - Train staff in long and short (in-service) courses;
 - Mentor junior scientists in IAR4D in general and science and research tools in particular;
 - Support and promote University students' internships with the private sector;
 - Recruit and provide incentives for high performance and commitment, as well as improving general conditions of service; and
 - Train registered non-PARI organisations in planning, implementation and evaluation of research programmes.
2. Mechanisms and strategies for the financial sustainability of agriculture research established
 - Gradually increase the proportion of funds managed under CGS;
 - Quantify and recognize the contribution by farmers, non-PARIs and private sector stakeholders to research activities and programmes;
 - Establish and operationalise the Agricultural Research Trust Fund;
 - Develop NARO as a quality brand through websites, publicised success stories

- etc. with the objective to secure more funding;
 - Develop mechanisms and plans for increased PARI revenue collection; and
 - Lobby non-traditional partners and the private sector to fund agricultural research.
3. Facilities and equipment for research acquired and maintained
 - Construct/renovate and equip ZARDI infrastructure (especially laboratories) and develop ICT;
 - Out-source specialized services and skills;
 - Develop International Standard Organisation (ISO)-certified centres of excellence in the next five years; and
 - Develop and implement guidelines for non-PARI access to research facilities.
 4. Governance of Research Institutes enhanced
 - Design and implement training programmes for governance structures;
 - Conduct stakeholder assessment of PARI management;
 - Support partnerships development between PARIs and other national and international research service providers;
 - Improve the participation of non-public sector stakeholders on the NARO Council and PARI Management Committees;
 - Develop inter-PARI linkages and PARI and non-PARI collaboration for improved information and knowledge exchange; and
 - Stimulate and facilitate the participation of NARS actors in national, regional and international research networks.
 5. Quality of research service provision enhanced
 - Develop guidelines for the provision of research services;
 - Monitor and backstop research service providers;
 - Develop on-line access to projects and documents;
 - Formulate quality improvement plans;
 - Develop the capacity of the M&E Unit at the NARO secretariat;
 - Conduct joint multi-stakeholder assessments of the impact of NARS;
 - Develop a NARS communication strategy;
 - Promote the use of management information systems; and

- Review and develop the curriculum of both farmer training institutes and agricultural colleges for compliance with the principles of IAR4D, value chain and innovation development.

The cost of the activities under the Research Sub-programme is shown in Table 3.2. The total cost is UGX 344 billion over five years with Year 1 costs of UGX 62.7 billion. Fifty-three percent of the budget is accounted for by the first component, Generating New Technologies (mostly the core research programmes) while the third component on Strengthened Functioning of NARS takes 29 percent and the second one on Improving Delivery and Uptake of Technology receives 15 percent.

Management of the Research sub-programme will be delegated to NARO which will implement the programme through public research institutes and partnerships with non-public institutions, under the oversight of MAAIF and the Sector Working Group.

The NARO council is the overall governing body for agricultural research in Uganda. The council will therefore provide all policy decisions and oversight of the recruitment of senior managers and scientists, delegating PARI level governance to PARI management committees. Implementation of council decisions is delegated to the secretariat that works in consultation with the council committees, i.e. the user, science and finance and administration committees.

NARO Secretariat under the leadership of the Director General will provide the coordination and quality assurance of research, as well as disbursement and appropriation of funds. The Secretariat will specifically spearhead the priority setting process, develop/update research policy, set up and manage agricultural research funds and ensure research capacity development at all levels.

The public institutes will be responsible for the generation and dissemination of technologies. The NARIs and ZARDIs will collaborate to achieve impact: to integrate identified demands and opportunities and to support collaborative innovation systems. They will continue to be centres of excellence in the provision of agricultural research services. The non-public institutions will be encouraged to work in tandem with public institutions to enhance

Table 3.2: Budget for Agricultural Research and Technology Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
1. Technology Generation						
<i>Research on national priorities</i>						
Crops	5,608	7,057	7,512	9,289	10,563	40,029
Fisheries	3,188	2,607	3,251	2,617	1,916	13,578
Forestry	2,322	2,827	3,005	2,953	2,553	13,661
Cross-cutting issues	2,947	2,854	2,830	3,024	3,375	15,031
Arid & Semi-arid resources	1,465	1,633	1,873	2,439	2,673	10,083
Livestock	1,793	2,207	2,351	2,838	3,095	12,285
Sub-total	17,324	19,184	20,822	23,160	24,175	104,666
<i>Research on zonal priorities</i>						
West Nile	606	729	936	1,010	1,107	4,388
South-Eastern Highlands	311	701	818	918	951	3,699
Lake Albert Crescent	401	634	534	655	640	2,864
Southern Rangelands	706	954	899	714	378	3,651
Lake Victoria Crescent	469	803	892	886	672	3,723
South Western Highlands	804	817	1,035	910	726	4,292
Mid-Northern	832	748	916	898	877	4,271
North Eastern	677	791	593	587	249	2,898
Mid-Western	89	163	232	420	611	1,516
Sub-total	4,896	6,340	6,854	6,998	6,213	31,301
Control of invasive plant species	260	317	341	373	412	1,579
Competitive Grant Scheme	1,632	1,885	2,155	2,293	2,326	10,291
Recurrent	7,324	7,452	7,560	7,669	7,718	37,722
Technology Generation sub-total	31,436	35,179	37,731	40,493	40,845	185,561
2. Improved Delivery and Uptake						
Training and workshops	2,874	3,317	3,986	3,514	3,083	16,773
Recurrent	7,324	7,452	7,560	7,669	7,718	37,722
Sub-total	10,198	10,768	11,546	11,182	10,800	54,495
3. Strengthening NARS						
Infrastructure	3,617	4,249	4,277	1,990	1,241	15,374
Goods and services	6,400	7,520	7,569	3,521	2,197	27,206
TA and studies	766	1,005	1,364	1,493	1,367	5,995
M&E and Quality Assurance	2,970	3,136	3,764	3,841	3,856	17,566
Recurrent	7,324	7,452	7,560	7,669	7,718	37,722
Sub-total	21,077	23,361	24,533	18,513	16,379	103,864
Total	62,712	69,308	73,810	70,189	68,024	344,043

capacity for the delivery of research services. The universities will be important in human resource capacity development, while private institutions will be invaluable in providing channels for technology commercialisation. NGOs, NAADS, Local Government extension officers and farmers' groups will play an important role in demand articulation, priority setting and the dissemination of technologies.

A special partnership will be developed between NAADS and NARO, supported by MoUs with the corresponding ZARDIs. NARO will also try to establish formal links with private advisory service providers,

at least at the local level. At present there are only some ad-hoc contacts.

Sub-programme 1.2: Advisory Services and Technology Delivery

The importance of agricultural advisory services in rural development is widely known and understood. In Uganda, over the last ten years, there has been much debate about the appropriate approach, coverage and performance of the system, of ways to

improve its quality and impact, of how to improve its linkage with research, and of how to support rural people to be more effective in exerting demand on the service providers. This debate has taken place within the evolving context of the National Agricultural Advisory Services (NAADS) programme, an innovative, extension delivery approach that targeted the development and use of farmer institutions, and in the process empowered them to better procure advisory services and manage linkages with marketing partners. A second phase of the NAADS programme will start in 2010 and is the basis for the substance of this sub-programme.

The specific objective of this sub-programme is *“Increased farmer access to relevant information, knowledge and technology through effective, efficient, sustainable and decentralized extension services coupled with increasing private sector involvement in line with government policy”*. To achieve the objective, activities will be implemented under four key components.

Component 1.2.1: Improved uptake of new technologies and information

This component will contribute to strengthening interaction with key stakeholders in the agricultural innovation system, most notably the research establishment, but also small-scale producers, agro-processors, financial service providers and other private sector players. Activities will focus on enterprises, with prospects for commercialisation (and some selected according to their prospects for improving food security) and progress is expected through three activity areas:

1. *Enhancing the capacity of farmers and farmers' groups to make choices and implement decisions that affect their livelihoods*
 - In Phase 1, farmer institutions were created as the primary means for farmer empowerment. These institutions have proved their effectiveness. New ones will be formed where necessary and old ones will be strengthened and consolidated. Farmers' fora will be empowered and Higher Level Farmer organizations (HLFOs) will be aggregated and organized to undertake diversified functions in the commodity value chain as well as to achieve a greater voice in negotiation.
2. *Improving access to new technologies and information*

This is the core substance of the component and will involve:

- Setting up District Adaptive Research Support Teams (DARST) in each district to build the capacity of both FEWs and farmer institutions and to improve research-extension links with the ZARDIs;
 - Categorising farmers to ensure that as many as possible benefit from the processes aimed at enhancing their use of new technologies and information. The farmers will be categorized according to their progression from subsistence to market orientation, using criteria that take into consideration the asymmetries in power, resources, and capacity;
 - Enhancing the precision of technology needs articulation by increasing farmer involvement at all levels of the process;
 - Enhancing awareness of available technologies through demonstrations to be conducted among selected farmers in the different farmer categories;
 - Increasing the availability of new technologies by multiplying supplies of planting material, seeds and breeds, and supporting individuals, organizations and private sector entities to do the same;
 - Improving technology access by providing limited financing for inputs in an expanded demonstration mode. Farmer categories that show willingness to respond to market demands but are resource-constrained will be linked to credit institutions;
 - Enhancing access to information through the internet; and
 - Improving the quality assurance of technologies through liaison with MAAIF, NARO and other regulatory agencies such as UCDA and NAGRC/DB.
3. *Delivering appropriate advisory services and information*
The achievements of Phase 1 will be built upon while new initiatives will be taken to address emerging issues. Most notable will be:
 - Improving the selection of farming enterprises on the basis of situation analyses which will provide information on profitability, potential markets,

availability of production inputs, infrastructure support;

- Trying different approaches for the delivery of services. Participatory approaches such as Farmer Field Schools (FFS) will be tried in an action research mode. There will also be a need to experiment with interactive communication such as radio programmes, films, and even mobile technology. It is intended to provide one Front Line Extension Worker (FEW) for each enterprise that has been prioritised at the sub-county level;
- Increasing the use of service providers from different sources: converted FEWs; research institutions; public/private sector partnerships and Community Based Facilitators (CBFs), the private sector, Community Development Officers (CDOs); and
- Improving the quality assurance of advisory services through setting standards and ensuring compliance. In restructuring the Production Departments of the Districts, the Terms of Reference of the Subject Matter Specialists (SMSs) will be adjusted to include specific roles and responsibilities in backstopping, quality assurance and technical auditing of FEWs. The SMSs will be backstopped by MAAIF technical officers and by the ZARDI staff.

Component 1.2.2: Agribusiness development and value addition

The first phase of NAADS was production-focused. The new phase will place a greater emphasis on marketing, post-production activities and value addition. This will include promoting more collaboration with, and greater leveraging of, the private sector, to actively develop agricultural enterprises along their value chains. This work will be a component of the new NAADS Phase II programme and is discussed here, and the budget included, under sub-programme 2.3.

Component 1.2.3: NAADS management and coordination

There is a substantial budget for NAADS' capital goods and operating costs. The former includes vehicles, motorcycles and computers while the latter includes salaries & wages, audits, staff training,

study tours, short-term consultancies and district operating expenses.

Component 1.2.4: Planning, implementation and learning

The major activity area under this component is M&E particularly at the district level but also included are activities of the NAADS Secretariat, district and constituency planning and capacity building.

The cost of the activities under the Advisory Services and Improved Technology Sub-programme is shown in Table 3.3. The total cost is UGX 728 billion, starting at UGX 126 billion in Year 1, rising to UGX 159 billion in Year 5.

A number of institutions will be involved in delivering on the Advisory Services and Improved Technology Sub-programme. The major one among these is NAADS which has a legal mandate to provide advisory services to farmers in Uganda. Other MAAIF bodies include UCDA, CDO, DDA and NAGRIC, all of which have mandates to provide support for the production and marketing of their respective commodities. Local governments are also key partners, not only because the Local Government Act assigns LGs the function and responsibility for extension service delivery, but also because they provide the actual interface with the farmers. This is all put in a wider context under Sub-programme 4.1 on "Institutional Strengthening".

Implementation of the NAADS activities will take place at three levels:

- Sub county level: The focal point for the implementation of technology development, promotion and advisory services is the Technology Development Site (TDS), hosted by the link farmer. The TDS will be the focal point for the demonstration and evaluation of new and innovative technologies as well as for participatory planning, demonstrations and farmer training.
- District level: The District Adaptive Research Support Teams will obviously be based at the district level. They will have responsibility for the capacity development of service providers and farmer institutions as well as technology tracking, and coordinating research-extension linkages with the ZARDIs.
- National level: The key actors in technology promotion include government ministries

Table 3.3: Budget for Advisory Services and Improved Technology Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
1. Technology Development, Promotion & Information Provision						
Farmer Empowerment	9,350	9,818	10,308	10,824	11,365	51,665
Technology Developm't and Promotion	61,800	64,865	67,716	70,709	73,852	338,942
Advisory Service Delivery	17,040	28,542	29,931	31,3 90	32,922	139,825
Sub-total	88,190	103,224	107,955	112,923	118,139	530,431
2. Agribusiness and Value Addition						
						See Sub-programme 2.3
3. Planning, Implementation & Learning						
NAADS Secretariat	1,488	1,488	1,488	1,488	1,488	7,440
District planning	1,020	1,071	1,125	1,181	1,240	5,636
Constituency planning	510	536	562	590	620	2,818
Sub county farmer Participatory M&E	4,400	4,620	4,851	5,093	5,348	24,312
Parish farmer Participatory M&E	3,500	3,500	3,500	3,500	3,500	17,500
District M&E	1,200	1,260	1,323	1,389	1,459	6,631
Capacity building	8,960	8,980	9,408	9,857	10,329	47,534
Sub Total	21,078	21,455	22,257	23,098	23,984	111,871
4. NAADS Managementt and Coord'tion	17,156	17,156	17,156	17,156	17,156	85,780
Total	126,424	141,835	147,368	153,177	159,279	728,082

(MAAIF, MoFPED, and MWE); local governments; other government agencies including NARO, NAADS, and NEMA; universities such as Makerere, Gulu, Busitema and Nkosi; private sector actors including input dealers, suppliers and their umbrella bodies, e.g. Crop Life (U), UNADA and USTA; farm machinery and equipment dealers; and farmers and their organisations.

The different implementation modalities for the different activities include public-private sector partnerships; collaboration among different agencies; farmer differentiation for appropriate technology promotion and service provision; zonal focus in order to improve efficiencies in technology promotion; research-extension-farmer linkages, and; the exploitation of economies of scale.

The NAADS Secretariat will be responsible for developing standards and regulations. It will also establish a database of sources for new technologies, commission studies for technology tracking, promote research-extension linkages with national level research institutions and ZARDIs, and engage and influence the research agenda through effective feedback mechanisms.

Sub-programme 1.3: Pest and Disease Control

Pests, vectors and diseases are perhaps the main cause of losses in the agriculture sector and improved control is expected to be a major contributor to increasing agricultural production and productivity as well as to improving access to international markets for virtually all commodities and products. Although decisions regarding pest and disease control are made by individual farmers, the presence of a pest or disease on one farm poses a threat to adjacent farms and sometimes even to distant localities. Thus, the need for public response. The specific objective of this sub-programme is *“Reduced losses from pests, vectors and diseases”*. To achieve the objective, activities will be implemented under eleven components, along the pest and disease control chain.

Component 1.3.1: Policy analysis and planning

MAAIF will strengthen its capacity to provide economic and planning advice and analysis particularly around optimising available expenditure for PDC. In particular, MAAIF will:

- Develop a clear policy on the optimum contribution of PDC resources to agricultural growth;
- Improve the economic evaluation of the costs of pest and disease occurrences and of the different control efforts. This will facilitate the selection

of more technically effective and cost-effective solutions and will help in devising appropriate mechanisms for cost sharing and funding of preventive and remedial action. In some instances, new ways of managing the economic impacts (e.g. through insurance schemes) may be more cost effective than controlling a pest or disease directly;

- Strengthen international and regional cooperation. This follows from the fact that the “public good” nature of prevention and control requires collectively agreed, funded and managed responses; and
- Enhance the public capacity to participate in collective efforts.

Component 1.3.2: Standards and awareness

The wider regulatory framework is discussed under Sub-programme 2.1. In the PDC area, government will:

- Set standards for diagnostics, surveillance and control of migratory and epidemic crop, livestock and fisheries pests and diseases, including weeds. As success stories of control emerge, records should be kept, manuals written and eventually standards established. Through this process, standard operating procedures for dealing with each case will be established starting with the major pests and diseases. These will help avoid past mistakes. The activities include: recruitment of information management personnel; central data recording of all pest and disease information and locally adapted management procedures; development and distribution of manuals, brochures, datasheets, posters, diagnostic kits and others; installation of a pest and disease data information and retrieval system; availing pest and disease data to stakeholders whenever it is required
- Create awareness among the public on regulations for crop, livestock and fisheries diseases, vectors, and pests. The target audience will include crop and livestock farmers, traders, transporters, abattoir managers, law enforcement agencies, security personnel, local government officials, Uganda Revenue Authority personnel, consumers and the general public.

Component 1.3.3: Surveillance and reporting

Epidemics need to be recognised *before* they cause losses. It is the mandate of MAAIF to control weed epidemics like *Lantana camara* and *Parthenium*

(Congress weed), insect pests like fruit flies (*Bactrocera invadens*) and the Larger Grain Borer, epidemic diseases like banana bacterial wilt (BBW) or coffee wilt disease (CWD), pests like Quelea birds and rodents, and livestock diseases like Foot and Mouth Disease (FMD). All these are problems that should be controlled if Uganda is to remain food secure and exporting agricultural commodities to international markets. The activities required to achieve impact in this area include:

- Upgrading the surveillance systems using both communities and modern technology (like mobile phones), to report the presence of pest and disease outbreaks. Activities will include: the selection of suitable surveillance systems; purchase of equipment and tools; training of the LG staff and farmers in surveillance, reporting and follow up; recording and interpretation of the new surveillance data; forecasting of pest, weed and disease outbreaks; communication of the outbreaks to farming communities, pursuing climate change implications.
- Timely reporting of diseases, vectors, and pest outbreaks to enable rapid field investigations, laboratory confirmation, instituting of quarantine restrictions where necessary and actual interventions to control the problem. Activities to be implemented to achieve the desired results include: Review, procure and avail the technologies now available for making fast, accurate and foolproof reporting on occurrences and or outbreaks of diseases; Make continuous monitoring, evaluation and supervision to ensure continued timely reporting.
- Establishment of routine surveillance, including purchasing the appropriate agro-chemicals and equipment required for an outbreak; training for staff, LGs and farmers on controlling epidemics; liaising with internal and external pest control organizations; routine control measures; follow up to evaluate the impact of the control measures.

Component 1.3.4: Strengthening diagnosis of pests and diseases

Uganda has been invaded by many pests, weeds and diseases, some of which have done considerable economic damage. To safe guard against future invasions, much better diagnosis is required. This will involve:

- Building capacity for diagnosis. Currently only some 6 out of 80 districts have any kind of

laboratory services while the central diagnostic laboratory at Kawanda can only offer limited services. Activities to be implemented to achieve the desired results will include: Undertake a needs assessment study for laboratory services including veterinary dispensaries; Construct one veterinary dispensary per sub-county and one lab per district; Construct four regional labs and one national referral/accredited lab; Equip the laboratories and veterinary dispensaries; Train laboratory and epidemiological analytical manpower; Coordinate and supervise all laboratories and veterinary dispensaries in the country; Make continuous monitoring, evaluation and supervision to ensure high laboratory performance and services are delivered.

- Improving checks at border points. Currently there are about 45 border points where customs officials carry out routine checks of goods leaving or entering the country. These should have an Agricultural Inspector on site to routinely check for infested plants, plant products and other materials. The activities include: Equipping the border point laboratories; Training the border point inspectors in carrying out routine checks and tests; Recording the commodities carried plus the corresponding infestations; Carrying out phytosanitary measures for non-compliant commodities; Forwarding the most difficult to identify commodities to the post entry laboratory.
- Increasing the use of plant clinics. Currently, plant clinics are being run in three districts to help farmers recognize the pests and diseases that invade their crops. Clinics are held at a site close to the farmer's residence and solutions to the pest problems are provided to the farmer by the 'plant doctors' at the plant clinic. By using mobile teams, this system will be expanded to all districts, either at the District Agricultural Office or at the nearest market place. The activities will include: Purchasing the requirements for running plant clinics; Training of personnel to run the clinics; Advertising the time and venue for running plant clinics; Transporting plant doctors and nurses to the venue; Receiving and recording plant specimens brought to the plant clinics; Diagnosing pests, weeds and diseases; Establishing procedures to forward the hard-to-diagnose pests, weeds and diseases to other laboratories; Providing solutions to the

farmers; Setting up a simple monitoring system to ensure good clinic performance; Establishing procedures for effective plant clinic register management, and; Adding the new pest cases to the national pest list and pest compendia.

- Supporting the recall of veterinary services. The decentralization of veterinary officers under the Local Governments Act (1997) led to reduced effectiveness of the PDC services. Now these services are to be "recalled". Activities to support this process include: Needs assessment of types of vaccines needed; Revived animal vaccine production unit in Entebbe; Formulation of across the board emergency preparedness and action plans; Strengthening of the diagnostic capacity to evaluate vaccine and biological product efficacy, safety quality etc. in liaison with MOH/NDA; Finalising the animal disease free zone concept; Undertaking preventive vaccinations in buffer zones along high risk international and inter-district borders and within districts; Monitoring, evaluation and supervision of the activities.

In this component there is considerable scope for creating synergies between animal and plant health by sharing facilities. In addition to the veterinary dispensaries, the plant clinics can be used to assess the needs for lab facilities. If investments are made in diagnostic labs for animals, these could be designed to receive plant samples as well. Some of the equipment could be shared (microscopes, incubators, basic tools and materials). It does not require sophisticated equipment to make basic tests of the most common problems. Advanced testing of both animal and plant diseases would have to take place in Kampala anyway. More local laboratories will strengthen the potential of the plant clinics substantially. An integrated animal-plant diagnostic laboratory will have implications for staff and training needs but would probably be a cost-effective investment, particularly if the laboratory testing results are used to support the surveillance and quarantine investments. For this to happen, effective procedures and information management are crucial.

The plant clinics have a broad potential to help glue together the various systems. They are first and foremost a community-based plant health service for farmers, but if properly connected to other institutions and services, the synergies with

surveillance, quarantine, research, other advisory services and input suppliers can be quite substantial. This will require some organizational change since the actors involved will have to adjust their way of working and communicating.

Component 1.3.5: The quarantine regime

There is need for a robust Post-Entry Quarantine regime that can handle dangerous pests, diseases and weeds without them escaping.

- Uganda operates a *pseudo* Post Entry Quarantine Station at Namalere. It is incomplete, scantily equipped and under-resourced. The laboratory needs to be elevated to a centre of expertise for Pest Risk Analysis.²⁰ The activities include: Construction of a second level quarantine handling facility; Recruiting suitable staff to run the post entry station; Equipping the laboratory to modern levels, for example for GMO detection; Sensitising the stakeholders about the responsibilities of the laboratory and funding requirements; Developing a training centre for Agricultural Inspectors at the post entry lab.
- Animal species, animal products, man and vehicles that are in disease outbreak and high risk disease areas have to be put under quarantine restrictions when necessary (isolation, daily clinical observations and testing/slaughter/disposal as applicable). This is difficult in Uganda where most animals are not limited in their movements, where communities depend on them for food, income and other requirements and where stock routes are largely open and international borders unregulated. Activities to be implemented to achieve this result include: Quarantine restrictions gazetted by use of multi-media communication for all stakeholders in the country; Animal quarantine restriction regulations enforced by use of strategic Animal Check Points; Control movements of animals in tsetse infested areas; Use of Statutory Instruments declaring certain areas as infected under the Animal Diseases Act; Use (in liaison with the Inspector General of Police) of a Veterinary Police Unit to patrol stock routes and enforce animal quarantine restrictions.

²⁰ The station should also be set up as a diagnostic service to back up the more simple district laboratories. This would ensure a direct link to the field, better use of the investment, as well as enrichment of the disease lists.

- It is currently estimated that only about 30 percent of all animals and their products moved in the country meet the required minimum standards for transporting animals. For pastoral animals it is probably below 10 percent. This situation is clearly a major contributor to a reduction in national animal production/productivity. The objective has to be to ensure that over 90 percent of all animals and animal products moved are regulated and controlled to meet mandatory local, regional and international regulations and standards regarding animal health, veterinary public health, animal welfare, professional ethics and trade. Activities to be implemented to achieve the desired results include: Conduct a study on proper utilization of mandatory veterinary regulatory fees to enable sustainable and effective animal movement control; Procure appropriate security oriented transport systems for headquarters and districts to enable enforcements; Set up animal buffer/corridor zones 10 km wide from international borders and wildlife protection areas; Make partnership with UWA to fence off Game Reserves and reduce contact with domestic animals; Monitor, evaluate, supervise and regulate veterinary practitioners.

Component 1.3.6: Tsetse and tick-borne diseases

The main vectors of animal disease in Uganda are ticks and tsetse flies. Their control is mandatory under the Animal Diseases Act since the diseases they transmit are largely notifiable on occurrence. However, with 65 percent tsetse fly occurrence and high tick-infestation, there is need for a renewed effort to bring incidence to manageable levels. Activities to be implemented to achieve this result include:

- Zone the country and expedite the use of different types of acaricides/insecticides to avoid resistance;
- Advocate and supervise the use of cost effective and environmentally friendly methods such as traps, live bait technology and biological methods like area-wide application of sterile male insects;
- Advocate and supervise the use of crushes/dips and hand dressing;
- Advocate and supervise the rational application of chemotherapeutic and chemoprophylactic drugs against trypanosomiasis;

- Enforce the compulsory treatment of all ruminants and pigs taken to market in tsetse infested districts;
- Train technical personnel on appropriate use of acaricides, insecticides, biological and physical methods of control;
- Procure and supervise the use of East Coast Fever (ECF) vaccines and drugs in the country; and
- Initiate and maintain area-wide tsetse fly free zones.

Component 1.3.7: Traceability system

The Animal Diseases Act directs that animals and their products are fully identified as regards ownership, place of origin and final destination, type of species/breed and state of health. Currently, it is almost impossible to fully identify and trace any animal or product along the value chain, forward or back. A Statutory Instrument under this Act will be made and the regulation enforced to address this issue not least because it is impossible to trade and move animals and their products internationally without an identification and traceability system in place for the exporting country. Activities to be implemented to achieve the desired results include:

- Identify the type of identification and traceability system to be used;
- Conduct a pilot study on effectiveness of the system chosen;
- Procure services to install a full system; and
- Undertake monitoring, evaluation and supervision.

Component 1.3.8: Supporting local governments

Most LGs lack the capacity to effectively manage PDC in their districts. They also have limited information and know-how. It is the mandate of MAAIF to technically back up LGs to manage the various problems. As far as PDC responsibilities go, the support activities will include:

- Organizing training materials for LGs;
- Distributing training materials to LGs;
- Actual training for LG extension staff;
- Equipping LG laboratories;
- Training technicians to run district labs; and
- Monitoring surveillance activities of LG staff.

District level activities should privilege community veterinary and plant health issues. Under veterinary, a Primary Veterinary Community Health Plan needs to be prepared to address such issues as zoonoses,

food safety, abattoir and slaughter slab systems, farm safety, farm health and production information, and inter-sectoral data exchanges with the Ministry of Health.

Component 1.3.9: Strengthening partnerships and international collaboration

Pests and diseases respect no international boundary and effective control requires a concerted effort from all the involved countries. This can be brought about by a regional or international arrangement or organization. Some national, regional and international organizations have mandates for controlling certain pests and countries contribute to their budgets for that purpose. e.g. the Desert Locust Control Organization for East Africa (DLCO-EA), based in Nairobi. The activities include: Recording the impact and distribution of the weeds, pests and pest diseases; Inviting the national, regional and international organizations to participate in the control of the pest; Receiving and hosting the technical personnel and equipment of the organization; Making frequent communications and attending meetings between governments and key organizations. MAAIF will also set aside resources and personnel to make a useful contribution to the key organisations.

Component 1.3.10: Infrastructure

The current state of the PDC infrastructure is deplorable with most quarantine stations, holding grounds, fumigation houses, animal night stops, dips and crushes, abattoirs and processing plants, and laboratories being either inadequate or obsolete. These must now be developed to improve prevention, control and or eradication of pest, diseases, and vectors. Activities to be implemented under this area of investment include:

- Needs assessment of technical infrastructure requirements;
- Plan to develop the appropriate infrastructure;
- Implementation of the plan;
- Continuous monitoring, evaluation and supervision.

The Crop Protection Museum and the Herbaria, should be protected, improved and maintained. This can be done by providing trained manpower to properly run them. The activities include:

- Recruiting a curator for the Crop Protection Museum and Herbaria;
- Appointing other staff;

Table 3.4: Budget for Pest and Disease Control Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Policy and planning	500	575	661	760	875	3,371
Set standards and create awareness	1,200	1,380	1,587	1,825	2,099	8,091
Surveillance and reporting	6,640	7,636	8,781	10,099	11,613	44,769
Diagnosis	6,340	7,291	8,385	9,642	11,089	42,747
Operate quarantine regime	10,470	11,517	12,669	13,936	15,329	63,920
Tsetse and tick borne diseases	6400	8400	7500	3500	5700	31,500
Establish a traceability system	1,700	900	1,035	1,190	1,369	6,194
Support local governments	1,120	1,288	1,481	1,703	1,959	7,551
International collaboration	540	621	714	821	944	3,641
Infrastructure	5,620	3,000	3,450	3,968	4,563	20,600
Co-ordination, M&E	480	552	635	730	840	3,236
Total	41,010	43,160	46,898	48,174	56,379	235,621

- Training of staff in Museum and Herbarium management;
- Purchasing the required equipment and furniture;
- Installing a computer based cataloguing system for the museum and herbarium;
- Moving the museum and herbarium to a new site at Namalere Post-Entry Quarantine Station;
- Carrying out routine collections, curing new specimens and replacing the old ones

Component 1.3.11: Co-ordination, monitoring and evaluation

The PDC requires a coordination team that will oversee all the activities of surveillance, reporting and management. The team should also monitor the control activities to understand their impact and to assess when and how to call in reinforcements from internal and external partners. The team, based at a central location will have appropriate assets, including transport. The activities include:

- Purchasing and installing the information processing facilities;
- Storing inputs before delivery to the operation areas;
- Servicing all the laboratories, offices and operational units both in the field and border points;
- Purchasing vehicles for transporting equipment, agro-chemicals, personnel and other services;
- Procuring all other necessary requirements for the PDC system.

While the above description seems to focus mostly on hardware, the processes for monitoring organizational change are just as important. The

establishment of a functional, responsive system will require targeted interventions to guide people and institutions through these processes. Until the MAAIF restructuring plan is implemented, the substantial work to be done under this area will have to continue to be spread among the several bodies and departments currently handling the burden, i.e. local authorities, the Department of Livestock Health and Entomology, the Crop Protection Department and the Department of Fisheries Resources (all in MAAIF HQ) and NARO. There does, however, need to be a rigorous assessment of whether these departments can actually deliver the outputs necessary as this sub-programme is one of the core functions of MAAIF and one of the most important in terms of the substantial economic return to the investment. There is a more or less well-established hierarchy of players who deliver services at different levels (MAAIF, LG, vets, specialists, various advisory services, community-based animal health workers etc.) but it will be key that functional links are created to deliver services and information effectively.

The cost of the activities under the Pest and Disease Control Sub-programme is shown in Table 3.4. The total cost is UGX 235.6 billion, starting at UGX 41 billion in Year 1, rising to UGX 56 billion in Year 5.

Sub-programme 1.4: Sustainable Land Management

Land degradation in Uganda is widespread and serious although it varies from one part of the country to another, depending on farming practices,

population pressure, vulnerability of the soil to denudation and local relief. Studies have estimated that soil erosion alone accounts for over 80 percent of the annual cost of environmental degradation representing, as much as USD 300 million per year (NEMA, 2005). In 2003 the annual cost of soil nutrient loss due primarily to erosion was estimated at about USD 625 million per year. At the same time, fertiliser use, at an average of 1 kg of nutrients per hectare is one of the lowest levels in the world.

Land degradation therefore threatens to significantly undermine future productivity growth in the agriculture and forestry sectors. In the worst affected areas, the only viable option is sustainable intensification, i.e. increasing the productivity of land and genetic resources in ways that do not compromise the quality and future productive capacity of those resources.

Past investments in land productivity have been inadequate in comparison to the scale of the problem. This was partly due to a project-specific approach to a complex rural land use issue, one which, by its nature, was not able to capture the cross-sectoral character of land management. Poor coordination and collaboration across sectors, themes, stakeholders and partners then placed a drag on investment performance. However, recent developments by the Government to remedy this situation, along with greater international attention being placed on climate risk and agriculture, provides impetus for a renewed effort to sustainably improve land productivity. The contention is that Sustainable Land Management (SLM) strategies and practices will enable farmers and communities to adapt (and become more resilient) to climate change by increasing food production, conserving soil and water, enhancing food security and restoring productive natural resources. Additionally SLM strategies and practices should prevent further land degradation, restore degraded lands, and reduce the need for further conversion of natural forests and grasslands.

The specific objective of this sub-programme is *“Enhanced productivity of land through sustainable management of soil and water resources.”* The objective will be pursued collectively as an integral and critical component of the new agriculture drive as detailed in the CAADP and under the NEPAD’s Environmental Action Plan (EAP) with MAAIF, MWE,

MEMD MLHUD agreeing²¹ to enhance collaboration between the sectors in implementing an SLM Sector Investment Framework (SIF). To achieve the objective, activities will be implemented under five components. (Note that, in this document, only those activities under the mandate of MAAIF will be discussed in detail.)

Component 1.4.1: Scaling up SLM

This component aims at scaling-up proven best practices²² in the target, fragile, high risk areas which have experienced accelerated land degradation in the form of soil erosion, nutrient depletion, etc. There exists a wide range of experiences on SLM management techniques/ technologies that are ready for scaling up in the appropriate farming systems: e.g. erosion control through terracing, mulching and contour ploughing; agroforestry; conservation agriculture; integrated nutrient management (INM) etc. Activities here will include:

- Promote watershed management practices and rehabilitate degraded sites/micro-catchments;
- Promote conventional soil and water conservation practices;
- Promote incentive mechanisms for SLM adoption;
- Promote biomass energy/charcoal saving technologies;
- Improve water supply (for production and domestic uses) to pastoral communities;
- Promote small scale irrigation practices; and
- Promote diversification.

MAAIF’s mandate and budget in this area will cover activities focusing on soil and water conservation and water for agricultural production especially irrigation.

Component 1.4.2: Policy and regulatory environment for SLM

This component will strengthen the enabling, institutional and policy environment required for effective scaling up of SLM. This will include further mainstreaming of SLM into the DSIP, national development frameworks (NDP), district development plans (DDPs), district environment action plans (DEAPs) and Sub-county Environment Action Plans (SEAPs). Interventions for adapting and

21 Through an Inter-Ministerial Cooperation Framework (IMCF) on SLM, signed in October, 2007

22 For details, see Uganda Strategic Investment Framework For Sustainable Land Management, 2010 – 2020.

mitigating the effects of climate change will also be targeted under this component. The capacity for climate monitoring will be strengthened and old climatic data will be collected from up-country stations, analysed, archived and disseminated. The implementation and up-grading of the national agricultural institutions to cover medium to long-term national climate change adaptation will be supported. To reduce risks and vulnerability to climate change impacts, early warning systems and emergency response plans will be developed and implemented. Activities will include:

- Strengthen capacity of UNCCD/NAP Focal Point to coordinate, monitor and supervise SLM activities;
- Improve capacity of LGs, CSOs and others to plan, implement and monitor SLM;
- Mainstream priority SLM issues into development frameworks and action plans;
- Strengthen capacity for climate monitoring;
- Reduce vulnerability to climate change/variability;
- Develop capacity of local institutions to enforce bye laws and regulations in SLM;
- Mainstream gender issues in SLM programmes/interventions;
- Develop land use plans; and
- Promote avenues/practices to reduce conflicts around NR use (e.g. land tenure).

MAAIF's will have an input into almost all these areas and the budget reflects this.

Component 1.4.3: Strengthening commercial and advisory services for SLM

There are two major thrusts of this component: (i) Improving, and making readily available to land users, commercial and advisory services for SLM, and; (ii) Promoting alternative livelihood options through service delivery and technology demonstration. Specific activities will include:

- Provide incentives for the private sector to invest in alternative livelihoods in the drylands (mostly in the cattle corridor), with emphasis put on aquaculture, fruit growing, beekeeping, agro-forestry and production, and other SLM-friendly dryland products (gum Arabica, aloes, etc.);
- Demonstrating market technologies (cold storage facilities, rural based processing, etc);
- Training farmers, pastoralists and other stakeholders in business development skills; and

- Improving market information flows and infrastructure.

Activities under this theme will be implemented by NAADS and NGOs.

Component 1.4.4: Promoting SLM research and dissemination

To build the knowledge base in a number of SLM areas, additional studies are required. For example:

- As the current fertiliser recommendations were developed in the 1960s, new research will be carried out to develop site-specific fertiliser recommendations for five key cereal/legume crops;
- Integrated Nutrient Management (INM) options will also be evaluated;
- Using a combination of satellite images, aerial photo interpretation and other field based methodologies, land resource assessments will be carried out to update soils information, land cover, vegetation, etc and thereafter develop land suitability maps that are a pre-requisite for the development of land use plans.
- Climate change adaptation information will be generated;
- Studies on value chains will be undertaken'

Most of the work will be carried out by NARO.

Component 1.4.5: Improving SLM knowledge management

This component aims at improving knowledge generation and having it effectively managed and disseminated in user-friendly modes to all stakeholders. It further aims at building transparent and participatory action, making coalitions among sectors, enhancing alignment around common goals and reinforcing trust via a robust M&E system. Specific activities will include:

- Developing and operationalising an integrated Geographical Information System (GIS) supported Management Information System (MIS);
- Developing and Operationalising a results-based M&E Framework; and
- Developing and implementing an effective Information Management and Communication Strategy.

The cost of the activities under the Sustainable Land Management Sub-programme is shown in Table 3.5.

Table 3.5: Budget for Sustainable Land Management Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
1. Scaling up SLM	5,000	7,000	13,000	13,000	17,000	55,000
Soil and Water Conservation	4,000	4,800	5,760	6,912	8,294	29,766
Water for Agricultural Production	500	500	700	700	700	3,100
2. Enabling Environment	10,000	10,000	13,000	14,000	17,000	64,000
MAAIF activities	5,000	5,000	6,500	7,000	10,000	33,500
3. Commercial and Advisory Services	1,000	1,000	2,000	3,000	4,000	11,000
MAAIF activities	300	300	600	800	1,200	3,200
4. Research and Dissemination	3,000	4,000	6,000	7,000	8,000	28,000
MAAIF activities	2,000	2,500	4,000	6,000	6,000	20,500
5. SLM Knowledge Management	2,000	2,000	3,000	3,000	4,000	14,000
MAAIF activities	1,900	1,900	2,800	2,800	3,900	13,300
Totals	21,000	24,000	37,000	40,000	50,000	172,000
Total for MAAIF	13,700	15,000	20,360	24,212	30,094	103,366

The total cost is UGX 103.4 billion. First year MAAIF costs start at UGX 13.7 billion and rise to UGX 30 billion in Year 5.

At the national level, overall coordination is anchored in MAAIF, with NAADS and NARO playing prominent roles, but, by its nature, it requires the active involvement of several line ministries. MAAIF will exercise its coordination role through the UNCCD Focal Point Office.

The implementation of activities will be carried out by relevant sector departments, local governments, research institutions, universities, private sector, NGOs, CBOs and civil society. There is an Inter-Ministerial National Steering Committee composed of Permanent Secretaries (MoFPED, MAAIF, MWE, MLHUD, MEMD, MTTI, and the MoLG) to provide policy guidance and oversight. The Steering Committee will meet quarterly. At the second level there will be a National Technical Working Committee (TWC) that will provide overall technical guidance. Taken together, this forms a national SLM Country Platform that convenes all key implementers and other stakeholders in one forum.

Sub-programme 1.5: Water for Agricultural Production

A major issue for agricultural development in Uganda is the continued total dependence on rainfall, not least because it appears to have become unreliable since the 1970s and this may increasingly be the case, with climate change. Although, most parts of

Uganda have received below average rainfall in the past three years, the country is still blessed with abundant water resources relative to most countries in Africa. At least 3 percent of the land area of the country is covered with open water and most of the country receives an average of 1,000 mm of rain annually.

Interventions to respond to dependence on rain-fed agriculture are broadly in two categories. First, at the household level, where farmers will be trained on water harvesting and small irrigation technologies such as foot operated systems. Second, development of large scale irrigation which could be linked to specific commodities/enterprises.

The specific objective of this sub-programme is *“Water resources developed for agricultural production on the basis of sustainable irrigation, water for livestock and aquaculture.”* Because development of infrastructure for WfAP is beyond the capacity of the average household, and even larger farms, not least because of the high investment cost involved, GoU will take an active role in promoting new investments. To achieve the objective, activities will be implemented under four components.

Component 1.5.1: Policy and planning frameworks

The legal and institutional frameworks and the capacity for developing water for agricultural production are not adequate. Attempts have been made in the last few years to revise the Water for Agricultural Production Policy framework but with limited impact. Institutional disagreements have been partly to blame for this. MAAIF will now move

decisively to strengthen its capacity to provide planning advice and analysis around the use of water for agriculture. This means:

- Finalising the WfAP policy document (with the framework, principles and parameters for effective implementation) and approving it;
- Identifying priority functional areas to be implemented with the actors, time frame, resource requirements and monitorable indicators for progress;
- Improving the economic evaluation of different water-based interventions to improve the selection of more technically effective and cost-effective solutions;
- Developing appropriate mechanisms for cost sharing and funding of water-based interventions;
- Clarifying the institutional adjustments necessary in MAAIF for effective implementation;
- Preparing a time bound action plan for implementing the DSIP proposals;
- Preparing guidelines for appraisal and design of small-scale farmer-based irrigation schemes, livestock and aquaculture facilities, especially bearing in mind climate change implications;
- Preparing guidelines for operation and maintenance for water-user committees and associations; and
- Preparing training materials for farmers, private service providers, local government and central government staff, extension agents, among others.

Component 1.5.2: Water for crop production

Irrigation potential is clearly not utilised and reported yields on the schemes that do exist are far below what they should be. This is a consequence of factors like uncertain ownership and tenure, low value crops, poor access to markets, poor quality infrastructures, unsuitable farming methods, the unavailability of appropriate extension services, inadequate farmer skills, inappropriate technology, the absence of viable financial services for small farmers and small industries etc. In this environment, it will be important to assimilate the lessons to date and the key focus now will be on optimising the use of rainwater for increased crop production; maximising the utilisation of existing irrigation schemes in a sustainable manner; and developing new irrigation schemes in a sustainable manner. Government investments in irrigation will include:

- Evaluating all existing irrigation schemes and sites and analysing the rehabilitation prospects;
- Rehabilitating five large irrigation schemes with a total area of some 6535 ha. Government will seek to ensure that management of public irrigation schemes is reorganised and transferred to the lowest appropriate level in order to ensure the sustainability of the schemes can be improved.
- Establishing four new irrigation schemes;
- Establishing thirteen irrigation research and development sites;
- Undertaking district-based demonstrations on small-scale irrigation technologies and rain water harvesting and management;
- Capacity-building of stakeholders in the irrigation 'sub-sector';
- Providing information to private investors, both large and small scale, on aspects of methodologies, water rights (especially as regards water taken from the Nile), and water access. Whereas water access may be more important for major irrigation works, even investors in minor irrigation need to have detailed information on water table levels and likely inter and intra-seasonal fluctuations in these levels. They need to know that the water is likely to be there to be pumped.
- Building a monitoring framework for the supply, utilisation and management of water for crops; and
- Providing backup support including promotional activities, guidelines, regulations, standards designs and manuals, and technical assistance for small scale & commercial private irrigation developers.

Component 1.5.3: Water for livestock

The major opportunity here lies in building infrastructure and facilities which will extend water availability for a few months and so significantly improve the economic viability of certain models of livestock keeping, especially in the cattle corridor and pastoral areas where livestock frequently have to cover long distances in search of water with all the associated health and productivity risks. With the poor record of investments made since the early 1990s (notably dams and valley tanks), it will be incumbent on stakeholders to study carefully the earlier lessons as regards inappropriate siting, inadequate site investigations, poor construction, poor supervision, lack of community involvement, poor maintenance etc. Much of the failure stems

from a “top-down” approach to implementation and this has to be avoided in future. Investments will consequently emphasise decentralised management for any facilities established and will include:

- Making an inventory of water needs for livestock including costs of different means of provision;
- Completing the strategy and guidelines for the decentralisation of planning and implementation of water for livestock;
- Studying the potential human-livestock-wildlife conflicts and disseminating the results;
- Establishing 1000 water user associations and training them on existing and new watering facilities;
- Constructing 25 new valley tanks equivalent to 2.2 million m³;
- Increasing water storage through surface water reservoirs, gravity flow or ground water exploitation; and
- Training farmers on the optimal and sustainable use of water facilities.

Component 1.5.4: Water for aquaculture

With the increasing population, there has been an increasing local demand for fish. With export demand also rising, this has led to over fishing, a shortage of fish and an approaching collapse of the capture fish industry (see Section 2.2.3). The potential, indeed necessity, to develop aquaculture becomes ever more pressing. There is good potential for this with numerous permanent water sources in the country, soils with high water retention capacities and suitable temperatures all the year round in low altitude areas. In fact, Uganda produces up to 15,000 tonnes of fish from aquaculture (Makerere, 2009) already, including production from small-scale fish farmers, emerging commercial fish farmers and stocked community water reservoirs and minor lakes. There are an estimated 20,000 ponds throughout the country with an average surface area of 500 m² per pond. Production ranges between 1,500 kg per hectare per year for subsistence farmers to 15,000 kg per hectare per year for emerging commercial fish farmers. With improved market prices for fish, aquaculture has begun to attract entrepreneurial farmers seeking to exploit the business opportunity as well as a transformation of 20 percent to 30 percent of the smallholder subsistence ponds into profitable small-scale production units. It is estimated that there are 2,000 ‘commercial’ farmers who own nearly 5,000 ponds, with an average pond

size of 1,500 m² per pond. However, the reasons for the non-functionality of ponds in the past give some guidance as to what is needed to improve the environment for further investments in aquaculture. Currently there is: lower than anticipated yields due to poor practises especially in regards to fish feeding, stocking and water use management; a problem with farmers’ struggling to sustainably manage their ponds; a shortage of seeds (or funds for seeds).

The Ministry’s National Aquaculture Development Strategy, provides indicative targets in the sub-sector and these are to increase small-scale aquaculture from 5000 ha to 20,000 ha by 2015; to increase large-scale aquaculture from 5,000 ha to 25,000 ha by 2015, and; to establish functional management systems at some 80 percent of the existing aquaculture water facilities. To this end government investments in aquaculture will cover:

- Identifying priority functional areas to be implemented with the actors, time frame, resource requirements and monitorable indicators for progress;
- Improving the economic evaluation of potential investments to improve the selection of more technically and cost-effective solutions;
- Developing appropriate mechanisms for cost sharing and funding of aquaculture interventions;
- Establish five aquaculture parks;
- Clarifying the institutional adjustments necessary in MAAIF for effective implementation;
- Preparing a time bound action plan for implementing the DSIP proposals;
- Preparing guidelines for operation and maintenance for “Pond Management Units” and associations;
- Preparing training materials for small-scale pond operators, private service providers, local government and central government staff, extension agents etc;
- Training farmer’s groups in stocking methodology, harvesting and water control and management; and
- Build capacity to provide aquaculture investors with a range of information on structures, husbandry and feeding/health care.

The cost of the activities under the Water for Agricultural Production Sub-programme is shown in Table 3.6. The total cost is UGX 231 billion, starting at UGX 32 billion in Year 1 and finishing at UGX 54.5

Table 3.6: Budget for Water for Agricultural Production Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Policy and Planning	1,000	1,100	1,210	1,331	1,464	6,105
Irrigation	14,500	21,000	24,000	26,000	19,000	104,500
Evaluation of existing schemes	500					500
Rehabilitation of five schemes	10,000	12,000	14,000	10,000	1,000	47,000
Establishment of 4 new schemes		3,000	4,000	5,000	2,000	14,000
Establish 13 irrigation R&D sites	2,000	3,000	1,000	1,000	1,000	8,000
District-based demonstrations	2,000	3,000	5,000	10,000	15,000	35,000
Water for Livestock	10,000	11,000	13,000	13,000	22,000	69,000
Assist water user associations	2,000	2,000	6,000	6,000	9,000	25,000
Construct new valley tanks	4,000	4,000	2,000	2,000	2,000	14,000
Increased water storage developed	3,000	3,000	3,000	3,000	6,000	18,000
Train farmers on use of water facilities	1,000	2,000	2,000	2,000	5,000	12,000
Aquaculture	6,500	8,500	12,000	12,000	12,000	51,000
Improved planning and evaluation	1,000	1,000	1,000	1,000	1,000	5,000
Establish mechanisms for cost sharing	500	500	3,000	3,000	3,000	10,000
Establish 5 aquaculture parks	2,000	4,000	6,000	6,000	6,000	24,000
Operations & Maintenance guidelines	1,000	1,000	1,000	1,000	1,000	5,000
Train farmer's groups	1,000	1,000	1,000	1,000	1,000	5,000
Build capacity	1,000	1,000				2,000
Total	32,000	41,600	50,210	52,331	54,464	230,605

billion in Year 5. The biggest component is Water for Crops (45.3 percent) followed by Water for Livestock (29.9 percent) and Water for Aquaculture (22.1 percent).

Until recently, responsibility for the implementing of the WfAP function was scattered among several government ministries. In particular, MAAIF was responsible for implementation of irrigation and farm planning programmes, while aspects of water for livestock and aquaculture were under MWE. However, in June 2007, Cabinet made a decision to revert the WfAP function wholly to MAAIF. Since then the ministry has been trying to operationalise the function within its mandate. Clearly MAAIF is weak and under capacity in this area, and so under DSIP its ongoing task must be to establish functional coordination mechanisms at all levels; develop capacity for planning, implementation and management of WfAP, and; establish an integrated policy framework to improve the efficiency and effectiveness of service delivery.

Sub-programme 1.6: Labour Saving Technologies and Mechanisation

The lack of farm power at the household level has a substantial negative impact on agricultural production and household food security. Many households respond to their shortage of farm power by scaling down their activities, reducing the area under cultivation and growing a limited range of crops. There is no doubt that the productivity of the labour-force is compromised by a lack of physical energy and poor quality tools.

The specific objective of this sub-programme is "Increased use of labour saving technologies including appropriate mechanisation and other farm management related investments." A principle that will be followed is that mechanization is only an input like any other, such as fertilizer or seed or crop protection chemicals. As such the type and degree of mechanization should be decided by the producer to best suit his/her business and his/her own particular circumstances, and the choice of suitable methods will therefore be just one of a number of choices that the farmer has to make. The decision on whether, and how, to mechanize is often made for a complicated mix of reasons but economic decisions should be paramount. To

achieve the objective, activities will be implemented under eight components.

Component 1.6.1: Developing the incentive framework for the acquisition of labour saving technologies

MAAIF will complete the policy and strategy for farm mechanization and agricultural engineering. The expected outcome of this will be clarity around how government facilitates the private sector to meet the demands from farmers and other consumers, at the same time as a sustainable system of manufacture, importation, retailing, and utilization is developed. The strategy will clearly state the different roles of the public and private sectors. This will include issues related to areas of public concern such as consumer protection, the environment, safety and other externalities.

It is expected that formulation of an agricultural mechanization strategy will comprise several steps; (i) An overall analysis of the agricultural sector related to farm power inputs as well as an analysis of the existing national farm mechanization situation. This latter should include national inventories, capacity for domestic manufacturing and assembly (tools, implements, tractors etc.), imports of farm tools and machinery, descriptions of farming systems in relation to the use of farm power and their respective changes over time; (ii) A description of policy issues which impact on farm mechanization with an analysis of problem areas and constraints; (iii) A definition of the (ideal) future situation. The resulting strategy will be the definition of the actions required to move from the existing situation to the future situation.

Component 1.6.2: Developing and promoting appropriate technologies including animal traction and mechanisation

Once the strategy is agreed, follow-up actions and activities must be designed. These activities are expected to consist of recommendations on policy adjustment (to correct distortions in the sub-sector); investment plans (to develop manufacturing, commercial companies and farm mechanization); and a further definition of government support actions and activities required for the sub-sector, e.g. piloting certain promising technologies.

Component 1.6.3: Developing public/private partnerships

Private sector operators will be assisted to operate tractor dealerships based on a leasing scheme in which Government provides bank guarantees. It is envisaged that a commercial bank will put up 80 percent of the cost of the tractors and pay the importer for each tractor leased by farmers. Government will underwrite this arrangement with bank guarantees for the cost of the tractors and associated equipment. Funds for this component are envisaged to come directly from the Treasury and not from the MAAIF budget. It is intended that farmers pay at least 50 percent of the cost of the machinery and that the process be monitored by MoFPED.

Component 1.6.4: Establish modalities for financing private enterprises

Private entrepreneurs will be assisted to purchase tractors and associated equipment and machinery. Government will provide 10 percent down payment for each tractor purchased and investors will be able to purchase the tractors with a 10 percent down payment. It is also envisaged that there be a waiver on the current VAT of 18 percent.

Component 1.6.5: Establish and equip mobile workshops

Four regional mobile workshops will be set up, to be managed by a private sector partner in association with NAADS, the latter of whom will also meet the training costs of tractor technicians and operators.

Component 1.6.6: Provide technical information

MAAIF will generate and provide information for the effective utilization of tractors in the field so as to optimise small farmer enterprise productivity and profitability. The relevant NARO research institutes will generate the required information with MAAIF supporting the necessary capacity development among technicians and tractor operators.

Component 1.6.7: Establish an agricultural mechanisation unit in MAAIF

The Mechanisation Unit will provide technical back-up and operational guidance to activities under the Sub-programme. Cabinet has already given approval for this and proposals have been made for the structures and functions. Urgently, and as part of implementation, there is now a need to agree:

- The priority functional areas to be implemented with the actors, time frame, resource requirements and monitorable indicators for progress;
- The institutional home for the Promotion of Labour-saving and Mechanisation function;
- The institutional adjustments necessary in MAAIF for effective implementation;
- A time bound action plan for implementation; and
- A training plan for farmers, private service providers, local government and central government staff, extension agents, local and central government staff.

Component 1.6.8: Promote mechanisation for increased rice production

Estimated local consumption of rice is 224,000 tonnes but only 164,000 tonnes was produced locally in 2008, the balance being made up by imports. Furthermore, both local and regional demand is increasing. A major constraint to expanding the industry is the high labour requirement of both production and processing and it is judged that higher levels of mechanisation will alleviate the situation and improve the quality of the final product. Small and medium scale rice producers across the country will be assisted to expand appropriate mechanisation as a means to increasing production and productivity. The component will start with a needs assessment to determine the specific machinery constraints and this will be followed by testing and piloting activities to enable appropriate machinery to be identified. Training of technicians and farmers and Farmer Field School activity will also be covered. By Year Three, modalities (including cost recovery) for the provision of appropriate machinery will have been developed and operationalised.

The cost of the activities under the Labour-saving Technologies and Mechanisation Sub-programme is shown in Table 3.7. The total cost is UGX 41.3 billion, starting at UGX 5.4 billion in Year 1 and rising to UGX 8.1 billion in Year 5.

Most of the planning and policy aspects of this work will be carried out in MAAIF, indeed by the Agricultural Mechanisation Unit once it is up and running. The work to establish financing modalities and mobile workshops will be undertaken by, or in association with, NAADS while the provision of technical information will be led by NARO.

Sub-programme 1.7: Agricultural Livelihoods in Northern Uganda

The prospects for peace continue to improve in Northern Uganda and GoU has prepared the Peace, Reconstruction and Development Plan (PRDP) as a framework through which public investment will be made in the continuing recovery. The PRDP is structured around four Strategic Objectives one of which is the Revitalisation of the Economy. This, in turn, has three priority programmes which focus on production, infrastructure and natural resources management. MAAIF has developed guidelines for implementation of the agriculture investments under the plan and these are the basis of much of this section.

Essentially, the DSIP investments will seek to establish links between producers (primarily small farmers), agri-business and financial institutions. They will signal a clear shift from the existing strategy of

Table 3.7: Budget for Labour Saving Technologies & Mechanisation Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Developing incentive framework	100	100				200
Promoting appropriate technologies	100	100	100	100	100	500
Developing public/ private partnerships	1,000	3,000	4,000	4,000	3,000	15,000
Establish financing modalities	1,000	3,000				4,000
Establish and equip mobile workshops	500	500	500	500	500	2,500
Provide technical information	500	500	500	500	500	2,500
Agricultural mechanisation unit	2,000	2,000	2,000	2,000	2,000	10,000
Mechanisation for rice production	200	400	2,000	2,000	2,000	6,600
Total	5,400	9,600	9,100	9,100	8,100	41,300

offering humanitarian relief to communities to one based on trying to establish private sector-driven agricultural growth (with the producers considered as private sector parties). The intention is that, at the end of the investment period, farmers and producer groups should have a clear market orientation while the agri-business community should be better able to respond to market demands and opportunities

The specific objective of this sub-programme is to “ensure food security and increased household income among the population of Northern Uganda by engaging in productive and profitable agricultural and agri-business activities.” To achieve the objective, activities will be implemented under five components.

Component 1.7.1: Agricultural production and productivity

The major issue here is limited agricultural knowledge among poor farmers in the North and the poor quality of the service delivery that exists. The activities will include the following:

- Improving advisory service delivery to farmer’s groups;
- Developing a community animal health programme;
- Improving farmer knowledge and skills through training; and
- Assisting farmers and their groups to improve their access to agricultural finance.

Component 1.7.2: Availability of agricultural inputs

This component essentially will address two issues: absence of productive assets and a lack of availability of agricultural inputs. The planned activities will include the following:

- Increasing access to both productive assets and inputs by individual households, perhaps through a cash for work approach, especially for vulnerable groups such as women and child-headed households, returning abductees, PLWHAs, among others;
- Supporting the agricultural input supply chain to improve its coverage and capacity. Support to stockists, traders, processors and financial institutions will be designed as a comprehensive package in which production, trade and value addition are interlinked and mutually supported for maximum and sustainable impact; and

- Increasing the availability of motive power. This may be the single best method to increase cultivated area and labour productivity in the North. Lessons from restocking programmes elsewhere in the north include: (i) The target group needs to be carefully selected on the basis of their willingness and capacity to maintain the animals, (ii) Animal veterinary health services need to be fully operational at the field level, and (iii) Farmers must be able to choose and procure their own animals.

Component 1.7.3: Agro-processing

There is very little processing capacity in the target area. Planned activities include the following :

- Increasing the understanding of value addition amongst farmers and traders;
- Undertaking value chain analysis and, where appropriate, supporting targeted interventions along the value chain;
- Strengthening the capacity of producer groups to undertake their own value chain work and to produce larger volumes of produce;
- Assisting potential traders and processors to expand their businesses.

Component 1.7.4: Access to markets

Not only is there very little market infrastructure in the target areas but linkages are weak and information sharing between producers and buyers is meagre. The activities will include the following:

- Increasing understanding amongst farmers and local traders of markets and market opportunities;
- Strengthening the marketing capacity of producer groups and co-operative societies. A deliberate effort will be made to include groups with predominantly or wholly women and youth; and
- Assisting potential traders and processors in assessing business opportunities;
- Rehabilitating rural infrastructure, e.g. community access routes, markets, storage, water points, crushes etc.

Component 1.7.5: Strengthening district production departments

Local Government departments play a key role in planning, supervision and monitoring, as per their mandate. They will be supported and the activities will include:

- Technical and logistical support to District Production Departments and Sub-county Production Officers; and
- Strengthening and facilitation of the LG Works Department.

The cost of the activities under the Improved Agricultural Livelihoods in Northern Uganda Sub-programme is shown in Table 3.8. The total cost is UGX 65.8 billion, starting at UGX 10.8 billion in Year 1, rising to UGX 15.8 billion in Year 5.

DSIP spending will be aligned with PRDP, the overall coordination of which is vested in the Office of the Prime Minister through a National Committee for Northern Uganda. At community level, social and production groups, which are common across the region, will form an excellent entry point for agricultural service delivery or for informal financial services. At a more formal level, the Sub-County and District Farmer's Fora, established under NAADS, will be central to the demand articulation of farmers, the procurement of advisory services and monitoring of service delivery.

Sub-programme 1.8: Promoting Strategic Enterprises

Investing in strategic commodities is not new. In 2001/2 Government initiated a strategy to support a number of enterprises to increase volumes and quality for the export markets. A recent review (CICS, 2008) of the initiative concluded that the intervention made was relevant and appropriate.

One of the principles of agricultural development over the next five years will be to pursue a commodity-focused approach, applying it to selected commodities in the ten agricultural production zones. The rationale for this is derived from Uganda's experience in agricultural development

between 2001 and 2009 where a general approach to agriculture development was taken in the PMA. The approach did not target specific agricultural commodities. While there clearly have been positive results, more could have been achieved with a focussed approach to some strategic commodities. Where there has been a focused approach in recent years, for example with palm oil in Kalangala district, or Kaweri Coffee in Mubende acting as nucleus for coffee farmers in Mubende and Mityana districts, both developments based on public private partnerships (PPP), progress is clear, with benefits accruing to both the main investors and hundreds of small scale out-growers. Outside the agriculture sector, another area of success through a PPP has been observed in commercial forestry establishment, where over 10,000 ha of forest plantation were established under the Sawlog Production Grant Scheme (SPGS) between 2003 and 2008. The argument here is not for large scale agriculture for the selected commodity per se, but rather the lesson gained from these approaches: that a focused approach to a commodity yields results, not least the emergence economies of scale that are necessary for both agro-industrial development and sustainable trade. To attract investors into agro-processing of a particular commodity requires assurances that the commodity in question will have adequate supply. This can come from small, medium and large-scale producers and, if they are in the same zone or locality, transaction costs incurred in moving commodities from sparsely located production points can be minimized.

On the basis of progress made and lessons learnt from specific commodity approaches to date and also because of a pressing need to show immediate impact, MAAIF has decided to support the development of specific value chains in addition to maintaining general support to agriculture. Accordingly, fifteen commodities have been selected under this Sub-Programme: these are traditional

Table 3.8: Budget for Agricultural Livelihoods in Northern Uganda Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Increased agricultural productivity	1,800	1,980	2,178	2,396	2,635	10,989
Increased availability of inputs	1,617	1,779	1,957	2,152	2,368	9,873
Agro-processing promoted	2,156	2,372	2,609	2,870	3,157	13,164
Improve access to markets	4,669	5,136	5,649	6,214	6,836	28,505
Support District Production dep'ts	539	593	652	717	789	3,291
Total	10,781	11,860	13,045	14,350	15,785	65,822

export crops (coffee, tea, cotton); cereals (maize, rice); fish; legumes (beans); tubers (cassava, irish potatoes); livestock (dairy cattle, beef cattle, goats and poultry); fruits (citrus, pineapples, apples) and bananas. The selection of the commodities has been guided by the following criteria (see Annex 2 for more detailed definitions of the criteria, scoring guidelines, results and ranking):

- Returns to investment (profitability or gross margin analysis);
- Priority based on zoning criteria;
- Number of households involved in producing the commodity;
- Contribution to exports;
- Poverty reducing effect;
- Multiplier effect within the sector and economy-wide;
- Size effect (potential contribution to growth and poverty reduction); and
- Potential future impact (consumption trends and short term impact)

The selection of these fifteen commodities does not mean that other commodities are not important in the DSIP. In fact the IFPRI study (2007), undertaken as part of the CAADP process, noted that to attain the agricultural growth target of 6 percent, the sector will require broad-based growth covering all major enterprises. As such, in addition to these specific strategic enterprises, MAAIF will continue to promote the production, marketing and value addition of other commodities through ongoing programmes such as research, advisory services, pest and disease control and regulatory services.

Given human capacity and budget constraints, the fifteen selected commodities will not be embarked on simultaneously. Instead, they will be gradually introduced over three financial years (Table 3.9) and corresponding to the maps given in Annex 3. The sequencing has been guided by four major considerations: (i) the extent to which the interventions can be rapidly implemented to realise quick results; (ii) the readiness of the implementing agencies and mechanisms; (iii) the need to begin with a small number that can be effectively managed with lessons quickly drawn for further refinement; and (iv) managing expectations of various stakeholders by ensuring that each year of DSIP implementation, all the ten agricultural production zones are covered.

Sequencing means that the year in which the commodity appears marks the commencement of interventions planned to promote the commodity in the zone. It does not mean implementation will be limited to only that year. Interventions will continue in the subsequent years as long as they are deemed necessary based on the progress of activities and results being achieved. In order to make informed decisions on how long to invest in a given commodity and which additional commodities are to be supported, the commodity approach will be subjected to a thorough review every year.

The specific objective of this sub-programme is *Accelerated production of selected strategic enterprises on the basis of specialization and agro-zoning*. To achieve the objective, activities will be implemented under four components.

Agricultural production targets

As a departure from previous agricultural policy frameworks this plan has both quantitative and qualitative targets for each of the sub-sectors against which progress and performance will be measured and monitored. The targets include production (metric tons) for major crops; numbers for cattle, small ruminants and poultry; and metric tones for fish. Annex 3 contains the production targets for key crop and livestock categories and fish production. These estimates are based on individual growth rate estimates for each sub-sector that are required to attain 6 percent agricultural sector growth, which in turn is required for effective poverty reduction by 2015²³. The growth rates are then applied to actual production for 2005 to get the annual targets to 2015, assuming constant, but different growth rates for the sub-sectors. For example, the annual growth rates required for maize and fisheries are 5.2 percent and 6.0 percent, respectively. These estimates are indicative, and will be revised when the agricultural census results are available in 2010, and subsequently, based on annual surveys by MAAIF in collaboration with UBOS.

Component 1.8.1: Establishment of implementation arrangements

The implementation of this entire sub-programme will require overall coordination, monitoring and oversight. This will be provided by the SWG and the TPM, working together to provide an annual review

23 The growth rates are adapted from Benin, et al (2007).

of intervention plans and performance. Day to day coordination and monitoring of the commodity approach will be undertaken by the Agricultural Planning Department in MAAIF, which will liaise with the key actors working with the selected commodities to ensure that they undertake their mandated responsibilities. APD will also commission relevant studies and monitor the progress of implementation.

For each selected enterprise, a commodity platform will be established with membership drawn from actors along the value chain. Commodity platforms that are already in existence will be strengthened to take the lead in the development of the respective enterprises. The role of government agencies will be to carry out activities that are in line with their mandates along the value chain. Additionally, agencies which have had some experience with this approach, will be tasked with facilitating further development of the chain. Some NGOs and the private sector have a wealth of experience that will be drawn upon to support commodity value chain development.

Activities to operationalise this component will include:

- Setting up and maintaining a strategic enterprise coordination and monitoring system. This will involve assigning relevant staff to the task, providing equipment and providing operational funds;
- Facilitating commodity platforms; and
- Identifying and engaging organizations with experience in value chain development.

Component 1.8.2: Commissioning relevant studies and reviews

In order to identify the interventions suitable for public sector support, value chain analysis and other studies will need to be carried out. The starting point will be to review the value chains studies that have already been undertaken by a number of organisations including the PMA Secretariat, the National Planning Authority and the Bank of Uganda. Besides the value chain analyses, the commodity platforms will, as necessary, identify and recommend additional studies that are vital to informing the development of the relevant chains.

The strategic commodity approach is not an open-ended intervention. It is geared to addressing

specific issues and once they have been done, support will cease and relevant public or private sector actors will assume long term responsibility to support the functioning of the value chain. To assess the performance of the approach and determine when to terminate support, an annual review will be carried out under the supervision of the SWG and decisions then taken on the next steps.

Component 1.8.3: Public sector support

The strategic enterprise approach is a focused and coordinated approach that will bring together all key actors involved in agriculture service provision. The rationale is to address constraints that hinder private sector investments. Based on the selected strategic commodities, relevant interventions along the value chain will be identified through value chain studies, after which the respective public service providers will focus their efforts and resources on the identified activities in selected and particular agricultural production zones. In brief, MAAIF will mobilise and coordinate all service providers to fulfil their mandated functions in support of the private sector in a coordinated manner. These roles are specified in the National Agricultural Policy. An indicative list of the kind of interventions eligible for support under this Sub-Programme is given in Annex 4 and a more specific list of possible interventions for the fifteen selected commodities is given in Annex 5.

Table 3.9: Commodities Selected for Different Zones and Proposed Year of Introduction

	Year of Introduction		
	2010/2011	2011/12	2012/13
Zone I	Cassava	Beef cattle	Goats
Zone II	Poultry	Cassava	Goats
Zone III	Coffee	Beans	Poultry
Zone IV	Coffee	Cassava	Poultry
Zone V	Maize, Fish	Poultry	Citrus, Pineapples
Zone VI	Coffee, Fish	Dairy Cattle	Poultry
Zone VII	Coffee, Maize	Tea, Beef cattle	Pineapples
Zone VIII	Dairy Cattle	Goats, Beef Cattle	Goats
Zone IX	Coffee	Tea, Bananas	Irish Potatoes
Zone X	Coffee, Irish Potatoes	Tea, Dairy Cattle	Apples

Table 3.10: Budget for Promoting Strategic Enterprises Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Establishment of arrangements	625	1,250	1,250	1,250	1,250	5,625
Studies and reviews	1,875	1,875	500	500	500	5,250
Public sector support	17,500	17,500	18,250	18,250	18,250	89,750
Private sector leverage fund	5,000	4,375	5,000	5,000	5,000	24,375
Total	25,000	25,000	25,000	25,000	25,000	125,000

Component 1.8.4: Private sector leverage fund

The value chain approach brings together all actors including public and private sector stakeholders. Necessary actions will be revealed that fall within the remit of the private sector. This component will make funds available to enable the private sector to address constraints to their operations. Examples of interventions that will attract funding under this component may include industrial research, market linkages and access, market research etc. A Private Sector Leverage Fund will be established and commodity platforms and their members will compete annually for support. Proposals will be submitted to APD and the SWG for assessment and approval. Activities under this component will include:

- Develop guidelines and disseminate to the relevant actors; Invite proposals from the private sector involved in the selected commodities;
- Assess, approve and disburse funds to carry out the activities;
- Monitor and review the performance of the activities.

The cost of the activities under the Strategic Enterprises Sub-programme is shown in Table 3.10. The total cost is UGX 125 billion, starting at UGX 25 billion in Year 1.

Programme 2: Market Access and Value Addition

Programme 1 is designed to increase production and improve productivity but, without significant improvements in the way markets function, such increases will not be sustainable. For agricultural development to be sustainable it is necessary to connect production zones with input and output markets (especially those where demand for produce is growing rapidly) and to endeavour to improve the functioning of those markets. To this end five sub-programmes will be implemented with their respective goals as follows:

- Improved capacity for regulation and enforcement especially in safety standards and quality assurance, across crops, livestock and fisheries;
- Farmers have improved access to high quality inputs, planting and stocking materials;
- Increased participation of the private sector in value addition activities and investment;
- Expanded network of rural market infrastructure including appropriate structures to improve post harvest losses; and
- Increased capacity of existing farmers' organizations in management, entrepreneurship, and group dynamics to more effectively engage in value-chain activities especially collective marketing.

DSIP investments are limited to those areas within MAAIF's mandate. Thus, investments outside the remit of the agricultural sector (such as - roads, railways, and telecommunications) but critical to the performance of the sector, are not covered in detail by the DSIP. Also excluded are the constraints around access to credit (which is limited for most agricultural traders), contract enforcement (the costs of which are high)²⁴ and many areas related to agricultural trade policy. Nonetheless there are many areas under MAAIF's mandate where investment can be expected to generate positive returns and these are covered in the sub-programmes below.

24 GoU is also addressing poor contract enforcement through measures to strengthen the Commercial Justice Reform Programme. This should help smallholder households who have engaged in such contracts to realize sustained improvements in their welfare, while agribusiness firms should be able to expand substantially the numbers of smallholder producers with whom they work.

Sub-programme 2.1: Regulatory Services

Regulation is a much misunderstood area and its critical importance to the agricultural economy is significantly underestimated. Broadly, as well as protecting consumers, regulatory services promote trust among all economic actors, thereby supporting the growth of economic activity. Distrust among the various actors in the value chain discourages participants, especially low income farmers from taking on more market-oriented strategies.²⁵ Effective regulatory agencies can therefore be the key to the creation of a better investment climate, more economic activity and more exports. It is an environment in which farmers and farmer organizations can prosper.

The specific objective of the sub-programme is *"Improved capacity for regulation and enforcement especially in safety standards and quality assurance across crops, livestock and fisheries."* To achieve the objective, activities will be implemented under six components.

Component 2.1.1: Improving the policy and regulatory environment

As the requirements of international customers increasingly determine export standards for agricultural, livestock and fish products, so these same standards come to influence and impact on domestic standards. The international rules are becoming tougher all the time especially as regards chemical and pharmaceutical residues but also on quality, appearance and packaging: e.g. HACCP, East African Standards etc. MAAIF needs to clarify and simplify the policy and regulatory environment to make it more agri-business friendly. The ministry will therefore undertake the following activities under this investment area:

- Review and harmonize all obsolete laws, rules, and legislation to cover, *inter alia* seed, phytosanitary issues, agricultural chemicals, diagnostics and control of epidemics, veterinary public health, animal movement control, animal trade, veterinary professional ethics, animal welfare services, codes of practice for artisanal fishing, trans-boundary fishing, among others; .

25 The seed industry is an example. Where farmers receive fake seeds or adulterated fertiliser, they suffer considerable income losses.

- Define clear roles among public institutions involved in quality assurance, laying out clearly who does what and at what stage.
- Provide technical backup and support to LGs to formulate and implement bye-laws.
- Play its mandated role in the international dialogue around the policy issues, bringing specialist agricultural knowledge into the discussions. MAAIF will also assist with the preparation and adoption of appropriate domestic food safety legislation and standards consistent with local conditions and preferences, with WTO rules, and with other trade obligations.
- Pursue the enactment of pending legislation and the revision of secondary legislation as a legal basis for enforcement actions. In general, promotion of good hygienic practices among street vendors, HACCP for food processing and general public awareness campaigns would assist in reducing the incidence of food-borne illness.

Component 2.1.2: Establishing procedures for risk assessment and management

This will be the key to improving the efficiency of future prioritisation rounds.

- Make risk assessments and derive costs of different strategies to address key regulatory issues, e.g. FMD and BBW control, over fishing in the lakes, low uptake of certified seed, poor quality of meat etc.
- On the basis of the risk assessment, prioritise the key investments under the regulatory services budget line; and
- Support research on food safety and agricultural health concerns (see under Sub-programme 1.1).

Component 2.1.3: Improved implementation of standards

It is necessary to operationalise the existing standards to improve quality, develop awareness, generate economies of scale, promote value addition and reduce losses. This should lead to improved use of inputs such as fertilisers, pesticides, and other key farm inputs; improved hygiene in production, storage, processing and distribution, and; improved product management systems especially at the primary stage of the value chain. The following activities will be implemented under this investment area:

- Substantial training of all stakeholders to promote compliance with standards;
- The establishment of appropriate penalty schemes for non-compliance, so promoting industry self-regulation. One example of the type of training required can be drawn from the fish industry. Working with the UFPEA, the industry has prepared training in good handling practices for fisher-folk, fish suppliers and small scale fish processors in the upstream value chain;
- Awareness creation regarding the importance of food safety to export competitiveness;
- Support to consumer awareness campaigns on food safety;
- Promotion of good agricultural hygiene and food processing practices to be integrated into extension programs;
- Education of farmers and agro-exporters about quality assurance standards;
- Sensitisation and awareness campaigns on enforcement;
- Training of food inspectors, veterinary staff, fish inspectors, BMU staff etc in legislation, policy, modern inspection systems and quality management systems.
- Dissemination of information on emerging issues and changes in regulatory requirements and private standards on an ongoing basis.
- Translation of information into practical guides for implementation by exporters and their suppliers; and
- Publishing of newsletters regularly, compiling of booklets, making of videos on quality and SPS related issues.

Component 2.1.4: Strengthening inspection systems and institutions

Activities under this component will strengthen inspection systems against set standards and will include:

- A needs assessment survey for the inspection, certification and regulation of seeds, fertiliser, dairy, meat, fish and other appropriate products in the whole country;
- Assistance to all slaughter and animal product processing sites to put in place and use Sanitary Standards Operating Procedures (SSOP);
- Establishment of a system to identify livestock in pastoral areas by branding and other methods, to show country, district, county, sub county etc., to forestall rustling;

- The building and strengthening of private/public partnerships in quality assurance;
- Assistance for the private sector through training of inspectors for them to become self regulatory;
- Improving the capacity of certification systems, linking them to international certification bodies. To ensure standards are maintained, regular inspection of seeds, fertiliser etc. should be undertaken at all stages of the marketing chain by officials of MAAIF; and
- Promotion of fisheries licensing in all water bodies with associated supply quotas.

- Establishing appropriate infrastructure for enforcement e.g. border posts, internal quarantine units, handling grounds, BMUs etc;
- Rehabilitating strategic milk collection centres; and
- Establishing a database on regulations and certifications of seeds, phytosanitary and agrochemicals.

The cost of the activities under the Regulatory Services Sub-programme is shown in Table 3.11 below. The total cost is UGX 192.3 billion, starting at UGX 31.5 billion in Year 1 and rising to UGX 46 billion in Year 5.

Component 2.1.5: Better enforcement of standards and contracts

To improve the performance of industry and the products it offers to consumers, it is necessary to enforce compliance with approved standards relating to agro-food safety and agricultural health. Enforcement is mainly a public function and will be mostly carried out by MTTI but MAAIF will provide specialist support and a framework for private sector participation and dialogue. This will require:

- Building the capacity of staff involved in the implementation and enforcement of the laws, regulations and standards along the entire value chain for crops, livestock and fisheries (including commodity specific inspectors).
- Supporting investment in private and public laboratories; and
- Supporting wider GoU initiatives to build capacity for enforcing contracts.

Until the MAAIF restructuring plan is implemented, the substantial work to be done under this area will continue to be spread among the many disparate bodies currently handling the burden. These include the MAAIF directorates of Crops and Animal Resources, the Department of Fisheries and several of the semi-autonomous agencies such as UCDA, CDO, DDA, and COCTU. There is need for a rigorous evaluation of whether these departments can actually deliver the outputs necessary and whether they are adequately funded. Several of them have no annual budget allocation for implementation of these activities.

Creating a Directorate of Regulatory Services at MAAIF as is proposed under the institutional reforms in sub-programme 4.1, will create a pool of regulation expertise whose experience can cross the narrow, historic, sub-sector and commodity boundaries which still constrain the efficiency of MAAIF staff. Within this there could also exist the necessary specialist expertise which is required to deal with the pressing problems of the moment. As an example, MAAIF could establish a central SPS authority with the overall responsibility for

Component 2.1.6: Infrastructure investments

A number of investments in regulatory infrastructure are needed but the most urgent are:

- Building appropriate laboratory infrastructure;
- Establishing destruction centres (incinerators) for illegal and unwanted fishing gear;

Table 3.11: Budget for Regulatory Services Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Improving the policy and regulatory environment	2,000	4,000	4,000	2,000	2,000	14,000
Risk assessment and management	3,000	3,000	2,000	2,000	2,000	12,000
Improved implementation of standards	11,500	11,700	14,000	16,100	17,000	70,300
Strengthening inspection systems	8,000	8,950	11,115	15,827	20,119	64,011
Better enforcement of standards and contracts	1,000	3,000	4,000	4,000	5,000	17,000
Infrastructure investments	6,000	4,000	3,000	2,000		15,000
Total	31,500	34,650	38,115	41,927	46,119	192,311

all technical activities and with a coordinated set of local inspectorates, each with laboratories and scientific support. Within this, there would be sub-sector units, for example crops, livestock and fisheries regulation. Within the latter there might be specialist divisions such as a Lakes Albert and Edward Management and Coordinating body.

Sub-programme 2.2: Promoting the Use of High Quality Inputs, Planting and Stocking Materials

Agriculture in Uganda is characterised by a low application of modern inputs resulting in low yields. Fertiliser use is among the lowest in the world and the use of other improved inputs is also minimal. Under the Advisory Services Sub-Programme 1.2, endeavours will be made to raise awareness among farmers on the value of adopting high quality inputs like fertiliser and certified seed and on the mechanics of how to get the best returns, i.e. by using these inputs in the optimum combination. Nonetheless, while advisory services can make this contribution, most of the constraints to greater uptake are market related, i.e., lack of knowledge, information asymmetries, liquidity constraints, risk and uncertainty, and high opportunity costs. Profitability tends to weigh heavily in farmers' decisions because the cost of fertiliser and hybrid seeds represent a large share of cash production costs. When cost factors and risk factors act in tandem, as they do in a rainfed environment like Uganda, the impact on seed and fertiliser demand can be very significant.

The issue is how to address these various constraints. There is considerable international experience in this area that should provide useful lessons for Uganda.²⁶ There is also much experience in Uganda itself from the likes of the IDEA and APEP projects, funded by USAID, which sought to catalyse the transformation of agriculture, from low input/low output farming to commercially competitive agriculture. The specific objective of the sub-programme is "*Farmers have improved access to high quality inputs,*

26 Farm Input Promotions Service Africa (FIPS-Africa) with the support of the Rockefeller Foundation, DFID and USAID achieved widespread impact in Kenya through the dual approach of stimulating the demand for farm inputs by increasing farmer awareness, while improving the availability of inputs through retailers and private sector partnerships

planting and stocking materials." To achieve the objective, activities will be implemented under five components.

Component 2.2.1: Clarifying the policy environment

There is need for a policy on agricultural inputs. The policy must clearly delineate the boundary between public and private responsibility and create a conducive environment for private investors. Activities will include, *inter alia*:

- Review, refine and approve the seed policy;
- Finalise drafting and gazetting of seed regulations to implant the Seeds and Plant Act;
- Review, refine and approve the fertiliser policy;
- Finalise enactment of the plant variety production bill and implement it; and
- Finalise the guidelines for inspection and certification of vegetatively propagated planting materials and implement them.

Component 2.2.2: Strengthening the regulatory framework for input businesses

Addressing the constraints that limit entry and effective participation in the inputs market is essential to improve competitiveness and efficiency. Despite the fact that the whole country relies on this market, it is inefficient with high costs and low margins. Activities to address this will include:

- Review and strengthen the regulations for agricultural inputs;
- Build capacity and will for enforcing regulations;
- Enhance the capacity of the responsible institutions to effectively and efficiently carry out regulation by training and equipping inspectors;
- Register agricultural input dealers and carry post-registration surveillance to verify the quality of inputs in the market;
- Improve infrastructure for agricultural input quality control including the Namalere pesticide analytical laboratory and seed laboratory at Kawanda (this will involve staff training as well as procurement and installation of equipment);
- Encourage an increase in the certification of seed. Farmers need to be able to trust the seed they are buying and government can assist with this by supporting a reliable seed certification process under which a given seed is declared officially "certified" if it can be shown to have been grown from a proven, tested and recognized genetic source and if it has

the stipulated germination percentage, purity, health and moisture content.²⁷

- Improve *enforcement* of the rules. Without this, the inputs market will not develop because emerging suppliers and agri-input dealers cannot be protected from unscrupulous traders who disseminate counterfeit seed varieties, for example, undermining farmer confidence and snatching market share; and
- Review the business model of NSCS. Eventually it must become an autonomous regulatory body capable of imposing fines, contracting out inspection services to the private sector, and retaining revenues from inspection fees and variety testing services. Seed companies have expressed willingness to pay higher fees for inspection if inspection services are timely and reliable. Such financial and operational autonomy would enable NSCS to maintain staff quality, improve inspection services, upgrade laboratory facilities to a level necessary to retain OECD and ISTA certification, and ensure final seed quality. It would also allow NSCS to expand services to meet the growing needs of the industry in the long term.

Component 2.2.3: Improving the investment environment for input supply

In industrial countries, the price structure encourages farmers to regularly purchase quality seed and this encourages seed companies to get involved with plant breeding. In Uganda, however, smallholders have to depend firstly on public research programs to provide varieties and, secondly, on seed companies to distribute them. The intention should be to create a situation where private companies serve business-oriented farmers directly. These latter, inevitably, will be farmers who are trying to supply output markets which are increasingly demanding of quality and reliability and, for that reason, need reliable, uniform, high-quality inputs. Activities necessary to deliver this result are:

27 It should also be added that a more restrictive legal framework, involving mandatory varietal notification, will not help the growth of the informal sector. For that reason Government should also support a legal framework that permits the marketing of uncertified, “truthfully labelled”, seed which would conform to a set of prescribed standards (although it would not carry an official certification tag). Industry quality-assured seed may also offer opportunities, where seed companies agree on standards and develop their own quality assurance system, with spot checks from NSCS.

- Provide seed companies with access to foundation (and/or breeder seed) from public sources, at a cost;²⁸
- Support commercial input businesses by encouraging government institutions including LGs, development partners and humanitarian agencies, to procure agricultural inputs through the networks of input dealers;
- Establish incentives for input dealers to invest in producing, distributing and importing inputs by: making seed businesses eligible for support under SME programmes; and
- Consider tax and other incentives to encourage investment in production facilities.

Component 2.2.4: Building capacity of district institutions involved in input supply

All the institutions in the input supply chain are weak, from the initial research work to the private suppliers. Support will be given to:

- Strengthen, through training, the capacity of input dealers and their networks, e.g. the Uganda National Input Dealers Association (UNADA);
- Design and implement training courses for input dealers including those in the formal and informal sectors;
- Strengthen district capacity to assist improvements in the supply chain for high quality foundation inputs, planting and stocking material;; and
- Strengthen district capacity for the provision of foundation inputs, planting and stocking materials.

Component 2.2.5: Building capacity of central government institutions involved in input supply

Support will be provided to strengthen central public capacity for the provision of foundation inputs, planting and stocking materials. This would include, for example, support to NAGRIC in its role as a supplier of breeding stock and public support to nascent industries such as apiculture and sericulture.

The cost of the activities under the Improving Access to High Quality Inputs Sub-programme is shown in

28 One promising proposal which will be pursued is to study the potential for feed manufacture, geared to farmed tilapia, using a minimum of imported ingredients: in particular, the potential of *Artemia* (the brine shrimp) as a source of nutrients in fish farming with surveys of the existing situation and pilot production activities.

Table 3.12: Budget for Promoting Use of High Quality Inputs Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Policy environment on input supply	500	550	605	666	732	3,053
Regulatory framework for input businesses	500	550	605	666	732	3,053
Investment environment for input supply	600	660	726	799	878	3,663
District institutions strengthened	8,605	9,466	10,412	11,453	12,599	52,534
Central institutions strengthened	5,050	5,555	6,111	6,722	7,394	30,831
Total	15,255	16,781	18,459	20,304	22,335	93,133

Table 3.12. The total cost is UGX 93 billion, starting at UGX 15 billion in Year 1, rising to UGX 22.3 billion in Year 5.

The key institutions that will be responsible for implementing activities under this output include:

- The Department of Crop Protection: will handle issues of preparing legislation, and supervising the regulation and quality control of input production, marketing and handling.
- The Department of Crop Production and Marketing: will organise the production and distribution of planting materials that are not handled by the private sector.
- The Department of Animal Production and Marketing: will deal with activities related to animal feeds, honey and silk production.
- NAGRIC: will implement activities related to the production and promotion of improved breed stock.

Sub-programme 2.3: Promoting Value Addition Activities

The proportion of Uganda’s agricultural commodities which is processed is believed to be no more than 5 percent. The intention is to raise this while at the same time increasing penetration in the growing number of specialized niche markets. These latter markets have very specific requirements and call for careful planning of both production and value addition investments. This will be done through analysis of value chains, with a view to support and strengthen key components..

There are various models for value chain development but, with the private sector in Uganda weak and under-resourced, public investment will concentrate on different kinds of Public Private

Partnerships (PPP). This means engaging with, and bringing on board, public/private sector agribusiness entities at national and local levels, to partner with public initiatives, mostly NAADS. An example might be the establishment of out-grower schemes around nucleus production entities or agro-industrial facilities, the intention being to improve supply and so help with a consistent, sustainable approach to market development. This approach has helped increase demand for improved seed as can be illustrated by the example of the partnership with Nile Breweries which has improved demand for sorghum (*epurpr*) in Soroti and surrounding districts and thereby helped producers there. The specific objective of the sub-programme is *“Increased participation of the private sector in value addition activities and investment.”* To achieve the objective, activities will be implemented under components.

Component 2.3.1: Generating and disseminating profitability information for enterprise selection

Pursuing farming as a business means that a commercial perspective must be dominant from the start, not least in the processes through which farmers choose and manage enterprises. Lessons learnt from NAADS implementation indicate that there is still need to strengthen the capacity of farmers and implementers to appreciate the importance of enterprise targeting according to the agro-ecological zone, farmer resource endowments and market opportunities. Enterprise selection processes will be improved upon now through capacity building of farmers and implementers at district and sub-county levels. District and sub county coordinators will be trained in enterprise analysis, market potential, agro ecological zoning and social inclusion, through short training programs organized at national and district levels. The capacity of farmers and their organization shall be built to improve the selection and management of viable enterprises. This shall embrace enterprise profitability, market potential,

enterprise complementarities, and managing enterprises as businesses. In addition, farmers will be sensitised on enterprise mix and complementarities. On an annual basis, farmers shall undertake enterprise selection with the support of sub-county technical staff. The backstopping and supervision of the enterprise selection process shall be at national, district and sub-county levels as a way of building capacity among implementers, supported through a core grant at each level.

Component 2.3.2: Dissemination of market information to relevant stakeholders

Because public market information systems have been often disappointing, with information disseminated too slowly or too infrequently to be of real use to market participants, new approaches are being piloted in different parts of the world, building on advances in communications technology (radio, cell phone, short message service (SMS), voicemail, internet). The lessons from these pilots will be essential to the success of any service publicly funded in Uganda. Certainly, the new systems being tried have the potential to significantly reduce transaction costs, especially search and transport costs, and warrant continued investment and evaluation (Ferris, 2008). Activities to be undertaken will include:

- Enriching the information base: A full-featured market information system that provides timely and accurate prices, buyer contacts, distributional channels, post-harvest handling advice, buyer-producer trends, specifications on grades and standards, and storage and transport recommendations is critical for market linkages. The collection, assembling, analysis, packaging and dissemination of this information will therefore be expanded and elaborated. Existing information on target markets will be synthesized to identify information gaps, constraints that need to be addressed, prospects for success and risks that should be managed. This will be done at national level through professional private and public services outsourced in a competitive procurement procedure.
- Market studies for selected enterprises, to be conducted annually to assemble market and production information while building on the existing information on value chains. This activity shall be facilitated at national level in collaboration with districts. More information

will be generated through the monitoring and evaluation component of NAADS.

- Dissemination of market information through collaboration with the qualifying market information agencies. A number of private institutions such as FIT Uganda²⁹ and AGRINET are currently using a combination of dissemination channels to reach a diversity of users in Uganda. NAADS will collaborate with these institutions to expand information dissemination outreach. The alliance between private providers and NAADS, farmers, traders, and district commercial officers will be improved so that dissemination to the grassroots can succeed.
- Awareness raising: It is critical for the sustainability and growth of agricultural market information that the public sector takes charge of awareness raising, training, and promotion of public and private linkages to promote value chains. Activities will be developed to pursue this.
- Information centres will be established at sub-county level, funded through the sub-county grant. These information centres will be linked to the district information centres and the users through mobile telephone technology.

Component 2.3.3: Promoting collaboration among PPPs for increased market access and agro-processing

Until now NAADS has been production focused and its successes have created demand for post-production interventions. These will become increasingly important to sustaining increases in production. Therefore, this component extends the NAADS scope to forging collaboration with and leveraging the private sector to develop agricultural

29 The FIT/INFOTRADE service was launched in July 2008. Collecting, analysis, tabulating and disseminating data from 15 districts covering a total of 44 commodities, the company is now operating in 20 districts. Data is collected on Monday, Wednesday and Saturday between 4.30 am to 11.00 am. A total of 20 data collectors on service contracts with FIT collect the data and report periodically to FIT for refresher training and support. Data is sent to INFOTRADE for analysis, verification and tabulation via email and fax and voice. After verification, a Generic report is created that is published on email, on 34 notice boards, on a website to the general public, and on mobile phones using an access code via both Warid Telecom and Zain. The company aims to work with at least 48% of all farmers within three years that is 2,160,000 people. The intention is that each farmer or business will subscribe to the service on a monthly basis at a rate of UGX 1,200 per month.

enterprises along the value chains. NAADS will support private-public and public-public partnership arrangements to leverage resources towards the improvement of value chains. The core activities of the component shall include:

- Promotion of Public Private Partnerships (PPP) along the value chain;
- Promotion of enterprise specialization along value chains and agro-zones;
- Social and environmental consciousness in supported businesses;
- Gender and poverty targeting of benefits;
- Non-competition with the private sector so as to tap into their business skills and initiatives;
- Partnerships with production service entities established to support value addition and agro-processing;
- Beneficiaries identified and linked to appropriate services and facilities to enable them to improve value addition and agro processing activities;
- Farmers trained in post harvest food technologies and management.

Component 2.3.4: Developing capacity for business development services

Business development services (BDS) are essential for improving the performance of enterprises, access to markets and ability to compete. However, BDS service providers with the necessary skills are few and agribusiness entrepreneurs are also often not well informed of the importance of these services to their business development. Capacity building will target increasing the number of competent skilled business development service providers largely through training. The existing competent business development service providers shall be contracted on a retainer³⁰ basis to provide capacity building services to the low skilled service providers. The contracting of business development service providers will be primarily a function of the NAADS at the national level.

The capacity of agribusiness entrepreneurs will be enhanced through sensitisation on the importance of business development services and training. The trained BDSP will be contracted at district and national level to train and mentor the agribusiness entrepreneurs. Key business development services (e.g., preparation of business appraisals, marketing

³⁰ This is an arrangement where service providers are committed to provide services on call and are paid a regular minimal fee on a monthly basis

plans, provision of advice on financial and legal matters) will initially be supported on a cost sharing basis to stimulate investors in agribusinesses. The BDS support will be managed at the national level with the districts playing complementary roles.

Component 2.3.5: Challenge fund for agro-processing

NAADS core mandate is to integrate smallholder farmers into the value chain. However, the current value chains are not fully developed nor efficiently managed to effectively link smallholder farmers to profitable markets. To achieve this, more skills and resources will be required beyond what NAADS can provide. The mechanisms to enhance market linkages shall be through PPPs. The expectation is that the PPPs will improve the quality of services by bringing in additional investment and improved management that will help NAADS to achieve its full potential. A challenge fund will be established at the Secretariat to facilitate promotion of market linkages through partnerships and the emergence of social enterprises. The enterprises that will be supported will include those that catalyse technology up scaling, promote institutional development for joint marketing (the priority for this shall be on increasing the effectiveness of farmers' organisations), and enhance the development of market infrastructure, agro-processing, specialized advisory services, and the development of innovations and platforms for information and knowledge sharing. The Challenge Fund process shall have the following steps:

- Individuals/organizations with the ability to participate in partnerships will be identified and invited through open bidding route;
- The problems and opportunities that exist at farm level will be framed as challenges;
- An open challenge for enterprise ideas to overcome the problems will be put out twice a year;
- The ideas adjudged as having potential for pro-poor business innovations that contribute to value chain development will be identified and supported to develop the concept into fundable proposals; and
- The proposals shall be promoted to funders and potential investors.

In the first year, a consultancy shall be commissioned to explore and make recommendations on instruments and incentives that NAADS can put in place to share and/or lower the risks for entrepreneurs who

Table 3.13: Budget for Value Addition Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Profitability information for enterprise selection	3,060	3,366	3,703	4,073	4,480	18,682
Dissemination of market information	9,240	10,164	11,180	12,298	13,528	56,411
Public Private Partnerships for market access	12,700	13,590	15,449	16,494	18,443	76,676
Business Development Services	10,000	11,000	12,100	13,310	14,641	61,051
Challenge fund for agro-processing	10,000	11,000	12,100	13,310	14,641	61,051
Total	45,000	49,120	54,532	59,485	65,734	273,871

venture through the Challenge Fund. A web-based platform shall be developed and used to facilitate information and knowledge sharing among potential entrepreneurs, business development service providers and mentors. This platform will also serve to link the emerging opportunities to potential investors. The development of the platform shall be contracted out.

The cost of the activities under the Value Addition Sub-programme is shown in Table 3.13. The total cost is UGX 274 billion, starting at UGX 45 billion in Year 1 and rising to UGX 66 billion in Year 5.

The mandate for promoting value addition is shared among several government agencies including MTTI and MAAIF. With respect to MAAIF, a recent cabinet directive has mandated the ministry to be responsible for promoting primary processing through NAADS. Of course, value addition itself is, in this context, largely carried out by private investors but MAAIF and NAADS will play a valuable role as promoters and facilitators. Other key players include other MAAIF agencies (UCDA, DDA, CDO, PMA Secretariat etc.) other government ministries (MTTI, MoFPED), local governments, other government institutions like UIRI; and commercial operators like input dealers and suppliers, financial institutions, business development services and institutions, agro processors, farm machinery and equipment dealers and farmer organizations.

In relation to the NAADS activities, the NAADS Secretariat will be responsible for:

- Specific interventions along value chains, capacity development, market research, and information dissemination, all to be executed through partnership arrangements;
- Outsourcing for agribusiness services;
- Collaborative arrangements with specialized organizations;

- Support to model farmers to fast track enterprise specialization and enterprise mix;
- Monitoring of implementation; and
- Support for provision of suitable financial services, importation and fabrication of farm and agro-processing machinery and equipment as appropriate (also to be executed through PPP arrangements with the private sector).

Sub-programme 2.4: Rural Market Infrastructure

The poor state of market infrastructure is a consistent theme emerging from almost all the analyses done preparatory to this DSIP. While the poor condition of rural roads is outside the remit of this plan, there are two areas that can be addressed: storage and market infrastructure. Investments will be made to improve these, to help preserve the quality of produce for marketing and processing, to reduce marketing costs for households in more remote areas and to help farmers benefit more from commercialisation. Building infrastructure is of course not the whole story and the tales of the National Seed Certification System (NSCS) laboratories and the Uganda Fisheries Laboratory (UFL) bear this out. Bricks and mortar can be put up, but if there is not adequate equipment, manpower and management, there will be few outputs and little benefit.

In relation to storage, most farmers store only for short periods of time, in their houses, or in old stores, the conditions and management of which are poor, with farmers tending to sell early in the harvest season to avoid losses caused by rapid deterioration. With better assistance on post harvest handling, farmer groups or associations will bulk, clean, grade, and store their produce more effectively and improve storage prospects. They will,

Table 3.14: Budget for Rural Market Infrastructure Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Studies and analysis	1,000	1,100	1,210	1,331	1,464	6,105
Piloting of investments	2,000	2,200	2,420	2,662	2,928	12,210
Scaling-up	7,000	7,700	8,470	9,317	10,249	42,736
Total	10,000	11,000	12,100	13,310	14,641	61,051

of course, be considerably assisted in this if they can access rural and term finance to support the linkage between production and storage.³¹

Other areas where investments will be made are in promoting (and improving) market buildings and infrastructure, in constructing slaughter slabs and sheds, and in rehabilitating key milk collection centres. The specific objective of the sub-programme is “*Expanded network of rural market infrastructure including appropriate structures to improve post harvest losses.*” To achieve the objective, activities will be implemented under three components.

Component 2.4.1: Commissioning relevant studies and analyses

Basic information on the situation is scarce and evidence-based analyses are urgently necessary. This will include:

- Inventory of storage availability and analysis of needs;
- Inventory of rural market availability and analysis of needs;
- Inventory of livestock civil works availability and analysis of needs.

Component 2.4.2: Initiating pilot projects on rural infrastructure improvement

Based on study recommendations and outputs of commissioned analyses pilots will be designed to build appropriate facilities in a few selected districts.

Component 2.4.3: Scaling up best practices for rural markets development

After the pilot work has been evaluated, and further investigations have taken place it will be possible to expand the investments to more districts

The cost of the activities under the Rural Market Infrastructure Sub-programme is shown in Table 3.14. The total cost is UGX 61 billion, starting at UGX 10 billion in Year 1 when the first studies begin, rising to UGX 15 billion in Year 5.

Sub-programme 2.5: Promoting Collective Marketing

Facilitating farmers to work together in groups has long been proven to contribute significantly to productivity and incomes. According to the APEP Final Report (Chemonics, 2008), grouping farmers with common interests provides a conducive environment for group members to work together on increasing yields, on the basis of improved technologies, and it also introduces the concept of working together to improve market access for all. Evidence from other projects shows that strong producer organisations can also move into higher-return activities, such as improved post harvest handling and bulking for sale. It has also been demonstrated that as individual farmers earn more money, they become better candidates for agricultural finance either through their own savings and loan schemes, or through micro finance programmes, or ultimately through commercial banks. Farmer institutions can also be powerful advocates for new policies to support agricultural development.

Over the years, the Uganda National Farmers Federation (UNFFE), the longest running farmers’ institution in Uganda, NAADS, and the Uganda Co-operative Alliance (UCA) have mobilized small-scale farmers into groups or co-operatives and today,

³¹ Outside the remit of DSIP, more sophisticated approaches, such as warehouse receipts schemes, are being tested to offer farmers the opportunity to raise cash using stored produce. However, for these more sophisticated approaches to be successful, both lenders and borrowers will require a rapid and reliable means of getting access to market information as well as a sound understanding of market price trends, to judge the merits and profitability of storage options.

Table 3.15: Budget for Promoting Collective Marketing Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Prepare guidelines for group capacity develop't	500	550	605	666	732	3,053
Expand capacity for analysis and guidance	1,000	1,100	1,210	1,331	1,464	6,105
Train farmers' organisations in enterprise selection	500	550	605	666	732	3,053
Mobilise farmers, farmer groups and fora	5,000	5,500	6,050	6,655	7,321	30,526
Higher-level farmer organisations strengthened to enhance participation	1,500	1,650	1,815	1,997	2,196	9,158
Training selected farmers and groups	1,920	2,112	2,323	2,556	2,811	11,722
Total	10,420	11,462	12,608	13,869	15,256	63,615

there are over 45,000 farmer groups nationwide. In addition to offering avenues for extension service delivery, some of these groups are now engaged in collective production and marketing. There are also commodity specific farmer organisations, for example in coffee, fisheries and dairy. However, farmers' institutions are often plagued by poor organizational, entrepreneurial and group dynamics skills and, hence, need sustained capacity building. The other challenge is how, in the absence of financial services, to turn farmer institutions into sustainable market-led entities. The recent promotion of a Warehouse Receipt System (WRS) and Savings and Credit Co-operative Societies (SACCOs) should strengthen these organisations to undertake joint activities especially with respect to marketing.

DSIP support will be directed primarily to making farmers more bankable, by addressing the cost/risk problems and starting the long process of building scale into the rural sector. The desirability of building efficiency through increased scale includes downstream entities in agricultural value chains that provide services to farmers. MAAIF, through NAADS, will utilize SACCOs as community points for outreach including advice on markets, access to inputs, farm management decisions and husbandry details. The specific objective of the sub-programme is: *"Increased capacity of existing farmers' organizations in management, entrepreneurship and group dynamics to more effectively engage in value chain activities especially collective marketing.* The investment area and associated activities to be implemented as outlined below:

- Preparing guidelines for farmer institutional capacity development;
- Expanding capacity for situation analysis and for guiding and supporting farmers' (and farmers organizations') planning processes;

- Training farmers' groups and fora in visioning, enterprise selection, market analysis and needs identification;
- Group mobilisation to prepare for delivery of advisory services while ensuring that all categories of farmers (men, women, youth) are reached. Given that the majority of youth are not active in agriculture, MAAIF will link up with MoGLSD on youth mobilization for production; and
- Higher-level farmer organizations (HLFO) strengthened to enhance farmer participation in market development activities. To include training in management and business skills and output marketing

The cost of the activities under the Promoting Collective Marketing Sub-programme is shown in Table 3.15 . The total cost is UGX 63.6 billion, starting at UGX 10.4 billion in Year 1 and rising to UGX 15.3 billion in Year 5.

This work will be mostly the responsibility of NAADS and there will be a specific focus on promoting viable, sustainable marketing associations. Linkages will be made with similar initiatives under UNFFE and the cooperative movement.

Programme 3: Improving the Enabling Environment

The enabling environment for agricultural development comprises the whole body of statutes, regulations, incentives and standards, as well as mechanisms in place to operate or modify them. These 'rules' are essentially neutral with regard to firm size or activity (or other economic attribute), the main requirement sometimes being described as the need for 'a level playing field'.

DSIP investments in the Enabling Environment programme focus on the role MAAIF can play in helping the private sector to expand and become more profitable along the entire value chain. The main feature of the enabling environment in which farmers will operate is minimal government intervention in the market (consistent with the provision of public services), an equitable taxation regime and 'fair play' in trade. To this end six sub-programmes will be implemented with their respective goals as follows:

- Clear and predictable policy framework established and functioning;
- Planning and policy responsibilities are undertaken in an efficient manner leading to improved formulation of policies, strategies, programmes and projects, more cost-effective interventions and increased efficiency of public expenditure.
- Improved public education and communication around key agriculture and natural resource issues;
- Public coordination responsibilities are undertaken in a coherent manner leading to improved management of sector policies and programmes;
- Functioning Agricultural Statistics service providing timely and appropriate information to sector stakeholders;
- Capacity for decision-making in planning and budgeting processes improved by accurate and up-to date climate information and analysis.

Sub-programme 3.1: The National Policy Framework

MAAIF is currently developing a new agricultural sector policy document for Uganda but, at the time of writing, this is not yet complete. The Guiding Principles, Objectives and Strategies are discussed in Section 2.4. This sub-programme therefore is "establish a functional, clear and predictable policy framework" and it will include the following activities:

- Completing a document which defines the framework, principles and parameters of future policy. This will include the planned revision of the NAADS policy and legal framework
- Clarifying priority functional areas with the actors and time frame;
- Clarifying the institutional adjustments necessary in MAAIF for effective implementation;
- Preparing a time bound action plan for implementing the policy;
- Consultation and dissemination exercises; and
- Publishing the document and having it approved.

The cost of the activities under the Policy Framework Sub-programme is shown in Table 3.16. The total cost is UGX 2.8 billion with first year costs of UGX 0.5 billion.

The work will be overseen by the PMA Secretariat with support from APD and the Policy Analysis Unit in MAAIF.

Table 3.16: Budget for the Policy Framework Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Preparing the document	100					100
Clarifying the institutional adjustments	50	100				150
Preparing action plan	50	150				200
Consultation and dissemination exercises	300	500	500	500	500	2,300
Total	500	750	500	500	500	2,750

Sub-programme 3.2: Planning and Policy Development at MAAIF

Despite the Core Functional Analysis of 2001 recommending raising the profile of the Planning and Policy functions in MAAIF, these have never exercised the authority they should while, at the same time, they have been faced with increasing demands for service delivery. As a result, the staff are over burdened and over stretched in their efforts to deliver the required services.

It is now recognised that the policy and planning functions in MAAIF must be urgently strengthened so that they can:

- Improve the development and coordination of sector policies, plans, programmes and projects geared towards enhancing a conducive and enabling environment necessary for the private sector to operate effectively.
- Clarify and improve the budgeting process so that MAAIF management can make evidence-based claims for future resources.
- Continue to improve on the generation and provision of agricultural data and information to enhance the capacity of the sector to take advantage of and compete in the regional and global agricultural market.
- Improve on monitoring the implementation and impacts of public programmes and projects to ensure value for money and enhanced attainment of sector objectives.

The specific objective of this sub-programme is: *“Planning and policy responsibilities are undertaken in an efficient and timely manner, leading to improved formulation of policies, strategies, programmes and projects which in turn will give rise to more cost-effective interventions and, thus, increase the efficiency of public expenditure”.*

To achieve the objective, activities will be implemented under eight components.

Component 3.2.1: Consolidate and improve public financial management

The DSIP is intended among other things to be the basis of a joint programme of sector budget support by several traditional development partners in the sector. As part of the preparations for this, public financial management performance in the sector must be improved. Some of the major problems

that exist are: (i) Lack of compliance with previous plans and substantial deviations between budgets and budget execution; (ii) Insufficient monitoring and review of budget performance by the Sector Working Group; (iii) Lack of consolidated accounting systems for main operations and projects; (iv) Lack of consolidated reporting for the sector; (v) Weak capacity in internal audit and control, and; (vi) Severe weaknesses in procurement performance. Several of these problems were identified in the PER process (2007-9) but progress to address them has been limited. A programme of activities will begin right from the start of the DSIP and will include capacity building, specific PFM training (including accountancy), and TA support.

Component 3.2.2: Policy analyses and implementation

MAAIF needs to strengthen its capacity to provide economic, financial and business advice and analysis on policy issues in agriculture particularly in aspects of optimising resource application and utilization. At present this is lacking as is the capacity to formulate and review policies which ensure the maximum contribution of the agriculture sector to economic growth and development. Policies are urgently needed in several areas: e.g. biofuels, biotechnology, peri-urban agriculture, organic farming, water for agricultural production, and mechanisation. MAAIF will carry out the following activities to address these issues:

- Identify key policy issues through evidence-based research processes;
- Involve key stakeholders in the policy process through consultation;
- Formulate programmes and projects in respect of outstanding priority areas under DSIP for implementation in the sector.³²
- Prioritise a livestock policy (including livestock in pastoral areas) to provide guidance for the development and revision of the various strategies and investment programmes in the sub-sector;
- Develop sector planning guidelines for investment in line with the DSIP;

32 For example government urgently needs a policy on multinational land leases and/or purchases. There needs to be a position on such investments in order to maximise the benefit to the nation and, more particularly, to avoid marginalizing small holder farmers and rural communities. The policy needs to be transparent and to ensure that it does not conflict with the interests of the local population.

- Support local governments in improving their sector planning and budgeting processes; and
- Monitor and evaluate policy implementation in order to draw lessons for feeding back into policy review and formulation.

The NDP places strong emphasis on addressing cross-cutting issues such as HIV/AIDS, gender, climate change and the environment. While cross-cutting issues in DSIP have been addressed under each of the sub-programmes, they have been given a special profile under planning and policy. This is so because unless the cross-cutting issues are captured during the formulation/review of policies, strategies, programmes and projects, their chance of being adequately addressed gets significantly diminished. Hence, cross-cutting issues will be taken into account in the formulation, implementation and evaluation of policies, strategies, programmes and projects through the mainstreaming approach. Cross-cutting strategies that have been developed such as gender and HIV/AIDS' mainstreaming strategies will be implemented and monitored.

Component 3.2.3: Improved budgeting

With the sector budget organised into seven national level Vote Functions and two, district level Vote Functions, it is very difficult to link it to the DSIP budget and its twenty two sub-programmes. The Budget Framework Paper as it currently stands, based, as it is, on an Output Budgeting Tool handed down by MoFPED, is therefore very hard to operationalise as a means to improve budget performance or efficiency and this is not helped by the always-rushed nature of the process.

The work on the budget begins late in the calendar year when MoFPED distributes the Budget Call Circular to all ministries with the MTEF allocations. The intention then is that the SWG should take these indicative budget ceilings and derive intra-sector allocations as a first step to preparing the sector BFP. In practice, time and capacity constraints have meant that there is little manoeuvre in this regard and intra-sector allocations have remained more or less as established in earlier years.

As with MAAIF's institutions, the necessity now is to rationalise the budget structure around the DSIP's priority based, programme and sub-programme structured logframe. This will help strengthen the linkages between planning and budgeting as well as

to emphasise efficiency, flexibility and accountability. It will also make considerable savings and improve MAAIF's capacity to make evidence-based claims for future resources. A Task Force of MAAIF and MoFPED officers will be established to make recommendations as to how new Vote Functions can be established and operationalised.

Component 3.2.4: Farm enterprise profitability assessments

The new DSIP is seeking to promote rising land and labour productivity, improved application of modern technologies and farming methods, diversification of production with emphasis on high value commodities; improved penetration of regional and other markets. etc. This cannot be achieved without a thorough analysis of the economics of production to determine competitive advantage. A number of studies on profitability of enterprises have been undertaken but these are scattered and outdated and need to be packaged according to the demands of the users. Preparing new analyses will contribute to improved policy making and planning in MAAIF in addition to improving decision making by the various actors in the commodity chain. While the PMA Secretariat has begun some studies of this kind, as has NAADS, the urgency now is to establish a more systematic process that can generate information on the profitability of enterprises on a continuous basis. Four key activities will be implemented under this investment area:

1. Review current work on the analysis of profitability of agricultural enterprises covering all major crop, livestock, and fish enterprises along their value chains;
2. Build capacity across MAAIF, notably in the Agribusiness Unit in the Agricultural Planning Department;
3. Design a system for assessing enterprise profitability, starting with the key enterprises; and
4. Operationalise the system for priority commodities and enterprises.

Component 3.2.5: Promoting regional/international interests

Following a Cabinet decision of 2002, the Government of Uganda maintains a Full-time Agricultural Representative in Rome to look after the interests of the country as regards the Food and Agricultural Organisation of the UN (FAO), the World Food Programme (WFP) and the International Fund

for Agricultural Development (IFAD). These three agencies support projects and programme in Uganda estimated at a value of nearly USD 1 billion. This means that the contribution made by the Uganda Representative is more than just attending meetings. The office must be able to analyse the implications of regional/international projects, programmes and policies and formulate appropriate responses. At the same time, MAAIF needs to improve linkages with other regional and international bodies, such as the East African Community (EAC), COMESA, the African Union and the WTO. In the past, APD and PAU have been involved in a number of issues at regional and international level such as harmonisation of controls of seed, phytosanitary and agricultural chemicals for the EAC; participation in the establishment of the EAC Customs Union, and; participation in IGAD and NEPAD. In the future, as the region integrates further, activities of this kind will only increase. Activities necessary to operationalise the investment area will include:

- Support the Office of the Agricultural Representative in Rome;
- Review international, regional and bilateral protocols and agreements;
- Conduct in-house policy harmonisation workshops for MAAIF staff;
- Participate in bi-lateral and multilateral meetings on harmonising agricultural policies and strategies.

Component 3.2.6: Strengthen monitoring and evaluation of MAAIF and LG programmes

Monitoring and evaluating in the agriculture sector is still carried out without an explicit framework and on the basis of irregular financing. The M&E Division is reduced to using reports generated by projects and departments on the undertakings in their respective areas. There is, therefore, little objective assessment and reporting, rather any information that is provided is based on the judgment of programme and project managers. This means policy makers are not adequately informed on progress in the sector in general. Ministry leadership cannot access regular, consistent, hands-on information on sector performance. This component will therefore establish a transparent and consistent M&E system for MAAIF, its agencies and LGs.

The M&E framework for the DSIP is discussed in more detail in Section 6 but activities necessary to operationalise the investment area will include

- Agree data sources. The priority is to use existing data sources.
- Improve collection systems for gathering the information and monitoring the performance.
- Establish a process in which programme managers and coordinators self-report on progress toward goals
- Develop procedures to obtain feedback from farmers and stakeholders in the DSIP
- Improve Reporting
- Undertake a joint mid-term evaluation
- Strengthen mechanisms to receive the reports of the M&E system, to assess them, and for management to act.

Component 3.2.7: Enhance food and nutrition security planning

Undernutrition is a significant challenge to human welfare and economic growth in Uganda (see Section 2.1.3). The economic costs of malnutrition in the country are estimated at 2-3 percent of GDP and 10% of lifetime earnings (World Bank (2008b)). The policies and actions of government will therefore be critical in enabling individuals and households to achieve better nutrition security. This is an important responsibility area in MAAIF and the under-resourced unit responsible has struggled with the magnitude of the task. This will now be strengthened to help it improve its performance. The specific activities to be undertaken under the component include the following:

- Ensure nutrition activities are an integral part of MAAIF's workplans. To be able to achieve the NDP objective of "enhancing human capital development", the problem of chronic hunger needs to be addressed urgently and in a more comprehensive manner.
- Agree the core food security responsibilities of MAAIF;
- Complete the legal framework for food and nutrition as it applies to agriculture;
- Enhance collaboration with the other key stakeholders (notably the Ministry of Health) to jointly address the nutrition security challenge;
- Operationalise the Uganda Food and Nutrition Policy, notably the institutional arrangements, that include establishing a National Food and Nutrition Council, its Secretariat as well as Food and Nutrition Committees in LGs;
- Operationalise and implement the MAAIF component(s) of the National Food and Nutrition Strategy;

Table 3.17: Budget for Planning and Policy Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
PFM performance	310	341	375	413	454	1,893
Policies, strategies and plans	650	715	787	865	952	3,968
Improved budgeting	310	341	375	413	454	1,893
Farm enterprise profitability assessments	500	550	605	666	732	3,053
Regional/ international policy responsibilities	450	495	545	599	659	2,747
Monitoring of MAAIF and LG programmes	2,850	3,135	3,449	3,793	4,173	17,400
Food and nutrition security planning	1,220	1,342	1,476	1,624	1,786	7,448
Staff capacity developed	1,000	1,100	1,210	1,331	1,464	6,105
Total	7,290	8,019	8,821	9,703	10,673	44,506

- Promote appropriate agricultural technologies and crops that provide significant nutritional advantages (this might include, e.g., promoting the production and consumption of nutrient-dense foods including bio-fortified crops; encouraging dietary diversity, and; promoting household-level food processing technologies).
- Provide timely early warnings for disaster preparedness. This would include (i) developing, at the beginning of every rainy season, rainfall forecasts to prepare messages advising farmers on the appropriate activities to undertake during the season; (ii) monitoring crop and livestock performance in order to project the likely food security situation. The assessment should determine the availability of water and pasture for livestock and project the outputs of livestock and livestock products. (iii) carrying out a post harvest assessment to identify areas of food surplus and food deficit. The information will be used to come up with recommendations for the way forward.
- Prepare and disseminate bi-annual Early Warning Bulletins indicating the food and nutrition security status in the country;
- Assist LGs to prioritise food and nutrition security in their budgets and to prepare plans for implementation;
- Expand food markets by assisting the private sector, as appropriate, to improve food storage, value addition, marketing and distribution;
- Assist the MoH to conduct surveys on nutritional status;
- Advocate for the prioritisation and integration of food and nutrition security in the relevant government frameworks, policies and strategies, along with the provision of adequate resources for implementation.

Component 3.2.8: Staff capacity developed

Based on the 2007 training needs assessments, MAAIF's capacity for policy and planning work is inadequate and both APD and PAU struggle with their many responsibilities. MAAIF needs urgently to develop and implement a capacity development plan to address this. The plan should aim at filling specific gaps in knowledge, skills, techniques and attitudes that the planning and policy staff are expected to be able to do in order to realise their outputs. Such skills include: poverty analysis, budgeting techniques, appraisal and analysis of investments; coordination and harmonization of strategies and priorities; budget implementation and monitoring; ICT skills; statistics; monitoring and evaluation, agribusiness development; policy analysis, local government support supervision and mentoring, and; mainstreaming of cross-cutting issues. Activities to deliver this sub-programme will be elaborated in line with the institutional strengthening work under Programme 4.

The cost of the activities under the Planning and Policy Sub-programme is shown in Table 3.17. The total cost is UGX 44.5 billion, starting at UGX 7.3 billion in Year 1, rising to UGX 10.7 billion in Year 5. The biggest area is Monitoring of MAAIF and LG programmes, followed by Food and Nutrition Security Planning.

In MAAIF, the department responsible for implementing the planning function is currently the Agricultural Planning Department (APD) with the policy function under the Policy Analysis Unit (PAU). In Local Government, sector planning and policy implementation functions are the responsibility of the Production Departments. This is undertaken within the framework of the Fiscal Decentralisation

Strategy (FDS) that is being implemented by MoFPED.

Sub-programme 3.3: Public Education Programmes for Agriculture

Poor communication has been a very persistent challenge for the sector which has long been characterised by a limited flow of information between the ministry and the public, between HQ and the agencies, between the centre and the districts, between management and staff, and between individuals and units.

The specific objective of this sub-programme is *“Improved public education and communication around key agriculture and natural resource issues”*. To address the challenges of improving productivity, developing better access to markets, improving regulatory services, halting land degradation and mitigating climate change requires intensive, strategic, professional and well-resourced communication efforts. To achieve the objective, activities will be implemented under three components.

Component 3.3.1: Finalising the agricultural sector Communication Strategy

A communication and advocacy strategy built on a common vision of what MAAIF, via the DSIP, can achieve will be central to developing the ownership and commitment that the DSIP will need. Effective communication moves in progressive levels from awareness, understanding, knowledge, positive attitudes, and informed choice to positive behaviour. It promotes interaction among stakeholders through information, dialogue, co-ordination, and partnership and ultimately moves the agenda on, from passive acceptance to active engagement. MAAIF will therefore, finalise the ongoing work

to develop a Communication Strategy for the agricultural sector.

Component 3.3.2: Implementing the communication strategy

Implementation will involve

- Advocacy and outreach to policy makers, opinion leaders, etc;
- Public information and education campaigns;
- Media advocacy.

Component 3.3.3: Capacity development programmes for the agricultural sector

This component will involve skills enhancement and development at different levels, the center, local government and training institutions. At MAAIF level, capacity strengthening will involve retraining and retooling through study visits and short training courses at local and international institutions. All such training will be tied to specific needs of DSIP implementation. Implementation and monitoring capacity of district production departments will be strengthened in collaboration with local government leadership. Such training will also target individual farmers or members of farmer organizations and the youth in order to enhance their practical skills in farming. Under this component, attention will also be paid to improving the quality of teaching at the four agricultural institutions that were in 2010 returned to MAAIF: Bukalasa Agricultural College, Wobulenzi; Veterinary Training School, Entebbe; Fisheries Training School, Entebbe; and Nyabyeya Forestry College, Masindi. Emphasis will be on improving the numbers and quality of graduates from these training institutes to serve better the farming community in the country.

The cost of the activities under the Public Education for Agriculture Sub-programme is shown in Table 3.18. The total cost is UGX 9.2 billion, starting at UGX 1.5 billion in Year 1 and rising to UGX 2.2 billion per annum by Year 5.

Table 3.18: Budget for Public Education for Agriculture Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Finalise communication strategy	200	220	242	266	293	1,221
Implement strategy	400	440	484	532	586	2,442
Capacity development	900	990	1,089	1,198	1,318	5,495
Total	1,500	1,650	1,815	1,997	2,196	9,158

The Agricultural Resource Centre in MAAIF will take responsibility for this component, linking closely with the Directorates, NARO, NAADS, universities, farmer organizations, district local governments and the private sector.

Sub-programme 3.4: Sector Co-ordination

The nature of the sector institutional set-up and the need for engagement with other sectors and institutions places significant coordination responsibilities on MAAIF and its agencies. Unfortunately, weak coordination mechanisms are often cited as one of the biggest challenges to effective and efficient agriculture sector service delivery. The specific objective of this sub-programme is *“Public coordination responsibilities are undertaken in a coherent manner leading to improved management of sector policies and programmes.”* To achieve the objective, activities will be implemented under two components.

Component 3.4.1: Strengthening intra-sector coordination

This component will deal with internal issues within MAAIF and its agencies. Priority activities to be undertaken in the component will include:

- Develop and disseminate a practical and effective coordination strategy or framework;
- Review (with a view to restructuring) the role, functions and membership of TPM;
- Realign all interventions with the National Agricultural Policy and the DSIP;
- Review and strengthen linkages between MAAIF HQ and the semi-autonomous agencies (see also sub-programme 4.1);
- Review the membership, functions and method of work of the Sector Working Group;
- Strengthen the capacity of SWG technical committees as well as the Secretariat in APD to effectively support the SWG;

- Strengthen sub-sector/agency mechanisms for implementing TPM decisions.

Component 3.4.2: Strengthening inter-sector coordination

This component will focus on creating both better policy and better technical linkages between MAAIF and other government ministries/departments/agencies. Priority activities to deliver on this will be:

- Define areas for inter-sectoral coordination;
- Establish an inter-ministerial policy coordination arrangement to advocate and lobby for cross-sectoral collaboration;
- Re-designate the PMA Secretariat as the National Agriculture Sector Secretariat (NASSEC);
- Review and align the TOR of the re-designated NASSEC to its new roles and responsibilities;
- Review and strengthen the capacity of NASSEC to effectively deliver on its new roles and responsibilities.

The cost of the activities under the Sector Co-ordination Sub-programme is shown in Table 3.19. The total cost is UGX 15.3 billion, starting at UGX 2.5 billion in Year 1 and rising to UGX 3.6 billion in Year 5.

Sub-programme 3.5: Accurate Agricultural Statistics

Very few food and agricultural statistics are currently collected and this is a major omission. UBOS and MAAIF and their predecessor institutions have never succeeded in putting in place statistical systems to collect annual, nationally representative, agricultural production data. Mechanisms for building a sustainable, effective, and efficient FAS system to produce annual, spatially-disaggregated estimates of agricultural production in Uganda are proposed. Investments will seek to cover the major design issues, including meeting the needs of a wide array of data users, assessing the trade-

Table 3.19: Budget for Sector Coordination Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Strengthen intra-sector co-ordination	1,500	1,650	1,815	1,997	2,196	9,158
Strengthen inter-sector co-ordination	1,000	1,100	1,210	1,331	1,464	6,105
Total	2,500	2,750	3,025	3,328	3,660	15,263

offs between several data collection and analysis methodologies, institutional arrangements, and ensuring sustained flows of adequate financial resources. The specific objective is a “*functioning agricultural statistics service providing timely and appropriate information to sector stakeholders.*” To achieve the objective, activities will be implemented under five components.

Component 3.5.1: Establish Agricultural Statistics Technical and Coordination Committees

For the near term, leadership of the national agricultural statistics system will remain with UBOS which is planning to upgrade its Agricultural Statistics Section to a fully-fledged Department. An important next step will be for MAAIF to assist UBOS to reactivate the National Agricultural Statistics Technical Committee (NASTC), with a memorandum of understanding between its members. The system should be operationalised at the policy level with the formation of the National Agricultural Statistics Coordination Committee, which already features in the Agricultural Sector Strategic Plan for Statistics for Uganda but has never been convened.

Component 3.5.2: Establish a statistical methodology for estimating production

The methodology used for PASS and the Uganda Census of Agriculture (based on farmers’ production estimates and measuring area using GPS units) seems best suited for the time-being. However, the construction of a master sample frame will be a priority and the current sampling frame should be updated with another agricultural module during the 2012 population and housing census. In order to resolve any outstanding technical issues related to area and production estimation, it is recommended that the NASTC should establish a task force to address this. The task force will revise, finalize and document the procedure to be adopted, including:

- Resolving outstanding technical issues on area and production estimation, including as regards relative accuracy;
- Developing procedures for providing final estimates of production and yield, initially at the national level, then by region and, finally, district;
- Reviewing the implications of new agricultural data on existing statistical series, especially GDP estimates;

- Establishing data gaps, deficiencies, overlaps, inconsistencies and highlighting possible solutions;
- Holding consultations with stakeholders at the centre and at LG level to design and prepare appropriate data collection instruments;
- Capturing and analysing existing data; and
- Deciding how to use the staff, equipment, and vehicles acquired for the Uganda Census of Agriculture.

Component 3.5.3: Develop a national food and agricultural statistics system

In building a new FAS, it will be sensible to limit initial coverage to the major enterprises at national & regional levels.³³ Only after a system to generate estimates for the major enterprises is in place should attention be widened to a system for a more comprehensive range of crops and livestock. However, in the meantime, data collection for lower administrative levels should continue through enhanced support to building district and sub-county capacity through the Community Information System and other similar efforts to generate statistics for LGs. These efforts need to be coordinated between UBOS, MAAIF and with some of MAAIF’s semi-autonomous agencies. District administration commitment for data collection, funding and use should also be strengthened. In this respect, the district and sub-county governments need to be persuaded to vote funds for statistics activities. In addition, the duties of sub-county and parish chiefs should include statistical activities in their jurisdictions.

With the various budget constraints pertaining, consideration should also be given to some forms of user-funding of statistical gathering activities or cost recovery. Additionally, measures to improve cost-efficiency should also be taken. Here a first step would be to study the statistical systems in a few other countries where costs are known to be lower than in Uganda. Setting up a permanent field organisation within UBOS of field-based officers rather than using moving teams of enumerators and

³³ The fifth International Conference on Agricultural Statistics will be held in Kampala in October 2010. The preparatory activities for the conference involve a diverse and complex set of activities and, as such, provide an opportunity within Uganda for building interest in and commitment to designing and implementing a sustainable FAS system for the country.

supervisors appears to be another way of lowering costs. Two activities will be undertaken:

- Facilitate statistical work of local governments with supplemental funding and equipment; and
- Build capacity at MAAIF including purchase of equipment and suitable software, training and recruitment of staff to run the system.

Component 3.5.4: Establish a food and agricultural statistics databank

To hasten the generation of statistical reports, it is necessary to exploit new information technologies for data capture, processing and dissemination, including optical scanners, handheld computers, GIS and remote sensing technologies, and the internet. A master agricultural statistics databank should be built on the FAO-supported Uganda CountrySTAT programme which is being developed as a FAS metadata repository within UBOS. This can serve the whole FAS system. Data from the livestock and agricultural censuses should be added to this metadata base in due course. Experience in data analysis and report writing from all the data collection exercises mentioned above has been centred at UBOS. However, analytical capacity in MAAIF will be required to handle the following activities:

- Add data from livestock & agricultural censuses;
- Review cost efficiency of FAS surveys and censuses;
- Collect data on large scale farms on complete census basis;
- Plan for updating statistical sampling frame for agricultural statistics through inclusion of Agricultural Module in 2012 Population and Housing Census;
- Evaluate new data capture, processing and dissemination technologies to hasten generation of reports; and
- Develop robust system to generate production estimate statistics at more local levels;
- Increase crops and livestock types covered.

Component 3.5.5: Build agricultural statistical capacity

The plans to revitalize agricultural statistical capacity are ambitious and require considerable training. A number of steps are necessary and while most of this will be the responsibility of UBOS, there needs to be a close relationship with MAAIF:

- Develop a national statistical manpower development plan giving the planned output

of statistical and data processing personnel at different levels of training;

- Develop strategy for increased training in statistical methods at graduate, diploma, and certificate levels;
- Have statistical training institutions (notably MAAIF) develop local government statistical capacity by including in their training programs a sub-national orientation. There is need to develop tailor-made curricula to meet the different training needs for different levels of staff working in the district planning units and line ministries and to enhance data analysis capacity. To inform this process, a training needs assessment should be conducted to identify basic skills requirements and to document best practices of other institutions in the region that are already providing such training;
- Develop and strengthen partnerships between academic statisticians from universities and training centres and official statisticians working at UBOS and MAAIF and other data producers and users. Scaling-up partnerships and interactions between academic staff at ISAE and official statisticians enhances the relevance of statistical training at ISAE. Both institutions can together organize on-going, structured, tailor-made, in-service training courses for middle-level and junior cadre staff as well as refresher courses or specialized training courses for serving statisticians; and
- Ensure financial and technical commitment to enable implementation of these training initiatives.

The cost of the activities under the Agricultural Statistics Sub-programme is shown in Table 3.20. The total cost is UGX 20.4 billion, starting at UGX 3.3 billion in Year 1, growing to UGX 4.9 billion in Year 5. The biggest area is establishing the national FAS.

Sub-programme 3.6: Develop Capacity for Climate Change Planning

About 40 percent of the Uganda population is already food insecure and climate change will put a range of extra burdens on these people (as well as on many others not currently defined as food insecure). There now needs to be a substantial progression in the sector's capacity to think about

Table 3.20: Budget for Agricultural Statistics Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Agricultural Statistics Technical and Co-ordination Committees	200	220	242	266	293	1,221
Task force under NASTC	500	550	605	666	732	3,053
National Food and Agricultural Statistics system	1,800	1,980	2,178	2,396	2,635	10,989
Build Food and Agricultural Statistics databank	640	704	774	852	937	3,907
Training	200	220	242	266	293	1,221
Total	3,340	3,674	4,041	4,446	4,890	20,391

and plan for the future. In summary, an holistic and integrated approach to planning will be developed which will consider climate impacts on agriculture (including related sectors such as water) and, more widely, on the economy. The specific objective of this sub-programme is to “*develop capacity for decision-making in planning and budgeting processes improved by accurate and up-to date climate information and analysis*”. To achieve the objective, activities will be implemented under four components.

Component 3.6.1: Identification of climate impacts, vulnerabilities and coping measures

Future design of adaptation strategies for agriculture in Uganda must be based on improved information about climate variability and change. This has to be detailed to the level of districts, crops, livestock and agro forestry. The information needed must also address different timeframes, recognising that different agricultural activities face different planning horizons and therefore need different climate information. Some crops have a short rotation time and require primarily short-term climate information, others like coffee or agro-forestry products require investments with a longer time horizon and will therefore benefit from longer-term climate information. This is the same for livestock planning. Improved climate information will be a key input to the planning of adaptation strategies and will be an important link with research (NARS) and extension (NAADS), for example, in trying to adapt various agricultural enterprises to be more resilient to the changing climate. Activities here will include:

- Review climate information needs and capacity for supply;
- Undertake pilot surveys to generate appropriate data; and

- Construct appropriate infrastructure for the MAAIF mandate.

Component 3.6.2: Improved climate forecasts

Already, in 2009, farmers face climate variability in terms of a changed timing of the seasons, and differing intensities of both rainfall and dry and hot periods. These can have major impacts on production with some crops and management practices being especially sensitive. If better weather projections, three to six months ahead, were available, it might be possible to suggest adjustments to agricultural practices: e.g. the timing of planting and/or harvesting; whether other seeds and/or crops could be recommended; coping strategies, patterns and choices.

The development of seasonal weather forecasts can be done based on a standardized technical approach that relies on the availability of comprehensive statistical data, and there is a lot of international experience to be drawn on for the generation of such forecasts. It should be recognised, of course, that seasonal forecasts are rife with uncertainties and it can be difficult to interpret and use the information correctly. For example, if the forecast predicts a likelihood of ninety percent that rainfall this season will be above average and a farmer relies on such information and then plants crops that require more rain than usually available, s/he may be risking the whole crop if the forecast turns out to be wrong. On the other hand if s/he stays with his traditional crop that requires less rain, s/he might still get a harvest but with a lower return. Given these kinds of uncertainties, a safer adaptation strategy might be to spread the risk by planting a mix of crops requiring both more and less rain. Activities here will include:

- Strengthening capacity to undertake improved weather forecasting; and

- Construct weather stations to improve data collection (these used to operate on the research stations and on the tea and sugar estates but need rehabilitation).

Component 3.6.3: Integration of climate risk management in agri-business strategies

It is implicit in this DSIP that future agricultural strategies will have a greater business emphasis than hitherto, e.g. the pursuit of higher value-added cash crops and/or the pursuit of more focused business and enterprise development as a means to a higher return. Such strategies require that the extension services have a stronger focus on a business approach and this is the intention of NAADS. As new strategies are developed, climate change adaptation should be included as an element, not least because, as climate risks increase, so will the exposure of the farmers and small business owners. Subsistence farmers may already have a risk-spreading strategy with several different crops planted, the overall impact being improved protection against climate variability. This is different in a monoculture situation where high returns are realised under favourable regimes but where very large losses may be the outcome when weather conditions are unexpected. If this level of risk is to be absorbed, not only must much better climate information be available but there must be a clear strategy as to how the extension services and any enterprise development projects are going to use this information. MAAIF will make a preliminary assessment of how climate risks can be considered in the new agricultural strategies and how specific management and investment advice might flow from this. The assessment should include the following elements:

- Identification of current business strategies (for crops, livestock, fisheries, and the agricultural services sector) with a screening for climate sensitivity;
- Selection of specific business strategies for more in-depth analysis of specific climate vulnerabilities and coping strategies. Such strategies might include risk diversification approaches (i.e. multiple crops), new products or management practices, climate insurance systems, and financial support to help test and introduce climate proof strategies.
- An assessment of how agricultural enterprises can take climate risks into consideration in their business plans and the development of simple

- guidelines to help businesses re-consider their investment calculations or other financial plans;
- Training of NAADS staff about climate risks and coping measures for farmers and enterprises.

Component 3.6.4: Strengthening district capacity to integrate climate change issues into planning

The districts will be on the front line of CC and will be the key to a successful agricultural mitigation strategy and its attendant activities. The first step will be finding out how best to engage with the districts and how to assist them develop plans. This is envisaged to involve three areas of activity.

- Piloting a model as to how to mainstream climate change issues into the agriculture plans of Local Governments. While there is recognition that CC is a threat, there is a big challenge on how this should be addressed in the plans and working practices. The major process will take place through analysis and discussion with LG Production Offices. To ensure that CC issues are captured in the local plans, the LGs must be guided on how to do this. Outputs that will contribute to this outcome include: (i) Training to facilitate Agricultural Production Offices in adapting CC measures to reduce vulnerability; (ii) Production officers equipped and facilitated to incorporate CC issues in the local planning and working practices; and (iii) Awareness created and guidance provided to LG and other local key stakeholders on CC issues. The initial work will be undertaken in two districts.
- The model to integrate climate change issues into agricultural services disseminated throughout the two districts. The Districts' Production Office will be the implementing unit in cooperation with NAADS, facilitating collaboration between local farmers and their organisations, as well as other relevant institutions. However, the capacity of the districts to support the farmers is low. What will be needed is (i) Technical assistance to develop a local plan for integrating CC concerns into agricultural services; and (ii) Agricultural officers trained in CC issues.
- Enhancing local knowledge and skills on climate change and adaptation mechanisms. Climate change is just beginning to take the attention of politicians, academicians, technocrats, public servants, civil society and the general public. There is however still a shortage of knowledge and skills on what to do. Creating awareness ought to be the starting point if meaningful

Table 3.21: Budget for Climate Change Planning Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Identification of climate impacts	500	550	605	666	732	3,053
Improved climate forecasts	1,500	1,650	1,815	1,997	2,196	9,158
Integration of risk into strategies	500	550	605	666	732	3,053
District capacity strengthened	1,000	1,100	1,210	1,331	1,464	6,105
Total	3,500	3,850	4,235	4,659	5,124	21,368

action is to be taken. This is where the agricultural sector will begin. It is suggested that 40 staff of the Agricultural Production Offices and other departments of Local Governments responsible for planning and implementation be trained in CC. Afterwards, lessons learned from this and the pilots will be used by APD to produce guidelines and training for other districts to implement CC in local annual planning and working procedures.

The cost of the activities under the Improving Capacity for Climate Information and Analysis Sub-Programme is shown in Table 3.21. The total cost is UGX 21.4 billion, starting at UGX 3.5 billion in Year 1,

rising to UGX 5.1 billion in Year 5, as the lessons from district piloting activity are integrated more widely.

APD in MAAIF will be the implementing agency with support from the Ministry of Local Government and NAADS. A Climate Change Unit will be established in APD and mechanisms will be developed to improve co-ordination with MWE, NEMA, various CSOs and others. It is anticipated that selected districts in the Cattle Corridor may be the most suitable for the piloting, as they are the districts exposed to the worst impacts of climate change.

Programme 4: Institutional Strengthening in the Sector

The DSIP interventions are concentrated in programme areas where public spending can impact on increased agricultural productivity, improved market access and a functioning enabling environment. It is clear, however, that without the appropriate institutional arrangements to implement these programmes, the delivery of results will be difficult. Under Programme 4, therefore, the focus is on ensuring that sector institutional structures and systems are in place and optimally configured to achieve impact. To realise the vision of functioning sector institutional structures and systems, three sub-programmes as outlined below, will be implemented.

To realise the vision of functioning sector institutional structures and systems, three sub-programmes will be implemented, with their respective goals as follows:

- MAAIF and related agencies, strengthened, appropriately configured and equipped;
- MAAIF HQ relocated to Kampala;
- Productivity of sector personnel improved.

Sub-programme 4.1: Re-configuring MAAIF and its Agencies

The long-running challenges around the institutional arrangements in the agriculture sector are discussed in Section 2.4 as is MAAIF's renewed commitment to addressing these issues and to ensuring the DSIP is successfully implemented. The specific objective of this sub-programme is that *"MAAIF and related agencies are strengthened, appropriately configured and equipped."* To achieve the objective, activities will be implemented under three components.

Component 4.1.1: Restructuring at MAAIF

The basis for the proposed new MAAIF HQ structure is the MAAIF Restructuring Report (GoU, 2009b), already submitted to MoPS, and then subsequently revised under the Review of the MAAIF Restructuring and Reform Process (GoU, 2010). This latter study proposed a new macro-structure which was presented to, and agreed by, MAAIF stakeholders at a workshop chaired by the Honourable Minister of MAAIF and attended by representatives of the key

Development Partners on 4th February 2010 and later at a SWG meeting in Entebbe on 10th February 2010.

This approved macro-structure, designed specifically to implement DSIP, is provided in Annex 7. The main features and characteristics of the structure are as follows:

- A Directorate for Fisheries Resources to be created to enable better articulation of fisheries issues at an enhanced level and bearing in mind the pressing challenges of resource management and the need to exploit Uganda's comparative advantage in the sub-sector.
- A Directorate of Agricultural Support Services to be created to strengthen the policy and planning functions and to provide a mechanism for harmonisation and coordination with other strategic agricultural support services such as agribusiness promotion, market development, agriculture infrastructure and water for agricultural production.
- The Policy Analysis Unit and the Agricultural Planning Department to be merged to form a Department of Agricultural Planning, as these are related and complementary functions. The new department will mainly be responsible for implementation of Programme 3. The policy and planning framework will be further strengthened by a reconfigured Agriculture Resource Centre (ARC) which will be boosted by incorporating into it the Statistics Division and an IT Division. These changes will harmonise the complementary processes of policy-making, strategic planning and information management and will be underpinned by a robust mechanism for the generation and analysis of data as well as its storage and archiving. Finally monitoring and evaluation is enhanced by being accorded a stand-alone status, separated from statistics.
- A Department of Agribusiness to be created and to be central to the implementation of Sub-Programme 1.8 (Strategic Enterprises). The department will be responsible for the generation and analysis of information pertaining to agricultural markets, providing market intelligence and market research. It will also be responsible for the implementation of the farm enterprise profitability assessments

and, even more importantly, for ensuring that market information is included in policy formulation and in the planning process.

- Regulatory services departments established in each of the three 'commodity' directorates (Crop Resources, Animal Resources and Fisheries) to address the recall of the pest, disease, vector control and regulatory service functions which was a response to the cabinet directive of November 2007. Production departments will be maintained under each directorate in recognition of the need for specialist skills and knowledge within each commodity sector while marketing functions will be placed under the new Department of Agribusiness, in the Directorate of Agricultural Support Services.
- A Department of Infrastructure and Water for Agricultural Production established under the Directorate of Agricultural Support Services.
- The Finance and Administration Department (FAD) will be reconfigured by merging the Personnel Section with the Human Resource Development function while the Accounts Section will be elevated to division level in response to a review conducted by MoFPED in 2007. While these structures are set outside the MAAIF jurisdiction, they are considered appropriate and, accordingly, the recommendations have been adopted. It has however, been decided that the Training function should be strengthened to enable FAD to more effectively deliver the training objectives set out in the DSIP. Training is envisaged to target both external populations and the internal staff of MAAIF.
- Two stand-alone specialist units responsible for the internal audit and procurement functions will be created with their heads reporting directly to the PS MAAIF. These structures are set outside the MAAIF jurisdiction and are adopted as directed by the MoFPED review of 2007.

The new structure has been approved by MAAIF management and the next step is to seek Cabinet approval. Once this is achieved, a number of activities need to be commenced right away. These include:

1. Finalising the Implementation Plan prepared by the Review of the MAAIF. Restructuring and Reform Process (GoU, 2010) and shown in Annex 8.
2. Agreeing new staff levels. The new structure will involve an increase from the current 411 approved posts to 641 posts. This is justified on the grounds that: (i) The establishment of two new directorates and the increase of departments from eight to thirteen necessitates an increase in numbers of staff; (ii) The proposed revitalization of the pests, disease, vector control and regulatory services functions alone accounts, across all three sub-sectors, for a total of 175 extra personnel; (iii) Strengthening agricultural statistics accounts for 13 new personnel at zonal level, to be responsible for the annual agricultural surveys in concert with UBOS staff.
3. Transitioning to the New Structure: Given that the proposed establishment is a large increase on the current situation, especially considering that the current actual staffing level is 23 percent below the authorised complement, it will be necessary to implement recruitment in phases, not least to ensure that the increase in staff resources is in tandem with other complementary developments such as the relocation of MAAIF HQ to Kampala (see Sub-Programme 4.2). It is therefore intended that the following steps will be taken in bringing the MAAIF establishment up to capacity:
 - Within three months of cabinet approval of the new structure, a review and reassignment of staff to the new structure will be conducted on the basis of staff audit. This will involve matching and allocating existing staff to the new structure and will be done by a Restructuring Implementation Committee (RIC) which will be established by the PS MAAIF from among senior staff in the Ministry and co-opted representatives of MoPS and MoFPED. The RIC will also attempt to fill any identified gaps (e.g. staff whose positions have significantly changed or are no longer in existence) through lateral transfer or reassignment, based on the skills and qualifications of the affected staff.
 - At the end of this process, the RIC will identify the positions to be filled through promotion or external recruitment. The recruitment plan will provide for priority to be accorded to the top level positions (i.e., Directors, Commissioners

and Assistant Commissioners) because: (i) It generally takes longer to fill such positions, and; (ii) It will enable the successful incumbents to participate in the recruitment of their own subordinates and teams. Recruitment of lower level staff will then be undertaken. It is planned that the recruitment of the senior level positions indicated above will be completed within six months of the Cabinet approval and the recruitment for all other positions will be completed over the next twelve months (allowing the whole process to be completed in 18 months).

4. **Staff Development.** The increase in numbers will be underpinned by a robust staff development programme. MAAIF has developed a 10-year Staff Development Plan and it is expected that this will be suitably adjusted and tailored to meet the requirements of DSIP. Various approaches and strategies will be adopted in developing the staff of MAAIF and these will include cadetships and trainee programmes for new graduates who are interested in pursuing careers in agriculture; continuous improvement training to update and upgrade the skills of serving staff (to be done both through public training institutions, including the agriculture training institutions which were absorbed into the Ministry of Education, and private sector training providers), and; coaching and mentoring of cadres earmarked for promotion.

Component 4.1.2: Improved linkages and collaboration between MAAIF and LGs

The new MAAIF structure makes a determined attempt to address and resolve the existing and vexing issue of poor linkages, inadequate coordination and collaboration both within MAAIF and between the ministry and the LGs. The issue will be addressed by specifically assigning responsibility for coordination to existing positions and the new Department of Agricultural Planning will be assigned the role of coordination with the LGs (and the sector agencies). This is a natural extension of the department's role as a pool of information and data concerning the sector. The responsibility for links with district local governments will be

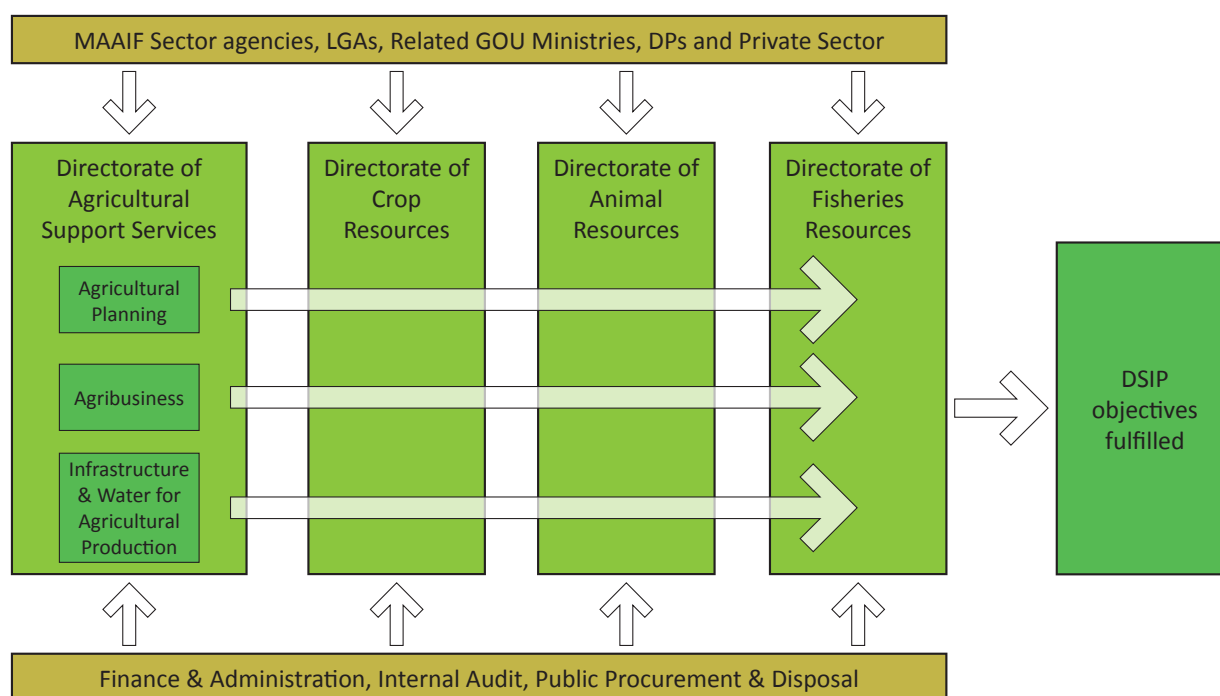
assigned to the new Commissioner for Agricultural Support Services and s/he should exercise this role by maintaining active links with the District Planners. Coordination of agricultural production can be achieved if the Directors responsible for the sub-sectors (or commodities) can formally link up with agriculture production entities in the district local governments. Job descriptions for Directors and Commissioners will be reviewed to ensure the officers take responsibility for improving linkages and providing coordination with related external stakeholders. A framework for the new MAAIF structure illustrating these linkages is provided in Figure 3.

Meetings will play an important role in this process. Formal meetings should be held at least once every quarter between MAAIF and each of its sector agencies to review developments in the sector/institution and to discuss other issues of mutual interest. Such meetings should be supplemented by periodic field visits by MAAIF HQ staff to zonal or district locations, to monitor and review what is happening on the ground. In addition there should be a bi-annual sector review meeting (similar to what is happening in Ministries of Health and Education).

Component 4.1.3: Improved linkages and collaboration with semi autonomous bodies

MAAIF's eight semi autonomous agencies (their establishment, functions, roles, responsibilities and operations as well as their relationships with MAAIF HQ) are prescribed by law via a number of legal or statutory instruments. These instruments bestow a level of independence on these entities that sometimes leads to a perception that MAAIF HQ has relinquished its oversight role. A poor appreciation of their positive contribution has further aggravated the unhealthy situation. To ensure that there is a common agenda within the sector institutions, the Review of the MAAIF Restructuring and Reform Process (GoU, 2010) undertook a brief review of the semi-autonomous agencies as defined in the various instruments and recommended that, given the critical importance of these agencies, further study should be made, either by MAAIF or by MoPS (as a component of the scheduled review of MDAs) to recommend as to how these institutions can be more effectively strengthened and linked into the pursuit of the wider sectoral objectives. It is expected that recommendations arising from such a review should form a set of activities leading to

Figure 2: Framework for MAAIF macro structure showing linkages with key institutions



Source: GoU. (2010). Review of the MAAIF Restructuring and Reform Process

increased institutional harmony and clearer lines of authority. To enable this to happen, the following activities will be undertaken:

- Organise MAAIF and its semi autonomous bodies for a stakeholder discussion of the proposed review, with a view to developing clear Terms of Reference;
- Undertake a review of all the semi autonomous agencies;
- Disseminate the outputs of the review process; and
- Implement the recommendations of the review.

The cost of the activities under the Re-configuring MAAIF and its Agencies Sub-Programme is shown in Table 3.22. The financial implications arising from the increased staff numbers is that the wage bill will increase from UGX 3.24 billion for the current

approved establishment to UGX 5.17 billion, a rise of UGX 1.93 billion and an increment of 59% within two years.³⁴ The total cost of the Sub-Programme is UGX 13 billion, starting at UGX 1.2 billion in Year 1, rising to UGX 2.9 billion in Year 5.

Implementation of the Sub-Programme will be lead by the Finance and Administration Department who will work closely with APD as well as with the Directors and the PS.

³⁴ Of the new establishment, 163 persons (25%) will be support staff and 478 (75%) will be technical staff.

Table 3.22: Budget for Re-configuring MAAIF and its Agencies Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
New MAAIF HQ structures implemented	300	500	200			1,000
New recruitment	300	1,930	2,027	2,128	2,234	8,619
Improved links between MAAIF and LGs	300	500	500	500	500	2,300
Improved links with semi autonomous bodies	300	200	200	200	200	1,100
Total	1,200	3,130	2,927	2,828	2,934	13,019

Sub-programme 4.2: Relocating MAAIF to Kampala

A factor which can no longer be overlooked in the ministry's recent underperformance is the geographically fractured state of MAAIF's key departments and units. MAAIF HQ works from its base in Entebbe while many of its agencies and other departmental units (not to speak of other ministries and departments, development partners and civil society organisations) are in Kampala. The consequence of this is an inordinate efficiency loss. The intention is to urgently relocate MAAIF and release a host of benefits. These include:

- Savings in time spent by professional staff (particularly the PS, the Ministers and officers of APD) travelling from Entebbe to Kampala during office hours, to attend meetings;
- Much more frequent face-to-face interaction with colleagues in other key ministries especially around policy, strategy making and implementing the budget;
- Easier recruitment (from a bigger pool) with a reduction in staff turnover;
- A consolidation of planning and policy staff in APD, PMA, NAADS and other semi-autonomous agencies scattered around Kampala;
- Improved working practices resulting from offices designed to meet the needs of modern office working;

- Savings in operational and maintenance costs of vehicles travelling between Entebbe and Kampala;
- Reduced time for letters and other documents travelling between MAAIF and other Government offices in Kampala;
- Improved contact with consultants and others visiting the country for a limited period.

The specific objective of this sub-programme is *MAAIF HQ re-located to Kampala*. To achieve the objective, activities will be implemented under two components.

Component 4.2.1: Relocation of MAAIF HQ

The process of relocation will be structure in two phases. In the first phase, MAAIF will, over two years, rent premises in Kampala appropriate to the objective of transforming MAAIF into a more professional working operation. Under this arrangement, the building will house offices for all Agricultural Sector Ministers and the PS. It will also accommodate the Departments of Planning, Policy, Finance and Administration (which will be relocated in their entirety) as well as providing working space for senior staff from the Directorates of Crop Production and Animal Resources when they are in Kampala. These are essentially the officers and units that need regular, face-to-face interaction with colleagues in the central policy ministries and with the semi-autonomous MAAIF agencies, especially

Table 3.23: Budget for Relocating MAAIF to Kampala Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Investment Costs						
Moving costs	200					200
Customising building	240					240
Making boardroom	50					50
Furniture and equipment	200					200
Back up power	96					96
Administrative costs	48	48				96
Installing networks and IT	240					240
Support facilities: stores etc	80					80
New building	952	3,000	5,000	3,100		12,052
Sub-total	2,106	3,048	5,000	3,100		13,254
Recurrent Costs						
Wages, operations and maintenance, other (rent)	411	411	411	411	411	2,054
Sub-total	411	411	411	411	411	2,054
Contingency 5%	126	173	271	176	21	765
Total	2,643	3,632	5,681	3,687	432	16,074

PMA and NAADS. Costs during this phase will include customising of the building, suitable furnishings and installation of necessary equipment, especially computer networks.

Component 4.2.2: Establishment of MAAIF HQ at new location

In the second phase, the entire ministry will be re-housed in a building either built or purchased during Phase 1. It will clearly be vital therefore that, during Phase 1, plans are finalised for Phase Two, that is constructing or purchasing a new building.

The cost of the activities under the Relocation of MAAIF Sub-programme is shown in Table 3.23. The total cost is estimated at some UGX 16 billion with the critical first two years costing some UGX 6.3 billion.

Sub-programme 4.3: Capacity Building in MAAIF

The productivity of agriculture sector personnel has been adversely affected over the last decade by a number of challenges:

- The sub-optimal MAAIF structure (see Sub-programme 4.1 above);
- The geographically scattered state of MAAIF's key departments, agencies and units (see Sub-programme 4.2 above);
- The under-resourcing of technical and management training;
- A long history of postponing capacity building programmes;
- A lack of the appropriate tools and equipment to enable sector personnel to effectively execute their roles and responsibilities; and
- Weak communication and management systems.

Successful DSIP implementation will require addressing these challenges and filling capacity gaps in areas that are especially pressing over the short term. The specific objective of this sub-programme is "*productivity of sector personnel improved.*" To achieve the objective, activities will be implemented under three components.

Component 4.3.1: Enhancing capacity and competencies of sector personnel

Very little systematic training has taken place in recent years. Neither has there been much systematic supervision. There have been no programmes to promote career development and without them it is very hard for MAAIF to hold onto talented individuals or to ensure there is replenishment of the professionals who do leave. To address these issues, MAAIF will:

- Develop a comprehensive sector capacity building programme that will capture not only the skills and knowledge gaps but also career development needs;
- Identify the institutions in the sector with the most urgent capacity building needs;
- Identify partners (service providers) to assist with the capacity building; and
- Implement the capacity building plans including a periodic review of achievement.

Component 4.3.2: MAAIF and agencies tooled and equipped

For some time a major challenge to MAAIF staff has been the poor quality of equipment and the inappropriate tools available. Activities to redress this will include:

- Make comprehensive inventory of existing sector assets, at the centre including, infrastructure, tools and equipment;
- Make comprehensive and harmonised assessment of sector requirements, paying special attention to the proposed new institutional structures;
- Make a systematic plan for re-tooling with clear attention to the financial implications and to MAAIF's plans for procurement and disposal of assets;
- Implement plan; and
- Make periodic re-assessments of sector needs.

Component 4.3.3: District offices tooled and equipped

In the same way the districts have suffered from the similarly poor quality equipment and the inappropriate tools available. The activities they need to redress this will be as for component 4.3.2.

- Make comprehensive inventory of existing sector assets in the districts, including, infrastructure, tools and equipment;
- Make comprehensive and harmonised assessment of sector requirements in the

Table 3.24: Budget for Capacity Building in MAAIF Sub-Programme (UGX million)

Components	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Sector personnel capacities enhanced	1100	1,150	1,000	800	950	5,000
MAAIF and Agencies re-tooled and equipped	1,340	1,790	1,850	1,950	1,650	8,580
LG personnel re-tooled and equipped	3,820	3,950	4,150	2,560	2,890	17,370
Total	6,260	6,890	7,000	5,310	5,490	30,950

districts, paying special attention to the proposed new institutional structures;

- Make a systematic plan for re-tooling with clear attention to the financial implications and to MAAIF's plans for procurement and disposal of assets;
- Implement plan; and
- Make periodic re-assessments of sector needs.

The cost of the activities under the Increasing the Productivity of Sector Personnel Sub-Programme is shown in Table 3.24. The total cost is UGX 30.9 billion. First year costs start at UGX 6.3 billion rising

in the first years and then falling back to UGX 5.5 billion in Year 5.

The units responsible for implementing these activities will be the Finance and Administration Department but specifically the Human Resource Development division and the Procurement and Disposal of Public Assets Unit. These will work closely with the Agriculture Planning Department as well as other MAAIF directorates and agencies.

4 Costs and Financing

4.1 Priority Setting

The DSIP is a tool for setting priorities that form the basis for defining spending plans each year. Although, specific priorities can change in the course of a year, having a broad strategic framework enables any such changes to be seen in the full strategic context. The key issue is to signal the main priorities. In the past, these have been blurred and indeed, on the basis of allocations made and spent, have varied both year to year and against the plan (the old DSIP, 2004-7). Analysis presented in the Public Expenditure Reviews (GoU, 2007-9), shows the following key findings in this respect from which important lessons have been drawn: (i) Allocations in the annual Budget Framework Paper did not match those in the DSIP; (ii) Neither did allocations in the BFP match those in the PEAP; (iii) Approved budgets were much less evenly-balanced than those presented in the DSIP, with a greater concentration of resources in very few priority areas (five areas accounted for 86 percent of the BFP allocations over the three-year period); (iv) Just as critically, actual spending did not, anyway, match the allocations in the BFP.

These constraints point to the fact that the DSIP was not used effectively as the basis for drawing up the sub-sector budgets. The intention is to rectify this now. To do this, it is necessary that the priority areas are much more precisely defined; that the objectives, implementation plans and work plans for each of the priority areas are clear and that budgetary discipline is tightened through improved monitoring and more active management supervision.

4.2 The DSIP Budget

The budget in Table 4.1, which represents a snapshot of the current priorities of the sector, is the sum of the budgets of all the sub-programmes described in the above sections. The budget estimates were derived through a highly participatory process which involved all stakeholders in the sector. The budget estimates represents what MAAIF would like to do

if it had sufficient funds, i.e. if it had funds closer to the CAADP target of 10 percent of the national budget. Adjustments based on availability of funds will be inevitable.

The total cost of the “ideal” five-year programme is UGX 2,731 billion with first year costs starting at UGX 457.9 billion. The bulk of the funds would be allocated to the Production and Productivity programme (69 percent). This is followed by the Market Access and Value Addition programme (25 percent). The Creating an Enabling Environment programme will take 4.2 percent and the Institutional Strengthening programme 2.2 percent. The largest sub-programmes are: Agricultural Advisory Services, Agricultural Technology Development (Research), Increased Value Addition & Market Access, Pest and Disease Control, Water for Agricultural Production and Regulatory Services. These six sub-programmes are therefore the sector priority areas, although the other sub-programmes need to get adequate funding too if the synergies, that are potentially there, are to be realised.

4.3 The DSIP Budget and the MTEF

As in the past, the DSIP will be operationalised through the MTEF. This provides 3-year budget ceilings for the sector and for some of the agencies and sub-sectors within it. While, in practice, from year-to-year, there have been major changes to the MTEF ceilings, as well as to the allocations to sub-sector votes, MoFPED insists that the substantive new budgeting procedures introduced for 2010/11, including the requirement for signed Performance Contracts, will lead to more performance monitoring and better budget discipline. This means the MTEF has to be the reference point for the DSIP budget in any given year.

In the 2010/11, the MTEF for agriculture has been agreed at UGX 342.2 billion with authorisation given for MAAIF to project subsequent years to rise at a further 10 percent per annum. It is on this basis that

Table 4.1: Summary of “Ideal” DSIP Budget (UGX million)

Sub Programmes	2010/11	2011/12	2012/13	2013/14	2014/15	Total	%
Production and Productivity							
1.1 Agricultural technology development	62,712	69,308	73,810	70,189	68,024	344,043	12.6
1.2 Agricultural advisory services	126,424	141,835	147,368	153,177	159,279	728,082	26.7
1.3 Pest and disease control	41,010	43,160	46,898	48,174	56,379	235,621	8.6
1.4 Sustainable land management	13,700	15,000	20,360	24,212	30,094	103,366	3.8
1.5 Water for agricultural production	32,000	41,600	50,210	52,331	54,464	230,605	8.4
1.6 Promotion of labour saving technologies	5,400	9,600	9,100	9,100	8,100	41,300	1.5
1.7 Agriculture in Northern Uganda	10,781	11,860	13,045	14,350	15,785	65,822	2.4
1.8 Strategic enterprises	25,000	25,000	25,000	25,000	25,000	125,000	4.6
Sub Total	317,027	357,363	385,792	396,533	417,125	1,873,840	68.6
Market Access and Value Addition							
2.1 Regulatory services	31,500	34,650	38,115	41,927	46,119	192,311	7.0
2.2 Inputs and stocking materials	15,255	16,781	18,459	20,304	22,335	93,133	3.4
2.3 Increased value addition	45,000	49,120	54,532	59,485	65,734	273,871	10.0
2.4 Rural market infrastructure	10,000	11,000	12,100	13,310	14,641	61,051	2.2
2.5 Promotion of collective marketing	10,420	11,462	12,608	13,869	15,256	63,615	2.3
Sub Total	112,175	123,013	135,814	148,896	164,084	683,981	25.0
Enabling Environment							
3.1 The policy framework	500	750	500	500	500	2,750	0.1
3.2 Enhanced policy and planning capacity	7,290	8,019	8,821	9,703	10,673	44,506	1.6
3.3 Public education	1,500	1,650	1,815	1,997	2,196	9,158	0.3
3.4 Enhanced coordination in the sector	2,500	2,750	3,025	3,328	3,660	15,263	0.6
3.5 Agricultural statistics	3,340	3,674	4,041	4,446	4,890	20,391	0.7
3.6 Establishment of climate change capacity	3,500	3,850	4,235	4,659	5,124	21,368	0.8
Sub Total	18,630	20,693	22,437	24,631	27,044	113,435	4.2
Institutional Strengthening							
4.1 MAAIF and Agencies strengthened	1,200	3,130	2,927	2,828	2,934	13,019	0.5
4.2 MAAIF HQ relocated to Kampala	2,643	3,632	5,681	3,687	432	16,074	0.6
4.3 Productivity of sector personnel increased	6,260	6,890	7,000	5,310	5,490	30,950	1.1
Sub Total	10,103	13,652	15,608	11,824	8,856	60,042	2.2
Grand Total	457,935	514,720	559,651	581,884	617,109	2,731,299	100.0

another (MTEF-related) budget has been prepared for DSIP. This is shown in Table 4.2 and totals UGX 2,089 billion with first year costs corresponding to the agreed MTEF.

While the “Ideal” budget has had to be cut by 25 percent to get it to fit into the ceiling, some sub-programmes have had to be cut more than this, simply to allow other (smaller) ones to retain a budget which is big enough to have some operational value. Such “cuts” are unavoidable because the discipline of the MTEF has to come first. They are not necessarily a reflection of the “expendability” of any particular sub-programme: some sub-programmes

may have been generously budgeted for in the first place, others may, despite their high priority, still have absorptive capacity issues. What is shown, however, is the emphasis on the key priorities for the sector, i.e. Agricultural Technology Development (NARO and Research), Agricultural Advisory Services (NAADS), Regulatory Services, Inputs and Stocking Materials, Value Addition, the Promotion of Labour Saving Technologies, Pest and Disease Control, and Water for Agricultural Production.

A key paragraph in the 2010/11 BCC suggests significant changes in sector budget practice could be afoot and that these will give more authority to

Table 4.2: Summary of MTEF-related Budget (UGX million)

Sub Programmes	2010/11	2011/12	2012/13	2013/14	2014/15	Total	%
Production and Productivity							
1.1 Agricultural technology development	42,680	46,948	51,643	56,807	62,488	260,566	12.5
1.2 Agricultural advisory services	90,320	99,352	109,287	120,216	132,238	551,413	26.4
1.3 Pest and disease control	30,811	33,892	37,281	41,009	45,110	188,104	9.0
1.4 Sustainable land management	2,616	2,878	3,165	3,482	3,830	15,971	0.8
1.5 Water for agricultural production	9,500	10,450	11,495	12,645	13,909	57,998	2.8
1.6 Promotion of labour saving technologies	3,600	3,960	4,356	4,792	5,271	21,978	1.1
1.7 Agriculture in Northern Uganda	10,781	11,859	13,045	14,350	15,784	65,819	3.2
1.8 Strategic enterprises	15,000	16,500	18,150	19,965	21,962	91,577	4.4
Sub Total	205,308	225,839	248,423	273,265	300,591	1,253,426	60.0
Market Access and Value Addition							
2.1 Regulatory services	31,500	34,650	38,115	41,927	46,119	192,311	9.2
2.2 Inputs and stocking materials	15,255	16,781	18,459	20,304	22,335	93,133	4.5
2.3 Increased value addition	45,000	49,500	54,450	59,895	65,885	274,730	13.1
2.4 Rural market infrastructure	10,000	11,000	12,100	13,310	14,641	61,051	2.9
2.5 Promotion of collective marketing	6,420	7,062	7,768	8,545	9,400	39,195	1.9
Sub Total	108,175	118,993	130,892	143,981	158,379	660,419	31.6
Enabling Environment							
3.1 Policy framework	500	550	605	666	732	3,053	0.1
3.2 Enhanced policy and planning capacity	7,290	8,019	8,821	9,703	10,673	44,506	2.1
3.3 Public education	1,500	1,650	1,815	1,997	2,196	9,158	0.4
3.4 Enhanced coordination in the sector	2,500	2,750	3,025	3,328	3,660	15,263	0.7
3.5 Agricultural statistics	3,340	3,674	4,041	4,446	4,890	20,391	1.0
3.6 Establishment of climate change capacity	3,500	3,850	4,235	4,659	5,124	21,368	1.0
Sub Total	18,630	20,493	22,542	24,797	27,276	113,738	5.4
Institutional Strengthening							
4.1 MAAIF and agencies strengthened	1,200	1,320	1,452	1,597	1,757	7,326	0.4
4.2 MAAIF HQ relocated to Kampala	2,643	2,907	3,198	3,518	3,870	16,136	0.8
4.3 Productivity of sector personnel increased	6,260	6,886	7,575	8,332	9,165	38,218	1.8
Sub Total	10,103	11,113	12,225	13,447	14,792	61,680	3.0
Grand Total	342,216	376,438	414,081	455,489	501,038	2,089,263	100.0

the Sector Working Group. Paragraph 3.5 in the BCC invites sector ministries to seek additional funding on the basis of competition and states “this approach will allow adequate flexibility for intra-sectoral reallocations of the existing resources (allocation efficiency) and additional resources.” For the first time this opens the door to MAAIF examining the sub-sector ceilings provided by MoFPED and making the case for why different allocations should be made to this or that priority area. This DSIP will enable MAAIF to make these arguments with a much stronger justification.

Whatever happens, there needs to be active and robust rounds of prioritisation as part of the preparation of the BFP and this needs to take place each year. It is during this process that MAAIF and the sector stakeholders will make the final short run investment decisions and the choices made will be dictated by a mixture of the degree of urgency of the pressing issues of the moment, the MTEF set for that year, the likely rates of return to any given investment and the fit between the objectives of any given investment and the underlying vision of the DSIP.

4.4 The DSIP Budget and the NDP

As the DSIP was being completed the NDP was also nearing finalisation. It is an ambitious plan with an agricultural sector budget even larger than that of the DSIP 'ideal' budget, its first year being estimated at UGX 630 billion and with a total cost of UGX 3.53 trillion over five years. How this will relate to the existing MTEF process is not still clear but it will be necessary to rationalise the DSIP budget with the NDP when it is finally published. If more funds become available to the agriculture sector, it will be possible to adjust the DSIP to fit the NDP budget.

4.5 Allocations to Local Governments

In FY 2008/09, the PMA Non-Sectoral Conditional Grant (NSCG) was transferred by MoFPED to MAAIF. The grant is still channelled directly to local governments for implementing the central functions of disease control, regulatory services and agricultural statistics. Under the DSIP, this funding modality for LGs will continue to be implemented.

Each year, a single BFP is prepared by each District Technical Planning Committee, with input from the District Production Department. In principle, the essence of the District BFP should be the coordination of plans submitted from lower levels of local government and developed in a participatory manner. Unfortunately, many sub-counties currently lack the capacity for effective planning, while the desired participatory nature of the process is weak.

Aside from funds that are directly under the control of the local governments, many production activities in the district are also supported by off-budget projects financed by donors and/or NGOs. For some districts, this is an important source of finance. But, at the moment, it does not appear to be taken fully into account by districts, nor by central government agencies, in planning the allocation of their own funds. Under the DSIP, attempt will be made to keep track of all finances in the sector, both GoU and donor finances.

4.6 Sources of Funds

Generally, support including GoU funding and donor funds (both on- and off-budget) has historically made a significant contribution to overall funding of agriculture sector expenditure. Discussions to date between GoU and the DPs active in the agricultural sector³⁵ have indicated a continuing commitment to the agriculture sector, the consensus being that support to DSIP would be the basis of a Sector-Wide Approach (SWAp) and Sector Budget Support (SBS). The main purpose of this SWAp would be to harmonize development assistance to the agriculture sector in Uganda and to cover areas where there might be financing gaps.

Notwithstanding, the above, several other development partners can be expected to continue to provide off-budget support to the sector, including USAID, GTZ, FAO, UNDP, People's Republic of China and JICA (some of whose interventions may also be on-budget).³⁶ It is noted however, that MAAIF has difficulties in directing investment towards sectoral development goals if agencies insist on operating independently. MAAIF would prefer that funds are provided on budget.

NGOs have become significant players in the agriculture sector, particularly through provision of finances as well as free agricultural inputs to internally-displaced people in the northern Districts. Such inputs have included livestock, seeds and plant cuttings, pesticides and veterinary drugs, farm tools and crop processing equipment.³⁷ Again, and not least because records of these activities are scanty, it is difficult for MAAIF to co-ordinate the investments in relation to agreed sectoral development goals.

As the PER (2007) noted, there is a further conundrum related to donor funding that needs

35 International Fund for Agricultural Development (IFAD), the European Commission (EC), Danida, the African Development Bank (ADB), the United States Agency for International Development (USAID), German Technical Cooperation (GTZ), the Food and Agriculture Organization (FAO) and the International Development Association (IDA)

36 The PER (2007) estimates that some 20% of total support may be off-budget

37 As well as vouchers to purchase such items; the vouchers are earned through participation in rural works programmes.

to be resolved. Although the MTEF ceiling is tight from the viewpoint of budget allocations, disbursements of donor funds to projects are so low that actual development expenditure is always significantly below the MTEF ceiling. This implies that more could be spent if disbursement rates were raised. However, due to several reasons, low disbursement rates are a characteristic feature of large projects. It is the intention of MAAIF that as it moves towards SWAp funding, that, in time, a new portfolio of projects be designed to implement the revised DSIP. These would be funded by GoU using domestic finance, including donor budget support. The basis for such a new portfolio, and the priorities on which it is based, should derive from this DSIP and be high on the agenda for the SWG. In line with the objective of establishing a sustainable finding mechanism for core and competitive grants for research, the participation of the private sector has to be strengthened. Mechanisms for equitable and transparent allocation of funds to all research service providers will therefore be reinforced.

4.7 Agriculture and the National Budget

The findings of the PEAP Evaluation (GoU, 2008) indicate that the allocation of public expenditure to agriculture can reduce poverty in a number

of ways, including by raising privately-produced output in those sectors on which the poor depend most for employment. In the case of Uganda, this means a sector in which more than 70 percent of persons depend for their livelihoods. According to the Agriculture Sector PER (GoU, 2007), while agriculture received 4 percent or more of the GoU-financed budget in the early 1980s, since 1991/92, the sector has rarely received more than 3 percent of the budget in any year, and in some years the share has been below 2 percent. In 2009/10 the sector was allocated just above 4 percent for the first time in many years but this has slipped again in 2010/11.

The CAADP work (CAADP, 2008) suggests a strong need for increased government support for agriculture to enable it provide more public goods, the key requirement being that the quality of the spending needs to be considerably improved. The intention is that, by demonstrating its capacity to prepare plans and to implement them, this DSIP will show the financiers MAAIF's commitment to efficient and effective spending in the sector and thereby make its case for a larger share of the national budget. In time, this share will hopefully rise, closer to the 10 percent level stipulated in the Maputo Declaration.

5. Implementation Framework

The DSIP will be implemented through a sector³⁸ wide approach and will involve both the public and private sector. The actors in both sectors have been discussed already, mostly in section 2.5. The specific roles for each in DSIP implementation are as follows:

5.1 Political Leadership

A key concern for the development of the DSIP is the need to avoid the emergence of parallel policies, planning and implementation processes. That will be avoided if there is adequate leadership 'buy in' largely through ensuring that the political priorities are captured in the DSIP. In this context, the political leadership is considered critical to national buy in. The key political leadership organs in the sector are as follows:

- *Cabinet: Policy Coordination Committee:* This is a sub-committee of cabinet chaired by the Prime Minister and tasked with coordinating and monitoring the implementation of Government Programmes. Key issues of implementation are discussed by the Committee and eventually shared with the entire cabinet. Through the quarterly reporting mechanism put in place by Office of the Prime Minister, MAAIF will highlight pertinent issues of implementation for consideration.
- *The Parliamentary Committee on Agriculture:* Acting on behalf of Parliament, the agricultural committee will be responsible for the review and approval of annual sector policies and strategies. It will therefore be a key institution in the processes necessary for implementation of the DSIP in that forum.
- *The Top Policy Management (TPM) Committee* comprises the Ministry's political and technical leadership (Ministers, Permanent Secretary, Directors and Heads of Department) and will be responsible for overall sector policy implementation while the political leadership articulates sector positions in parliament and cabinet.

- *The LG Councils and Committees* will be responsible for the monitoring of DSIP implementation at district and sub county levels. The key functionaries at the higher and lower LG levels include the Chairpersons, Secretaries for Production and Chairpersons of Production committees. The Chief Administrative Officers together with the District Production Coordinators will be responsible for overall administration and supervision of sector technical staff in the production departments. Section staff will be responsible for the delivery of advisory and regulatory services. Local council officials will be responsible for the mobilisation and empowerment of farmers, farmers' groups and organisations. Key institutions at LG level include the District Technical Planning Committee and the Planning Unit. Another key role that council officials will play is engagement with private sector especially through Public Private Partnerships.

5.2 MAAIF

In addition to being the lead ministry in charge of overall DSIP management and implementation, MAAIF (and its agencies) have special responsibilities to:

- Expedite the reviews and reforms outlined in Programme 4;
- Ensure buy in of political leadership by continuously raising the awareness of the DSIP among political leadership;
- Support LGs' planning and budgeting processes, especially with regard to those related to DSIP implementation, and ensure multi-sectoral synergies.
- Consult with DPs and other stakeholders on DSIP implementation and develop and operationalise annual/bi-annual sector review processes to ensure effective monitoring of DSIP implementation

³⁸ Where sector wide refers to the agriculture sector.

5.3 The Districts

Implementation of the bulk of DSIP activities will take place at district level under the responsibility of LGs. Under DSIP, MAAIF and its agencies will therefore establish better coordination and linkages with these entities. In turn, LGs will also need to establish the necessary coordination institutions and linkages with other stakeholder organisations including sub-counties, CSOs, private sector players and farmers. Key institutions at the LG level will include the CAO's office, the Production Department, the Planning Units and the Production Sector Committees. Horizontal linkages are envisaged between the Uganda Local Governments Association (ULGA), ARDCs and ZARDIs.

5.4 The Sector Working Group

The Sector Working Group has been convening quarterly in recent years but the intention is to increase the frequency of meetings to at least eight per year. The expectation is that the SWG, inter alia, will undertake the following:

- Coordinate and harmonize DSIP implementation to ensure that it is in line with the NDP goals and objectives;
- Ensure DSIP investment programmes are aligned with sector priorities;
- Pursue solutions to structural, institutional and other constraints to effective DSIP implementation at central, zonal, and local levels;
- Review mechanisms for enhancing stakeholder participation in implementing the DSIP;
- Review the Agriculture BFP as a basis on which the annual budget for the sector is compiled;
- Provide the main forum for the sector-wide approach to planning and budgeting for the agriculture sector;
- Identify, on the basis of sector expenditure and investment plans and the BFP, policy issues for consideration and action by the TPM;
- Provide information for the Joint GoU/DP Reviews;
- Monitor budget implementation vis-a-vis the aims and objectives set out in the BFP.

6 Monitoring and Evaluation

6.1 Introduction

A good M&E system should be integrated into all stages of the programme cycle, from identification through to the evaluation. At each stage it should seek to answer the question “Are we on track?” At the end, it should answer the question “Did we achieve what we wanted to achieve?” Throughout the duration of the programme, the M&E system should generate timely reports on progress, sounding alarms where necessary and providing management with the necessary information to help keep the programme running as smoothly as possible. In the end, sufficient information should have been accumulated for an evaluation to be conducted to inform the stakeholders as to whether the activities achieved their objectives and to highlight any unexpected outcomes.

Work done as preparation for the DSIP has revealed how much there is to do in establishing a functioning M&E system inside MAAIF. Much of the work done routinely in MAAIF at present is only a partial sub-set of what is necessary. The need now is to redesign the system and this must be done within the parameters of functionality and affordability. This work should take as its starting point the work done for DSIP, in particular the drafting of an outline log frame and a list of indicators.

The specific intention is to establish a functioning and appropriate sector information and management system (including statistics and ICT) to support planning, monitoring and evaluation. In doing this, it will be important, as in the design work so far, to learn the lessons of both the long history of the PMA “M&E Framework” and the issues around MAAIF’s current system. A functional M&E system is, of course, essential not only for monitoring, planning and budgeting DSIP (and for reporting to the SWG) but also for the Joint Assessment Framework (JAF) which takes in several other key sectors. The information system will have at least three stages: (i) The collection, processing, analysis, interpretation, write-up and presentation of the data around a set of key performance indicators; (ii) Derivation of

lessons and policy messages from the data collected; (iii) Absorption of the lessons learnt and subsequent management action to improve implementation and performance.

6.2 The System and the Approach

During DSIP preparation, and as part of the relatively participatory budget preparation process for 2009/10, a long list of indicators was built up based on submissions from all MAAIF projects and programmes. These were then grouped by Programme Area (which helped to remove indicators with obvious overlaps). A further round was then taken to reduce the list only to those indicators which would both give key information on the sector and be easy and inexpensive to collect. There is at least one indicator for every sub-programme in the log frame.³⁹ A number of design criteria guided the short-listing although these could be revisited as the implementation work gets underway. In summary, the ‘short list’ of indicators, shown in Table 6.1 over, was made on the basis that:

- The essential purpose is to evaluate the performance of the new DSIP.
- Information should be treated as any other resource, having a cost and a benefit. The benefit can be quantified in terms of the potential the information has to influence management decisions to improve project performance. If the benefit:cost ratio is assessed to be low then a management decision should be made not to invest in the information gathering exercise. This will release resources to be used more effectively in areas that have a potential for higher pay-offs. On this basis, the new system should be low cost, simple and based on a few, key indicators.
- The data should be either available already or easy to collect.

³⁹ Guidance was taken from Global Donor Platform for Rural Development, 2008.

Table 6.1: Proposed DSIP Indicators

Programme Outcome Indicators			
<ul style="list-style-type: none"> Agricultural output and food production index Growth in agricultural value-added Agricultural and food exports in total exports 		<ul style="list-style-type: none"> Percent stunting in children under 5, by district Rural poverty levels (percent below poverty line) 	
Programme 1: Production and Productivity	Programme 2: Markets and Value Addition	Programme 3: The Enabling Environment	Programme 4: Institutional Strengthening
<ul style="list-style-type: none"> Annual growth in value added in livestock sector Change in yields of coffee, bananas, maize, rice, cassava, cotton, millet, milk, by district Fish catch as a proportion of the fish stock 	<ul style="list-style-type: none"> Turnover in markets of district capitals Percentage of household agricultural output marketed, by district 	<ul style="list-style-type: none"> Views of the private sector as to effectiveness of public policy Number of input dealers by district Number of processing plants Percentage of rural population using formal banking services 	<ul style="list-style-type: none"> Public spending on agriculture as a percent of GDP and national budget Percent spending on core public goods in total agriculture budget
Sub-Programmes			
<p>Agricultural Technology/Research</p> <ul style="list-style-type: none"> Public investment in agricultural research as a percent of agricultural GDP Number of new varieties/prototypes released Number of new varieties adopted by farmers <p>Advisory Services</p> <ul style="list-style-type: none"> Number of adopted technologies Number farmers satisfied with advisory/ extension service delivery Percentage of farmers who are Farmers Group (FG) members Number of FG doing collective marketing by district Percentage change in sales of selected agro-enterprises Value of supported agro-processing initiatives by district <p>Pest and disease control</p> <ul style="list-style-type: none"> Number of disease outbreaks Number of control interventions undertaken Improvement in livestock health <p>Sustainable land management</p> <ul style="list-style-type: none"> Change in soil loss from w/sheds LGs in the target districts devote significant budgets to SLM <p>Water for Agricultural Production</p> <ul style="list-style-type: none"> Withdrawal of water for agriculture as % of total withdrawal Acreage under irrigation as percent of all agricultural land <p>Promotion of Labour Saving Technologies</p> <ul style="list-style-type: none"> Growth in number of oxen and ploughs used Number of farmers using tractors <p>Agricultural livelihoods in Northern Uganda</p> <ul style="list-style-type: none"> Change in yields and livestock productivity Change in farm household incomes Households satisfied with delivered public services <p>Strategic Enterprises</p> <ul style="list-style-type: none"> Number of value chains supported 	<p>Regulatory Services</p> <ul style="list-style-type: none"> Registration costs are reduced and licensing and certification procedures simplified Number of agro-chemical dealers registered Number of illegal fishing equipment destroyed Volume of seed certified <p>Input Markets</p> <ul style="list-style-type: none"> Growth in sales of fertiliser, improved seeds and breeding stock by district Number of private agro-dealers registered Trends in prices of inputs <p>Value Addition</p> <ul style="list-style-type: none"> Percentage change in sales of agro-enterprises Value of supported agro-processing initiatives at district level <p>Market Infrastructure</p> <ul style="list-style-type: none"> Number of new structures functioning <p>Collective marketing</p> <ul style="list-style-type: none"> Percent farmers who are members of FGs or Associations Number of FGs involved in collective marketing by district 	<p>Policy Framework</p> <ul style="list-style-type: none"> New agricultural policy approved <p>Policy and Planning Capacity</p> <ul style="list-style-type: none"> Number of policies developed and implemented Number of monitoring and evaluation reports issued Agricultural data base functioning Alignment of actual agriculture budget with the DSIP budget breakdown <p>Public Agricultural Education</p> <ul style="list-style-type: none"> Number of events and publicity materials <p>Sector Coordination</p> <ul style="list-style-type: none"> Formal inter- and intra- sectoral mechanisms established and functioning <p>Agricultural Statistics</p> <ul style="list-style-type: none"> Bulletins and analyses produced and used <p>Climate Change</p> <ul style="list-style-type: none"> Climate Change trainings in the Districts 	<p>MAAIF and agencies, strengthened</p> <ul style="list-style-type: none"> Restructuring of MAAIF and agencies is made in line with DSIP proposals Value of grant releases (NSCG and AECG) to LGs <p>MAAIF HQ relocated to Kampala</p> <ul style="list-style-type: none"> Number of staff relocated <p>Productivity of sector personnel increased</p> <ul style="list-style-type: none"> Staff being trained

- The system should build upon existing information systems to the extent possible.
- Every objective and sub-programme in the DSIP logframe should have at least one commensurate M&E indicator and means of verification (how and who to collect the information). It should be added that, while the quarterly reports will tend to focus on activities and outputs, the annual report should include information about how well the DSIP is progressing against its immediate objective and its intended outcomes.

MAAIF will employ a three-pronged approach to M&E:

1. *Data Collection by Departmental Staff.* The various administrative and technical records of the Departments/Projects/DSIP sub-programmes are the main sources of data from which MAAIF will collect basic M&E information. The majority of performance indicator data will come from these sources. MAAIF will also consult various Government records, surveys, and databases, other donor reports, and district reports and records, as additional sources of information and data.
2. *Partner participation.* Another main source of M&E information is the Ministry's partners (producer groups, agribusiness providers, agro-enterprises, government counterparts). Where needed, MAAIF will work with selected partners to strengthen all M&E capacities by helping build data spreadsheets and databases to monitor results. The list of information to be provided by MAAIF partners will be determined before start-up.
3. *Surveys and special studies.* Not all performance measures are quantitative or can be collected directly. MAAIF will conduct periodic, ad hoc surveys, studies, and samplings to gain in-depth understanding of project impacts, improve understanding of the impacts of various MAAIF activities, acquire additional qualitative information to supplement quantitative data, and highlight specific success stories from MAAIF. Where appropriate, MAAIF will engage partners and collaborators to participate in these survey activities. These surveys will also serve to provide MAAIF with information on the overall progress of the agricultural sector.

The proposed MAAIF M&E system will target data collection on activities directly implemented by MAAIF and its partners, looking at the direct impact of those activities. This principle of manageable interest ensures that the results reported by the MAAIF M&E system are within the Ministry's ability to influence. MAAIF will also design and implement specific M&E surveys and studies to investigate secondary impacts on agriculture where appropriate. Details concerning indicator definitions, units of measure, collection methods, report frequency, and responsible parties are some of the critical issues still to be finalised.

Establishing an effective performance measurement system requires developing an understanding and agreement among all stakeholders as to what is to be achieved and how important performance management decisions will be made. Hence, where appropriate, MAAIF will include partners in the design and implementation of the M&E system and subsequent performance reviews.

6.3 Activities

The overall objective is: *Functioning M&E system producing cost effective, user friendly management information against the selected goals of the DSIP.*⁴⁰

To achieve the objective, a number of activities will be pursued.

- *Final Agreement on Indicators.* This should be done as soon as possible.
- *Improve the quality and regularity of the existing reporting systems.* An analysis of the issues with the current system should be *urgently* prepared showing what it does and how it can be improved. This should cover the adequacy of institutional arrangements, including the assignment of responsibilities; hardware and software requirements; and the adequacy of incentives for those responsible for the quality and timeliness of reporting.
- *Establish baselines* against which to monitor progress.
- *Agree data sources.* The priority is to use existing data sources: Household Budget Survey,

⁴⁰ These goals should be SMART, i.e. Specific, Measurable, Agreed upon, Realistic, Time-based.

Livestock census, Agricultural census, National accounts etc.

- *Agree institutional responsibilities.* Data collection will be the responsibility of the MAAIF Statistics Section, UBOS, and the district administrations.
- *Improve collection systems* for gathering the information and monitoring the performance. Then obtain feedback on them for use by management. Start by making an inventory of Agricultural Statistics capacity (see under Sub-Programme 3.5).
- *Self reporting.* Establish a process in which programme managers and coordinators self-report on progress toward goals with problems encountered, and solutions formulated. This can be supported by supervisory personnel making occasional spot checks from the centre.
- *Feedback.* Develop procedures to obtain feedback from farmers and stakeholders in the DSIP.
- *Analysis.* Ensure all information collected is analysed and fed back into the ongoing (re)-design process for the programme as well as into the various reviews and evaluations. The emphasis in the whole operation should be on the feed back loop as without this, the resources allocated to data collection are wasted.
- *Reporting.* Assess what the new reporting system should include. It might, for example, be:

Quarterly reports from implementing agencies to MAAIF; Annual Ministry Reports; Joint Annual DP/GoU Sector Review; Joint Budget Support Review; A Public Expenditure Review every two years.

- *Undertake a joint mid-term evaluation* that looks not only at progress in implementation of the DSIP but, also, at utilising the statistical baseline and the data collected on the indicators to measure social and economic impact.
- *Management action.* Strengthen mechanisms to receive the reports of the M&E system, to assess them, and for management to act. Strengthening decision-making inside the sector should assist with this.

The cost of the various M&E activities has been included in Component 6 under Sub-programme 3.2: Enhanced Sector Policy Formulation and Planning.

7 Follow-up Actions

This section covers the immediate actions that should be taken to initiate the implementation of the DSIP.

7.1 Implementation Strategies and Plans

The DSIP only captures the big picture. Although, it defines the sector vision, objectives, strategic/priority areas of investments, sub-programmes to be implemented and key activities, it does not cover detailed implementation strategies and plans for each of the sub-programmes. Detailed strategies and plans are important to guide day-to-day implementation decisions. Accordingly, as soon as the DSIP is approved, detailed implementation strategies and action plans will be prepared by the implementing agencies for the sub-programme they contribute to. This will include the activities to be carried out, the timing, location, performance indicators, institutions and positions responsible, and accurate costs. Particularly critical will be an analysis of implementation arrangements at central level (by MAAIF) and local levels (by LGAs), including staffing at each level, staff TORs, reporting mechanisms, links with LGA agricultural production staff, etc. As part of this process, each of the Sub-programme budgets will be operationalised according to the priorities in each sub-programme area and according to the totals by sub-programme area given in the 'MTEF' budget in Table 4.2. This should be done by APD staff along with the units responsible for spending under any particular sub-programme.

MAAIF's fiduciary capacity was assessed in June 2008 and found to be ill-prepared to handle large DP projects. Given the critical importance of having an adequate procurement and financial management system in place before the proposed sector-wide approach is implemented, another immediate next step should be to strengthen the capacity of MAAIF's procurement and fiduciary staff. This will greatly assist in increasing the transparency and accountability of public expenditure at MAAIF, for the benefit of both the sector and the country. Activities to be pursued

should cover both procurement and financial management and would include: (i) An assessment of capacity and the preparation of action plans; (ii) In-house trainings; (iii) International trainings; and (iv) Development of manuals and handbooks.

7.2 MAAIF Restructuring

The new MAAIF structure has been approved by management and it is important now that there be no delay in implementing it. Momentum can easily be lost. The immediate requirement is for pro-active collaboration with the key stakeholder ministries like MoPS and MoFPED. This will include: (i) Dialogue with MoPS and MoFPED on the submission to be made to cabinet, not least on the implications of the increased wage bill; (ii) How to secure the financial certificate from MoFPED; (iii) Elaborating the Restructuring Plan, especially for FY 2010/11, including integrating the financial implications into the sector BFP.

7.3 Establishing National Platforms for Selected Enterprises

It is also necessary to start to operationalise the various processes around Sub-programme 1.8: Strategic Enterprises. This means quickly forming the national platforms for those selected enterprises so that the way forward for implementation along the value chain can be thoroughly developed.

7.4 Securing Financing and Agreeing on Financing Mechanisms

Moves to prepare a programme of support to MAAIF as it implements the DSIP have been ongoing for well over a year. At the time of writing, preparatory work was still ongoing to prepare documentation both for the more 'advanced' components (NARS and NAADS) and for other priority areas further behind with formulation. In fact all sub-programmes still need considerable input and, as evidence of this, the following is a list of requirements that have to be made ready before financing can be secured:

- A Programme Document which elaborates: development objective; detailed programme description; implementation arrangements; clear-cut roles of all players, i.e. MAAIF vs. local governments vs. NAADS for each programme; coordination arrangements; a description of the regulatory framework and the strategy to address regulatory bottlenecks with a clear timeline; more detailed costings; a procurement plan; disbursement arrangements; a fuller

log frame with agreed output and outcome indicators, monitoring and evaluation plans; a critical risks and mitigation plan; a cost-benefit analysis.

- Safeguards assessments (to cover an Environmental Assessment, a Social Impact Assessment, a Pest Management and Integrated Nutrient Management Plan, International Water Ways Assessment (for activities related to transboundary water use, such as irrigation); Involuntary Resettlement Assessment (for activities dealing with the acquisition of land plots or even providing TA on land use and planning);
- A Programme Implementation Manual;
- A Financial Management manual;
- An Assessment of the financial management capacity of MAAIF and all other implementing agencies;
- A procurement capacity assessment of MAAIF and all other implementing agencies.

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Annexes

Annex 1: Public-Private Sector Roles for Selected Sub-programmes

Introduction

MAAIF and Development Partners agreed that public and private sector roles should be elaborated in the following selected sub-programmes of the DSIP:

In identifying these roles, the DSIP vision and principles (see Sections 2.3 and 3) guided the exercise.

The vision is *“A Competitive, Profitable and Sustainable Agricultural Sector”*.

The first principle is that *“Uganda is pursuing a private sector led and market-oriented economy. In doing this the government will work on constraints that hinder the private sector to invest more in agriculture. Government will support existing or form new partnerships with the private sector. Government actions shall aim to strengthen the private sector”*.

Sub-programme	Sub-programme name
1.5	Water for agricultural production
1.6	Labour saving technologies and mechanization
1.8	Accelerated production of selected strategic enterprises
2.2	Enhanced access to improved inputs, planting and stocking materials
2.3	Increased value addition in agriculture

Details of public and private sector roles

Table A1.1: Public & Private Sector Roles for Sub-programme 1.5: Water for agricultural production

Public sector roles	Private sector roles
Policy formulation, regulation and standards	Provide input into policy formulation
Demonstration of small scale irrigation technologies and water harvesting at research stations and farm level	Farmers adopt the technologies Supply the technologies, demonstrate use and provide after sale services
Rehabilitate five government irrigation schemes (Mubuku, Kiige, Doho, Olweny, Agoro) and co-management with the private sector	Participate in management of the rehabilitated irrigations schemes
Establishment of new irrigation schemes in partnership with the private sector*	Participate in management of the new irrigation schemes
Capacity building for irrigation	
Monitor water supply, use and management	Participate in monitoring water supply, use and management
Guiding the private sector on water use and access rights	

Note: Directorates should indicate how many irrigation schemes and where they will be constructed and associated costs.

**Table A1.2: Public & Private Sector Roles for Sub-programme
1.6: Labour saving technologies and mechanization**

Public sector roles	Private sector roles
Complete formulation of an agricultural mechanization policy and strategy	Provide input into policy and strategy formulation
Rehabilitate and re-equip agricultural mechanization workshops for technology generation and testing	Supply tools, equipment and machinery
Link farmers and farmers' groups to loan facilities (in government and private sector) for agricultural machinery and agro-processing equipment.	Articulate needs for agricultural machinery and agro-processing equipment
Provide information and to link farmers to suppliers of appropriate agricultural machinery and agro-processing equipment through public-private partnerships	Articulate capacity to supply and/or manufacture appropriate machinery Supply the technologies and services to farmers
Provide incentives to the private sector manufacturing/ supplying of labour saving technologies and mechanization (e.g. taxation, subsidies)	
Promote mechanization - animal traction and tractorisation (practice and technologies)	Farmers to participate and provide feedback on suitability Supply the technologies, demonstrate use and provide after sale services

**Table A1.3: Public & Private Sector Roles for Sub-programme 1.7:
Accelerated production of selected strategic enterprises**

Public sector roles	Private sector roles
Provide technical and market information on the commodity	Utilize public information to guide investment choices
Guide farmers on sources of quality seed, planting and stocking materials	Follow guidelines to avoid mistakes and losses
Promote establishment of community nurseries or private seed and planting materials multipliers	Establish and manage the nurseries and share costs by providing land, labour and materials.
Design and operate an incentives mechanism to support production, e.g. cost sharing based on the SPGS model	Comply with set guidelines
Offer training courses for farmers and other players in the value chain	Participate in training and utilize acquired knowledge
Promote the private sector in value addition, e.g. link them to agricultural loan facility through information provision and subsidization	Invest in value addition
Promote the private sector in marketing, e.g. providing market infrastructure (rural roads, rural markets)	Articulate demand for infrastructure development through associations or local governments
Create and support multi-stakeholder commodity platforms to regularly discuss issues relevant to the value chain	Join and participate in commodity platforms
Establish a coordinating unit in MAAIF/NAADS to manage the interventions in the value chain	
Link farmers to sources of quality seed, planting and stocking materials through public private partnerships	

**Table A1.4: Public & Private Sector Roles for
Sub-programme 2.2: Enhanced access to improved inputs, planting and stocking materials**

Public sector roles	Private sector roles
Policy formulation, regulation and standards for agricultural inputs (aligned to the East African Community standards)	Provide input into policy formulation
Increase availability through research and multiplication through public private partnerships (NAGRIC, Regional Fish Fry Centres)	Partner with the public in research and multiplication
Regulation and surveillance of input markets (standards, labels, packaging, traceability)	Comply with standards and report malpractices; self regulation through member associations
Improve infrastructure for input quality control, e.g. Namalere pesticide analytical laboratory and Kawanda seed laboratory	Use the services provided by public laboratory
Strengthen the input distribution system by supporting UNADA and producers of stocking and planting materials through research, training. Demonstrations, etc	Expand the coverage of UNADA country-wide Commercialise in production and distribution
Increase awareness among farmers on utilization and safety through farmer associations and extension workers (e.g. NAADS, private)	Participate in training, demonstration and extension to other farmers
Strengthen certification and monitoring of input producers and dealers	Self regulation through member associations

**Table A1.5: Public & Private Sector Roles for
Sub-programme 2.3: Increased value addition in agriculture**

Public sector roles	Private sector roles
Operationalise agricultural production zoning policy	
Undertake regular value chain analyses to guide investments	
Promote farmer group formation at production and marketing levels	Form production and marketing groups and associations
Provide and assist farmers and traders to utilize market information (prices, volumes, suppliers, buyers) and market linkages	Private companies to collect, analyse and disseminate information
Provide supportive infrastructure (e.g. land, roads) and services (e.g. utilities)	Articulate and seek public support in supportive infrastructure and services
Provide training to farmers and other players in the value chain	Participate and utilize acquired knowledge
Promote the evolution of nucleus farms and out-grower schemes	Set-up and participate in out-grower schemes
Support research in value addition (e.g. UIRI, Makerere University)	Start value addition and gain from incubator schemes
Regularly review policies, laws and tax regimes to support value addition	Indicate areas of policy and laws that need public review

Annex 2: Selection Criteria, Scoring and Ranking of Commodities

Commodity	Criteria for Scoring							Cumulative Score	Ranking	
	Return to investment	Priority within agro-ecologic zones	Number of Households Involved	Contribution to Exports	Poverty Effect	Multiplier Effect	Size Effect			Potential Future Impact
Cereals										
Maize	1	3	3	2	3	3	3	1.5	19.5	1
Rice	2	2	1	0	2	3	2	2	14	
Sorghum	1	1	1	0	2	3	2	1	11	
Pulses										
Beans	1	2	3	2	2	3	3	1.5	17.5	5
Peas	2	1	1	0	2	3	3	1	12	
Oil Seeds										
Groundnuts	1	1	1	0	2	3	3	1	12	
Simsim	1	1	1	0	2	3	3	1	12	
Sunflower	1	2	1	0	2	3	3	1	12	
Fruits and Horticultural Crops										
Citrus	3	3	1	1	2	2	1	3	16	
Mangoes	3	3	0	0	2	2	1	3	14	
Pineapples	3	3	1	0	2	2	1	3	15	
Temperate fruits, apples, grapes	3	1	0	0	2	2	1	3	12	
Root Crops										
Cassava	2	1	3	0	3	3	3	2	17	8
Irish Potatoes	2	1	1	0	3	3	3	1.5	14.5	
Sweet Potatoes	2	1	2	0	3	3	3	1.5	15.5	
Bananas	2	1	3	0	2	3	3	2.5	16.5	10
Livestock										
Piggery	2	1	0	0	2	3	2	2	12	

Commodity	Criteria for Scoring							Cumulative Score	Ranking	
	Return to investment	Priority within agro-ecologic zones	Number of Households Involved	Contribution to Exports	Poverty Effect	Multiplier Effect	Size Effect			Potential Future Impact
Dairy Cattle	2	3	2	1	2	3	2	3	18	4
Beef Cattle	3	3	2	0	2	3	2	2.5	17.5	6
Goats	1	3	2	0	2	3	2	2.5	15.5	
Poultry	1	3	3	0	2	3	2	3	17	9
Apiculture	1	3		0	2	3	1	2	12	
Fisheries	3	3	1	3	2	2	2	2.5	18.5	3
Export/Industrial Crops										
Coffee	2	3	2	3	2	2	3	2	19	2
Tea	3	3	1	2	2	2	2	2.5	17.5	7
Cotton	1	3	1	0	2	2	3	1	13	

Notes: Ranking/Scoring: Low = 1, Medium = 2, High = 3

Returns to Investment (Gross Margins/ Profitability Analysis)

Low = Below UGX 250,000

Medium = UGX 250,000 - 500,000

High = Above 500,000

Source: NAAADS gross margin study 2008

Number of Households involved

Low = Below 1 million hhs involved

Medium = 1- 3 million hhs involved

High = Over 3 million hhs involved

Source: UBOS; UNHS 2005/06 Agric Module & 2009 Livestock Census

Poverty Impact

Low = elasticity of -0.5 and above

Medium = elasticity of -0.5 to - 1.0

High = elasticity of -1.0 and below

Source: IFPRI 2008; Agricultural Growth & Investment options for poverty reduction

Size Effect (Contribution to GDP)

Low = Range of 7-9 in CAADP sub-sector ranking

Medium = 4-6 position

High = 1-3 position

Source: IFPRI. Ibid

Priority within Agro-ecological zones

Low = Not prioritised in any Zone

Medium = Prioritised but only in one Zone

High = Prioritised in more than one Zone

Source: Zoning Report 2004

Contribution to Exports

Low = Ranked 7-10 in export contribution

Medium = Ranked 4-6 in export contribution

High = Ranked 1-3 in export contribution

Source: UBOS; Statistical Abstract 2009

Multiplier Effect

Low = Growth linkage of below 0.5

Medium = Growth linkage of 0.5 - 1.0

High = Growth linkage of 1.0 and above

Source: IFPRI 2008; ibid

Potential (Future Impact) - Index (consumption trends and short term impact)

Low = Range of 7-9 in CAADP sub-sector ranking

Medium = 4-6 position

High = 1-3 position

Source: Ranking by DSIP Drafting Team

Annex 3: Location of DSIP Strategic Enterprises by Agricultural Production Zones

Figure A3: Strategic Enterprise for Three Years (2010/11 – 2012/13)

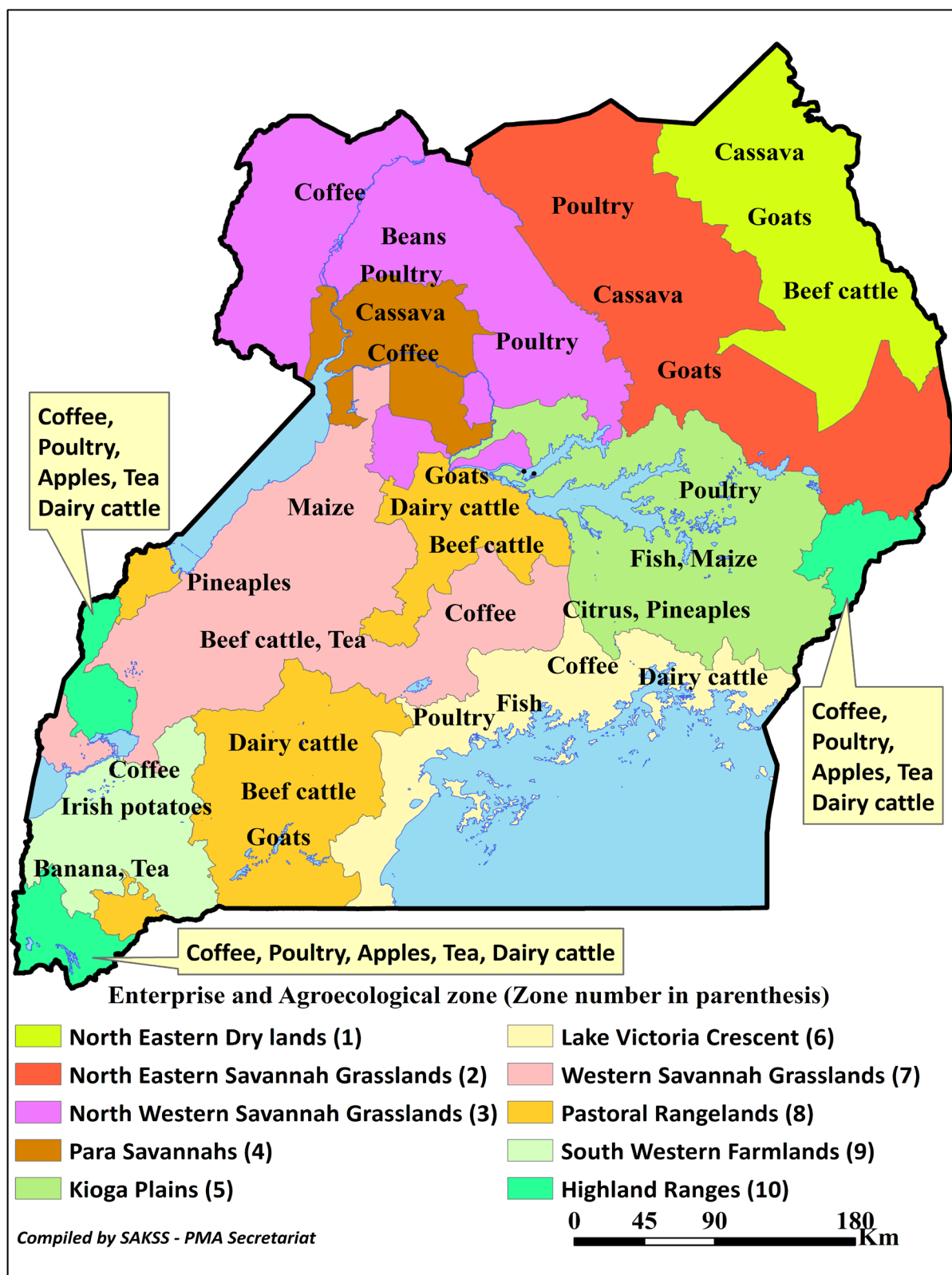


Figure A3.1: DSIP Strategic Enterprises for FY 2010/11

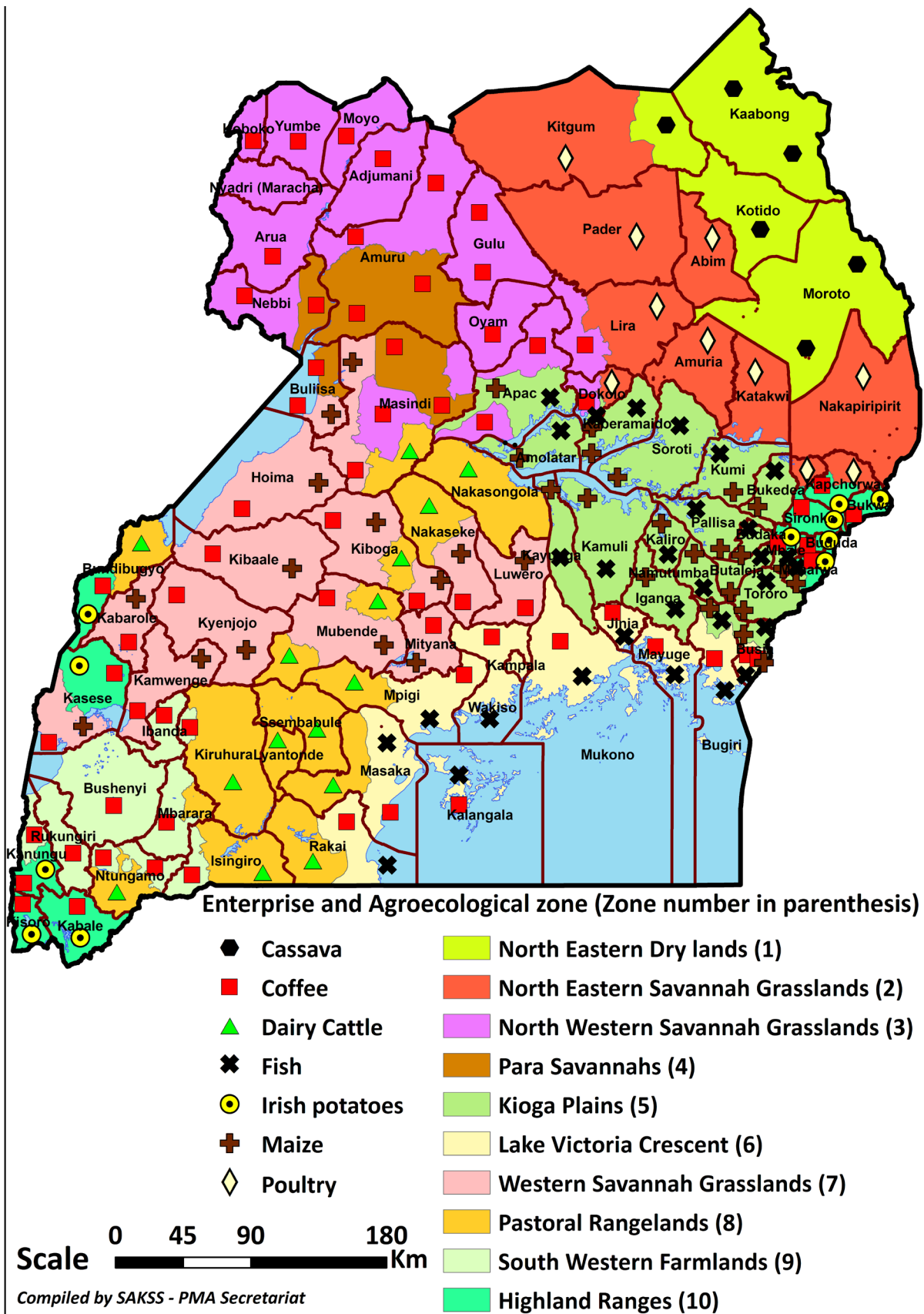


Figure A3.2: DSIP Strategic Enterprises for FY 2011/12

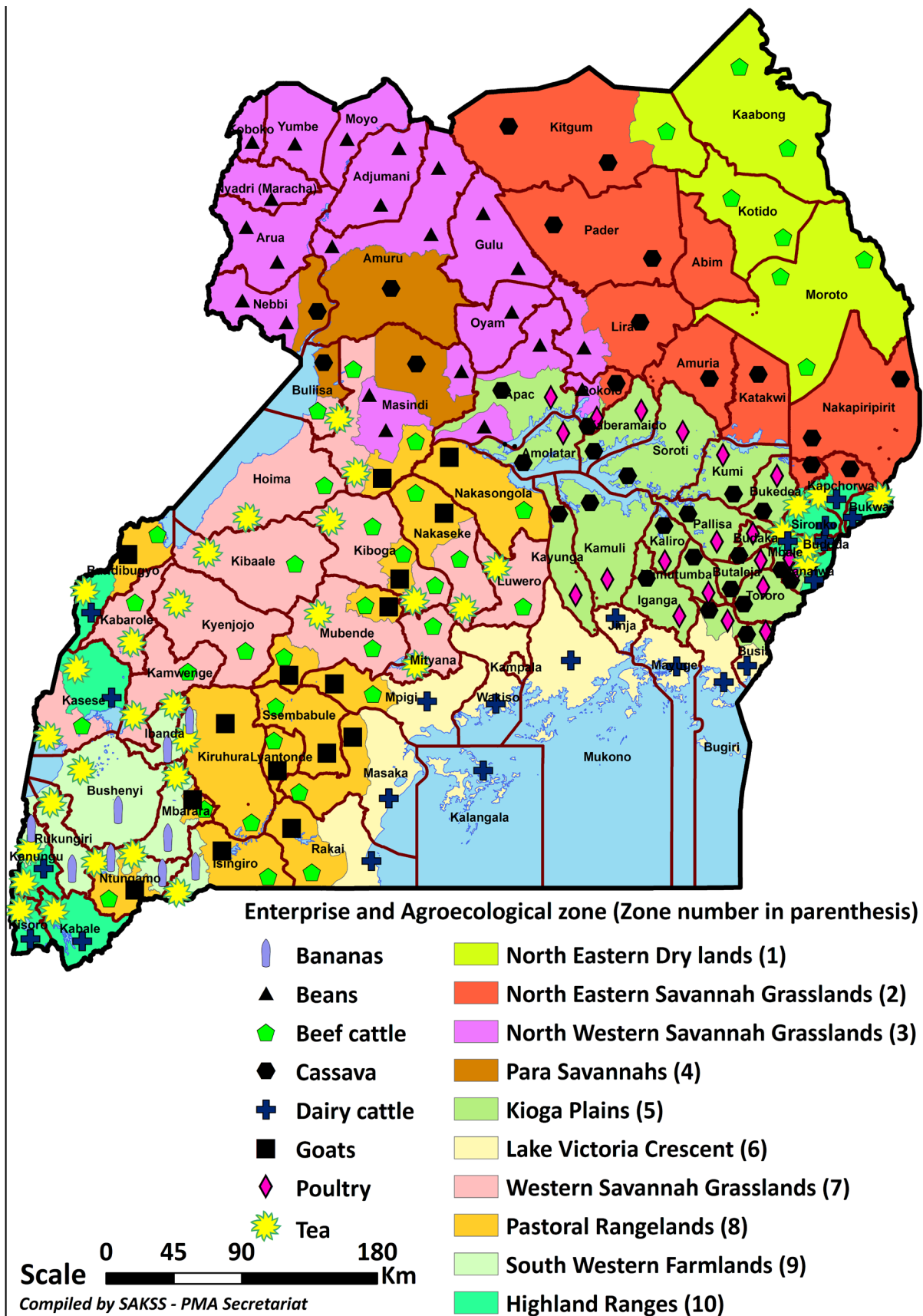
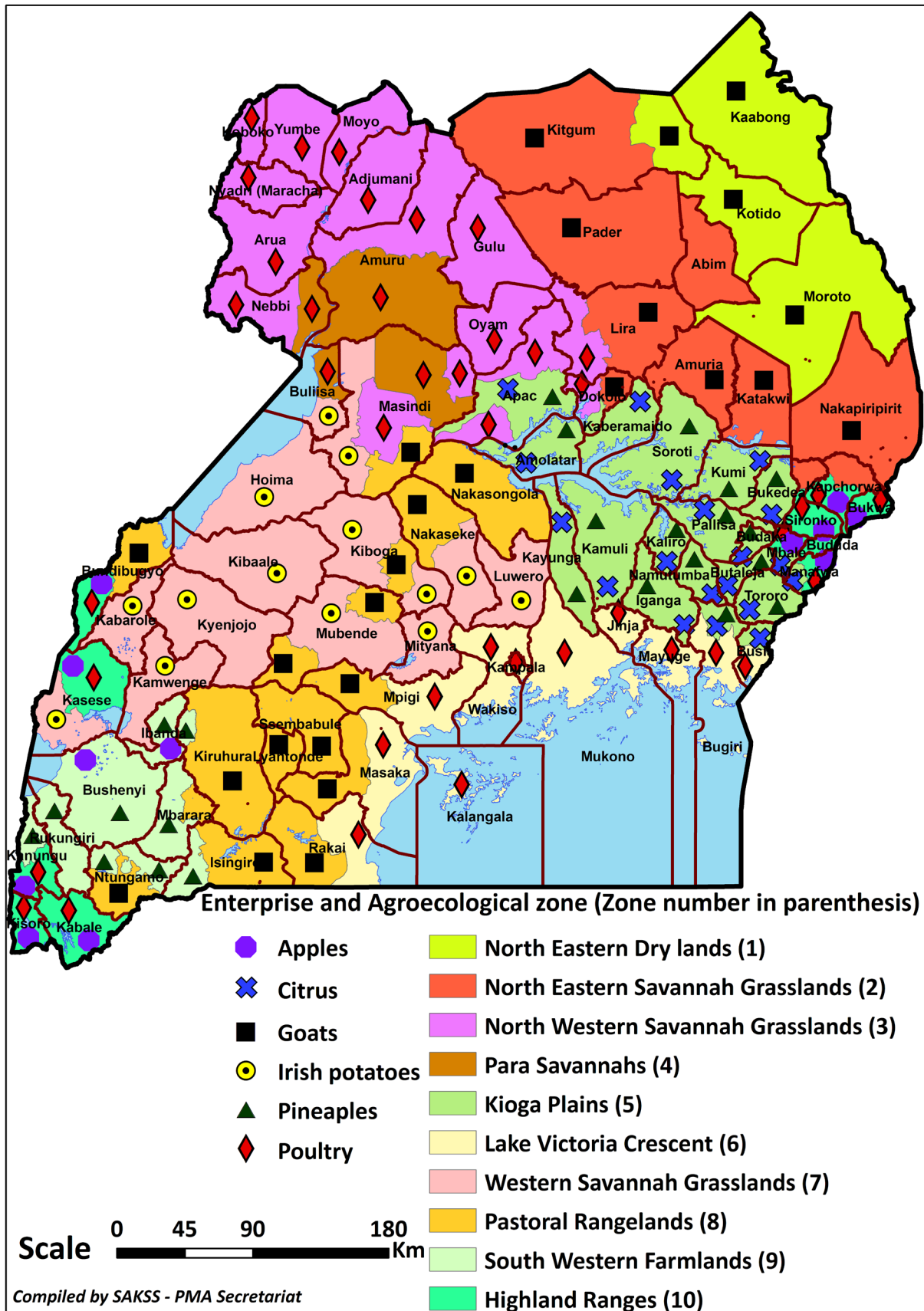


Figure A3.3: DSIP Strategic Enterprises for FY 2012/13



Annex 4: Indicative List of Interventions Eligible for Support under Sub-programme 1.8

Table A4.1: Crop Investments

Production	Processing	Marketing
<ul style="list-style-type: none"> • Quality planting materials • Disease and pest control • Advisory services • Crop research • Water for crop production • Farm mechanization • Farmer institutional development • Production information • Regulatory services for inputs 	<ul style="list-style-type: none"> • Primary processing • Industrial research • Technology acquisition • Public-private partnerships along value chains • Long-term financing 	<ul style="list-style-type: none"> • Market information system • Market linkages and access • Market intelligence • Market research • Market infrastructure • Storage infrastructure • Product quality control • Product certification

Table A4.2: Livestock Investments

Production	Processing	Marketing
<ul style="list-style-type: none"> • Improved animal breeds • Advisory services • Veterinary services • Entomology services • Community infrastructure • Water for livestock • Vector and disease control • Livestock research • Farmer institutional development • Production information • Regulatory services for livestock inputs 	<ul style="list-style-type: none"> • Primary processing • Industrial research • Technology acquisition • Public-private partnerships along value chains • Long-term financing 	<ul style="list-style-type: none"> • Market information system • Market linkages and access • Market intelligence • Market research • Market infrastructure • Storage infrastructure • Product quality control • Product certification

Table A4.3: Fisheries Investments

Production	Processing	Marketing
<ul style="list-style-type: none"> • Multiplication of fish fry • Restocking of small and large water bodies • Fisheries research • Advisory services • Water for fish production and management • Production information • Monitoring, control and surveillance • Fisheries institutional development • Regulatory services for fisheries inputs 	<ul style="list-style-type: none"> • Primary processing • Industrial research • Technology acquisition • Public-private partnerships along value chains • Long-term financing 	<ul style="list-style-type: none"> • Market information system • Market linkages and access • Market intelligence • Market research • Market infrastructure • Storage infrastructure • Product quality control • Product certification

Annex 5: Possible Intervention Areas for Selected Commodities under Sub-programme 1.8

1. Maize

Reasons for selection

- A major food security crop
- Increasingly important non-traditional export crop. In 2005, brought in USD 21 million in export earnings.
- Potential for seed production and export in the region due to good maize harvests in two seasons
- Has an important multiplier effects in other sectors of the economy such as livestock production

Benefits

- A source of livelihoods to over two million households, 1,000 traders/agents, and 600 millers.
- Cash crop for small scale farmers

Targets

- Increase maize production from 1,452,000 MT to 1,780,000 between 2009 to 2014 as shown in the table below

Challenges

- Production related constraints (limited use of improved inputs and new technology due to high costs and poor delivery services, inadequate advisory services, etc);
- Limited access to credit and information
- Poor post harvest handling and inadequate on-farm storage facilities resulting in high losses and reduction of maize quality.
- The scattered nature and lack of organization coupled with low marketable surpluses from farmers raise the maize collection costs within the chain.
- Lower bargaining power at peak harvesting season among the farmers due to individual marketing and limited enterprise diversification

resulting in exploitative tendencies by middlemen.

- Public funding for research is not consistent
- Failure to appreciate and enforce quality standards undermines the quest for consistency in the quality of maize.

Interventions

- *Strategic research on emerging issues* such as climate change, farmer preferences, hybrids for Kapchorwa, agronomic issues and pests and diseases and development of yellow maize for animal feeds
- *Seed multiplication and distribution*- Recently there has been increased demand of seed nationally and regionally. It is anticipated that this need will continue as more farmers get into growing maize
- *Targeted extension and farmer support*- There is need to train farmers in good agronomic practices, soil management, post harvest handling, institutional capacity building for savings and credit.
- *Establishment warehousing system in different production areas*- For storage and credit access
- *Standards and quality inspection*. This will require strengthening and facilitating the National Seed Certification Service of MAAIF

2. Coffee

Reasons for selection

- Main export crop in Uganda, earning USD 388 million in FY 2007/08
- Need to replant to replace the trees lost to coffee wilt disease
- Potential to increase production in Northern Uganda and double exports

Table A5.5: Targets for Maize Production

Crops (000' MT)	2005	2009	2010	2011	2012	2013
Maize	1,185	1,452	1,528	1,608	1,692	1,780

Benefits

- Coffee benefits 1.32 million households spread out in many districts in several agricultural production zones.
- Bring into production households in new areas of coffee production such parts of Acholi, Lango and West Nile sub-regions.

Targets

- Plant 200 million coffee trees by 2015
- Reach export of 4.5 million bags of coffee by 2015

Challenges

- Supplying sufficient coffee wilt resistant seedlings to farmers
- Limited knowledge on coffee by extension service providers
- Formation of coffee farmer groups or associations

Interventions

- Research to produce more strains of coffee wilt resistant varieties
- Mass multiplication of resistant varieties for farmers to plant
- Extension services to farmers to improve productivity and quality
- Support formation of farmer organizations
- Quality assurance of harvested and processed coffee

3. Fish

Reasons for selection

- Fish exports is now the second most important foreign exchange earner after coffee .
- At its peak earned Uganda USD 143 million
- There is still great potential to increase production through better management of capture fisheries and investment in fish farming

Benefits

- About 1.5 million people have been depending on the sector for their welfare
- Better nutrition as fish provides high quality proteins
- Employment along the fish value chain

Targets

- Increase fish production from 420,000 MT in 2009 to 530,000 during 2013

Challenges

The fisheries sub-sector is faced with the following challenges:

Capture fisheries

- Over fishing in the natural water bodies leading to declining stocks
- Inadequate knowledge on the status of fish stocks in all water bodies apart from Lake Victoria to establish the sustainable level of fishing
- Inappropriate mechanisms for controlling access to fisheries resources
- Lack of specific species management plans
- Absence of regional mechanisms for co-operation and management of the shared fisheries resources of lakes Edward and Albert
- Lack of funds for delegated functions to LG and communities
- Co-management structures require a lot of capacity building and support to effectively participate in fisheries management
- Breeding and nursery areas not yet identified yet they should be marked and protected
- Re-insurgence of water hyacinth and upcoming of underwater weeds

Aquaculture

- Inadequate hatcheries to produce fish seed required for stocking/restocking
- Inadequate availability, access and affordability of feeds
- Inadequate Fisheries extension under NAADS

Interventions

- Strengthening fish quality assurance and management
- Enhancing Fisheries Regulation and Control
- Enhancing production and development of capture fisheries
- Enhancing aquaculture development and management
- Improving fisheries statistics and information gathering, processing, storage and use

4. Dairy Cattle

Reasons for selection

- High returns to investment
- Uganda agro-ecological conditions favour dairy production in most parts of the country and throughout the year.

Benefits

- A major source of income for farmers of all categories
- Employment at farm and along the commodity value chain
- Export earnings from milk and milk products

Targets

- The targets for the next five years are:
- to increase milk production from the current 1.5 billion litres to 2.0 billion litres annually by 2014,
- increase the per capita availability from 50 litres (2007) to 80 litres,
- export at least 400 million litres and 200 million kilograms of milk powder by 2010
- have a functional national dairy farmers association engaged in milk processing and marketing

Challenges

- Low milk prices, failure to sell all milk and milk spoilage.
- Lack of capital required for purchasing improved inputs such as improved breeds, livestock feed, dairy meal, maize bran, mineral lick, and nutriamix.
- Shortages of forage and drinking water during the dry season.
- Limited availability of seeds and other planting materials for improved production of grasses and legumes.
- Increased incidence of disease because of decline in control measures and the rapidly rising cost of drugs and chemicals.
- Poor genetic potential of indigenous breeds leading to low milk productivity.
- Irregular and unreliable access to markets for many producers.
- Inadequate levels of institutional credit for small-scale dairy farm enterprises.

Interventions

- Increasing the production of milk and milk products
- Improving quality of milk and milk products
- Increasing and improving processing capacity of milk and its products
- Enhancing marketing of milk and milk products
- Enhancing Coordination of all efforts in the dairy sector through policy formulation, supervision and monitoring

5. Beans

Reasons for selection

- A major food security crop
- Becoming an increasingly important export crop especially in the region
- NARO, Uganda Grain Traders Limited, UCA, WFP, NAADS and UNBS have implemented programmes to promote bean production and marketing through: enterprise development; market information and market linkages; research; advisory services and quality standards.

Benefits

- Improved food security, nutrition and household income.
- Potential for domestic and export (regional and international) markets for pulses.
- Diversification of the export of the non-traditional crops (the pulses).

Challenges

- Yields for beans have been going down. During the eight-year period (1999 – 2006), the mean yield fell by 64% from 988 to 358.
- The high cost of inputs and improved technologies have meant that farmers have continued to practice subsistence production which limits production capacity. This means farmers cannot produce sufficient quantities of produce to meet household needs and a marketable surplus.
- Extension services are limited in their out reach due to the shortage of qualified professionals to train and guide farmers in improved production methods. As a result, most farmers have not changed their farming methods and continue to realise low yields.

- Soils in many parts of Uganda especially in the South West have undergone degradation due to over use. Continuous farming on the soils without replenishing of nutrients has led to depletion of essential nutrients and low fertility of the soils.
- Lack of market information on prices, markets, input supply stockist has constrained farmers from achieving market oriented production.
- Significant losses due to poor post harvest handling and storage facilities have forced farmers to sell their produce quickly irrespective of the price. This has resulted in dumping of produce on the market causing drastic price depression.
- Incidences of pests and diseases and the lack of prevention and control measures has in some cases caused devastation of crops making the food security situation worse.
- High cost of production as exhibited by expensive farm inputs such as implements, seeds, fertilizers and pesticides and high cost of farm labour.

Interventions

- *Research to develop* new high yielding bean varieties, improved agronomic practices, improved post harvest handling and value addition, pest and disease management, soil fertility management and market analysis will be pursued.
- *Seed multiplication and dissemination* to integrate both the formal and informal seed production and distribution system for sustainability and wider reach of the communities.
- *Policy Development* to support development of the pulse sub-sector will be pursued.
- *Extension and farmer support* to equip the extension agents with the necessary skills and knowledge to perform their tasks well as well as to train farmers and other stakeholders to improve their participation in the sub-sector and increase productivity of beans.
- *Standards and quality assurance* will be addressed in order to benefit from the export market opportunities. Similarly, standards and quality assurance as regards seed quality on the market will be tackled.
- *Value addition/primary processing and marketing* especially for the export sector for higher returns to the producers through

reduction of losses and improvement of the shelf life of the products, increased demand for the products, increased export value of the products, and increased the utilization base for the products.

6. Beef cattle

Reasons for selection

- High returns to investment
- The potential for regional and international markets
- The increasing national demand for beef as a result of economic growth and change in tastes.

Benefits

- A major source of income for farmers of all categories
- Employment at farm and along the value chain
- Export earnings from beef and beef products

Targets

- Increase annual beef production from 102,000 metric tonnes in 2007 to 220,000 mt by 2014.
- Domestic consumption to go up to 140,000 mt
- While 80,000 mt will be exported annually
- Foreign exchange earnings of USD 160 million annually is projected.

Challenges

- Production related constraints (diseases, low genetic potential of indigenous beef breeds, inadequate feeding and water),
- Low off take rates because the majority of farmers keeping animal for other objectives other than income;
- Marketing constraints owing to inadequate infrastructure for marketing of livestock and its products at the primary, secondary and tertiary markets
- Institutional constraints arising from weak enforcement of policies, laws, regulations and standards has led to spread of diseases and production of sub-standard products
- Limited research on livestock to develop technologies that address the constraints of the industry.
- Inadequate livestock advisory services
- Lack of access to capital to facilitate investment in improved methods of livestock production.

- Lack of reliable livestock data for policy formulation and planning in the sub-sector

Interventions

- Carrying out effective disease control
- Increasing acreage of land utilised for cattle rearing
- Promoting genetic improvement
- Improving livestock nutrition
- Improving beef marketing system
- Supporting and guiding the training and delivery of advisory services
- Improve research in beef production
- Formulating and reviewing supportive policies and legislation
- Generating data on livestock

7. Tea

Reasons for selection

- Third most important export commodity after coffee and fish, earning USD 56 million in 2007
- 1.4 percent of agricultural GDP
- Potential for expansion to new areas in Kabale and Bushenyi

Benefits

- 9,500 smallholders out-growers, owning about 50% of total acreage
- 50,000 jobs created on tea estates and out-grower schemes
- Increased incomes of smallholder farmers participating as out-growers
- Development of physical and social infrastructure

Targets

- Build two new tea factories in Bushenyi and Kabale
- Increase production from 43,000 mt to 70,000 mt by 2013/14

Challenges

- Production related constraints (low yields, extension services, limited research, access to credit, pests and diseases, expensive inputs)

Interventions

- Revitalize tea research
- Strengthen extension services in local governments
- Enhance tea processing capacity

- Multiply and distribute high yielding clones

8. Cassava

Reason for selection

- Second most important staple food after banana
- Food security crop in most parts of the country
- Industrial potential of cassava can readily replace imported starch, be used in paperboard, textile, plywood, pharmaceuticals and replace 10% of wheat flour in the manufacture of confectionery products and 10-30% maize bran in animal feed rations
- Under-exploited market opportunities for industrial products and exports of cassava products

Benefits

- Contributes over 20% of the calorie needs of the population and 22% of cash incomes to farming households
- Industrial crop that can alleviate poverty and cause rapid rural industrialization

Targets (2009-2014)

- Increase annual production from 5.5 million metric tonnes to 7.0 million metric tonnes
- Increase processing capacity to 3,000 tonnes starch per annum and
- Increase export earnings of cassava products from USD 24,000,000 to 40,000,000

Challenges

- Lack of good quality clean planting materials
- Declining productivity of cassava due to outbreaks of pests and diseases
- limited awareness and knowledge on the crop's value chain
- Deteriorating land availability and soil conditions
- Inadequate extension service delivery to farmers
- Lack of credit facilities, farm inputs and incentives for investments in the cassava industry
- Lack of National Cassava Coordination structure to guide developments in the sub-sector

Interventions

- Awareness campaigns and skills training on nutritional quality of cassava in terms of starch, protein and pro-Vitamin A and high yielding, pest and disease resistant varieties
- Mass multiplication and distribution of clean high yielding planting materials
- Surveillance for cassava pests and diseases and their control
- Extension services to improve productivity and quality
- Promoting Public-Private-Partnerships for appropriate value addition and product diversification (food, feed & industrial raw material)
- Identifying and strengthening market niches at regional and international levels.
- Establishing National Coordination Structure to guide sub-sector developments

9. Poultry

Reasons for selection

- It contributes to improved human nutrition and food security by being a leading source of high quality protein in form of eggs and meat.
- It acts as a key supplement to revenue from crops and other livestock enterprises, thus avoiding over dependency on traditional commodities with inconsistent prices.
- Has a high potential to generate foreign exchange earnings through export of poultry products to neighbouring countries (Rwanda, Democratic Republic of Congo, Kenya).
- Poultry is highly prized in many social-cultural functions such as dowry and festivities.

Benefits

- Approximately 80% of the rural households rear local chicken
- A ready source of income and improved welfare through the sale of poultry and poultry products.

Targets

- Increase poultry meat production from the current 40,500 MT to 150,000 MT annually by the year 2014.

Challenges

- Production related constraints (inadequate access to improved breed, access and affordability of feed, disease control),
- Lack of knowledge and skills resulting in poor management culminating into high mortality rates, low productivity and low profits.
- Inadequate capital at all levels including the commercial growers, breeders, feeds manufacturers and processors of poultry products.
- Marketing constraints (lack of organised marketing infrastructure, so products on market are unprofessionally handled, resulting into lack of grades and standards, market information, and expensive products)

Interventions

- Supporting the local hatcheries to produce quality chicks
- Promoting rural poultry development Schemes.
- Streamlining the production and marketing of feeds and feed ingredients.
- Promote Local Production of poultry and other livestock vaccines
- Streamline the marketing of poultry and poultry products

10. Bananas

Reasons for selection

- With a total annual production estimated of about 10 million tonnes, bananas rank high among enterprises that support livelihoods of smallholder poor rural farming communities. About 75% of Ugandan farmers grow the crop on 1.5 million hectares of land, an estimated 38% of arable land under use.
- Domestic per capita consumption of bananas in Uganda is estimated between 220-460 kg, the largest in the world.
- As an all-year-round fruiting plant, bananas are above all others as a food and income security crop.
- With a root net work and broad leaves which maintain soil structure, it provides soil cover throughout the year hence reducing land degradation;

Benefits

- Increased and sustained investment in banana production, productivity and utilization will have a direct impact on the alleviation of rural poverty.

Targets

- Over the period 2010-2014, it is projected that banana commercialisation will increase by at least 30%. Increased commercialisation will equally boost production. This will be achieved through elimination of constraints in the banana production, marketing and utilization.

Challenges

- Banana Diseases (Banana Xanthomonas wilt, Black Sigatoka, Fusarium wilt, Banana streak virus) leading to yield losses of 40-100%;
- Banana Pests (banana weevil and burrowing nematodes) leading to yield losses of up to 50%;
- The narrow genetic base and genetic erosion, leading to increased chances of pest and disease susceptibility;
- Soil fertility decline, leading to lower productivity and poorer quality of bananas
- Insufficient in-field fruit quality control practices;
- Lack of organized inputs supply systems;
- Disorganized marketing systems and insufficient supporting infrastructure;
- Lack of long term funding mechanisms for the banana sector leading to dependency on short term donor supported projects.

Interventions

- Research: Development of bananas genotypes for (i) improved resistance to pests, diseases and drought; (ii) high yields; (iii) better culinary qualities and enhanced nutrient content
- Development of disease diagnostic tools
- Improvement of banana value chains.
- Development and testing of technology deployment models that enhance their adoption.
- Seed multiplication and distribution: Reliable planting material production and distribution systems with quality assurance mechanisms
- Harnessing partnerships: Establishing private-public, inter-team work platforms within Uganda and other countries in the region to leverage resource utilization.

- Institutional and policy support: Institutional arrangements that favour partnerships and inter-team cooperation within and outside Uganda.
- State-of-the-art infrastructure and human capacity developed for the banana sub-sector

11. Cotton

Reasons for selection:

- Cotton is grown in two thirds of Uganda and is vital for increasing household incomes and eradicating poverty. The crop contributed UGX 48.5 billion to household incomes, US\$ 24.6 million in lint exports and UGX 15 billion from sale of cotton seed in the 2008/09 season.
- Implementation of the Textile Policy of 2009 requires a robust cotton sub-sector since cotton lint will be the major raw material.
- Cotton has multiple levels of industrialization and therefore increasing production and productivity will greatly contribute to the economic development of Uganda.

Benefits:

- Cotton is grown as a cash crop and is a major source of revenue for both rural households and the national economy.
- It is a raw material for the manufacture of textiles, garments, sanitary and medical materials, edible oil and soap, meal and cake for animal feeds and fertilizer.
- Creation of employment along the cotton value chain.
- Since it is grown in rotation with other crops, its foliage adds nutrients to the soil thus contributing to food security.

Targets:

Increase production of cotton as follows:

	2010/11	2011/12	2012/13	2013/14	2014/15
Production (bales of lint)	200,000	280,000	350,000	450,000	500,000
Acreage	220,000	250,000	265,000	298,000	310,000
Farmers	220,000	208,000	180,000	175,000	155,000
Average yield (kg/acre)	500	600	700	800	850

Challenges:

- Lack of a sustainable production inputs provision system.
- High cost of inputs without accessible and affordable credit for rural farmers.
- Inadequate cotton-targeted extension services.
- Lack of organized grass-root farmers' groups which makes service delivery difficult.
- Overdependence on rain fed production.
- Declining soil fertility coupled with high cost of fertilizers.
- Low levels of agricultural mechanization.
- Limited domestic value addition especially to lint.

Interventions:

- Provision of cotton planting seed, production inputs (pesticides and spray pumps) and cotton targeted extension services
- Developing segregated areas for seed multiplication and develop infrastructure for seed processing.
- Intensifying farmer training on the recommended agronomic practices for increasing productivity and quality using demonstration gardens.
- Mobilization of farmers to form groups/associations to ease extension service delivery, facilitate access to inputs and production credit, and give the farmers higher bargaining power.
- Provision of animal traction (oxen and ploughs) to farmer groups.
- Develop and test new production technologies.
- Support increased domestic value addition to lint and other cotton by-products.

12. Fruits

Reasons for selection

- Rich in vitamins, carbohydrates, folate (essential for new cell formation and growth), potassium, and phytochemicals (help to protect against various chronic diseases)
- High demand for fruit juices both locally and internationally
- Ugandan fruits known for their full and delicate flavor
- High potential for production of solar-dried fruits for export

Benefits

- Fruits are the major source of income for many households in many parts of the country.
- Increased fruit production and processing will reduce the fruit and fruit juice imports thus saving foreign exchange.

Targets (2009-2014)

- Increase the market size for dried fruits in Uganda from 90 mt (2002) to 180 mt per annum by 2014/15.
- Increase the domestic, border and regional market share of fresh fruits and fruit juices.
- Produce, package and market juice from locally produced fruits.

Challenges

- Lack of organized marketing coupled with small scattered production
- Limited fruit processing industries in Uganda mainly due to lack of technology and capital.
- Rampant pests and diseases
- Poor post harvest handling methods
- High cost of pesticides and fungicides
- Low soil fertility in some areas
- Poor infrastructure from the bulk fruit production areas.
- Lack of market information on fruits on demand and quality requirements.

Interventions

- **Targeted Research:** To produce high yielding varieties with good resistance or tolerance to biotic and abiotic stresses with good market qualities, soil fertility, pests and diseases and adaptability
- **Targeted extension and farmer support:** need to train farmers in good agricultural practices to ensure increased production. Farmers should also be part of technology development so that innovations from research institutes are well suited to the needs of farmers.
- **Post harvest technology:** Devise and disseminate methods and technology to reduce post harvest losses
- **Enhancement of public private partnerships:** support the private sector through training in business skills, quality issues, and to address coordination and regulatory issues
- **Standards and quality assurance:** products must meet the strict quality standards required for Uganda to exploit the export market.

13. Goats

Reasons for selection

- Quick returns on investment
- Are hardy and drought resistant and survive and perform well in all parts of the country
- Short generation interval
- Have high rate of reproduction (high twinning rate) and improved breeds are quick maturing
- Goat meat preferred because it is lower in total fat and cholesterol compared to other meat.

Benefits

- An important source of income for the farmers
- Low cost of capital investment in stocks, land and labor
- High potential for export earnings
- Lesser risks and are more easily disposed off.

Targets

- Increase goat production from current 12 million to 18 million
- Increase off-take rate from current 35% to 50% by 2014/15
- Revive and functionalize the goat breeders/farmers' associations to engage in improving goat breeding and marketing.

Challenges

- Low productivity of indigenous breeds and hence low off-takes
- Low prices for good grade goats
- Lack of capital for purchasing improved breeds, feeds and provision of water
- Increased incidences of diseases, poor disease control
- Poor husbandry practices and lack of specialized and sustainable extension services
- Lack of organized and reliable access to markets
- Lack of institutional credit facilities.

Interventions

- Improving the breeds and breeding practices through importation of males
- Artificial insemination to enhance genetic improvement
- Improving disease control and extension services
- Enhancing marketing of goats and goat meat
- Improving monitoring and supervision.

14. Irish Potatoes

Reasons for selection

- Important food crop for home consumption and commercial purposes.
- It has a short cropping cycle
- Has an annual growth demand of 3.1%
- It is a staple crop in the densely populated highland areas in South-Western and Eastern Uganda.

Benefits

- Improved quality of life for households and communities involved in the Irish potato commodity chain through high incomes.
- Improved food security since the crop is a food crop as well as a cash crop
- Increased employment opportunities to individuals and groups of people
- Sustainable high productivity and demand will assure stable prices for both ware and seed potato producers and potato product consumers.
- Sufficient potato production will substitute importation of potatoes hence saving foreign exchange.

Targets

- Increase access and use of good quality potato seed from 1% to 20% by farmers.
- Increase ware potato productivity from 5.8 mt/ha to 15.0 mt/ha
- Increase production from 480,000 tonnes to 700,000 tonnes per year.

Challenges

- Insufficient and untimely availability of adequate, good quality seed potato at relatively affordable prices.
- Pests and diseases especially bacterial wilt, late blight and viruses which are very much linked with the general lack of clean seed and proper sanitation
- High cost of agro inputs such as fertilisers, fungicides and insecticides
- Land shortage in the best production (densely populated) areas and erratic weather
- Declining soil fertility leading to reduced potato yields
- Lack of policy and standards to regulate both seed and ware potato production and marketing
- Lack of organized collective marketing

- Limited funding for research in the potato subsector
- Poor post harvest handling
- Lack of potato processing factories
- Poor market access due to poor road infrastructure and fluctuating prices

Interventions

- **Research:** Continued development of potato varieties for specific utilisation targeting niche markets. Also, need to develop appropriate protocols for cost effective production of tissue culture based seed potato. Further research is also needed to develop and promote cost effective technologies for management of pest and disease, soil and water usage, nutrient requirements and post harvest handling processes for both seed and ware potato.
- **Quality seed potato availability:** Establishment of a sustainable seed system for timely supply of adequate seed potato at an affordable cost.
- **Improving market access:** Provide motorable access roads to communities that produce the bulk of seed and ware potato. Also, improve market access through delivery of market information to all actors in the commodity chain.
- **Policy and standards formulation and enforcement:** User friendly national policy needed to support production of marketable potato. The policy has to be accompanied by set standards whose adherence needs to be regularly monitored and enforced.
- **Training:** Continuous updating of extension workers knowledge and skills in dissemination of potato production management practices, and sensitization and training of farmers, transporters, buyers and store owners of seed and ware potato production on post harvest handling aspects.
- **Value addition:** Identify, develop and support viable commercial potato processing opportunities. Link the interested private sector players in potato value chain to public research institutions with necessary technologies and also with the farmers to develop modalities for sufficient and constant supply of potato produce.

15. Rice

Reasons for selection

- Recognized as a crop with a very high potential future impact.
- Has a high return to investment thus essential for poverty reduction
- Has a high and important multiplier effect in other sectors of the economy such as livestock.
- Production has grown from 130,000 mt in 2002 to about 180,000 mt in 2009.
- Uganda is a major source of rice grain and seed for East and Central Africa.

Benefits

- Rice production has saved Uganda over USD 30 Million worth of foreign exchange each year between 2005 and 2008.
- Rice has very high returns to investment which has resulted in poverty alleviation by rice growers for example; returns to investment has usually ranged between 50-100 percent between 2005 and 2009 fetching farmers a net profit of USD 750 to 1500 per hectare of rice produced.
- Increasing food security for the urban population and the youth across the country.

Targets

- Increase rice production from about 180,000 mt in 2009 to about 336,000 mt in 2013
- Self sufficiency in rice production by 2013
- Uganda to become the major source of rice for East and Central African region both through in country production and trade

Challenges

- Water stress due to unreliable rainfall, yet much water is needed for rice production
- Soil fertility decline in many parts of Uganda
- Marketing: Uganda's rice is demanded locally and in neighbouring countries, however there is a challenge of maintaining the high market price for rice
- Farm labor: rice production is labor intensive
- Poor post harvest handling and processing thus low quality rice
- Poor quality seed and on-farm technologies in the face of the need for high yields and high quality rice.

Interventions

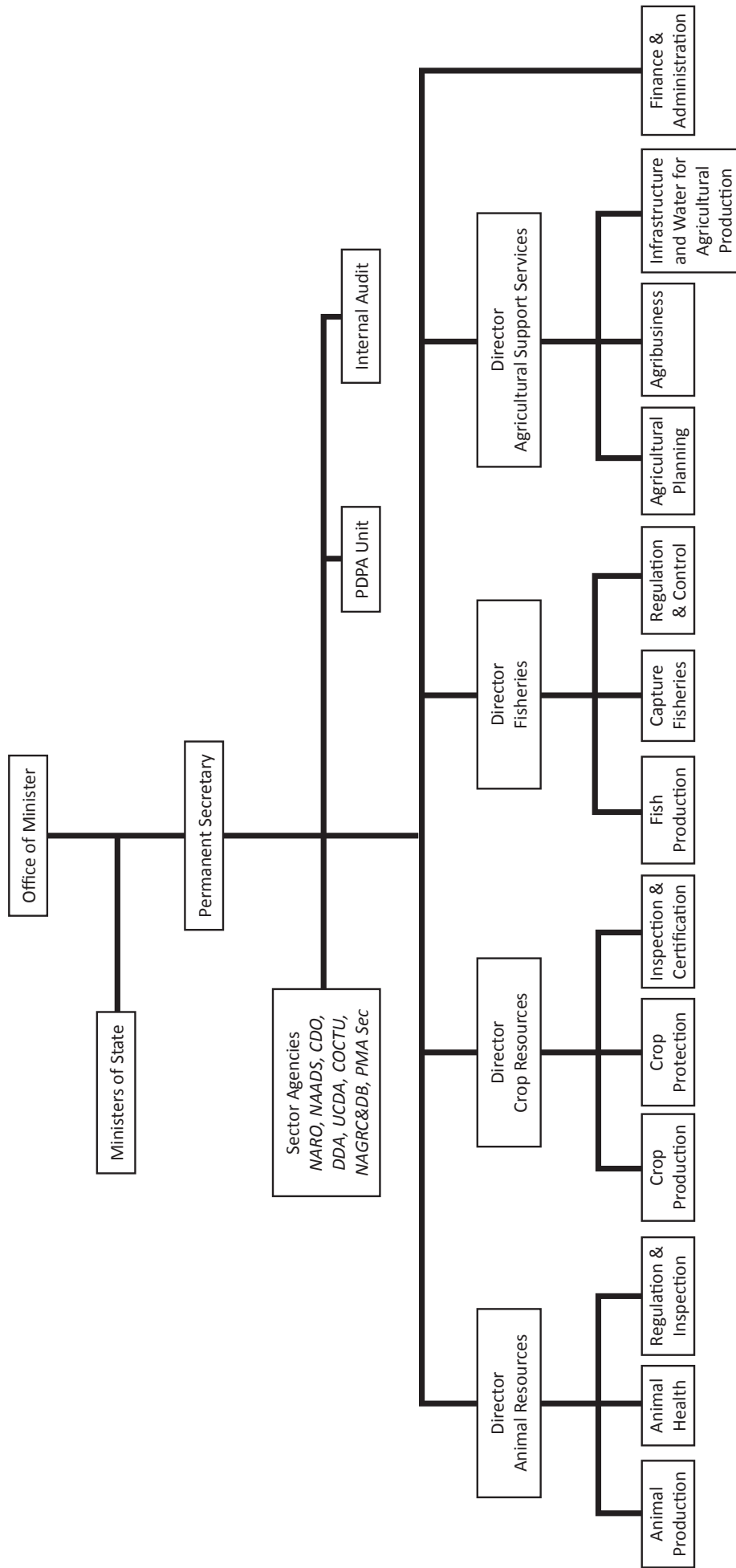
- Irrigation to ensure availability of water all year round.

- Land Management to ensure sustainable rice production for the present and future needs.
- Market Sourcing to ensure that the high returns to investment in rice production are maintained.
- Mechanization for production and processing to ensure timely farm activities and quality.
- Research on improved rice varieties, seed multiplication and development of sustainable farm technologies.
- Dissemination of quality seed and technologies.

Annex 6: Agricultural production targets (2010-2015)

Crop Production (000' MT)	2010	2011	2012	2013	2014	2015
Cereals						
Maize	1,528	1,608	1,692	1,780	1,873	1,971
Rice	167	176	186	196	206	217
Other cereals	1,391	1,470	1,554	1,642	1,735	1,833
Root crops						
Cassava	3,544	3,757	3,983	4,222	4,476	4,745
Irish potatoes	734	777	822	870	920	974
Sweet potatoes	3,454	3,664	3,886	4,123	4,373	4,639
Horticulture						
Vegetables	750	796	846	898	954	1,013
Fruits	899	954	1,012	1,074	1,139	1,208
Pulses & oil seeds						
Oil seed crops	366	388	411	436	463	491
Beans	1,051	1,109	1,170	1,234	1,302	1,373
Bananas	12,974	13,807	14,693	15,636	16,640	17,709
Export crops						
Cotton	130	139	149	159	170	182
Tobacco	11	12	13	14	15	16
Coffee	244	263	284	307	331	357
Tea	210	219	228	237	247	257
Other crops	2,698	2,854	3,019	3,194	3,379	3,575
Livestock Production (000' Numbers)						
Cattle	12,705	13,413	14,160	14,949	15,781	16,661
Sheep	3,749	3,936	4,133	4,339	4,556	4,784
Goats	13,781	14,470	15,194	15,954	16,751	17,589
Pigs	3,528	3,704	3,890	4,084	4,288	4,503
Poultry	41,636	43,871	46,227	48,710	51,325	54,082
Fish Production (000'MT)						
Fish	446	473	502	532	564	598

Figure A6.1: MAAIF Macro-structure



Annex 8: Implementation Plan for MAAIF Restructuring

Objective	Action	Lead	Deadline	Timetable in Annual Quarters (Qtr 1 is Jan – Mar 2010)						
				Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5	Qtr 6	
1. Finalisation of MAAIF restructuring exercises	Final report submitted by consultants		16/2/10	■						
	MAAIF, DPs and stakeholders review and approve final report		2/3/10	■						
2. Establish restructuring implementation team (RIT) to plan, action and monitor restructuring exercise.	Prepare TOR of the RIT.	PS MAAIF	12/3/10	■						
	Nomination and letters of appointment issued to members of RIT	PS MAAIF	19/3/10	■						
	RIT holds first meeting & adopts plan of action	RIT Chair	25/3/10	■						
	Communicate details of new structure to MoPS.	PS MAAIF	12/3/10	■						
3. Obtain approval of structure from key implementation partner ministries and secure cabinet approval	MoPS secures certificate of financial clearance (no objection) from MoFPED	MoPS	26/3/10	■						
	MoPS prepares Cabinet Paper with assistance of PMA	MoPS and PMA	8/4/10	■						
	Presentation of cabinet paper and obtain approval.	Hon. Min MAAIF	16/4/10	■						
	Communicate Cabinet decision to key stakeholders	Hon. Min MAAIF	30/4/10	■						
4. Disseminate information on the new structure to all key stakeholders	Communicate details of the new structure to internal stakeholders – MAAIF HO and Sector Agencies	PS MAAIF	30/4/10	■						
	Communicate details of new structure to external stakeholders – other ministries, DPs, LGAs, etc	PS MAAIF	30/4/10	■						
	Communicate details of new structure to key implementation partners – MoPS, MoFPED, MoLG	PS MAAIF	30/4/10	■						

Objective	Action	Lead	Deadline	Timetable in Annual Quarters (Qtr 1 is Jan – Mar 2010)					
				Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5	Qtr 6
	Conduct staff audit (headcount) and match/allocate existing staff to new structure (lateral matching) and identify gaps	PS MAAIF	28/5/10	■					
5. Review and reassignment of staff assigned to new positions.	Conduct a skills assessment to determine which positions can be filled by lateral transfers and reassignment	PS MAAIF	25/6/10	■					
	Identify positions to be filled through recruitment and draw up a recruitment plan.	PS MAAIF	25/6/10	■					
6. Staff recruitment to fill identified vacancies/ gaps	Recruitment of officers to fill the first three tiers of new structure – Directors, Commissioners and Asst Commissioners	PS MAAIF/ MoPS	29/10/10	■	■	■	■		
	Recruitment of lower tier staff	PS MAAIF/ MoPS	30/6/11	■	■	■	■	■	■
	Conduct detailed training needs assessment	PS MAAIF/ Asst. Comm. HRMD	31/10/10				■		
7. Identify staff development needs	Prepare training plans/ programmes	PS MAAIF/ Asst. Comm. HRMD	30/11/10				■		
	Commission and implement training	PS MAAIF/ Asst. Comm. HRMD	Ongoing					■	■

Source: GoJ. (2010). Review of the MAAIF Restructuring and Reform Process

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