



Republic of Uganda

ACTION PLAN FOR DEVELOPMENT AND PROMOTION OF EXPORTS IN SELECTED COMMODITIES

**“Strategic Interventions to Unlock
Uganda’s Export Potential”**



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List of Acronyms

AGOA	Africa Growth Opportunities Act
ALGC	Agricultural Loan Guarantee Company
BMU	Beach Management Unit
Bop	Balance of Payments
BUBU	Buy Uganda Build Uganda
COMESA	Common Market for Eastern and Southern Africa
DB	Data Bank
DDA	Diary Development Authority
DRC	Democratic Republic of Congo
EAC	East African Community
EU	European Union
FVIP	Fishing Vessel Identification Plates
GDP	Growth Domestic Product
GoU	Government of Uganda
ICT	Information and Communication Technology
ITES	Information and Technology Enabled Services
KVNP	Kidepo Valley National Park
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MCCs	Marine Corps Community Services,
MENP	Mt. Elgon National Park
MICE	Meetings, Incentives, Conferences, and Events
MOFPED	Ministry of Finance planning and Economic Development
MTIC	Ministry of Trade, Industry and Cooperatives
MTWA	Ministry of Tourism, Wildlife and Antiquities
NAADS	National Agricultural Advisory Services
NAGRIC&DB	National Genetic Resource Centre and Databank
NARO	National Agricultural Research Organisation
NDPII	Second National Development Plan
NEDS	National Export Development Strategy
NFTF	National Fisheries Task Force
NGO's	Non-Governmental Organisations

NITA-U	National Information Technology Authority of Uganda
NPA	National planning Authority
OWC	Operation Wealth Creation (under NAADS)
PPP	Public Private Partnership
PSFU	Private Sector Foundation Uganda
REA	Rural Electrification Agency
SMEs	Small and Medium Enterprises
TGCU	The Grain Council of Uganda
TUGATA	The Uganda Association of Travel Agents
UBOS	Uganda Bureau of Statistics
UCDA	Uganda Coffee Development Authority
UCOTA	Uganda Community Tourism Association
UEPB	Uganda Export Promotions Board
UFPEA	Uganda Fish Processors and Exporters Association
UHT	Ultra Heat Treated
UIA	Uganda Investment Authority
UNBS	Uganda National Bureau of Standards
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UDB	Uganda Development Bank
UDC	Uganda Development Corporation
URA	Uganda Revenue Authority
USA	United States of America
USD	United States Dollar
UTA	Uganda Tea Association
UTB	Uganda Tourism Board
VAT	Value Added Tax
WFP	World Food Programme
WHRSA	Warehouse Receipts System Authority

EXECUTIVE SUMMARY

This Export Action plan is a strategic response by Government of Uganda to operationalize the Second National Development Plan (NDPII) whose overall goal is to attain a middle income status by 2020. The NDPII identifies export oriented growth as one of the key development strategies towards achieving sustainable wealth creation, employment and inclusive growth. This action plan therefore identifies strategic interventions for the development and promotion of exports in order to realize the NDPII export target of 16.9% of GDP by 2020.

The Plan also seeks to address the macroeconomic challenges due to imbalances on the current account which resulted into the depreciation of the UG shilling against the US dollar and other major international currencies. The volatility in the exchange rate and the low export performance has been due to both external and internal factors. Therefore, the Plan focuses on short, medium and long-term interventions to address the constraints to Uganda's export performance. The plan identifies priority commodities and services with the highest multiplier effect on the economy and recommends priority interventions (game changers) to unlock the identified constraints along the value chains.

The framework for selection of priority commodities and services was largely informed by the Second National Development Plan (NDPII) and the National Export Development Strategy (NEDS) 2015/16-2019/20. The selected commodities and services include: Agricultural commodities; Coffee and coffee products, Tea and tea products, Fish and Fish Products, Livestock and livestock products (dairy and beef), Grains products (maize and beans), Horticulture crops, and Cotton and cotton products; Services include Tourism, and Information and Communication Technology; Minerals and Mineral Products (Iron-ore, Steel and dimension stones), and Oil and Gas.

Strategic focus areas to unlock Uganda's export potential

Production and productivity: for all identified commodities, there is a deficiency in production and productivity mainly due to: limited research and development; diseases and pests; sub-standard inputs on the local market; unstructured and unregulated distribution of inputs; over reliance on rain-fed agriculture and poor agricultural practices. Consequently, the supply is inconsistent, highly fragmented and not up to the export market requirements. Also, the inadequate infrastructure, technology and human capital have hindered production potential. To address these constraints, the priority interventions include: establish and/or strengthen laboratory facilities in coffee, tea, cotton and livestock to increase parent stock for quality inputs; regulation, certification and structuring of input supply to minimize fake production inputs on the market; timely procurement and distribution of inputs taking into consideration seasonality sensitivities; operationalization of disease control zones; implementation of mandatory and free vaccination against major diseases; and strengthening extension services across the board.

Post-harvest handling: poor post-harvest handling has negatively affected the volumes of produce delivered to the market and/or quantities available for value addition across all the value chains. This is more pronounced in the coffee, grains, livestock (milk) and horticulture commodities. For example,

horticultural products such as oranges, mangoes and pineapples require regulated temperature for post-harvest storage but lack the adequate cold chain facilities. Unscrupulous traders often exploit this weakness by offering low farm-gate prices. To address the issues of post-harvest handling, the priority interventions include: investment in the establishment of adequate storage facilities and supporting infrastructure; strengthen the Uganda Warehouse Receipt System Authority (UWRSA) and Uganda National Commodity Exchange (UNCE) to actualize the commodity exchange; and training on post-harvest handling methods; rehabilitating existing and developing new milk cold chain and processing infrastructure; and providing milk handling and collection equipment to dairy cooperatives.

Limited Value Addition across the various commodity and product value chains: Uganda's products are exported with no or limited value added causing the country to miss out on opportunities to increase the worth of the products. Currently this has led to a low bargain on the part of the farmers and has greatly eliminated the numerous jobs that would be created at the different levels of the value chains. Value addition would provide alternative intake of the produce, reduce dependence on specific markets, create more jobs along the value chains and increase the overall foreign exchange earnings borne from the higher value products. Proposed interventions include: development of detailed value chains that map out forward and backward linkages with clear quantification of inputs, outputs and jobs created at the different value chain levels; modification of the existing warehouse model to factor in the value-addition requirement; fast-tracking government efforts relating to promoting the establishment of agro-processing cottage industries; review of tax regimes and policy relating to inputs into the value-added products; fast-tracking the production of oil and gas and the development of associated requisite infrastructure; fast-tracking the development of the iron and steel industry; and human capital development in Tourism and ICT services.

Regulatory framework: the regulatory framework and/or enforcement of existing regulations in the selected commodity and services sectors is still inadequate to deter the undesired practices. For instance there exist unregulated trade practices in the grain sector, non-existent policies and regulations in some commodities like tea and grains and weak enforcement of existing regulations for example in mineral exploration. The action plan recommends the following: operationalization of the Grain Trade Policy and fast track the enactment of the Produce Protection Bill, enactment of laws and policies in sub-sectors where they are non-existent and; streamlining the enforcement frameworks for such laws – both new and existing.

Export market development: efforts have been made to negotiate preferential access to several markets and regions including the EAC, EU and USA, however, Uganda's exports to some of these markets are dismal, intermittent for several reasons including conformity to buyer and market requirements and competitiveness. Inadequate market intelligence in these high end traditional and new markets has also undermined the country's potential to develop its export markets. Proposed interventions include: developing national brands for Uganda's teas and coffee, and nurturing of enterprise brands into the export market; Undertake a feasibility study for the establishment of a Tea Auction in Uganda; conduct deliberate in-market research in the target export markets; dissemination

of market information to guide the activities of value chain actors; deployment of trade attachées in key export markets.

Implementation Arrangement

For purposes of smooth implementation of this plan, the following committees shall be formed:

1. A steering committee, chaired by the Permanent Secretary of MOFPED and co-chaired by PS MTIC, will provide the overall oversight and policy guidance in the execution of the plan. Other key parties on this committee are the Permanent Secretaries and Executive Directors of: OP, OPM, MAAIF, MTWA, MEMD, MOICT UEPB and NPA.
2. A technical working committee, chaired by the Uganda Export Promotion Board (UEPB) with membership of the Budget Monitoring and Accountability Unit (BMAU), Office of the President's Department of Economic Affairs and public and private sector representatives of all the selected products (commodities and services), will provide technical oversight and guidance. This committee will be responsible for regular planning, monitoring, reporting, and evaluation of the action plan. Specifically, BMAU at the MOFPED and the Office of the President's Department of Economic Affairs the will spearhead quarterly monitoring and reporting.
3. A think tanking committee, Chaired by the PS/ST and co-chaired by the Chairperson NPA and comprising members of the Steering Committee and Technical Working Committee, shall continue to move forward this and other agenda of a similar nature in line with the NDPII development priorities.

Financing of the Action plan

The total estimated cost of financing the export action plan is **UGX 2.63 Trillion** excluding Minerals, Oil and Gas sub-sector. However, factoring in oil and gas, the total cost increases to **UGX 42.53 Trillion** with private sector contribution amounting to **UGX 38.7 Trillion**. Key financing actions include:

1. Realignment of resources within the budget and focused financing to the key identified intervention areas.
2. Fast track implementation of donor supported projects that are addressing export development and promotion issues such as the Competitiveness and Enterprise Development Project and the Agriculture Cluster Development Project,
3. Channel the financing directly to implementing government institutions and ring fence such finances for the purpose defined in this plan.
4. Channel GOU funding for increasing output directly to organized farmer groups / associations through a lead private practitioner for each commodity in a given agricultural zone managing the grant.
5. Establish an Export Development Fund to avail finances to the private sector for the identified commodities and products throughout out their entire value chains. This fund should consolidate all

the existing funds into one and also provide for a mechanism of price stabilization. The fund should be managed through a financial institution with a development focus.

Key messages

- i. Adoption of a value chain approach for selected commodities and services will not only provide a holistic solution to the challenges identified in export development but also expand opportunities for investment and employment creation across the board.
- ii. Dedicated and affordable private sector financing for investments along the export value chains will be critical. This action plan proposes the creation of an Export Development Fund to provide sufficient development financing. The fund will consolidate all the existing and proposed development export development funds.
- iii. Establishment and enforcement of regulations and standard across a spectrum of commodity/ service enterprise production chains will enhance the production and competitiveness of the country's exports.
- iv. Mainstreaming the interventions of this action plan in the budget will be critical in fast tracking its implementation. There is need for ring fencing financing to the selected game changers in the key implementing institutions.
- v. In some commodities, turn key initiatives should be promoted.

For our country to remain on its path to attaining an all-inclusive lower middle income status by 2020, the game changers proposed in this action plan have to be fast tracked. Additionally discipline of action by all stakeholders must be emphasized during the period of its implementation.

CHAPTER ONE: INTRODUCTION

1.1 Background

This Export Action plan is a strategic response by Government of Uganda to operationalize the Second National Development Plan (NDPII) whose overall goal is to attain a middle income status by 2020. The NDPII identifies export oriented growth as one of the key development strategies towards achieving sustainable wealth creation, employment and inclusive growth. Delivering export oriented growth will necessitate increased production and productivity in excess of domestic consumption. This will increase overall incomes of Ugandans and provide a foundation for propelling this country towards light manufacturing (equipment innovations, processing, packaging, general value addition).

This action plan therefore identifies strategic interventions for export development and promotion in order to realize the NDPII export target of 16.9% of GDP by 2020. In addition, the plan comes at a time when the economy is facing some macroeconomic challenges due to imbalances on the current account. This has resulted into the depreciation of the UG shilling against the US dollar and other major international currencies. Overall, the trade deficit deteriorated by 10.9 percent of GDP from a deficit of US\$ 2,696.82 million 2013/14 to US\$ 2,991.27 million in 2014/15.

The widening trade deficit was due to an increase in imports by 2.84 percent from US\$7,745.41 million and a fall in exports by 1.47 percent to US\$ 4,974.29 million. The reduction in the trade volume was due to both external and internal factors. On the external side the slowdown in global growth, weak demand for commodities, low global inflation especially low prices of oil, while domestically, it was majorly due to the depreciation of the shilling.

Although government has attempted to diversify the economy, Uganda's export base has not widened enough to reduce the trade deficit majorly due to severe bottlenecks in production, productivity, post-harvest handling, value addition, marketing and limited investment in strategic infrastructure and promotion of service exports.

Therefore, this action plan seeks to unlock Uganda's export potential through identification of priority export products and services as well as identification of strategic interventions along their value chains to overcome the challenges. The selected commodities and services include: Agricultural commodities; Coffee and coffee products, Tea and tea products, Fish and Fish Products, Livestock and livestock products (dairy and beef), Grains products (maize and beans), Horticulture crops, and Cotton and cotton products; Services include Tourism, and Information and Communication Technology; Minerals and Mineral Products (Iron-ore, Steel and dimension stones), and Oil and Gas.

1.2 Market analysis of commodity products

Uganda has made significant strides in diversifying its export markets as seen from the negotiation efforts for market access within the EAC, COMESA, EU and other Developed Countries including the USA (AGOA). In all these markets, the majority of Ugandan products are granted duty free, quota free market access. Despite the availability of the enormous export market, Uganda supplied less than 1 percent of the world demand (as at 2014; see Table 1).

Table 1: Total Imports Against Uganda Exports of Selected Products (US\$ Millions).

HARMONISED CODE	Product	2013		2014	
		WORLD DEMAND	UGANDA SUPPLY	WORLD DEMAND	UGANDA SUPPLY
90111	Coffee Beans, not roasted, not decaffeinated	19,594	424	20,715	410
90112	Coffee Beans, not roasted, decaffeinated	748	0	726	0
90121	Value Added Coffees	8,643	0	9,446	0
90210	Tea - Green, not fermented	1,270	4	1,370	4
90230	Tea - Black, fermented or semi-fermented	5,699	82	5,095	81
5201	Cotton, not carded or combed	19,164	4	15,245	3
5202	Cotton waste	691	0	515	0
5203	Cotton, carded or combed	199	28	178	19
5204	Cotton sewing thread	272	0	169	0
5205	Cotton yarn 85% or more cotton	14,390	0	13,701	0
5207	Cotton yarn put up for retail sale	365	0	224	0
5208	Woven cotton fabrics, 85% or more cotton	10,794	1	12,197	1
5211	Woven fabrics of cotton, less than 85%, mxd	2,761	0	3,046	0
5212	Woven fabrics of cotton	862	0	625	0
61	Articles of apparel, knit or crocheted	195,862	0	214,883	1
62	Articles of apparel, not knit or crocheted	199,268	3	213,730	1
1005	Maize Grain	38,480	27	36,198	29
713	"Beans" - dried - including peas, chick peas etc.	10,076	19	10,364	24
1801	Cocoa beans, whole or broken	7,875	55	9,776	59
30433	Fish Fillets, Nile Perch	213	90	205	83
401	Dairy Products - Milk, etc.				
402		33,135	24	36,511	23
72	Iron and Steel	406,141	94	419,978	93
73	Articles of Iron and Steel	313,388	42	318,939	34
	Total	1,289,890	897	1,343,836	865 (0.064%)

Source: UN COMTRADE

In order to meet the demand, the supply constraints must be addressed in a holistic approach which is the focus of this action plan.

1.3 Purpose of the Action plan

The purpose of this action plan is to identify priority commodities and products, value chain constraints and strategic interventions to accelerate exports.

1.3.1 Objectives of the Action Plan

The specific objectives of this action plan are to:

- (i). Identify strategic investment areas in selected commodities and services along their value chains to increase the volume and value of exports in the short, medium and long term.
- (ii). Cost the plan to foster mainstreaming of the interventions in the budgeting processes and the Medium Term Expenditure Framework (MTEF).

1.4 Approach and Methodology Adopted

The action plan was developed through a consultative process involving both public and private sector institutions. Key institutions were identified as relevant stakeholders for the sub-committee. These included: National Planning Authority (Secretariat), Ministry of Finance, Planning and Economic Development (MoFPED-The chair), Uganda Export Promotion Board (UEPB), Ministry of Trade Industry and Cooperatives(MTIC), Uganda Investment Authority (UIA), National Agriculture Research Center and Data Bank (NaGRIC &DB), Ministry of Energy and Mineral Development (MEMD), Uganda Tea Association (UTA), Textile Development Agency (TEXDA), The Grain Council of Uganda (TGPU), Uganda Fish Processors and Exporters Association (UFPEA), Cotton Development Organization (CDO), Uganda Tourism Board (UTB), Dairy Development Authority (DDA), Uganda Ginners Association (UGA), Ministry of Tourism, Wild life and Antiquities (MTWA), Uganda Chamber of Mines and Petroleum, Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Ministry of Information and Communications Technology (MICT), NITA-U, National Agricultural Research Organization (NARO)and National Union of Coffee Agribusinesses and Farm Enterprises(NUCAFE).

Value chain analysis for most of the identified commodities and services was done at all levels ranging from primary, secondary to marketing levels. Constraints were identified and interventions proposed at each level. Priority strategic interventions/game changers for each commodity/service were identified for investment to turn around the export performance as the country transitions into the middle income status.

1.5 The Selection Criteria for the Selected Commodities and Services

The overall criterion for selection of key investible commodities and services was based on the Second National Development Plan (NDPII 2015/16-2019/20) and National Export Development Strategy (NEDS 2015/16-2019/20). Specifically, the following criteria were used for identifying commodities and services for investment in the short, medium and long term:

- a) The commodity must have been identified as a priority in the NDPII.
- b) The commodity should have high forward and backward linkages with other NDPII prioritized commodities.
- c) It should have a higher value addition and employment potential across the value chain.

- d) Considerations of balanced regional development.
- e) The commodity/service should fit within the following market analysis criteria:
- Have available /unused market –market opportunities globally where Uganda has a competitive advantage.
 - Average exported value as a percentage of total exports in the last 5 years.
 - Products national history/ familiarity. This enhances market expansion and resilience.
 - Trade Balance (direct exports to countries with which Uganda has higher trade deficit).
 - Market Access (where Uganda has already negotiated preferential access).
 - Market size (target population and purchasing power).
 - Commodity should have high export value.

1.6 Structure of the Action Plan

This Action plan has five chapters. Chapter one is the introduction which highlights the background, market analysis of selected commodities and commodity selection criteria. Chapter two presents the key issues the action plan seeks to address. Chapter three presents situation analysis for the identified commodities, strategic interventions/game changers recommended and the implementation mechanisms for the identified interventions. Chapter four addresses the financing framework and strategy for the plan. Chapter five covers the implementation framework which highlights the institutional arrangements and prerequisites for successful plan implementation.

CHAPTER TWO: STRATEGIC FOCUS OF THE ACTION PLAN

This section summarizes the strategic focus areas and identifies key issues that need to be addressed to unlock the country's export potential in a bid to attain middle income status. Effective implementation of this plan will also contribute to the attainment of the following NDPII targets;

- a) Increase exports from 12.9 percent as proportion of the Gross Domestic Product to 16.5 percent by 2020
- b) Increase the percentage of manufactured exports to total exports from 6 percent to 19 percent by 2020.

The strategic areas of focus to be addressed include the following:

2.1 Production and Productivity

For all identified commodities, there is a deficiency in production and productivity. Some of the eminent issues in respect to this include: limited research and development to guide production; sub-standard inputs on the local market (planting materials, fertilizers, pesticides etc.); unstructured and un-regulated distribution of inputs (nursery operators, input dealers etc.); and poor agricultural practices. Consequently, the supply is inconsistent, not up to the export market requirements and highly fragmented. Proposed actions to these issues include;

- a) Strengthening and/or upscaling research and development – rehabilitating and equipping existing laboratory facilities in coffee, tea, cotton and livestock to increase parent stock for quality input, developing local human capacity
- b) Regulation and structuring of input supply in the country. Proposals include;
 - i) Enhance dissemination of developed planting material, from the labs to the producers
 - ii) Certification of nurseries, closer monitoring of inflow (import) of agro-inputs and activities of input dealers
 - iii) Adoption of innovative and efficient approaches in the government input distribution programmes. For example having a private individual / group with established experience in production of a particular commodity / enterprise entering into a contract with gov't to supply seedlings to out growers and ensuring over 90% survival before payments are made, to the certified nursery operators, as seen in the case of Garuga in Tea production in Western Uganda
- c) Promotion of good agricultural practices – for example soil moisture management, use of fertilizers.
- d) Pest and disease control. This is critical for both crops and animals. For example, as a way of increasing beef and milk production, its proposed mandatory and regular animal vaccination and treatment programmes should be implemented at the sub-county level
- e) Strengthening of extension services – across the board.
- f) Procurement and distribution of inputs. All planting materials such as seedlings and seed should be procured and distributed taking into account seasonality sensitivities. Earlier planning for

procurement and distribution will be done in a timely manner and in some circumstances, exemptions on procurement processes will be sought.

2.2 Post-harvest handling

Another critical factor that is impacting the volumes of produce delivered to the market (tradable volumes) or available for processing (value addition) are the poor post-harvest activities – across all the product value chains. This is more pronounced in the coffee, grains and horticulture sub-sectors. Also, the limited capacity of producers to handle produce (post-harvest) adequately is affecting the real incomes accruing to these households and thus their productivity. Consider horticultural products such as oranges, mangoes and pineapples that require regulated temperature storage environments after harvest. Unscrupulous traders often exploit this weakness thus offering low farm-gate prices. Interventions proposed in this area include;

- a) Government investment in the establishment of adequate storage facilities and supporting infrastructure
- b) Support to Uganda Warehouse Receipt System Authority (UWRSA) and Uganda National Commodity Exchange (UNCE) to actualize the commodity exchange
- c) Financial and technical support, through organized producer cluster, to promote proper post-harvest handling and producer-level value enhancement of commodities.
- d) Training on post-harvest handling methods
- e) Rehabilitating existing and developing new milk cold chain and processing infrastructure; and providing milk handling and collection equipment to dairy cooperatives.

2.3 Value Addition

The action plan also envisages the need to promote value-addition alongside increased production. This will most importantly provide alternative intake of the produce – thus reduce dependence on specific markets, create more jobs along the value chains and increase the overall foreign exchange earnings borne from the higher value products. For example, over 80% of Uganda’s cotton lint is exported with no additional value added, causing Uganda to miss out on opportunities to increase the worth of the product through yarn spinning or garment production. This is the case with other commodities such grains, coffee, minerals among other. Interventions in this area include;

- a) Development of detailed value chains that map out forward and backward linkages with clear quantification of inputs, outputs and jobs created at the different value chain levels
- b) Modification of the existing warehouse model to factor in the value-addition requirement. The proposal is to have a value-addition unit established together with the warehouses
- c) Fast-track government efforts relating to promoting the establishment of agro-processing cottage industries
- d) Review of tax regimes and policy relating to inputs into the value-added products. For example packaging material for value-added coffees

- e) Fast-tracking the production of oil and gas and the development of associated requisite infrastructure
- f) Fast-tracking the development of the iron and steel industry
- g) Human capital development in Tourism and ICT services.

2.4 Regulatory framework

There is also a noted deficiency with the regulatory framework and/or enforcement of existing regulatory framework in all the agricultural commodity sectors. For example, in some cases, the laws or policies are not punitive enough to deter the undesired practices. Another glaring issue is the lack of clear segmentation between the development/facilitation and regulatory roles. Proposed actions in this area include;

- a) Operationalization of the Grain Trade Policy and fast track the enactment of the Produce Protection Bill
- b) Enactment of laws and policies in sub-sectors where they are totally non-existent. This includes fast-tracking all such that are still in the pipeline.
- c) Streamline the enforcement frameworks for such laws – both new and existing.

2.5 Export Promotion

The overall objective of this action plan is to increase exports. This particularly includes entry into, sustaining and growing Uganda's presence in the export markets. To facilitate this, the country has negotiated preferential access to several markets and regions including; the EAC, EU and Americas. However, Uganda's exports to some of these markets are dismal for several reasons including; non-conformity to buyer and market requirements, limited competitiveness and inadequate capacity to sustain supply among others. Proposed interventions include;

- a) Developing national brands for Uganda's teas and coffee, and nurturing of enterprise brands into the export market
- b) Undertake a feasibility study for the establishment of a Tea Auction in Uganda
- c) Conduct deliberate in-market research in the target export markets
- d) Dissemination of market information to guide the activities of value chain actors. Information relating to market entry and access requirements, standards, competitiveness and product development
- e) Deployment of trade attachés in key export markets.

CHAPTER THREE: STRATEGIC COMMODITIES AND SERVICES FOR EXPORT DEVELOPMENT

This chapter presents a detailed situation analysis of the selected commodities and services, and strategic interventions for investment along the different value chains. Each commodity / service is analyzed through its entire value chain, constraints at each stage are identified and game changers proposed and costed. Respective value chains are attached as annexes to this plan.

3.1 COFFEE AND COFFEE PRODUCTS

3.1.1 Situation Analysis

Coffee plays a leading role in the livelihood of Ugandans and contributes substantially to the national economy. Nearly 43 percent of farming households grow some coffee and it has contributed an average of 30 percent to the country's foreign exchange earnings over the past 20 years, although in FY 2014/15, the earnings dropped to 15 percent. Coffee still remains the Country's leading export commodity and foreign exchange earner whose development needs to be accelerated to enhance agricultural production and productivity. There is therefore a direct linkage between its output level and macroeconomic performance particularly the exchange rate and inflation.

Even with the country's favorable farming conditions – in terms of altitude, climate, rainfall and soils – coffee production has continued to stagnate, since late 1990s. Majorly, effects of climate change over the past 25 year period have progressively eroded this comparative advantage. This has propelled such negative effects as reduction in soil fertility, increased prevalence of pests and diseases and thus reducing productivity. This has been compounded further by the relatively old trees, of which 70 percent are more than 40 years old, poor agronomical practices, limited use of farm inputs and access to on-farm extension services. In the 2013/14 coffee year, it is estimated that Uganda's marketed production was nearly 3.65 million (60kg) bags of coffee of which 77 percent was Robusta¹ - from 282,284 hectares under coffee cultivation.

Statistics from UCDA depict low yields for Robusta – at an average of 0.55 kg green coffee per tree or 10 bags of green coffee per hectare per year, compared to 25 bags in Brazil and 45 bags per hectare in Vietnam. Plant density is very low, for example, Robusta tree density is 1,100 trees per hectare and Arabica is 1,600 trees per hectare. The producer profile is majorly small holder producers being 85 percent with fields of less than 2 hectares. The coffee is traditionally intercropped with staple foods such as bananas, beans and shade trees.

Currently coffee value addition entails off-farm processing, export grading and marketing with limited roasting, and consumption. There is little value addition at farm level and coffee farmers continue to sell unprocessed coffee resulting in lower earnings than if they were selling processed coffee at the farm-gate stage. Coffee production has been stagnant for over 4 decades. The major causes of stagnation are: Inadequate funding of research to enable development and dissemination of new technologies; Poor agronomic practices (low input-low output farming system); and Inefficient research-extension-farmer linkages

¹UCDA Annual Report 2013/14 (unpublished)

Uganda was ranked as the 8th largest coffee exporter contributing about 2% percent of the world's total coffee exports by volume. A large percentage of the coffee is exported to re-exporting countries. Available data shows increasing Arabica exports and a decline in Robusta coffee in the early to mid-2000s when less than 1.5 million bags in CY 2005/06 were exported and a rise from CY 2006/07 although characterized by drought spikes which affected the crop quite drastically. Coffee exports increased from a low of US \$ 83 million in Coffee Year 2001/02 (due to the global coffee crisis) to the highest in Coffee Year 2010/11 when Uganda fetched US \$ 449 million (Figure 1).

On the overall, analyzing coffee and coffee products along the value chain indicates a wide array of constraints and missed opportunities within the coffee industry that limit Uganda's production and export potential, these include: low production and productivity due to; inadequate funding of coffee research, Lack of a dedicated Coffee Research Institute, lack of dissemination of research, lack of research into high yield, high resistance varieties, Extensions services are inefficient, lack of regulation in production stages prior to marketing and processing, deterioration of quality and increase in malpractices, investment barriers to farmer participation in value addition and farmers lose out on value addition which denies them better earnings from their coffee as well as unclear demarcation between public and private sector institutions. The strategic interventions proposed herein are directly intended to turn around the coffee industry in Uganda.

3.1.2 Strategic Interventions/Game changers for Coffee and Coffee Products

1. Increasing Production and Productivity:

Provision of quality planting material; improvement in post harvest handling & enforcement of standards; provision of farm inputs & extension services

2. Promote Value Addition

Enhance Value addition through extension of cost-effective power sources to rural coffee processors and reviewing tax-related incentives relating to packaging in the coffee industry.

3. Product and market development

Promote product and market development through development of a national brand for Uganda's coffees

3.1.3 Mode of Implementation of the Coffee Interventions

- NARO will be responsible for research, but it should delegate coffee research to a dedicated NACORI with industry-led governance. NACORI will be strengthened to enhance coffee research in the country and enabled to:
 - Import technologies from the region and adapt them to our local needs in the short term;
 - Improve existing varieties in the medium and long term;
 - Develop and multiply the parent stock in the short and medium term.
- UCDA shall identify and certify commercial coffee nurseries to multiply the planting materials.
- While NAADS will remain responsible for extension services, it must form a specific coffee extension and training programme, in close collaboration with UCDA and other private stakeholders.

- Seedling distribution will leverage on existing public and private sector input distribution frameworks such as Operation Wealth Creation, NGO's identified private sector individuals who are already leading in the industry such as 'Garuga'.

Table 2: Costed Interventions for Coffee and Coffee Products

Interventions	Output	Category and Budget FY 15/16	Investment (UG. X Billions)								
			Year 1	Year 2	Year 3	Year 4	Year 5	Total	Public	Private	
1. Increasing production and productivity											
Provision of Quality Planting Material											
<p>Enhance research and development infrastructure to keep up with changing production (agro) conditions</p> <ul style="list-style-type: none"> • Building and equipping soil and plant science, value addition, breeding, entomology and pathology laboratories • Equipping biotechnology laboratory • Building entomology, disease, breeding screen houses • Enhance research human capacity for multiplication of parent stock 	<p>Improved planting material</p> <p>Increased parent stock</p>	<p>UGX 3.24 BN under quality assurance for UCDA</p>	2.8	1.0	1.0	1.0	1.0	6.8	100% NaCo RI	-	

Interventions	Output	Category and Budget FY 15/16	Investment (UG. X Billions)							
			Year 1	Year 2	Year 3	Year 4	Year 5	Total	Public	Private
<p>Increase acreage of coffee through multiplication and distribution of seedlings taste, high-yielding and disease resistant varieties especially existing CWD-R variety lines, high density coffee varieties and drought-resistant shade trees provided</p> <ul style="list-style-type: none"> • Development of mother gardens – UCDA, research centers and farm-level • Certification and monitoring programme of commercial nurseries • Distribution of seedlings to farmers (100 million seedlings) • Review the tax policy on seedlings reproduction input materials such as polyethen bags 	<p>Area under coffee increased by by 13,636 hectares</p> <p>The number of certied nurseries outputing the target varieties doubled in all participating districts by 2017/18</p> <p>Output Target: Increase coffee production by 100% over the medium term (12.6Million, 60kg bags)</p>	UGX 30.6 BN from UCDA PROGRAMM E 1	41.5	36.85	36.85	36.75	36.45	188.4	100% UCD A NaCR I	-
<p>Popularize farmer adaption of high-value and higher productivity varieties in coffee producing areas</p> <ul style="list-style-type: none"> • Interface with NAADs, OWC and other output distribution organizations to popularize the enhanced varieties (field rejuvenation programme etc) 	Increased farmer intake and usage of target improved inputs		0.5	0.5	0.5	0.5	0.5	2.0	100% NAA Ds	

Interventions	Output	Category and Budget FY 15/16	Investment (UG. X Billions)							
			Year 1	Year 2	Year 3	Year 4	Year 5	Total	Public	Private
Sub-Total			44.8	38.35	38.35	38.25	37.95	197.7		
Provision of Farm Inputs & Extension Services										
Popularize the use of fertilizers and other such inputs in coffee production. <ul style="list-style-type: none"> Awareness and appreciation PPP partnerships in affordable fertilizer production Provide soil, pest and disease diagnostic services for farmers 	Fertilizer production units established – through PPPs		2.2	0	0	0	0	2.2	50% UDC UCD A etc	50% Investors
	Soil fertility management programmes designed and operationalized		0.5	0.5	0.5	0.5	0.5	2.0	100% NaCO RI UCD A etc	-
Strengthen coffee extension services <ul style="list-style-type: none"> Enhance capacity of UCDA regional offices 	Coffee extension services in each of the districts in the key producing areas availed		0.5	0.35	0.35	0.25	0.25	1.7	100%	-
Sub-Total			3.2	0.85	0.85	0.75	0.75	5.9		
Post Harvest Handling & Standards										
<ul style="list-style-type: none"> Equip producer clusters with appropriate primary processing technology Train farmers in moisture management and post harvest technologies 	Increased farmer-level sales and value of green coffee	UGX 1.175BN Under UCDA UNDER PROGRAMME 1	1.0	0.5	0.5	0.5	0.2	2.7	75% UCD A Clusters	25% Clusters
	Double farmers gain from current farm gate price of 2,300/= (Robusta Kiboko) and 5,500/= (Arabica) per kg.									
Sub-Total			1.0	0.5	0.5	0.5	0.2	2.7		
Total			49	39.7	39.7	39.5	38.9	206.3		
2. Product and Market Development										
Output Target: Development a national brand for Uganda's coffees; identification and preservation of unique planting materials (germplasm) – <i>product differentiation for export value enhancement for Uganda's coffee</i>										

Interventions	Output	Category and Budget FY 15/16	Investment (UG. X Billions)							
			Year 1	Year 2	Year 3	Year 4	Year 5	Total	Public	Private
Intervention	Output Target	Category and Budget FY 15/16	Investment (UG. X Millions)							
			Year 1	Year 2	Year 3	Year 4	Year 5	Total	Public	Private
Brand Development and Management										
Develop branded coffee recipes and incubate entrepreneurs to commercialize the new products	A national umbrella brand for Uganda's coffee created	UGX 0.195BN under UCDA	0.5	0	0	0	0	0.5	100% UCD A UEPB etc	-
	Incubation of enterprise branded coffee recipes and other coffee products		0.5	0.25	0.25	0.25	0.25	1.5	75% UCD A UEPB	25%
Sub-Total			1	0.25	0.25	0.25	0.25	2		
Product Development and Preservation										
Establish a national coffee germplasm resource and eco-tourism center to support information dissemination and conservation and development of existing germplasm through: <ul style="list-style-type: none"> Constructing and equipping of center Identification of germplasm 	A national coffee germplasm resource and eco-tourism center established		1.1	0.25	0.25	0.25	0.15	2	100% NaCO RI	-
			Sub-Total		1.1	0.25	0.25	0.25	0.15	2
Regional Market Development										
Promote consumption of value-added coffee products a) Promotion initiatives such as Buy Uganda Build Uganda (BUBU)	Increased local sales of value-added coffee products vis-à-vis imported products		0.5	0.1	0.1	0.1	0.1	0.9	100% PSFU UMA	-
			Sub-Total		0.5	0.1	0.1	0.1	0.1	0.9

Interventions	Output	Category and Budget FY 15/16	Investment (UG. X Billions)								
			Year 1	Year 2	Year 3	Year 4	Year 5	Total	Public	Private	
Total			1.6	0.35	0.35	0.35	0.35	0.35	2.9		
Intervention	Output Target	Category and Budget FY 15/16	Investment (UG. X Billions)								
			Year 1	Year 2	Year 3	Year 4	Year 5	Total	Public	Private	
3. Value Addition											
Reduce the costs of producing value added coffees – Price Competitiveness and Quality Enhancement											
Packaging for Value Added Products											
Review of tax-related incentives relating to packaging in the coffee industry	Reduction in tariffs on packaging materials for value-added coffees (<i>Lobbying by both public and private sector actors</i>)		0	0	0	0	0	0	0	MOF PED	
Legislation	Coffee law enacted		0.2	0	0	0	0	0	0.2	MAA IF	
Total			0.2	0	0	0	0	0	0.2		
Overall Total			51.8	40.3	40.3	40.1	39.5	212			

3.1.4 Expected Coffee Outcomes

Three game changers were identified in the coffee sub sector; these are: Increasing Production and Productivity, Promote Value Addition and Product and market development. Full implementation and operationalisation of those strategies will result into the following outcomes;

Expected output, current coffee production stands at 3,650,000 60 Kg bags. These will be raised to 12,666,187 (60 Kg bags) by 2020/2021.

Interventions Costs, the input costs have been arrived at using the simulations at the various levels of interventions over the next five years period, including: Increasing Production and Productivity, Promote Value Addition and Product and market development. The overall costs over the next five years will be UGX 212 Billion or approximately USD 64.2 Million.

Revenue growth, currently, coffee earns the country approximately USD 440 Million or roughly UGX 1.4 Trillion from foreign exchange; this is expected to be raised to USD 1.543 Billion or approximately UGX 5.2 Trillion by 2020/2021.

Key Assumptions, to fully deliver the above results, 150 million coffee seedlings shall be procured and distributed to farmers per year at a ratio of Robusta: Arabica of 80%:20% respectively. A Success rate of new seedlings estimated at 70% and shall increase by 3 percentage points annually due to implementation of the interventions. Productivity per hectare (60 Kgs bags/hectare) in Uganda is 10 bags and projected to grow by 0.2 annually due to application of fertilizers and other improved inputs. The gestation period (in Years) is 2, and post-harvest losses (Kgs/hectare) converted to 60kg bags/hectare is 0.140 and will reduce by 14% in the First Year and then by 3 percent successively in the proceedings years.

General issues and constraints, the issue of inadequate capacity to generate and multiply the required coffee seedlings to farmers, issue of certifying the seedlings to be distributed to the farmers, the issue of mind set change by farmers since some farmers are already disappointed by price fluctuations, land availability issue is another challenge since land is already put to other uses although it is viable for coffee production. These will have to be addressed

3.2 TEA AND TEA PRODUCTS

3.2.1 Situation Analysis

Tea is traditionally Uganda's third largest agricultural export commodity by value. 93 percent of Uganda's tea products are exported (MAAIF, 2012). Current acreage of tea in the country is estimated at 35,000 hectares of tea which is only about 17 percent of the estimated total suitable land area for tea of 200,000 hectares countrywide.

The industry is 100 percent controlled by the private sector with Large Estates contributing 73% of the total production. Over the last few years until 2013 there was a steady increase in production and the prices in the international market went up. However for the year 2014 the international market price declined and this was mainly attributed to increased tea production in the major producing countries namely China, India, Kenya and Sri Lanka.

Uganda tea production reached over 66,000 Metric tons (2014) earning the country over US\$ 100 million in 2013 when the Auction price was good and dropped to about US\$90 million in 2014 due to the decline in the auction tea price. About 90 percent of the production is exported to Mombasa Auction, 7 percent is sold on Direct Sale basis and 3 percent is sold to local packers and Blenders.

At the Auction market the buyers are either blenders or packers for further exports, and Uganda teas are thus purchased by these blenders or packers for their blend with Kenya Teas. Once Uganda Teas are blended with Kenya teas, these buyers export them as 'Kenya Tea' hence the Uganda tea name is not known beyond the shores of Mombasa.

In the auction, tea prices are determined by supply and demand, quality and geographical location; highland teas generally fetching higher prices (MAAIF, 2012). Consequently, there is no single price for a tea grade. Every auction determines its own price through a reserve price and a bidding process which varies with quality and quantity.

Since 1990, the average price of Ugandan tea has remained relatively stable-US\$ 1.50 to USD 2.00 per Kg, however, there were transitory upward variations in 1997, 1998, 2006 and 2007, mainly explained by reduction in supply of tea due to drought. Prices did, however, return to their historical trends in 2008.

Furthermore, Uganda produces medium (sub-prime) quality tea popularly referred to as '*price reducers*', as opposed to premium brand of tea produced by Kenya. Price reducers are primarily used to blend premium teas. Consequently, Uganda receives a lesser price than Kenya. At the Mombasa Tea Auction; teas are classified and priced based on quality such as strength, aroma, liquor and appearance. Most of Kenyan teas are classified from 'Medium' to 'Best', while most Ugandan teas are classified as "Plainer" and only five or six Ugandan estates are grouped under "Lower medium" teas. Accordingly, Kenyan teas attract a higher price relative to the Ugandan ones.

Kenya has achieved quality tea through among other things having a very active tea research program at **Kenya Tea Research Foundation Kericho**, planting vegetative propagated highland land teas, and also the enforcement of internationally accepted standards. In Uganda the tea research center at Rwebitaba is non-functional and farmers still use colonial era varieties.

3.2.2 Strategic Interventions/Game changers for Tea and Tea Products

A critical examination of the tea value chain resulted into identification of three game changers for Tea and Tea Products; that is Marketing of Uganda tea, Establishment of a fully-fledged Tea Research Programme and Designing a Tea Development Policy.

1. Increase production and productivity of Tea

- a) Provision of quality planting materials - this will entail supplying an additional 40 million seedlings annually to the tea zones, liaise with Kenya established tea research institute on leveraging clones in the short term and also certify existing nurseries and double the number of certified nurseries to match the demand that will be created.
- b) Establish a fully-fledged tea research programme - this will require focus on rehabilitation of existing tea structure and infrastructure at Rwebitaba, Construct green house /shade, Establish lab facilities, equipment for bio chemical, pest and disease identification and increase the stock of parent material through multiplication and dissemination of disease resistant varieties. (Cloning).

2. Marketing of Uganda tea

- (a) **Design a brand for Uganda teas.** This should be accompanied by a training program in tea blending skills targeting relevant tea products towards existing markets for the same and establish an institution to promote Uganda tea as brand and create awareness among the international buyers
- (b) **Establishing Uganda's own tea auctioning Centre** e.g. at Namanve where teas can be housed for both local and international buyers. A feasibility study will be conducted to ascertain the viability of this venture.
- (c) **Establish other markets for direct sales** e.g. African markets of Nigeria, Niger, Ghana, Mali, etc. should be accorded priority although not really traditional tea drinking markets. Other more important markets are Kazakhstan, Ukraine, Poland and the Caucasian countries which have a traditional tea drinking culture. This should not, however, be done at the expense of the regional markets like Sudan, republic of South Sudan and DRC.

3. Establishment of a fully-fledged Tea Research Programme

This is aimed at developing clones with characteristics of; high yields, drought tolerance and, disease resistance and also provide information on the use and effects of mechanical harvesting tea and shears on the Tea Bush health.

4. Design a Tea Development Policy (MTIC)

Lack of policy or regulatory framework is contributing to unfair competition within the tea sector hence resulting in poor quality of tea produced. It is also responsible for lack of new investment by potential foreign investors.

3.2.3 Mode of implementation of the tea interventions

Implementation of the proposed tea interventions will be undertaken by the respective institutions responsible for the particular intervention as indicated below:

- To enhance production and productivity, NARO shall oversee the strengthening of the capacity of Rwebitaba tea research facility to: import technologies from the Region and adapt them to our local need in the short term; improve existing varieties in the medium and long term; develop and multiply the parent stock and, identify and certify commercial tea nurseries to multiply the planting materials. The seedling distribution will be supplied by identified private sector individuals who are already leading in the industry. (Based on “Garuga Approach²”).
- As regards the marketing of tea, the Uganda Export Promotion Board (UEPB) will commission a feasibility study to determine the possibility of establishing of an auction center in Uganda. In the event that the centre is deemed feasible then land acquisition and establishment of necessary infrastructure will be done by MTIC/UIA. The Entire marketing agenda will be led by UEPB.
- Establishment of a fully-fledged Tea Research Programme spearheaded by the Ministry of Agriculture, Animal Industry and Fisheries and, the National Agriculture Research Organization. They will concentrate on identification and dissemination of appropriate Tea production technologies and information coupled with effective multiplication of screened high quality clones.

²In this approach a private individual / group with established experience in production of a particular commodity / enterprise enters a contract with gov't to supply for instance seedlings ensuring over 90% survival before payments are made to the certified nursery operators, and minimizing loses as is the case in the use of middlemen with no experience as suppliers based on procurement systems.

Table 3: Costed Game Changers for Tea and Tea Products

Interventions	Output Targets	2015/16 allocation	Year 1	Year 2	Year 3	Year 4	Year 5	Total UGX BN	Actors
1. Increase production and productivity									
i) To enhance the production and productivity of quality tea in the smallholder tea farmers and private tea estates	At least 4 improved tea varieties developed	0.0754B	1.127	1.127	1.233	1.343	1.343	6.173	NARO (Rwebita ba ZARDI)
	Pest and disease free tea clones	0.0164B	0.616	0.616	0.616	0.616	0.616	3.08	NARO (Rwebita ba ZARDI)
ii) Strengthen the research /extension interface for increased technology transfer and adoption	Tea production technologies demonstrated and information dissemination	0.0646B	0.8	1.26	1.445	1.445	1.445	6.395	NARO (Rwebita ba ZARDI), MAAIF
iii) Multiply and distribute tea seedlings to small and medium size holder farmers	Effective multiplication of screened high quality clones	0.228B	2.342	2.342	2.342	2.342	2.342	11.71	NARO (Rwebita ba ZARDI)
	Establishment of 400 ha of mother gardens in selected regions annually	0	-	4.0	4.0	4.0	4.0	16	NAADS
iv) Certify commercial coffee nurseries to multiply the planting materials.	Distribution of 110 million seedlings to farmers annually	34.45B	-	74	74	74	74	296	NAADS
v) Enhance the quality and diversification of processed tea to	Increased product development and incubation		1.546	1.546	1.546	1.546	1.546	7.73	NARO (Rwebita ba ZARDI)/

Interventions	Output Targets	2015/16 allocation	Year 1	Year 2	Year 3	Year 4	Year 5	Total UGX BN	Actors	
1. Increase production and productivity										
meet minimum international standards	Defining and exploiting niche markets for tea		0.124	0.124	0.124	0.124	0.124	0.62	NARO/ NAADS/ UEPB	Mpanga & Mabale
vi) Research infrastructure development	Construction of new office block with conference facility		2.2	0.62	0.26	0.26	0.26	3.6	NARO (Rwebita ba ZARDI)	
	Laboratory facilities for Tissue Culture, Biotechnology and Entomology and Chemical Ecology established		3.9	1.684	1.352	0.98	0.98	8.896	NARO (Rwebita ba ZARDI)	
	Glasshouses/Green houses constructed		0.363	0	0.363	0	0.363	1.089	NARO (Rwebita ba ZARDI)	
	Screen houses constructed		0.254	0	0.254	0	0.254	0.762	NARO (Rwebita ba ZARDI)	
	Miniature tea research factory established		1.0	0.5	0	0	0	1.5	NARO (Rwebita ba ZARDI)	
	Two new field vehicles		0.4	0	0	0	0	0.4	NARO (Rwebita ba ZARDI)	
vii) Human resource hiring and training plan	Research staff recruited and trained (16 Scientists, 22		0.456	0.696	0.696	0.696	0.696	3.24	NARO (Rwebita ba ZARDI)	

Interventions	Output Targets	2015/16 allocation	Year 1	Year 2	Year 3	Year 4	Year 5	Total UGX BN	Actors
1. Increase production and productivity									
	Technicians, 11 support staff)								
		34.8344B	10.243	88.515	88.231	87.352	87.969	362.31	

1. Expanding the market for Uganda Teas									
a. Design a brand for Uganda Teas									
b) Design a National Tea Brand for Uganda	A national brand for Uganda's tea developed and launched by 2019/20	0.308 BN Under NAADS	0.650	0	0	0	0	0.65	UEPB MTIC UTA
b. Establish Uganda's own tea Auctioning center									
c) Carry out a feasibility study to establish the requirements of setting up a tea auction center	Feasibility undertaken and a report produced		0.400	0	0	0	0	0.4	MTIC, Private Sector (UTA)
d) Land acquisition and infrastructure set up	Tea auction setup and commissioned in Namanve by 2019/20		0	1.950	4.00	0	0	5.95	MTIC
e) Linking up with the international markets			0.750	0	0.750	0	0	1.5	UEPB
c. Establish other markets for direct sales									
f) Design programs to establish agency relationship in the target markets			0.290	0	0	0	0	0.29	UEPB
g) Commission market study to explore market		0.200	0	0	0.200	0	0.4		

opportunities for tea and its products										
Sub Total			2.29	1.95	4.75	0.2	0	9.19		
2. Design a Tea Development Policy										
a) Prepare and finalize tea Policy			0	0.5	0	0	0	0.5	MAAIF	
Sub total			0	0.5	0	0	0	0.5		
Overall Cost			12.533	90.965	92.981	87.552	87.969	372		

Table 4: Summary of Tea Costed Interventions

Game Changers	2015/16 UGX BN	2016/17 UGX BN	2017/18 UGX BN	2018/19 UGX BN	2019/20 UGX BN	Total (UGX BN)
Increase Production and Productivity of Tea	10.243	88.515	88.231	87.352	87.969	362.31
Marketing and Promotion of Uganda Teas	2.29	1.95	4.75	0.2	0	9.19
Design a Tea Development Policy	0	0.5	0	0	0	0.5
Total	12.533	90.965	92.981	87.552	87.969	372

3.2.4 Expected Tea Outcome

The game changers identified in the Tea sector are: increase production and productivity, marketing and promotion of Uganda teas and design of a Tea Development policy. Implementation of these game changers is expected to generate the following outcomes:

1. **Expected increase in production:** As a result, total tea production is expected to increase from *52,800 Metric Tons (2015/16)* to *218,287 Metric Tons by 2019/20*.
2. **Revenue Generation:** The game changers are expected to generate revenue amounting to *US\$ 351,364,971* by 2020/21 higher than the current tea earnings estimated at *UGX 88,704,000*.
3. **Intervention costs:** The total cost of implementation of the game changers is *UGX 372 Billion* corresponding to an estimate *USD 112.3 million* over the next five years. These costs were arrived at through simulations and summations of the cost of interventions including increase in production and productivity, marketing and promotion of Uganda Teas and Design of a Tea Development Policy.
4. **Key Assumptions,** actualization of the above interventions and projections shall require additional annual procurement of 110,000,000 tea seedlings over the next five years for distribution to farmers. This is envisaged to increase the total tea seedling distribution from the current 110,000,000 seedlings to 220,000,000 seedlings by 2019/20. The success rate of new plantings is estimated at 70 percent and expected to increase annually by 3 percent as a result of implementation of the interventions on production, productivity and extension. Productivity per hectare for tea is 1.89 Metric Tons per hectare and assumed to increase at a rate of 1.01 percent as a result of fertilizer application. The gestation period of tea is three years while the postharvest losses are estimated at 20 percent annually.

3.3 GRAIN PRODUCTS (MAIZE & BEANS)

3.3.1 Situation Analysis

Maize and Beans are produced all over Uganda, mostly by small-holder farmers, for food and income security. Beans, particularly, are an important legume worldwide, the second most important source for dietary protein and the third source of calories in the world. Maize production has been steadily increasing overtime from 1.17 million MT in 2001 to about 3.15 Million MT in 2013 (UBOS, 2014). The same trend applies for beans (Source: MAAIF (2015)). As at 2010, Uganda was ranked as the second largest producer of beans in Africa after Tanzania. This increased production is attributed to several factors including expansion of field sizes (acreage under production), use of improved inputs and better agricultural practices. However, on the whole, productivity is still low – about 1.4 to 1.5 MT per hectare for maize – leading to lesser returns to farmers due to higher production cost. Also, post-harvest loss are quite high in the grain sector – estimated at about 1 Million MT annually.

Table 5: Production Volumes of Maize and Beans (MT)

Commodity	2010	2011	2012	2013	2014
Maize	2,374,000	2,551,000	2,550,000	3,150,000	3,244,500
Beans	445,000	915,000	929,000	1,200,000	1,236,000

Source: MAAIF (2015)

Trade in the grain sector is largely informal – over 60 percent – thus unstructured. Rural producer households supply the larger percentage of food grain traded – domestic and export – borne from the grain surplus, after meeting their food and planting seed requirements. This is collected by the rural traders – mostly bicycle and motorcycle traders – and bulked at designated points in the nearby towns. The farm-gate collection is rarely done by vehicle/truck due to the resultant fuel costs. These rural traders/collectors may either sell to urban traders – that go about with their trucks from one collection center/town to another – or bulk and transport truck-loads to the urban buying centers – such as Kisenyi in Kampala. Transportation of grain from rural to urban centers is normally done by 10T trucks.

In Uganda, maize processing mainly relates to transforming the grain to flour. That is the alternative consumption mode for maize grain. Apart from maize flour (posho), the milled maize flour is a key ingredient of several other food products such as multi-cereal porridge products, baby food and maize corn snacks. The by-products are raw materials for the animal feeds. Beans are largely consumed as whole grain. Currently, national storage capacity is 550,000MT – out of which grains occupy approximately 200,000MT, vis-à-vis the current production of over 2 Million MT. this indicated a challenge of limited processing capacity compared to the production levels.

Uganda's export markets for cereals and grains are majorly the EAC and COMESA partner states that share borders with her - Kenya, South Sudan, Rwanda, Tanzania and DR Congo. This export trade is largely informal and therefore inadequately regulated. Grains exported account for over 60percent of the cereals and grain products traded out of the country. Source: UBOS found that formal exports accounted for only 5 to 7 percent of the grain produced showing significant amounts of leaving the country informally and of low quality. The relief food requirements in the neighboring DR Congo and

S. Sudan also provide a sizeable market for Uganda’s grain. Here, World Food Programme (WFP) is the key player/buyer. Grains and pulses, by international and EAC standards are generally of poor quality. As a result, export prices are generally driven by informal sector dynamics and are below the offering by the formal trade routes. The informal traders – especially Kenyans – wield a lot of influence due to their financial capacity.

Table 6: Formal Export Volumes of Maize and Beans (MT)

Commodity	2010	2011	2012	2013	2014
Maize	166,251	89,246	174, 776	180,019	185,419
Beans	24,417	35,920	30,357	31,874	32,830

Source: UBOS

3.3.2 Strategic Interventions/Game Changers for Grain Products

Based on the challenges in the sector, three game changers for grain products were identified, these are legal and regulatory framework, access to improved maize and beans seeds varieties as well as grains handling, storage and processing facilities as detailed in the proceeding analysis.

1) Legal and Regulatory Framework

There is need to review, refine and/or establish the necessary legal and regulatory framework to guide trading and other value chain activities, including input supply. The proposal is for actions towards the operationalization of a Grain Trade Policy and enactment of the Produce Protection Bill. Where such actions are already underway, this initiative should support fast-tracking of these actions to have these laws in place by the end of the Year 5. The trade related policy work should be spearheaded by the Ministry of Trade, Industry and Cooperatives.

2) Access to improved maize and beans seed varieties

The input supply sub-sector is currently run by the private sector with little government involvement. Resource limitations have negatively influenced government’s (MAAIF, UNBS and others) ability to enforce regulations in this sub-sector. As such the quality of inputs procured by producers/farmers is poor. For example, cases of 100 percent germination failure of improved planting materials are common and not only in the cereals and pulses subsector. This initiative proposes up scaling government supply of both breeder and certified seed.

3) Grain Handling, Storage and Processing Facilities

Over the next 5 years, private sector plans to establish up to 400,000 MT of grain handling and storage capacity with own funds equivalent to UGX 780 billion³. Despite the 750,000 MT deficits, it is proposed that this initiative should provide for fast-tracking and ensuring government contribution of establishing district warehouses (150,000 MT of handling and storage capacity) is in place given private sectors’ willingness to invest in this requirement.

³ TGPU figures

3.3.3 Mode of Implementation of the Grain Interventions

- **Legal and Regulatory Framework:** MTIC will coordinate and upscale work in designing the policy documents and lobbying for necessary Parliamentary and Cabinet action to approve the laws by end of Year III. Where necessary, a Consultant can be co-opted to support the Focal Point Ministry official. Alongside this, the private sector – under the hospice of The Grain Council Uganda (TGPU), drive stakeholder (private sector) consultation and advocacy activities to advise the policy formation process. The policy should also have clear guidelines on the enforcement – especially the institutional and resource framework.
- **Access to improved maize and beans seed varieties:** NaCCRI will increase production of hybrid seed to at least 30,000 and 15,000 MT by the end of Year V. This seed should then be made available to the farmers through existing distribution frameworks such as through Operation Wealth Creation (OWC). This should be complimented with increased MAAIF capacity to do seed certification.
- **Grain Handling, Storage and Processing Facilities:** NAADS in partnership with TGPU will support the establishment of 150,000 MT handling and storage capacity (district warehouses) – all expected to cost upto UGX 90 billion out of which NAADS will contribute about 30percent. MTIC has a plan to establish up to 500,000MT handling and storage capacity in partnership with private sector e.g. TGPU. Support should also be directed towards upscale UIA’s activities in attracting investors in not only storage but also higher-level processing such as breakfast cereals and bio-fuels.

Table 7: Costed Game Changers for Grain Products

Intervention	Output Target	Category and Budget FY 15/16	Investment (UG. X Billions)							
			Year 1	Year 2	Year 3	Year 4	Year 5	Total	Public	Private
1. Access to improved maize and beans seed varieties										
Research, Development and Reproduction of Parent Seed (Improved Foundation/Breeder Seed)	Increase the production of improved varieties of maize and bean seeds from 6,667 and 3,000 to 33,750 MT and 15,187 MT, respectively	UGX 0.671bn	8.55	5.35	5.35	5.35	5.35	29.95	100% Actors NARO-NaCRRI, MAAIF	
• Development of new and maintenance of old parental lines	10 new parental lines developed and 30 old lines maintained		1.85	1.85	1.85	1.85	1.85	9.25	NARO-NaCRRI	
• Acquisition and Instalation of Irrigation Equipment	One generator, 2 pumps and 10,000 m of lateral lines		1.5	-	-	-	-	1.5	NARO-NaCRRI	
• Breeder and Foundation Seed production for commercial maize and bean varieties (20 for each)	500 MT, & 270 MT of breeder; and 3,375 MT & 2,100 MT of foundation seed of maize and beans, respectively		2.7	2.7	2.7	2.7	2.7	13.5	NARO (NaCRRI) & MAAIF	
• Seed processing, packaging and storage facilities	One seed drier, 2 seed Sheller's, 2 seed treatment and packing equipment, 2 stores and two cold rooms acquired and/or constructed		1.7	-	-	-	-	1.7	NARO-NaCRRI	

Intervention	Output Target	Category and Budget FY 15/16	Investment (UG. X Billions)							
			Year 1	Year 2	Year 3	Year 4	Year 5	Total	Public	Private
Procurement and distribution of certified seeds from seed companies to farmers	5,600 MT of improved maize seeds annually, 4,000 Mt of improved been seeds annually	13bn maize 8.02 BN	41	41	41	41	41	205	NAADS	
Human and infrastural capacity enhancement	Four new Breeders, four Agronomist and four seed Technologists fully trained, in addition to enhancing capacity of current staff and equipment upgrading		0.8	0.8	0.8	0.8	0.8	4.0	NARO-NaCRRI	
Production of Breeder Seed for on ward distribution by NAADS	Prisons target: 2,700MT p.a. in 1st 2 years; 4,050MT p.a. in last 3 years								Uganda Prison Services	
Irrigation Equipment	1,000 acres		1.9	10.2	0.6	0.2	0.2	13.1	UPS	
Enhance, production, storage and packaging capacity			0.5	0	0	0	0	0.5	UPS	
	Stores for inputs		0.5	0	0	0	0	0.5	UPS	
	Drying facilities (2 Platforms and driers)		2.0	0	0	0	0	2.0	UPS	
	Seed Silos at the farms		0	2.4	2.4	0	0	4.8	UPS	
	Centre store		0	2.3	0	0	0	2.3	UPS	
	Seed Treatment Plant		0	2.2	2.2	0	0	4.4	UPS	

Intervention	Output Target	Category and Budget FY 15/16	Investment (UG. X Billions)							
			Year 1	Year 2	Year 3	Year 4	Year 5	Total	Public	Private
	Farm Inputs and tools for 2,000 -3,000 acres:		2.4	2.4	3.5	3.5	3.5	15.3	UPS	
	Seed Treatment, and packing costs		1.1	1.1	0.7	0.7	0.6	4.3	UPS	
	Administration costs (Supervision, Monitoring, Training ,Comparative studies)		0.7	0.3	0.3	0.3	0.3	1.9	UPS	
	Maize Cob-picker		0	0.9	0	0	0	0.9	UPS	
	Transport (1 Semi- Trailer, 4 Pick-up, 2 Lorries)		0.3	0.1	0.3	0.2	0	0.9	UPS	
	Machine shed		0.03	0	0	0	0	0.03	UPS	
	Maintenance of machinery		0.3	0.4	0.3	0.1	0.3	1.5	UPS	
	Taxes on equipment		1.1	0.2	1.7	0.7	0	3.7	UPS	
	Construction/renovation of prisoners and staff houses in the 2 farms to cater for labour requirements		6.4	5.0	0	0	0	11.4		
Sub-total			75.33	79.2	63.7	57.4	56.7	332.33		
2. Grain handling & processing facilities capacity										
Private Sector Investment in construction of Warehouses	400,000 MT storage capacity		14.2	14.2	14.2	14.2	14.2	71		100% Actors Investors

Intervention	Output Target	Category and Budget FY 15/16	Investment (UG. X Billions)							
			Year 1	Year 2	Year 3	Year 4	Year 5	Total	Public	Private
MTIC Warehouse Project (30%)	500,000 MT storage capacity		53.35	53.35	53.35	53.35	53.35	266.75	30% Actors WHRSA MTIC	70% Actors Investors
Sub-total			67.55	67.55	67.55	67.55	67.55	337.75		
3. Legal and Regulatory Framework										
Grain protection policy			0.5	0	0	0	0	0.5		
Sub-total			0.5	0	0	0	0	0.5		
Overall Total			143.38	146.75	131.25	124.95	124.25	670.08		

Table 8: Summary of costed Interventions for Grains Products

	Year 1 UGX BN	Year 2 UGX BN	Year 3 UGX BN	Year 4 UGX BN	Year 5 UGX BN	Total UGX BN
1. Access to improved maize and beans seed varieties	75.33	79.2	63.7	57.4	56.7	332.33
2. Grain handling & processing facilities capacity	67.55	67.55	67.55	67.55	67.55	337.75
3. Legal and Regulatory Framework	0.5	0	0	0	0	0.5
Total	143.38	146.75	131.25	124.95	124.15	670.58

3.3.4 Economic Impacts from Grains interventions

This action plan on export development and promotion focused on Maize and Beans as priority grains since these are produced all over Uganda. Based on the challenges identified along the value chain, three game changers for these grain products were identified, including; enhancing the legal and regulatory framework, increasing access to improved maize and beans seeds varieties as well as improving grains handling, storage and processing facilities. Implementing these interventions in addition to the ongoing initiatives are expected to bring about the following economic impacts

1) Expected Beans outcomes

- a) **Expected Beans output**, current beans production stands at **1,236,000 MT**. These will be raised to **2,448,943 MT** by 2020/2021. On the other hand, the current Maize production stands at **3,244,500 MT**. These will be raised to **6,109,889 MT** by 2020/2021.
- b) **Interventions Costs**, the overall cost of implementing both Maize and Beans these interventions over the next five years is UGX 670.58 Billion, an average of UGX 134 Billion annually.
- c) **Revenue growth**, currently, Beans earns the country approximately USD 53.9 Million or roughly **UGX 260.3 Billion** from foreign exchange; this is expected to be raised to USD 526.8 Million or approximately **UGX 1.738 Trillion** by 2020/2021. **On the other hand, maize** currently earns the country approximately USD 90.2 Million or roughly **UGX 298 Billion** from foreign exchange; this is expected to be raised to **USD 784.2 Million** or approximately **UGX 2.587 Trillion** by 2020/2021.
- d) **Key Assumptions for beans are**; OWC will procure and distribute more 4,000 Mt of certified seeds from seed companies to farmers, Post-harvest losses (kgs/hectare) is 15 percent of harvest and shall reduce by 5% annually, Survival rate is estimated at 80% and shall increase by 1 % Pa, Productivity/Hectare is estimated at 3000Kg, Annual Frequency is 2 seasons in a year, while the average growth in Production (%) is the expected growth rate if NAADS maintains its seeds distribution at current levels and farmers maintain their efforts (its computed as an annual growth average for the past 3 years, Private Farmers continue to growth their production by 8% annually, average market price is Shs 1800 Per Kg and shall increase by 8% annually, Grain Trade Policy and Produce Protection Bill shall be finalised by 2018 and increase formal exports to 20% of harvest and thereafter by 4 percent annually.
- e) **The key assumptions for maize are**; OWC will procure and distribute additional 5600 Mt of certified maize seeds from seed companies to farmers, Post-harvest losses (kgs/hectare) is projected at 20 percent of harvest and shall reduce by 4% annually, Survival rate is estimated at 80% and shall increase by 1 % Pa, productivity/Hectare is 5000Kg, annual frequency is 2 seasons in a year, average growth in Production (%) is the expected growth rate if NAADS maintains its seeds distribution at current levels and farmers maintain their efforts (its computed as an annual growth average for the past 3 years, Private Farmers continue to growth their production by 8% annually, average market price is Shs 750 Per Kg and shall increase by 5% annually, the Grain Trade Policy and Produce Protection Bill shall be finalised by 2018 and increase formal exports to 25% of harvest and thereafter by 3percent annually.

3.4 COTTON AND COTTON PRODUCTS

3.4.1 Situation Analysis

Cotton is grown in two thirds of Uganda by an estimated 200,000 farming households mainly on small scale (the average cotton area per farm is around 2 acres). The sub-sector directly employs about 2.5 million people countrywide engaged in various activities along the value chain and currently contributes about 2.5 per cent of agricultural exports. Since liberalization of marketing and processing; and establishment of the Cotton Development Organisation (CDO), cotton has contributed to the rural households about UGX 906 Billion and US\$ 628 million in lint exports.

Cotton seed production currently lags behind previous rates of production, standing at 49,206 MT of seed cotton (equivalent to 17,275 Mt of lint) in FY2014/15 compared to 47,577 MT of lint in FY 2011/12 and 25,768 MT of lint in FY2010/11. This is mainly attributed to:

- i) The lack of domestic textile markets which means cotton production is reliant on the international market, which is prone to serious fluctuations.
- ii) Cotton being a seasonal crop, it competes with other crops (especially maize, Simsim, soybeans, beans, sun flower) for land and labour which often results in lower acreage planted to cotton and poor crop management leading to low yields.
- iii) Cotton diseases and pests
- iv) Lack of appropriate mechanization for bush clearing, land opening and weed management.
- v) Lack of water harvesting and irrigation technology /facilities in droughty conditions in the face of Global climatic changes.
- vi) Highly depleted soil fertility in production areas especially in North-East, and with little use of organic or inorganic fertilizers.

Table 9: National lint production and sale

Season	Total National lint production (MT)	Quantity of lint consumed locally (MT)	Quantity of lint exported (MT)	Earnings from Lint (US \$ million)	Percentage of domestic consumption
2006/07	24,790	2,975	21,815	27.27	12%
2007/08	12,025	2,257	9,768	19.68	19%
2008/09	22,154	987	21,167	24.57	4%
2009/10	12,998	491	12,507	20.68	4%
2010/11	25,768	332	25,436	101.91	1%
2011/12	47,577	1,016	46,561	47.94	2%
2012/13	18,571	446	18,125	30.19	2%
2013/14	14,594	438	14,156	25.08	3%
2014/15	17,275	518	16,757	22.04	3%
Totals	195,752	9,460	186,292	319.36	5%

Source: MAAIF Agriculture Sector Strategic Plan (FY2015/16-2019/20)

Currently over 80% of Uganda’s cotton lint is exported with no additional value added, causing Uganda to miss out on opportunities to increase the worth of the product through yarn spinning or garment production. Export earnings have been fluctuating over recent years reaching a peak of 101.91 US\$ million in 2010/11 from 25,436 MT of lint. During 2014, the sector earned 22.04 US\$ million from 16,757 MT lint exported.

3.4.2 Interventions/Game Changers for Cotton and Cotton Products

In order to promote exports and investment along the Cotton Value Chain, interventions have been selected based on expected impact in the sub-sector in terms of generating improved varieties and production technologies, increasing production and productivity, increasing incomes and improving livelihoods of stakeholders, creating employment opportunities and increasing foreign exchange earnings from cotton. The identified interventions, which are also part of the Cotton thematic area of the Agriculture Sector Strategic Plan (2015/16 – 2019/20), comprise of:

i) Strengthening Cotton Production Research and Re-focusing Priorities

The major objective of rendering support towards cotton research is for timely development of new varieties and identified production technologies in view of emerging demands from the sub-sector stakeholders and addressing climate change effects. Cotton production research needs to be more focused on the priorities of the cotton sub-sector which include:

- Periodic release of new improved varieties with high Ginning Out-Turn (G.O.T), high fiber quality, long staple, increased fiber strength and yarn strengths as well as yarn appearances desired by the domestic yarn spinners, lint exporters and by the international buyers of Uganda’s lint.
- Mitigating adverse effects of climate change which affects cotton production, productivity and lint quality.
- Need for specialized research facilities such as screen and glass houses, cotton processing equipment, upgrading the capacity of electricity supply and construction of a research spinning laboratory.

ii) Cotton Farmers’ Support Programme

The objective of the programme is to increase sustainably cotton farmers’ income through an increase of in productivity resulting from adoption of improved cropping practices.

Table 10: Projections of production during the Five Year Programme

	2014/15 (base line)	2015/16	2016/17	2017/18	2018/19	2019/20
Areas (Ha)	49,000	54,000	60,000	69,000	75,000	75,000
Yield (Kg/Ha)	1,000	1,300	1,500	1,750	2,000	2,500
Production seed cotton (MT)	49,203	70,000	90,000	120,000	150,000	187,000

iii) Reduction of Cotton Contamination

The programme aims to improve the quality of cotton to sustainably increase the premium paid by the market for Ugandan cotton. The programme components include:

- a) Awareness raising and training of cotton sub-sector players especially farmers, extension workers, ginners, marketing agents etc on quality aspects.
- b) Distribution of harvesting bags to farmers in order to avoid using polypropylene bags for picking, storage and transporting of seed cotton
- c) Establishing field storage facilities and zonal market yards.

iv) Promotion of domestic value addition to lint

This will involve establishment of a Buffer Stock Fund which is intended to ensure constant supply of lint to local textile manufactures, enabling local manufacturers to compete globally and contribute to stabilization of farm gate price as a result of increased returns from value addition to lint.

Table 11: Projections of production during the Five Year Programme

	2014/15 (base line)	2015/16	2016/17	2017/18	2018/19	2019/20
Areas (Ha)	49,000	54,000	60,000	69,000	75,000	75,000
Yield (Kg/Ha)	1,000	1,300	1,500	1,750	2,000	2,500
Production seed cotton (MT)	49,203	70,000	90,000	120,000	150,000	187,000

v) Reduction of Cotton Contamination

The programme aims to improve the quality of cotton to sustainably increase the premium paid by the market for Ugandan cotton. The programme components include:

- d) Raising awareness and training of cotton sub-sector players especially farmers, extension workers, ginners, marketing agents etc on quality aspects.
- e) Distribution of harvesting bags to farmers in order to avoid using polypropylene bags for picking, storage and transporting of seed cotton
- f) Establishing field storage facilities and zonal market yards.

vi) Promotion of domestic value addition to lint

This will involve establishment of a Buffer Stock Fund which is intended to ensure constant supply of lint to local textile manufactures, enabling local manufacturers to compete globally and contribute to stabilization of farm gate price as a result of increased returns from value addition to lint.

3.4.3 Mode of Implementation

- The basic research for variety and technology development will be conducted by the Cotton Research Programme at NARO's NaSARRI based in Serere District.

- The Cotton Farmers' Support Programme will be implemented by Government through CDO and UGCEA through funding of the operational costs of the extension system, procurement and distribution of production inputs.
- The completion of the Cottonseed Processing Facility in Pader District for production of high quality cotton planting seed and the establishment of the Lint Buffer Stock Fund will be implemented by CDO with funding from Government. Prison farms will also play a vital role in large scale cotton production focusing mainly on seed multiplication.
- In addition, CDO will provide technical guidance and advisory services to farmers and ginners to improve the quality of cotton.
- Textile Development Agency (TEXDA) will provide training to farmers and other interested parties in the areas of cotton spinning, surface design and handloom weaving. The trained persons will be able to weave products on handlooms like blankets, scarves or plain fabrics that are very marketable especially in the USA. TEXDA will assist farmers' associations to acquire hand spinning machines and small hand looms.

Table 12: Costed Interventions for Cotton and cotton products

Intervention	Output Targets	Investment (UGX Billions)							
		2016/17	2017/18	2018/19	2019/20	2020/21	Total	Public	Private
1. Strengthen cotton production research and re-focus priorities									
a) Production Research									
Germ-plasm Collection, Evaluation, and Development of varieties.	Ten cotton germplasm/accessions collected and evaluated per season	0.0125	0.0125	0.00875	0.00875	0.00875	0.05125	NaSARRI	
	Fifty crosses made for new gene combinations per season	0.026	0.026	0.026	0.026	0.026	0.13	NaSARRI	
	Ten advanced cotton lines evaluated in multi-location trials across all cotton zones	0.045	0.045	0.045	0.045	0.045	0.225	NaSARRI	
	Profile of cotton seed oil from different cotton lines in place	0	0.008	0.004	0.004	0.004	0.02	NaSARRI	
Seed multiplication in Breeders plots and nucleus and foundation seed stages	Eight of breeder plots planted for seed multiplication	0.00525	0.00525	0.00375	0.00375	0.00375	0.02175	NaSARRI	
	700 kg of seed nucleus produced	0.025	0.025	0.025	0.025	0.025	0.125	NaSARRI	
	20MT at foundation seed stages produces per season	0.055	0.055	0.055	0.055	0.055	0.275	NaSARRI	
Development of Agronomical packages/recommendations	a) Plant spacing for cotton perfected in all cotton zones	0.053	0.053	0.053	0.053	0.053	0.265	NaSARRI	
	b) Appropriate food crops integrated to cotton as intercrops in all zones	0.046	0.046	0.046	0.046	0.046	0.23	NaSARRI	
	c) Planting dates for cotton reviewed in all cotton zones amidst changed weather	0.024	0.024	0.024	0.024	0.024	0.12	NaSARRI	
	d) Weed management options for cotton perfected multi-locationally for all cotton zones	0.069	0.069	0.069	0.024	0.024	0.255	NaSARRI	

Options for soil fertility management	In-organic fertilizer recommendations for cotton in different soil types of Uganda re-evaluated	0.026	0.026	0.026	0.026	0.026	0.13	NaSARRI	
	Organic plant and animal materials to improve soils for cotton production in all zones tested and integrated	0.034	0.034	0.034	0.034	0.034	0.17	NaSARRI	
Integrated Pest Management (IPM) for Lygus, Aphids, Bollworms and Stainers	Two new inorganic pesticides tested and recommended rates derived per season	0.03623	0.01123	0.011225	0.00455	0.00455	0.06778	NaSARRI	
	Two bio-pesticides tested and recommended for control of major cotton pests in all cotton zones	0.029	0.029	0.029	0.029	0.029	0.145	NaSARRI	
	Three beneficial natural enemies tested, reared and released for control of major cotton pests in all cotton zones	0.039	0.039	0.039	0.039	0.039	0.195	NaSARRI	
Integrated Disease Management (IDM) on bacterial blight, wilts, <i>Alternaria</i> and other cotton diseases	Two seed dressing chemicals for the control of seed and soil borne cotton diseases tested in multi-location trials and recommended for use	0.029	0.029	0.029	0.029	0.029	0.145	NaSARRI	
	Distribution map of wilts and their races on cotton in Uganda generated	0.022	0	0	0	0	0.022	NaSARRI	
	Disease resistant lines screened for use in the cotton breeding programme	0	0.026	0.026	0.026	0.026	0.104	NaSARRI	
	Molecular markers for different races of Fusarium wilt disease on cotton determined	0	0.05	0.05	0.05	0	0.15	NaSARRI	

Dissemination of new technology for adoption through uptake pathways	New cotton technologies demonstrated to all stakeholders in different cotton zones of Uganda	0.053	0.053	0.053	0.053	0.053	0.265	NaSARRI	
	<i>Cotton Growers Manual</i> updated, translated to local languages and produced for use in all cotton zones	0	0	0.018	0.01413	0.01263	0.04475	NaSARRI	
	Cotton Information materials (Leaflets, Brochures, Fact Sheets, etc) produced for use by all cotton stakeholders	0	0.009	0.009	0.009	0.009	0.036	NaSARRI	
	Economic analysis and profitability of all cotton technologies in different cotton zones generated	0.0078	0.0078	0.0078	0.0078	0.0078	0.039	NaSARRI	
Sub-Total		0.64	0.68	0.69	0.64	0.58	3.23		
b) Establishment of seed processing system									
Seed cotton suction system equipment, components of seed dressing plant and Realignment of processing plants at NaSARRI	Set of cotton processing plants for quicker derivation of data on yield components and ease of seed dressing at NaSARRI re-arranged.	1.5	0	0	0	0	1.5	NaSARRI/ CDO	
Civil works for spinning lab and 2screen houses	A Spinning laboratory and 2 screen houses for cotton in place at NaSARRI	0.2	0	0	0	0	0.2	NaSARRI/ CDO	
Upgrading Electricity at processing point	Voltage upgraded appropriately for running heavy cotton research machinery at NaSARRI	0.04	0	0	0	0	0.04	NaSARRI/ CDO	
Construction of irrigation system	Irrigation System for cotton research in place	0	1.9	0.6	0	0	2.5	NaSARRI	

Establish a Bio-pesticide laboratory at NaSARR Serere	Bio-pesticide laboratory established	0.139	0.035	0.035	0.035	0.035	0.279	NaSARRI & Cotton Technical Assistance Program (TAP)	
Transport for cotton research at NaSARRI	Four double cabin pickup vehicles procured	0.28	0.28	0	0	0	0.56	NaSARRI	
	Ten motorcycles procured	0.025	0.025	0	0	0	0.05	NaSARRI	
A tractor for cotton research land preparation	One tractor for cotton research use procured	0.2	0	0	0	0	0.2	NaSARRI	
Sub-Total		2.344	2.24	0.635	0.035	0.035	5.389		
Total for cotton research		3.02	2.92	1.96	0.71	0.65	9.26		
2. Revamp cotton production: Increase acreage to 75,000 from 49,000; yield/ha to 25,00kg from 1,000kg and output to 187,000MT from 49,023mt over the medium term.									
Cotton Farmers' Support Programme									
a) Extension services									
Training costs	Extension workers contracted and facilitated by UGCEA: 2016/17 = 350 people 2017/18 = 380,2018/19 = 400 2019/20 = 400,2020/21 = 400	2.124	2.293	2.428	2.428	2.428	11.701		UGCEA

Sub-total		2.124	2.293	2.428	2.428	2.428	11.701		
b) Production inputs									
Planting seed (MT)	Quantity of seeds distributed: 2016/17 = 1,600 Mt 2017/18 = 1,700 Mt , 2018/19 = 1,800 Mt, 2019/20 = 1,900 Mt 2020/21 = 1,900 Mt	3.820	4.050	4.289	4.530	4.530	21.219		UGCEA
Fertilizer (MT)	Quantity of Fertilizer distributed: 2016/17 = 330 Mt,2017/18 = 380 Mt 2018/19 = 460 Mt ,2019/20 = 580 Mt 2020/21 = 750 Mt	0.660	0.760	0.920	1.160	1.500	5.000		UGCEA
Pesticide (liters)	Quantity of pesticides distributed: 2016/17 = 86,400 litres ,2017/18 = 96,000 ,2018/19 = 124,200 2019/20 = 150,000,2020/21 = 150,000	5.400	6.000	7.763	9.375	9.375	37.913		UGCEA
Spray pumps (pieces)	Number of spray pumps distributed: 2016/17 = 2,500,2017/18 = 3,000 , 2018/19 = 3,000,2019/20 = 3,000 2020/21 = 3,000	0.263	0.315	0.315	0.315	0.315	1.523		UGCEA
Ox ploughs (pieces)	Number of Ox ploughs distributed: 2017/18 = 1,000,2018/19 = 1,000 2019/20 = 1,000	0.000	0.330	0.330	0.330	0.000	0.990	CDO	

Tractors	189 Tractors distributed over five years	2.400	3.000	4.000	4.500	5.000	18.900	CDO	UGCEA
Water harvesting sheds	Water harvesting sheds constructed: 2017/18 = 4 ,2018/19 = 4,2019/20 = 4 2020/21 = 4	0.000	0.140	0.140	0.140	0.140	0.560	CDO	UGCEA
Printing pamphlets	Pamphlets on cotton technologies printed and distributed: 2016/17 = 20,000 pamphlets 2017/18 = 20,000,2018/19 = 20,000 2019/20 = 20,000,2020/21 = 20,000	0.020	0.020	0.020	0.020	0.020	0.100	CDO	UGCEA
Support to large scale farmers (including Prison Farms)	20 large scale farms of 100 acres each supported annually thru provision of mechanization implements and equipment	8.000	8.000	8.000	8.000	8.000	40.000	Uganda Prisons Service	
Sub-total		20.563	22.615	25.777	28.37	28.88	126.205		
c. Phase I of the Pader Cotton seed Processing Plant									
Complete construction of building and structures and installation of machinery	Construction of the Guard House, Perimeter Fence, Ginning Hall and Seed Bagging area, Delinting Hall, Ablution Block, Power House and Pump House completed. Installation of ancillary services i.e. borehole, overhead water tank, electrical and mechanical installations undertaken. Installation of specialized machinery completed.	5.911	0	0	0	0	5.911	CDO	

d. Phase II of the Pader Cotton seed Processing Plant									
Completion of construction of structures	Construction of front office, 7 stores, workshop and bale shed completed. External works (drives and parking) completed.	0.0	14.000	0.0	0.0	0.0	14.000	CDO	
e. Phase III of Pader Plant									
Completion of construction of structures	Construction of administration block, kitchen and external works completed.	0.0	0	4.000	0.0	0.0	4.000	CDO	
Sub-Total		5.911	14	4	0	0	23.911		
Total programme cost		28.598	38.908	32.205	30.798	31.308	161.817		
3. Reduction of cotton contamination									
Training of extension workers	1,930 extension officers trained over 5 years.	0.007	0.008	0.008	0.008	0.008	0.039	CDO	
Training of farmers	116,000 cotton farmers trained over five years	0.270	0.300	0.345	0.375	0.450	1.740	CDO	
Training of ginners	168 ginners and their key personnel involved in quality control trained over five years	0.001	0.002	0.002	0.002	0.002	0.008	CDO	
Procurement and distribution of harvesting bags	116,000 bags distributed over five years	0.180	0.200	0.230	0.250	0.300	1.160	CDO	
Construction of field stores	150 field stores established over five years	0.600	1.200	1.800	2.400	3.000	9.000	CDO	

Construction of market yards	50 zonal market yards established over five years	1.096	1.161	1.228	1.293	1.366	6.144	CDO	
Sub-cost		1.958	2.61	3.285	3.935	4.66	16.447		
4. Promotion of domestic value addition to lint									
a) Lint Buffer stock Fund:									
Procurement of Lint buffer stocks	20,000 bales of lint procured annually	20.000	20.000	20.000	20.000	20.000	100.000	CDO	
Warehousing		0.368	0.368	0.368	0.368	0.368	1.84	CDO	
Sub-total		20.368	20.368	20.368	20.368	20.368	101.84		
b) Support for cottage industries:									
Training of farmers/interested persons	500 farmers/interested persons trained over five years	0.100	0.100	0.100	0.100	0.100	0.500		TEXDA
Provision of Hand looms	125 hand looms distributed over five years	0.100	0.100	0.100	0.100	0.100	0.500		TEXDA
Sub-total		0.200	0.200	0.200	0.200	0.200	1.000		
TOTAL PROGRAMME COST		20.568	20.568	20.568	20.568	20.568	102.84		
OVERALL TOTAL		54.144	65.006	58.018	56.011	57.186	290.365		

Table 13: Summary costs for the proposed interventions for Cotton Sub-Sector

Intervention	Required Investment (UG. X Billions)					
	2016/17	2017/18	2018/19	2019/20	2020/21	Total
Strengthen cotton production research and re-focusing priorities	3.02	2.92	1.96	0.71	0.65	9.26
Cotton Farmers' Support Programme	28.598	38.908	32.205	30.798	31.308	161.817
Reduction of cotton contamination	1.958	2.61	3.285	3.935	4.66	16.448
Promotion of domestic value addition to lint	20.568	20.568	20.568	20.568	20.568	102.84
Total	54.144	65.006	58.018	56.011	57.186	290.365

3.5 HORTICULTURAL CROPS AND PRODUCTS

3.5.1 Situation Analysis

A combination of ecological factors – including high soil fertility and ample rainfall – make Uganda extremely suitable for horticultural crop production. Indeed a wide range of horticultural crops are produced in nearly all parts of the country throughout the year with particularly no irrigation or fertilizers. These include citrus, paw paws, mangoes, pineapples, tomatoes, okra, carrots, peppers, cabbage, and various other indigenous vegetables.

Today, the industry is, more than ever before, providing one of the most promising areas for increasing income in the rural areas, improving nutrition of the people, diversification of exports, and provision of raw materials for agro-based industries and creation of employment. Currently, the export of horticultural products is one of the fastest growing export sub-sectors in the country – 24 percent for 2014. The country has a suitable environment for production and export of exotic and off-season products (not readily produced in the EU markets throughout the year).

Production for export is majorly by small holder farmers spread throughout the country – central, east and south-western region. There are no accurate statistics on the output capacity and/or area under production. However, each region has its own profile of products of concentration. The small holder producers depend on labor intensive methods of production, harvesting and post-harvest handling. This has led to reduced output, substantial post-harvest losses and quality deterioration of products throughout the entire value chain.

With the increasing need for consistency – quality and quantity – the sector requires a paradigm shift to and/or investment in organized producer groups and networks (exporter-to-farmers linkage), improved production methods, improved harvesting and post-harvest handling methods, and capacity development for especially the farmers. This is also partly driven by emerging need for traceability and compliance to phyto-sanitary requirements.

Table 14 and 15 show the profile and volume of exports of fruits and vegetables (including peppers and spices) exported by Uganda in 2014. The key export markets for most of these fruits are the EU and Kenya. For the latter, the imported volumes are normally to supplement domestic production in order to meet export requirement. Other markets include S. Sudan, Rwanda and DR Congo.

Table 14: Fruits and Vegetables Exported by Uganda - 2014

	Export Value – 2014 (US\$ '000)
Mixtures of vegetables, frozen	11,163
Beans, shelled or unshelled, fresh or chilled	768
Leguminous vegetables, shelled or unshelled, fresh or chilled	665
Spices	605
Bananas including plantains, fresh or dried	587
Oranges, fresh or dried	522
Pepper of the genus Piper	507
Fruits, dried nes	424
Potatoes, fresh or chilled nes	363
Vegetables, fresh or chilled nes	343
Tomatoes, fresh or chilled	332
Onions and shallots, fresh or chilled	313
Apples, fresh	217
Potatoes, frozen	194
Pineapples, fresh or dried	150

Table 15: Uganda Fruits, Vegetables & Pepper Exports (quantity in Tonnes)

	2009	2010	2011	2012	2013
Fruits	3,290	2,904	3,682	1,439	2,123

Source UBOS Statistical Abstract 2014

In line with the value-addition agenda, government is investing significantly in the development of value-addition facility for horticultural products. For example government is implementing plans to establish a citrus fruit processing facility in Soroti and Pineapple fruit processing facility in Luweero.

However, a number of key issues have arisen out of the effort including; Inadequate output to meet the demands of the existing and pipeline value addition facilities. Teso for example has an estimated 6 million trees of oranges and mangoes and these cannot sustain the factory requirements let alone the local population unprocessed fruit demand, the quality of inputs in terms of seedlings, fertilizers and agro chemicals is wanting as most of the existing nurseries are not certified. The suppliers are equally not regulated, lacking storage facilities for preservation of the harvest, and thus most fruits rot away during the harvest and lack of commercial and nucleus farmers in the industry. Where the industry is promising, it has no commercial farmers to boast production.

In order to address the issues affecting the industry, a number of key interventions are required to turn around the industry.

3.5.2 Strategic Interventions for Horticultural Crops and Products

The key interventions required to turn around the citrus industry include,

1) **Increasing Production and Productivity**

The current available citrus cannot meet the market needs of existing processing plants such as coca cola, britannia. A mega plan is under establishment at the Soroti industrial and business park whose capacity is far beyond the existing output. Another fruit processing plant is being planned in Luwero district. For all these existing and planned processing plants are to perform optimally there will be need to increase production and productivity. To achieve this outcome the following specific interventions will be required;

- i) **Research** with the aim of improving the existing varieties and introducing new ones. The final output of research will be available parent stock for multiplication.
- ii) **Massive Seedling production and distribution.** There will be need to certify nurseries that will multiply market required varieties for distribution. To maintain production at stable levels, irrigation and other moisture conservation technologies will be put in place.
- iii) **Irrigation (water management technologies).** Given the fragmented /small holder nature of farmers an appropriate irrigation technology will be identified and promoted to all citrus farmers. In circumstances where commercial farms /nucleus farmers are established, mini irrigation systems will be established on PPP arrangement. Other moisture preservation technologies will be identified and promoted.

2) **Cold chain Storage Infrastructure**

In order to prevent damage and loss of fruits when ready after harvesting, appropriate cold chain storage technologies will be constructed to support small-scale producers. In addition, storage facilities would be established at sub county level / collection points. Upgrade of the existing fresh produce (agricultural produce) handling infrastructure at Entebbe to an all-in-one facility – with up-to-date cold storage facilities, packing unit, and an SPS inspection unit fully facilitated to enable MAAIF undertake thorough inspections according to market requirements – UG X. 5Bn per year (100% Government).

3) **Standardization of inputs and products for the export market**

In order to be able to meet the international market requirements such as those of the EU, regarding input specifications of agrochemicals including pesticides, insecticides, herbicides and weedicides, regulations of input suppliers will be enforced. In addition producer organizations will be sensitized on the use of right inputs.

- 4) Post-harvest handling of fruits will be emphasized in line with export market requirements through provision of appropriate training.

Table 16: Costed interventions/Game Changers over for Citrus, Mango and pineapples over the medium term

Intervention	Budget 2015/16	Year1 BN	Year2 BN	Year3 BN	Year4 BN	Year5 BN	Total BN	Public	Private
1. Increase Citrus and Mango and Pineapple Production and Productivity									
Targets: 1. Increase fruit productivity per tree from 1 – 3 bags (Normal bag), Increase number of trees from current 6million(orange)⁴ to 40million trees country wide and productivity to 60million bags and Increase mango trees to over 20 million trees, certify 140 nurseries country wide, provide 50 million suckers of pineapples									
Establish certified nurseries in all the participating districts		0.8	0.8	0	0	0	1.6	NAADS	
Support certified nurseries in multiplication of seedlings.		2.0	2.0	2.0	2.0	2.0	10.0	20% (2BN)	80%(Private) YLP credit
Massive seedling distribution to farmers / groups (36 Million seedlings)	20.4	52	52	52	52	52	260	NAADS	
Develop and train farmers in modern agronomic practices including plant protection.		1.0	1.0	1.0	1.0	1.0	5.0	NARO/NAADS	
Carry out fruit production campaigns in targeted regions		1.0	1.0	1.0	1.0	1.0	5.0	NAADS/MAAIF	
Equip district plant clinics and surveillance teams for proper disease and pest diagnosis		1.0	1.0	0.2	0.2	0.2	2.6	MAAIF/NAADS	

⁴ Unverified figured extracted from Teso Fruit corporate Society Plan Strategic plan 2014-2018 and applies to only Teso sub region.

Intervention	Budget 2015/16	Year1 BN	Year2 BN	Year3 BN	Year4 BN	Year5 BN	Total BN	Public	Private
1. Increase Citrus and Mango and Pineapple Production and Productivity									
Train farmers in post-harvest handling and marketing		1.0	1.0	1.0	1.0	1.0	5.0	MAAIF/NAADS	
Provide and promote appropriate technology for irrigation		2.0	2.0	2.0	2.0	2.0	10	NAADS	
Promote appropriate irrigation schemes / moisture content management		3.0	3.0	3.0	3.0	3.0	15	NAADS/NARO	
Carry out further research on varieties, pest and disease management		0.2	0.2	0.2	0.2	0.2	1.0	NARO	
Open up commercial farms and or nucleus farms in regions on existing government lands such as Odina citrus farm in Soroti, Labori Irrigation scheme land in Serere, Kiige		3.0	3.0	0.5	0.5	0.5	7.5	20%	80% UDC
Establish a data collection and management system to support planning and marketing		0.5	0.5	0.5	0.5	0.5	2.5	NAADS	
Sub-total		67.5	67.5	63.4	63.4	63.4	325.2	Public	Private

Intervention	Budget 2015/16	Year1 BN	Year2 BN	Year3 BN	Year4 BN	Year5 BN	Total BN	Public	Private
1. Increase Citrus and Mango and Pineapple Production and Productivity									
2. Fruit Storage/Cold chain Stores									
Establish zonal cold chains/processing facilities		15.0	15.0	15.0	15.0	15.0	75	Public (UDC)	Private
Establish state of the art cold chain centre at Entebbe		5.0	0.0	0.0	0.0	0.0	5.0	Public	N/A
Subtotal: Storage		20	15	15	15	15	80		
3. Standardization of inputs								10% GOU	90% (US\$7.4m (KOICA))
Institute a regulatory system for agrochemicals, Sensitize farmers on crop and fruit maintenance including harvesting standards for fruits		0.15	0.15	0.15	0.15	0.15	0.75	NAADS	Private e.g. TEFCU

Table 17: Summary of Costed Interventions for Citrus

	Year1 BN	Year2 BN	Year3 BN	Year4 BN	Year5 BN	Total
Increase Citrus Production and Productivity	67.5	67.5	63.4	63.4	63.4	325.2
Fruit Storage/Cold chain Stores	20	15	15	15	15	80
Standardization of inputs	0.15	0.15	0.15	0.15	0.15	0.75
Total	87.65	82.65	78.55	78.55	78.55	405.95

3.5.3 Mode of Implementation

- Successful implementation of the strategic interventions proposed both the public and private sector with the public sector providing technical oversight and guidance on implementation. UDC will support the private sector to undertake investment in key priorities.
- To increase productivity, NAADs will provide and promote appropriate technology for irrigation, establish certified nurseries in all the participating districts, support certified nurseries in multiplication of seedlings and undertake massive seedling distribution to farmers/groups, establish a data collection and management system to support planning and marketing.
- NARO will undertake further research on varieties, pest and disease management and will support training of farmers in modern agronomic practices including plant protection, Promote appropriate irrigation schemes / moisture content management. MAAIF will continue to provide overall policy and regulatory oversight to ensure successful implementation of the proposed interventions.

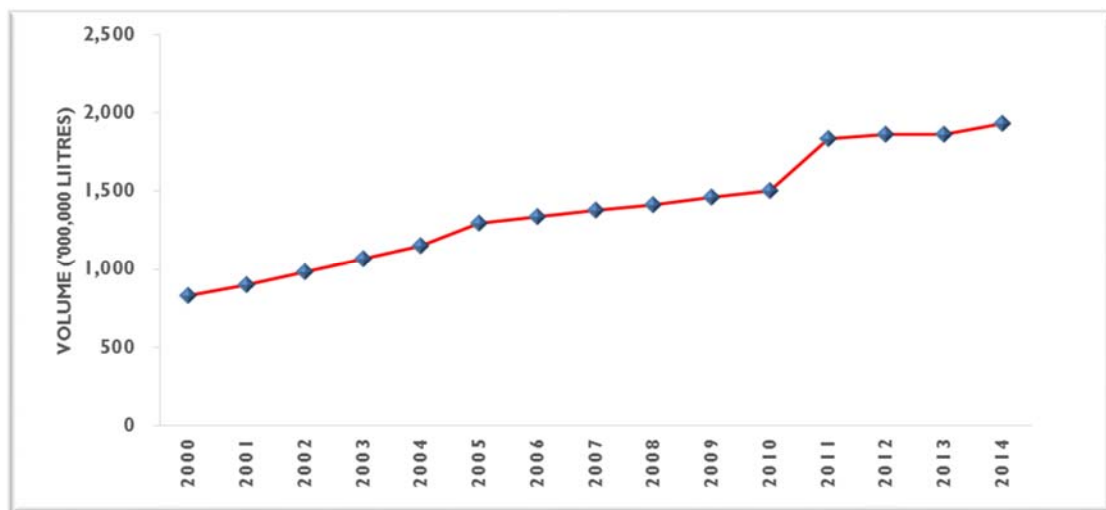
3.6 LIVESTOCK PRODUCTS (DAIRY AND BEEF)

3.6.1 Situation analysis of Dairy and Beef Products

Livestock products constitute an important sub-sector of Uganda’s agriculture, contributing about 9 per cent of Gross Domestic Product and 17 per cent of Agricultural Gross Domestic Product, 1.6 percent to the National GDP and are a source of livelihood to about 4.5 million people in the country. The current livestock population in Uganda is estimated at 12.841 million cattle, 14.012 million goats, 3.842 million sheep, 3.584 million pigs and 42.133 million chickens (UBOS Statistical Abstract 2014)⁵. The dairy industry plays an important role in the lives of 1.7 million households (1/4 of the total households in Uganda) who keep cattle. The industry provides daily income to the dairy farming households while contributing to food security, foreign exchange earnings and employment along the entire value chain.

Dairy and Beef Products production: The estimated annual milk production currently stands at 1.93 billion liters. The bulk of the milk produced in Uganda is produced by indigenous cattle breeds raised on small holder farms spread out in what is called the “cattle corridor⁶”. Meat production on the other hand has improved over the past five years though at a low pace, for instance, beef production stood at 197,019 million metric tonnes, goat meat and mutton at 36,736 million metric tonnes while pork at 21,493 million metric tonnes. Figure 1 and Figure 2 illustrate the annual milk and beef production trends.

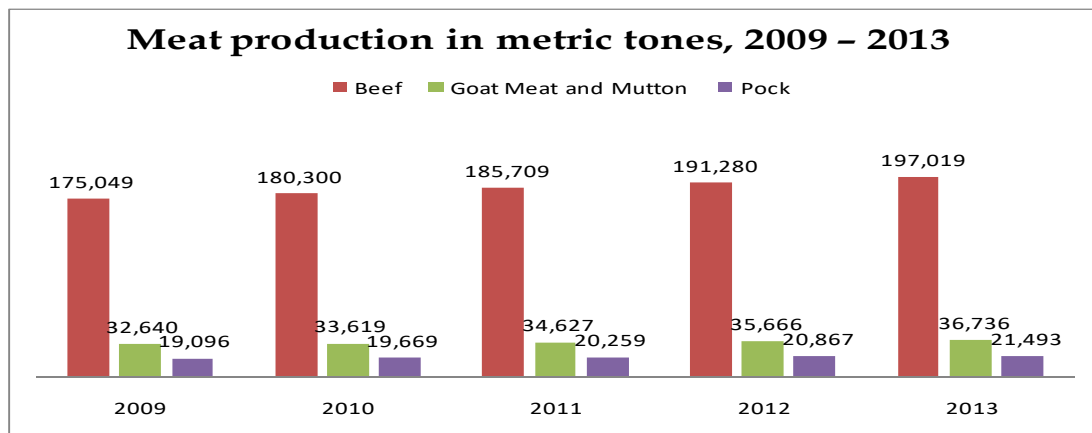
Figure 1: Annual Milk production trend (‘000,000) Litres



⁵ UBOS 2011 Statistical Abstract

⁶ Northern, Eastern South Western, Mid-Western, Central and Karamoja

Figure 2: Trend of Meat Production in Uganda in Metric tones



Beef products on the Uganda market include: meat cuts such as sirloin, fillet, topside, rump steak, t-bone steak, rib roast, silverside, eye roast and shin-on bone; Coarse ground products like, meat burgers, minced meat, barbeque sausages, merguez, and fine emulsified products like fresh beef sausages, frankfurters and meat loaf. It should be noted that most of the milk produced in Uganda is derived from small holder farms spread all over the country but mainly concentrated in what is referred to as the “cattle corridor”. Collection of the milk produced in this vast area requires an elaborate network of milk collection infrastructure to facilitate marketing but also prevent post-harvest milk losses.

Milk and Beef products Transportation: The mode of transport used to transport milk from the milk collection centers to milk processing plants and urban raw milk markets is by bulk milk road tankers. Transportation of milk by the aforementioned tankers is necessary for the maintenance of cold chain and therefore the quality of the milk. The tankers are mainly owned by processors (mainly Sameer Agriculture and Livestock Limited), private traders and a handful of cooperatives. However, the lifting of the waiver on import duty for milk tankers, in the medium term, is bound to erode the gains made in milk transportation. In addition, meat is transported from Butchers/ slaughter places to retail shops/butcherries using containers, trucks and vessels of varying sizes. However, there is lack of appropriate means for transportation of meat and lack of awareness on hygienic handling of meat and transportation means.

Milk and Beef Processing: Slaughtering of the animals in Uganda takes place along five main areas, that is; Family slaughter, Slaughter at village markets, Town slaughter slabs, and urban slaughter houses and at Abattoirs. There are three abattoirs in Uganda which slaughter and cut meat for the local market: that is; Uganda Meat Industries, Kampala, Nsooba Slaughter house Ltd and the City Abattoir, Kampala. There are close to 8 small scale meat processing plants in Uganda, processing between 400- 1,000 Kgs of processed meat products per day. All the processing plants are privately owned.

For the dairy sub sector, there are currently over 76 large, medium and small-scale dairy processing plants in the country with a combined total installed capacity of 1,769,300 liters per day. The products processed by these plants range from pasteurized milk, Ultra Heat Treated (UHT) milk, yoghurt, butter, cheese, milk powder, ice cream, butter oil, casein and ghee. Capacity utilization of the major dairy processing plants currently stands at 33%. Some of the factors responsible for the low utilization is the seasonal fluctuation in the volume of milk produced coupled with poor quality of some of the milk due to poor handling methods, inappropriate equipment and inadequate milk chilling infrastructure.

Dairy and Beef Exports Performance: Over the last couple of years, dairy exports have continued to grow with a resultant decrease in the dairy imports. In 2014 the export earnings from milk and milk products was US \$ 28.6 million. On the other hand, Uganda's beef exports quantities are very small and live animal exports are negligible and informal. However, other livestock products (meat, milk and their products, hides and skin, eggs, Day Old Chicks) export earnings have grown in recent years from an estimated US \$ 5.75 million in 2004 to about US \$ 10.4 million in 2008 (UIA, 2009). Hides and skins are the major livestock export earners followed by dairy products and bird eggs, meat, live animals and meat preparations.

The major export markets for the products are Kenya, Tanzania, Rwanda, Southern Sudan, D.R. Congo and Burundi. Southern Sudan is an emerging destination for Uganda's meat products and live animals. In addition, there are exports of processed meat by "Fresh Cuts" to the UN troops in South Sudan, DRC and Somalia. Other potential export markets for livestock and livestock products exist in the Middle East countries and the European Union

3.6.2 Strategic Interventions/Game changers for Beef and Beef Products

Based on the value chain analysis of the dairy and meat sub sector presented in Annex 1 and Annex 2, the following interventions/game changers are suggested to further revitalize the industry.

1. Genetic improvement of the herds/cattle for both dairy and beef production over the medium term

- i. Enhancing availability of improved cattle germplasm through;
 - Rehabilitate and restock Government breeding farms
 - Establish nucleus breeding centers, oestrus synchronization and AI under PPP arrangement.
 - Promote cross breeding of the indigenous herd with exotic tropical breeds using artificial insemination and importation of bulls
 - Establish the necessary infrastructure for Artificial insemination at the district level
 - One molecular laboratory for gene engineering equipped.

- ii. Awareness campaigns on genetic improvement

2. Enhancing quality assurance, value addition and marketing and dairy infrastructure development

- i) Promoting local pasture preservation technologies (training, creation of awareness, support adoption of these technologies).
- ii) Establish Quality Based Milk Payment System
- iii) Establish a National Dairy Data Bank

3. Dairy infrastructure development

- i) Rehabilitating existing and developing new milk cold chain and processing infrastructure.
- ii) Providing milk handling, collection equipment to dairy cooperatives.

4. Disease control zones for livestock.

To promote sustainable milk and beef production throughout the year, it's strongly recommended that vaccination of all animals should be mandatory and provided by the State, rather than wait for outbreaks and management of quarantines through;

- i) Construction of Quarantine Station, holding Ground and Border Post
- ii) Strict demarcation of the 4 proposed Disease Control Zones by appropriate natural, artificial and legal barriers by Vaccination coverage
- iii) Implementation of mandatory and free vaccination programme against major diseases like Foot and Mouth Disease, CBPP and Rabies etc.
- iv) Re-enforcement of the national animal / vector diagnostic and surveillance system.

3.6.3 Mode of Implementation of Beef and Dairy products Interventions

- NAGRIC and DB shall spearhead efforts to make available germplasm at the district level under the guidance of MAAIF.
- District veterinary offices will be equipped with the necessary facilities to handle Artificial Insemination at a free cost.
- MAAIF will be responsible for spearheading efforts to promote adoption of pasture preservation technologies (through supporting farmer cooperatives to acquire appropriate technologies for onward availability to their members).
- MAAIF to develop business model for revamping existing government ranches and UIA will be responsible for identifying private animal breeders based on competitive identification of investors.

- To enhance quality assurance, MAAIF and DDA will review the existing, policies and regulations, DDA will establish Quality Based Milk Payment System
- NAADS and DDA will rehabilitate and equip milk collection centres, Procure laboratory equipment, reagents and consumables and Procure milk testing mobile laboratories.

Table 18: Costed interventions for Livestock Products

Intervention	Output Target	Category and Budget FY 15/16	Cost in BNS UGX						Public	Private	
			Year 1	Year 1	Year 3	Year 4	Year 5	Total			
1. Enhancing quality assurance, value addition and marketing											
Reviewing the existing, policies and regulations	A strong, efficient and appropriate dairy sector regulatory frame-work in place	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.05		
Establish Quality Based Milk Payment System	A functional Quality Based Milk Payment System	0.00	0.12	0.02	0.02	0.02	0.02	0.02	0.2		
Train and sensitize on the milk Payment System	5 milk sheds covered	0.00	0.04	0.03	0.03	0.01	0.01	0.01	0.12		
Train dairy stakeholders in milk quality assurance, value addition and marketing	5,000 stakeholders trained	0.08	0.08	0.1	0.08	0.08	0.08	0.08	0.42		
Accredit the National Dairy Laboratory	Accreditation certificate	0.08	0.11	0.02	0.00	0.00	0.00	0.00	0.13		
Establish a National Dairy Data Bank	National Dairy Data Bank established	0.03	0.04	0.01	0.01	0.01	0.01	0.01	0.08		
Establish regional offices for DDA	2 DDA regional offices established	0.00	0.30	0.30	0.30	0.00	0.00	0.00	0.90		
Run the regional offices	All the four DDA regional offices fully operational	0.33	0.97	0.64	0.64	0.64	0.64	0.64	3.53		
Rehabilitate and equip the Entebbe Dairy School	A functional Dairy School	0.41	1.27	0.97	0.19	0.00	0.00	0.00	2.43		
Implement the law on" the ban of sale of loose milk"	5,256 quality assurance exercises	0.19	0.35	0.16	0.16	0.16	0.16	0.16	0.99		
Sub-total			2.18	2.25	1.43	0.92	0.92	0.92	7.7		
2. Dairy Infrastructure development											

Rehabilitate and equip milk collection centres	4 MCCs established	0	0.18	0.18	0	0	0	0.36		
Milk coolers and generators	100 Milk coolers and generators	3	3	3	3.75	4.5	5.25	19.5		
Procure milk testing mobile laboratories	2 mobile laboratories procured	0.5	0.5	0	0	0	0	0.5		
Procure laboratory equipment, reagents and consumables	Assorted Laboratory equipment, reagents and consumables procured	0.05	0.09	0.04	0.04	0.00	0.12	0.29		
Sub-total			3.77	3.22	3.79	4.50	5.37	20.65		
3. Genetic improvement of the herds/cattle for both dairy and beef production over the medium term										
Sustainable Utilization of indigenous animal genetic resources <ul style="list-style-type: none"> Animal Breeding (including marker Assisted, Performance Evaluation, Progeny Testing, Genetic Monitoring and Evaluation(M&E), Assisted Reproductive Technologies (AI, ET, MOET), Molecular Genetics Laboratory establishment Conservation of Animal Genetic Resources (Gene Banking, (in-situ conservation, and Cryo-preservation) 	-8 dairy and beef evaluation centres established -180,000 embryos harvested conserved and supplied to dairy and beef farmers -15,000,000 doses of semen produced and extended to dairy and beef farmers. -Training and refreshing 1000 AI technicians. -One molecular laboratory established and equipped -Four indigenous breeds of cattle with dairy and beef potentials conserved.	0.500	5.4	3.7	3.7	3.0	3.1	18.9	NAGR IC	
Enhance access to Superior Animal Genetic Resources:	-Six dairy breeds (250 animals for each breed) procured	0.44	2.8	1.7	1.7	2.4	1.3	9.9	NAGR IC	

<ul style="list-style-type: none"> • Procurement of the dairy beef foundation stock • Multiplication of superior animal genetics, • Disseminate superior animal genetics, 	<ul style="list-style-type: none"> -Ten beef breeds (250 animals for each breed) procured -Establishment of two (2) bull studs for both dairy and beef bulls -Establishment of four (4) regional centers 									
<p>Water supply and forage resources/facilities</p> <ul style="list-style-type: none"> • Construct livestock water sources/facilitie, • Improve rangeland management, • Forage development • Support to improved dry season feeding 	<ul style="list-style-type: none"> -Desilting of and redesigning twenty (20) valley tanks -Construction of 100 drinking troughs -Procurement of 25 water pumps -30 square miles bush cleared and reseeded -5 square miles of legume and pasture developed -Construction of 36 hay barns -Construction of 24 silage bankers 	0.30	4.7	3.4	3.4	3.5	1.0	16	NAGR IC	
Pasture seed multiplication for farmers		1.00	4.00	4.00	5.00	5.00	5.00	23	NAGR IC	
<p>Farm infrastructure Development</p> <ul style="list-style-type: none"> • Livestock handling infrastructures 	<ul style="list-style-type: none"> -1000Km of access murrum roads and fire breaks -Construction of 24 pray races -100 feed troughs and 200 water troughs 	0	21.3	8.4	8.5	5.6	3.4	47.2	NAGR IC	

Information System Development • Support the livestock record system (Computers, Software etc),	-One computerized livestock records management system -One information centre established	0.04	1.1	0.7	0.7	0.9	0.5	3.9	NAGR IC	
Institutional Empowerment and Development: • Training, • Establishing organizational physical structures, • Procurement service delivery equipments (suitable farm and office vehicles, machinery, equipment and tools),	-40 staffs trained in short courses -Office complex at the headquarters -Rehabilitation of the AI training centre -17 service delivery vehicles -12 motor cycles -One unit of earth moving equipment -Purchase of 8 high capacity tractors(100 hp+)	0.20	12.3	2.9	2.9	2.4	1.6	22.1	NAGR IC	
Rural poultry development a) Restocking of parent stock. b) Expansion of the hatchery. c) Purchase of a Feed mill.		0.10	1.3	1.3	1.3	1.3	1.3	6.5	NAGR IC	
Sub-Total			52.9	26.1	27.2	24.1	17.2	147.5		
a) Multiplication of dairy and beef										
Provision of Heifers- Dairy Cattle	85,000 Heifers	25	37.5	37.5	37.5	37.5	37.5	187.5	NAADS	
Provision of beef cattle (bulls)	9,500 beef cattle (bulls)	0.9	3.75	3.75	4.5	5.25	6	23.25	NAADS	
Provision of AI sets	560 Sets	0.78	2.02	2.02	2.02	2.02	1.00	9.08	NAADS	
Sub-Total			43.27	43.27	44.02	44.77	44.50	219.83		

4. Operationalization of Effective Disease Control										
a) Construction of Quarantine Station, holding Ground and Border Post										
Quarantine Station	1 Quarantine station constructed		0.81	0	0	0	0	0	0.81	
Holding Ground	-1 Holding Ground constructed -Movement of animals and animal products controlled at border post		0.51	0	0	0	0	0	0.51	
Border Post			0.033	0	0	0	0	0	0.033	
Support Telecommunication Equipment			0.00175	0	0		0	0	0.00175	
Sub-total			1.36	0	0		0	0	1.36	
b) Development of prevention and control strategy for major diseases										
Specialized Training	Significant decrease of major trade sensitive diseases (FMD, CBPP, PPR and Anthrax)		0.01	0.01	0.01	0.01	0.01	0.01	0.05	
Specific continuing education			0.11	0.11	0.11	0.11	0.11	0.11	0.56	
Workshops for FMD & CBPP EPP			0.03	0.03	0.00	0.00	0.00	0.00	0.05	
Sub-Total			0.15	0.15	0.12	0.12	0.12	0.12	0.66	
c) Strict demarcation of the 4 proposed Disease Control Zones by appropriate natural, artificial and legal barriers by Vaccination coverage										
Procurement of vaccines			0.02	0.02	0.02	0.02	0.02	0.02	0.10	
Disease, production & marketing reporting ARIS II	Notification of animal diseases increased by 25%.		0.13	0.13	0.13	0.13	0.13	0.13	0.66	
Establish & operationalize a primary livestock information management system			0.05	0.03	0.03	0.03	0.03	0.03	0.15	
			0.2	0.18	0.18	0.18	0.18	0.18	0.91	
Sub-Total (Disease control)			1.71	0.33	0.3	0.3	0.3	0.3	2.93	

Overall Total			104.92	75.15	76.74	74.59	68.29	399.66		
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Table 19: Summary of Livestock Costed Interventions

Game Changers	2016/17 UGX BN	2017/18 UGX BN	2018/19 UGX BN	2019/20 UGX BN	2020/21 UGX BN	Total UGX BN
Enhancing quality assurance, value addition and marketing and Dairy Infrastructure development	7.09	5.45	5.22	5.42	6.29	28.27
Genetic improvement of the herds/cattle for both dairy and beef production over the medium term.	52.9	26.1	27.2	24.1	17.2	147.5
Multiplication of dairy and beef	43.26	43.26	44.016	44.766	44.5	219.814
Operationalization of Effective Disease Control	1.71	0.33	0.3	0.3	0.3	2.93
Total	104.92	75.15	76.74	74.59	68.29	399.66

3.6.4 Economic Impacts from Livestock interventions

The action plan on livestock prioritised Milk and Meat. The key interventions identified around the value chains were; Genetic improvement of the herds/cattle for both dairy and beef production over the medium term; Enhancing quality assurance, value addition and marketing and dairy infrastructure development; Dairy infrastructure development and Disease control zones for livestock. Effective and efficient implementation of these game changers will result into the following impacts;

a) Expected output

The current milk production in the country is **1.94 Billion** Liters per Year, full implementation of interventions in milk to handle water and feeds challenge, disease control and improvement of genetics shall increase milk production to **3.136 Billion liters per year** by 2020/21. On the other hand, current meat production (including beef, goat and mutton and pork) currently stands at 262,905 MT, and this shall increase to 812,244 MT by 2020/21.

b) Interventions costs

The overall cost of implementing interventions in beef and milk is UGX **399.66 Billion** over the next five years and averagely **UGX 75.9 Billion** annually. Key drivers of costs are Enhancing access to Superior Animal Genetic Resources, providing milk collection facilities, water for production and Provision of Heifers- Dairy Cattle.

c) Expected revenue

Full and effective implementation of livestock interventions shall raise the foreign exchange earnings from milk and milk products exportation from the current **USD 28.6 Million** or **UGX 94.4 Billion** to **USD 61.6 Million** or **UGX 203.4 Billion** by 2020/21. Similarly, the average earnings from meat stands at USD 8.01 Million and this shall increase to USD 2.255 Billion by 2020/21.

3.7 FISH AND FISH PRODUCTS

3.7.1 Situation Analysis

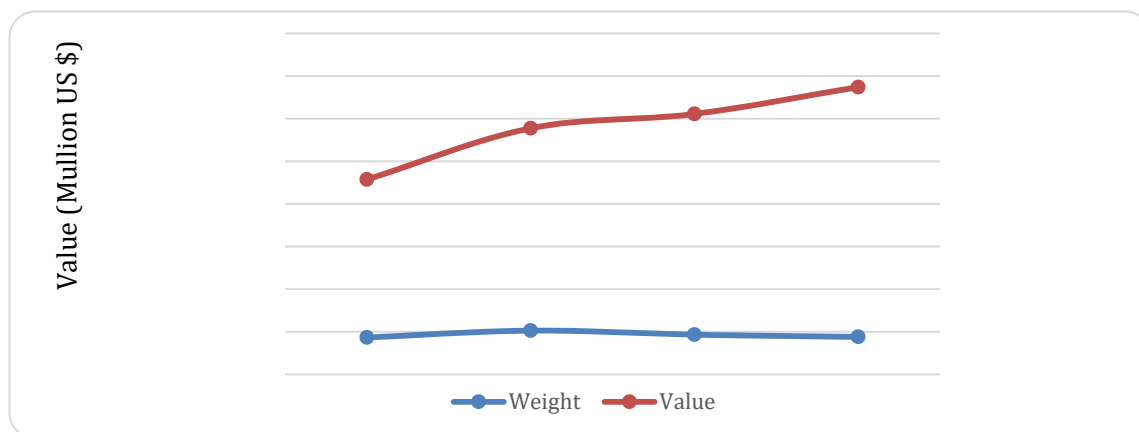
Fish is one of the high value commodities that contributes to economic growth in Uganda and represents 3% to National GDP and 12% to agricultural GDP. Of recent, the stocks of the commercial large fish species (Nile perch and Tilapia) to which this sector depends are on the decline leading to closure of **12 out of 21** fish processing plants. The Nile perch stock on L. Victoria alone reduced from 1.3 million tonnes in 1999 to **300,000 in 2008**, representing a decline in value of **US\$ 1.9 billion**.

The current fish production at 419,250 tons does neither meet the demand nor equate to the production potential. Aquaculture, which is supposed to bridge the above gaps, also remains subsistence despite the bigger potential in terms of favorable condition both on land and aquatic systems. The processing and handling for the small pelagic fish that constitute over 60% of the total catches still remains poor with high post-harvest losses and financial loss of US \$1.5 Million (Shs 3.8 billion) value added products

The value of informal regional trade in fish increased from US\$ 38.4 million in 2005 to a peak of **US\$ 56.4 million in 2008** but decreased to US\$ 33.1 million from a quantity of **21,000MT in 2013**. The bulk of this trade is illegal dealings in undersize fish.

Fish exports to overseas markets increased from 1,664 tons valued at US \$ 1.4 million in 1990 to a peak of 36,615 tons valued at US\$ 143.6 million in 2005 but decreased 17,597 tons worth US\$ 134.791 million by 2014. Fish exports to international markets of Nile perch products currently stands at 17,597 tons valued at US\$ 134.791 million in 2014 compared to 18.558mt valued at 113.933 million dollars in 2013 (Chart 1). This reflects a decline in tonnage but increase in value of export mainly attributed to the increased exports of the highly valuable fish maws.

Figure 3: Fish Export trends from 2011 to 2014



The main challenges identified in fisheries are the declining fish stocks and economic losses along the value chain. Other bottle necks to investing in fisheries include high start-up capital for aquaculture investments coupled with lack of quality fish feeds and seed. The existing institutional arrangement together with outdated policy and regulatory frameworks over a very dynamic and evolving fishery, over fishing, uncoordinated enforcement of regulations in the sector remains a bottleneck to investment in fisheries in Uganda. The poor harvesting and postharvest handling and processing practices; lack of value addition; and expansion of regional market trading in immature fish is also a challenge.

3.7.2 Strategic Interventions/Game changers for Fish and Fish Products

The 4 key areas for investment and export development are proposed under fish and fish products, these are: Monitoring, Control and Surveillance (MCS), stock enhancement and conservation to rebuild the depleted stocks of Nile Perch for international export, Aquaculture development, Value addition and marketing of fish and fishery products while ensuring quality assurance and safety as medium and long-term game changers, Institutional changes and strengthening to create a robust and self-sustaining institution for fisheries management considering the high value productiveness of the sector.

1) Strengthening and enforcement of Monitoring, Control and Surveillance (MCS), stock enhancement and conservation to rebuild the depleted stocks of Nile Perch for international export.

- a) Effective and coordinated enforcement by the National Fisheries Task Force (NFTF) through equipment with tools for effective regulation of fisheries laws.
- b) Fish seed for stocking water bodies and enhancing fisheries production
- c) Fishing Vessel Identification Plates (FVIP) for regulating entry into fishing
- d) Electronic and mobile system for licensing and quality assurance
- e) Capacity building for co management structures
- f) Control of the new breed of weed on Lakes Albert , Kyoga and Albert Nile
- g) Identification and protection of fish breeding areas and fish nursery grounds

2) Aquaculture development

- a) Provide quality inputs and facilitate access to infrastructure for aquaculture production including, cage farming materials (cages, pens), live fish seed transport trucks and equipment, and operationalization of existing fish hatcheries
- b) Review of the VAT on aquaculture inputs
- c) Institute EAC regional measures to protect the infant aquaculture industry from the low value/poor quality exports from China
- d) Acquisition and securing of land for commercial farmers, nucleus farmers and aquaculture parks for public private investments and research

- e) Research laboratory equipment for aquaculture and fish health centers and genetic improvement of Tilapia.
 - f) Live fish marketing facilities in key supermarkets
- 3) Value addition and marketing of fish and fishery products while ensuring quality assurance and safety as medium and long-term game changers**
- a) Ensure availability and access to fish handling and value addition facilities,
 - b) Operationalization of existing fish landing sites at Buyende, Kagwara for improving fish handling
 - c) Provide landing site storage facilities e.g. BMU stores, BMU cooling storage facilities, Co-operative storage/transport facilities
 - d) Ensure quality assurance in the upstream and Provide clean water and sanitation facilities.
 - e) Address constraints and challenges at Post-harvest handling of fish along the value chain
- 4) Institutional changes and strengthening to create a robust and self-sustaining institution for fisheries management considering the high value productiveness of the sector**
- a) Review the Fish Act to create an appropriate institution for fisheries management
 - b) Revitalize the co management structures

3.7.3 Mode of implementing interventions for Fish and Fish Products

- MAAIF and the Directorate of Fisheries Resources (DFR) through the Aquaculture Unit will coordinate the implementation. These will be responsible for the day to day execution of aquaculture activities and preparation of reports and technical documents.
- The Directorate of Fisheries Resources will further work closely with the Local Governments, fish farmers and farmer organizations, feed and fry producers and extension service providers, Non-Government Organization and Community Based Organizations. Other key players along the value chain include input suppliers, NEMA and Directorate of Water Resource, NAFIRRI and Training Institutions.
- To strengthen monitoring, surveillance and control, a National Fisheries Task Force will be formed and operationalised in the first financial year of the action plan. MAAIF will coordinate this intervention through the office of the Directorate of Fisheries.
- The Ministry of Agriculture, Animal Industry and Fisheries with its affiliated Agencies and key stakeholders will spearhead the implementation of these actions.

Table 20: Costed Interventions/Game changers for Fish and Fish Products

Interventions	Output targets	Category and Budget FY 15/16	2015/16 (BN)	2016/17 (BN)	2017/18 (BN)	2018/19 (BN)	2019/20 (BN)	Total(BN)	Public	private
1. Strengthening the Monitoring, Control and Surveillance (MCS) System, stock enhancement and conservation to rebuild the depleted stocks of Nile Perch for international export.										
Operationalize the National Fisheries Task Force (NFTF) (1 st Year urgent and continuous)	Increase Nile perch production from 225,000MT to 287,163MT Increase production of Small Pelagic Fishes from 237,000MT to 261,667MT	Fisheries regulation is allocated UGX 3bn under the fisheries regulation department (recurrent budget)	1	2	2	1.7	1.5	8.2	MAAIF	UFPEA, Co management Institutions
Fish seed for stocking water bodies and enhancing fisheries production (1 st Year and continuous)			2	1	1	1	1	6	MAAIF URA LVFO LGs	
Fishing Vessel Identification Plates (FVIP) for regulating entry into fishing (1 st Year and continuous)			1	0.8	0.8	0.5	0.5	3.6		
Electronic and mobile system for licensing and quality assurance (1 st Year urgent and continuous)			0.2	1	0.25	0.25	0.25	1.95		

Equipment and tools for effective regulation of fisheries laws (2 nd 3 rd Years)			0	1	0.5	0	0	1.5	MAAIF LVFO	
Capacity building for co management structures (1 st Year and continuous)			0.9	0.5	0.3	0.3	0.3	2.3	MAAIF LVFO	Private operators
Control of the new breed of weed on Lakes Albert , Kyoga and Albert Nile (1 st Year and continuous)			0.9	0.9	0.5	0.5	0.5	3.3	MAAIF/ DFR LGs	CBO LMOs
Identification and protection of fish breeding areas and fish nursery grounds (1 st Year urgent and continuous)			1.2	1.0	0.5	0.5	0.5	3.7	MAAIF/ DFR LGs	CBO LMOs
Establishment of s specialized fisheries enforcement agency (4 th and 5 th Years)			0	0	0	5	9.5	14.5	MAAIF (DFR)	UFPEA Co- management institutions
Sub-Total MCS Annual			7.2	8.2	5.85	9.75	14.05	45.05		
2. Aquaculture Development										
Provision of quality inputs (1 st Year and is urgent for first 3 years)	Increase aquaculture fish production from 100,000MT to 155,197MT	There is UGX 3BN for the department of aquaculture in MAAIF UGX 1BN for	1.17	2.92	1.44	0	0	5.53	Public	Private

		fisheries infrastructure								
Provide infrastructure for aquaculture production including operationalization of 4 existing fish hatcheries (2 nd Year but continuous)			0	2	4.5	0.5	0.5	7.5	MAAIF	
Put measures as a region to protect the infant aquaculture industry from the low value/poor quality exports. (2 nd year and continuous)			0	0.1	0.1	0.1	0.1	0.4	MAAIF MTIC	
Acquisition and securing of land for commercial farmers, nucleus farmers and aquaculture parks for public private investments and research (1 st Year and 2 nd year)			2.0	1.0	0	0	0	3	MAAIF MTIC	Private operators
Provision of live fish seed transport trucks and equipment (2 nd Year and continuous)			0	0.5	0.5	0.5	0.5	2.0	MAAIF	
Research laboratory equipment for aquaculture and fish health centers (2 nd Year and continuous)			0	0.8	0.5	0.5	0.2	2	MAAIF/ DFR	Private operators
Cage fish farming materials (cages, pens			0.6	0.5	0.3	0.3	0.3	2.0	MAAIF	Private operators

etc) (1 st Year urgent and continuous)										
Genetic improvement of Tilapia (1 st Year but continuous)			0.9	0.9	0.5	0.5	0	2.8	NaFIRR I Universities	
Live fish marketing facilities in key supermarkets(1 st Year but continuous)			0.2	0.1	0.1	0.1	0.1	0.6	MAAIF UEPB	UFPEA, Private operators
Sub-Total Aquaculture			4.87	8.82	7.94	2.5	1.7	25.83		

3. Strengthening Value addition and Marketing of fish and fishery products while ensuring quality assurance and safety as a medium and long-term game changers

Fish handling and value addition facilities, (1 st year and continuous)	Increased fish export targets to international markets from US\$86 million to US\$200 million	There is also 1.34BN under the development budget for promotion of sustainable fisheries	1.53	1.655	1.87	1.91	1.57	8.535	Public	private
Operationalisation of existing fish handling infrastructure for improving fish handling (1 st three years)			1	1	1	0	0	3.0	MAAIF	Private operators, UFPEA
Promote formation of Co-operatives/SACCOS			0.4	0.6	0.2.5	0.2.5	0.2	1.7	MAAIF	Private operators, UFPEA
Quality assurance in the upstream: Provision of clean water and sanitation facilities (1 ST Year and continuous)			0.5	1	1	1	0.5	4.0	MAAIF NFTF BMUs LMOs	Private operators, UFPEA
Post-harvest handling of fish along the value chain(1 ST Year and continuous)			0.6	0.6	0.5	0.3	0.3	2.3	MTIC DiFR LGs	Private operators, UFPEA

Facilitating the Accreditation of the Uganda Fisheries Lab (1 st year and continuous)			1.08	1.08	1.15	1.22	1.22	5.75	MAAIF	
Sub-Total Value addition			5.11	5.935	5.77	4.68	3.79	25.285		
4. Institutional changes and strengthening to create a robust and self-sustaining institution for fisheries management considering the high value productiveness of the sector										
Review the Fish Act to create and an appropriate institution for fisheries management (1 st year and continuous)	Reduced illegalities by 80% throughout the five years		0.1	0.5	0.5	0	0	1.1	Public	Private
									MAAIF MoJCA LVFO	UFPEA Fishers Associations Fish Farmers Associations
Revitalize the co management structures (1 st year and continuous)			1	1	1	1	1	5	MAAIF	
Institute and Support the National Fisheries Task Force (NFTF)/Specialized Fisheries Enforcement Agencies Lab (1 st year and continuous)			0.4	0.4	0.4	0.4	0.4	2	MAAIF	
Sub-Total Institutional strengthening			1.5	1.9	1.9	1.4	1.4	8.1		

Table 21: Summary of Costed Fish and Fish Products Game Changers

Game changers	Output targets	Year1 BN	Year2 BN	Year3 BN	Year4 BN	Year5 BN	Total BN	Public	private
Monitoring, Control and Surveillance (MCS), stock enhancement and conservation to rebuild the depleted stocks of Nile Perch.	As in the detailed costing	7.2	8.2	5.85	9.75	14.05	45.05	100%	0
Aquaculture development	As in the detailed costing	4.87	8.82	7.94	2.5	1.7	25.83	100%	0
Value addition and marketing of fish and fishery products while ensuring quality assurance and safety.	As in the detailed costing	5.11	5.935	5.77	4.68	3.79	25.285	80%	20%
Institutional changes and strengthening to create a robust and self-sustaining institution for fisheries management.	As in the detailed costing	1.5	1.9	1.9	1.4	1.4	8.1	100%	0
Grand Total		18.68	24.855	21.46	18.33	20.94	104.265		

Table 22: Projected Fish production targets (MT)

Component	Year					
	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Promoting Recovery of Large Commercial Species	225,000	236,250	248,063	260,466	273,489	287,163
Developing the Fishery of Small Pelagic Fishes	237,000	241,740	246,575	251,506	256,536	261,667
Promoting Commercial Aquaculture in Uganda	100,000	105,000	110,250	115,763	121,551	125,197
Total production	562,000	582,990	604,887	627,734	651,576	674,028

3.8 TOURISM AND TOURISM PRODUCTS

3.8.1 Situation Analysis

Uganda Vision 2040 identifies tourism as one of the opportunities that should be harnessed to propel Uganda to a middle-income status. Tourism was designated as a primary growth sector in the National Development Plan.

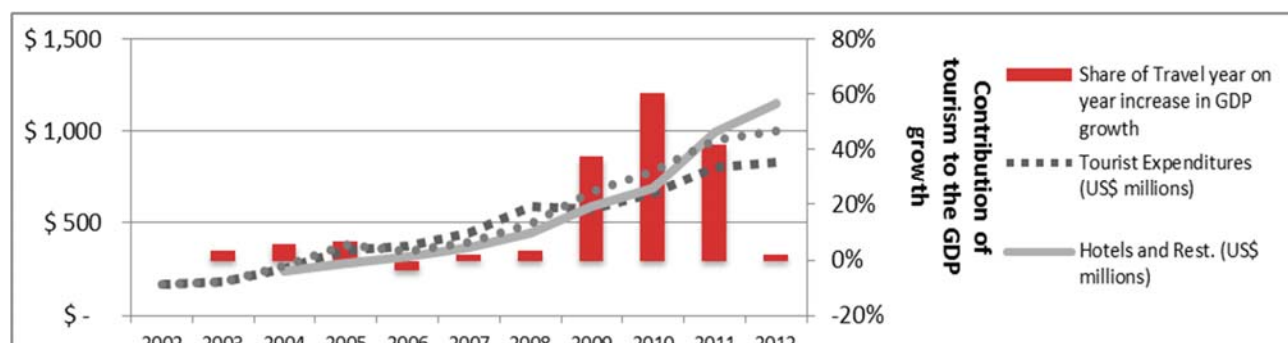
Currently, the sector is characterised by a narrow product diversity which is mainly a nature based in appeal, where the main attractions are the natural parks and protected areas each with unique attractions such as gorilla tracking, mountain climbing and game viewing. Uganda is one of the biodiversity rich countries in the world with 18,783 recorded species. Uganda, besides the unique and unusually rich assemblage of ecosystems and diversity of habitats is host to:

- 11% of global recorded species of birds (which is 505 of Africa's bird species richness)
- 54% of the world's remaining population of mountain gorillas
- 19% of the African amphibians
- 14% of the reptile species
- 8% of the global mammal diversity (which is 39% of Africa's mammal richness)

The sector is also largely dominated by foreign tourists. Uganda's inbound visitor numbers have almost constantly grown over the past 20 years to reach 1.206 million visitors in 2013 (7.9% of GDP). The contribution of tourism to the balance of payments shows a consistent positive trend for the last 10 years and is indicative of the hotel and Restaurant revenues being higher than international tourist expenditure. This can be explained by an increase in the number of Ugandans going to restaurants and attending conferences in hotels. It also illustrates a two-fold increase in revenues from one of the key segments of the Uganda tourism sector namely the Hotel & Restaurant sub-sector over the past 8 years.

Presently there is no sustained destination marketing in key tourism source markets evidenced by a weak brand image internationally, and there are limited direct flights to Entebbe International Airport from key source markets due to lack of a national air carrier, which would also be used as one of the tools to market the country as tourist destination. In addition, there are limited tourism skills, especially in the hospitality industry, and low motivation of human resources which impact negatively on the quality of service delivery.

Figure 4: Contribution of tourism to Uganda’s balance of payments in Million USD (2002-2012)



Source: *Tourism Issues Paper, 2014*

In sub Saharan Africa competitive index, Seychelles ranks first followed by Mauritius, while South Africa is third Kenya ranks eighth. The table below describes the destination competitive positioning of Africa’s top five destinations and the ranking in the East African destination.

Table 23: Competitive positioning of Africa’s top five destinations and their ranking

<i>Africa</i>	<i>Regional rank in Africa</i>	
<i>Seychelles</i>	<i>1</i>	<i>Kenya</i> <i>8</i>
<i>Mauritius</i>	<i>2</i>	<i>Rwanda</i> <i>9</i>
<i>South Africa</i>	<i>3</i>	<i>Tanzania</i> <i>12</i>
<i>Cape Verde</i>	<i>4</i>	<i>Uganda</i> <i>13</i>
		<i>Burundi</i> <i>30</i>

Source: *WTTC (2013)*

Improving the destination competitiveness of Uganda therefore requires addressing the key constraints/game changers.

3.8.2 Strategic Interventions / Game Changers for Tourism and Tourism products

In order to realize (maximize) Uganda’s tourism potential, the following interventions will be undertaken over medium term:

1) Marketing and promotion

- i) Undertake aggressive marketing through establishing sales representatives in the key source markets.
- ii) Build upon the ‘Pearl of Africa’ brand and convert it into an established and recognizable tourism brand which is consistently used by Uganda’s tourism stakeholders
- iii) Develop the domestic market in Uganda by promoting events, festivals, day trips and weekend breaks.
- iv) Promote regional leisure and MICE travelers to Uganda’s key attraction sites and facilities.

2) Product development

Although Uganda is believed to be rich in attractions (nature, historical and cultural), most of them are not well developed and hence not very attractive to generate lasting experience, engage the tourists for longer period in order to extend stay and spending. The attractions need to be developed, packaged and positioned in a manner that can appeal to tourists

- i) Redesign the source of the Nile in Jinja to an international standard. The Source of the Nile is the most iconic feature of the destination Uganda, however, the site offers little visitor engagement due to the nature of facilities and services currently in place. The natural, cultural, social, historical and physical landscapes around the Nile are little exploited a factor largely responsible for the low average length of stay at the site. The Nile at Jinja is recognized as one of the world's best venues for rafting. It is this reason that prominent International figures like Prince William, Ginger Spice and Charlie Boorman have all visited the place. However the choice of other water-based activities (including cruises) at all price levels is still limited due to lack of fundamental tourism investments at the site.
- ii) Redevelop Namugongo Martyrs shrine and equip it with necessary amenities
- iii) Develop and ensure connection of the underutilized Eastern Route. Eastern Uganda is rarely visited, yet has considerable tourism potential. Kidepo Valley National Park (KVNP) offers quality wildlife viewing in a scenic, unspoiled atmosphere. Mt. Elgon National park (MENP) offers excellent opportunities for trekking, as well as world-class rock climbing and rappelling at Sipi Falls. Cultural opportunities along the route include the new Karamoja Culture Museum near Moroto, a Karamajong Village in the Pian-Upe Wildlife Reserve, and distinctive rock art in Kumi.
- iv) Promote home stays in the country
- v) Develop 6 regional Historical sites

3) Skills development

Tourism is people-centered and therefore the quality of service depends on the skills and training by the personnel involved in the value chain. The capacity of tourism workers has been repeatedly cited as a key growth constraint.

Targets

i) Market:

- Attain annual growth of 10% in arrivals of leisure and business tourists by 2019/20 in the core markets; Europe (UK & Germany) and America (USA & Canada).
- Promote and attain a 15% annual increase in regional leisure and MICE travelers to Uganda's key attraction sites and facilities by 2019/20.

- ii) Train 100 tourist operators in Utali College in Kenya annually
- iii) Develop a pool 500 professional trainers of trainer over 5 years

3.8.3 Implementation Framework for Tourism Products

- a. MTWA and UTB shall undertake:
 - i) The development of source of the Nile and Namugongo Martyrs shrine and equip it with necessary amenities. including Launch the source of the Nile Physical and development plans; Procure construction services of a viewing platform Procure construction services of a paved 1000 metres river line walk way;
 - ii) Conduct feasibility study for the requirements for establishment of home stays.
 - iii) Capacity building like training tourism operators, professional trainers of trainees and also provide business training and mentorship programmes for the enterprises
 - iv) Establishing sales representatives in the key source markets; Conduct a Destination awareness and perception survey in the core markets
 - v) (US, UK, Ger, Spain, SA, China, Kenya, Dubai); Develop domestic market by promoting events, festivals, day trips and weekend breaks.
- b. The private operators like UCOT, UTA, TUGAT and UNESCO shall also play a supporting role by providing services like accommodation for the tourists, training services and marketing and promoting Ugandan tourism products.

Table 24: Costed Interventions for tourism products

Game Changer 1: Product Development				Expected cost over 5 years' Time Frame						Actors	
Specific Actions	Output Target	Category	Budget FY 2015/16	Year 1 UGX Bn	Year 2 UGX Bn	Year 3 UGX Bn	Year 4 UGX Bn	Year 5 UGX Bn	Total UGX Bn	Public	Private
Launch the source of the Nile Physical and development plans	Increased Range and Quality of Tourism Products.	Project 1336 Development of the Source of the Nile. VF OP 060382	0.48	0.025	0.00	0.00	0.00	0.00	0.025	MTWA 70%	UTA 30%
Procure construction services of a paved 1000 metres river line walk way				0.00	0.600	0.00	0.00	0.00	0.600		
Procure construction services of a viewing platform				0.00	0.120	0.100	0.08	0.120	0.420		
Develop 2 informational and 10 directional signage facilities at the source of the Nile	Increased Tourism Investment			0.100	0.120	0.090	0.060	0.060	0.430	MTWA 50%	UTA 50%
Establish well developed marine transport and Access Route, procure construction services of the information Centre, procure construction services of toilet facilities at the Source of the Nile				1.90	1.3	1.15	0.921	0.500	5.771		
Redevelop Namugongo Martyrs shrine and equip it with necessary amenities.				6.626	6.626	6.626	6.626	6.626	33.13		
Promote Home stays: Undertake feasibility studies to determine the requirements and then determine the specific points of action.		Project 1337 Establishment of Regional Satellite Wildlife Conservation Education Centres in Uganda	5.0	0.250	0.00	0.00	0.00	0.00	0.250	UTB 80%	UCOTA 20%
										MTWA UTB 50%	UNESCO 50%

Total			5.48	8.91	8.77	7.96	7.69	7.31	40.64		
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Game Changer 2: Promote Skills Development in the Tourism Sector				Expected cost over 5 years' Time Frame						Actors	
Specific Actions	Output Target	Category	Budget FY 2015/16	Year 1 UGX Bn	Year 2 UGX Bn	Year 3 UGX Bn	Year 4 UGX Bn	Year 5 UGX Bn	Total UGX Bn	Public	Private
Train 100 tourist operators in Utali College in Kenya annually	Increased stock of human capital along the tourism value chains and Increased No. of Competitive Tourism Enterprises	Project 1336 Development of the Source of the Nile. VF OP 060354, HTTI	0.2	1.57	1.57	1.57	1.57	1.57	7.85	MTWA 100%	AUTO 50%
Develop a pool of 500 professional trainers of trainees			0.500	0.00	0.500	0.00	0.500	1.50	MTWA 50%		
Design capacity training programmes for enterprises along the value chains			2.5	0.010	0.010	0.010	0.00	0.0	0.03	MTWA 100%	
Support and Improve the capacity of Crested Crane Hotel Tourism Training Institute to reduce skills gap in the country		Programme 11 Wildlife Conservation VF OP 060353, UWTI	1.2	1.20	0.500	0.500	0.500	0.500	3.2	MoFPE D MTWA 100%	
Provide business training and mentorship programmes for the enterprises			0.100	0.00	0.100	0.00	0.100	0.30	MTWA 50%	UTA 50%	
Monitor and evaluate capacity growth of the enterprises			0.00	0.00	0.080	0.00	0.080	0.16	MTWA 50%	UTA 50%	
Enter into MOU with Utali to manager the HTTI				0.7	0.1	0.1	0.1	0.1	1.1		
Sub-Total			3.9	4.08	2.18	2.85	2.17	2.85	14.13		
Game Changer 3: Aggressive Marketing and Promotion of Tourism			Expected cost over 5 years' Time Frame	Actors							

Specific Actions	Output Target	Category	Budget FY 2015/16	Year 1 UGX Bn	Year 2 UGX Bn	Year 3 UGX Bn	Year 4 UGX Bn	Year 5 UGX Bn	Total UGX Bn	Public	Private
Establish sales representatives in the key source markets	Increased International Tourism Promotion and Marketing	Vote 022: Programme 09 VF 0603 VF OP 060306	0.54	1.31	0.00	1.31	0.0	1.31	3.93	UTB 70% UTB 70% MTWA UTB 50%	UTA 30% UTA 30% UTA 50%
Conduct a Destination awareness and perception survey in the core markets (US, UK, Ger, Spain, SA, China, Kenya, Dubai)				0.240	0.00	0.240	0.00	0.240	0.72		
Develop domestic market by promoting events, festivals, day trips and weekend breaks.	Increased Domestic Tourism Promotion			0.300	0.150	0.200	0.100	0.200	0.95		
Promote regional leisure and MICE travelers to Uganda's key attraction sites and facilities	Increased regional Tourism Promotion	Vote 117: Programme 01 VF OP 065301	6.74	0.150	0.095	0.090	0.100	0.120	0.555	MTWA UTB 50% UTB 80%	UTA 50% TUGAT A 20%
Promote Uganda over the Internet media (Web adverts in 5 major Sites)	Increased Tourism Promotion			0.100	0.100	0.100	0.100	0.100	0.5		
Organize Road Shows in key markets				0.080	0.090	0.100	0.110	0.120	0.5	UTB 50%	UTA 50%
Sub-Total			7.28	2.18	0.435	2.04	0.41	2.09	7.155		
Total				14.381	11.281	12.766	10.167	12.146	61.925		

3.9 ICT PRODUCTS

3.9.1 Situational Analysis

Information and Communication Technology (ICT) services form part of Uganda's export products. These include computer and communications services (telecommunications and postal and courier services) and information services (computer data and news-related service transactions). In FY2012/13, the sector grew by 21.1% making it one of the fastest growing sectors in the economy. The sector has a potential to grow much faster given huge level of unmet demand especially in the area of data and IT solutions development for e- Commerce and e-Government.

Using the postal and telecommunications revenues as a proxy for ICT in the national accounting, ICT contributed an average of 2.4% to GDP over the last five years. According to World Bank (2012), exports of ICT services in 2013 reached the 400 million USD mark, forming 17 % of total service exports. IT services alone were estimated to represent 2.8% of Uganda's services exports, with a total value of US \$2 billion in 2012. However, Uganda remains a net importer of ICT goods and services, a situation that debilitates her balance of payments. Import statistics by URA estimates ICT imports⁷ in 2010 at USD 358.8m in addition, the World Bank, 2012 report estimates the share of Uganda's ICT services in total goods imports at 7.42 % in 2010.

Based on rapid analysis of Uganda's ICT subsector opportunities and challenges, capacities and prospects, the following three have been selected as the key drivers for revitalizing Uganda's exports;

- i. Business Process Outsourcing and IT Enabled Services (ITES)
- ii. Software development for export
- iii. ICT hardware assembly

The selected enterprises are inter-related and inter-dependent and the value chain consists of five key activities namely research and development, design, production, logistics and marketing.

3.9.2 Strategic Interventions / Game Changers for ICT Products

1. Business Process Outsourcing (BPO) and IT Enabled Services (ITES)

The priority strategies and interventions to drive export potential in this area and generate income and employment are as below;

- i) Lower the cost of doing Outsourcing business in Uganda to enhance Global competitiveness.

⁷The key Information and communication technology goods imports include telecommunications, audio and video, computer and related equipment; electronic components; and other information and communication technology goods but excluded software.

- ii) Develop human resource capacity to support the outsourcing business.

2. Software Development for Export/Local Content Development

This will be achieved through promoting development and use of domestic ICT products

Interventions:

- i) Support ICT Research, Innovation and Development for local content development.
- ii) Support Commercialization of IT solutions and prototypes
- iii) Promote use of locally produced IT solutions.
- iv) Globally promote and market use of locally produced IT solutions.

3. ICT Hardware Assembling

This will be achieved through promoting production and use of low-cost locally assembled devices in collaboration with the Private Sector, specific Interventions will include:

- i) Deliberate lobbying of multi-national companies to set-up ICT manufacturing plants in Uganda;
- ii) Build national capacity in assembling and fabrication of ICT equipment to international standards.
- iii) Promote Export Free Zones & Economic Zones for ICT.

3.9.3 Implementation framework for ICT

- NITA-U will be responsible for increasing Ugandan BPO/ITES SME'S participation in regional and international market. This will be through developing capabilities of SMES and creating an enabling environment for them to thrive. BPOA and the private sector will be key players in ensuring the takeoff of IT/ITES exports.
- UIA will also play a major role in putting Uganda's ITES/BPO industry on the map to attract international companies set up local ICT hardware manufacturing plants.

Table 25: Costed ICT Interventions/Game Changers

Outsourcing (BPO and ITES)									
1. Promote and Lower the cost of doing Outsourcing business in Uganda to enhance global competitiveness.									
Intervention	Actions	Output target	Year 1 BN	Year 2 BN	Year 3 BN	Year 4 BN	Year 5 BN	Total BN	Actors
Provide incentives to BPO operators to enable them compete globally.	Connectivity of outsourcing businesses to high speed internet to promote e-commerce	BPO companies connected to the NBI	3.2	3.2	3.6	3.6	4.0	17.6	NITA & PPP
Promote Uganda internationally as a preferred BPO destination	Establish an ICT / BPO Park (Secure land of appropriate size and location, design and develop the ICT park through PPP) to lower costs of doing business.	ICT Park established	1.6	2.76	3.3	3.8	2.00	13.46	
	Launch and mount an international marketing campaign for Uganda as ICT hub	An international marketing campaign launched	0.5	0.5	0.5	0.5	0.5	2.5	
	Host regional and international BPO conferences to show case Uganda's progress and enable learning from best practices	5 BPO conferences held	0.25	0.25	0.25	0.25	0.25	1.25	
2. Develop human resource capacity to support the outsourcing business.									
Create Pool of BPO competencies to drive domestic competitiveness.	Develop human resource capacity through training on the basic skills of outsourcing business		0.55	0.55	0.6	0.65	0.65	3.0	NITA and the private sector
	Review and modify the ICT curriculum in institutions of learning to match the needs and demand of the outsourcing operators.		0.1	0.1	0	0	0	0.2	NITA
	Support attachments of Ugandans with the world class BPO firms		0.2	0.2	0.2	0.2	0.2	1.0	NITA
Sub Total			6.4	7.56	8.45	9	7.6	39.01	
Game Changer 2: Software Development for export/Local Content Development									

Promote development and use of domestic ICT products									
Intervention	ions	Output target	Year 1 BN	Year 2 BN	Year 3 BN	Year 4 BN	Year 5 BN	Total BN	Actors
Support ICT Research, Innovation and Development for local content development.	Establish a Research & Innovation fund.	A Research & Innovation fund established	2.0	2.0	3.0	3.0	3.5	13.5	
	Establish an ICT Innovation Centre of Excellence	An ICT Innovation Centre of Excellence established	1.0	1.0	1.2	1.0	0.8	5.0	
	Set up regional multi-purpose public ICT innovation hubs	5 regional multi-purpose public ICT innovation hubs set up	1.0	1.5	1.5	2.0	2.0	8.0	
Support Commercialization of IT solutions and prototypes	Support SMEs with certification & standardization and patenting of local products	ICT standards developed and disseminated	0.8	0.8	0.9	1.0	1.1	4.6	
Globally promote and market use of locally produced IT solutions.	Application of consistent brand messaging across multiple marketing channels, using different communication methods that reinforce each other.		0.5	0.5	0.5	0.5	0.5	2.5	
Sub Total			5.3	5.8	7.1	7.5	7.9	33.6	
Game Changer 3: ICT Hardware Assembling									
Promote production and use of low-cost locally assembled devices in collaboration with the Private Sector									
Intervention	Actions	Output target	Year 1 BN	Year 2 BN	Year 3 BN	Year 4 BN	Year 5 BN	Total BN	Actors
Deliberate lobbying of multi-national companies to set-up ICT manufacturing plants in Uganda	Provide internationally competitive incentives for multinational companies to establish plants in Uganda	3 Plants established Carry out skills set study for IT&ITES	1.5	1.5	1.5	1.5	0.15	7.5	UIA & PPP

Build national capacity in assembling and fabrication of ICT equipment to international standards	Establish specialized ICT laboratories to support hardware assembling.	ICT specialized laboratories established	1.3	1.4	1.5	1.6	1.6	7.4	NITA & PPP
	Support SMEs with certification & standardization of local products	Certified and standardized local ICT products	0.6	0.6	0.7	0.8	0.8	3.3	NITA
	Support SMEs in research, design, development of proof of concepts and prototype for commercial production by multinational partners		2.5	2.5	2.5	2.5	2.5	12.5	NITA
Promote Export Free Zones & Economic Zones for ICT	Finance private Export Free Zones		0.5	0.5	0.5	0.5	0.5	2.5	UEPB
	Set up Public Export Free Zones & gazette ICT lots within the public export Free zones.		1.0	1.1	1.1	1.2	1.5	5.9	UEPB
Internationally market the locally assembled products	Application of consistent brand messaging across multiple marketing channels, using different communication methods that reinforce each other.		0.5	0.5	0.5	0.5	0.5	2.5	NITA
Sub Total			7.9	8.1	8.3	8.6	7.55	41.6	

Table 26: Summary of ICT costed game changers

Activity	Year 1 BN	Year 2 BN	Year 3 BN	Year 4 BN	Year 5 BN	Total BN
Outsourcing (BPO and ITES)	6.4	7.56	8.45	9	7.6	39.01
Software Development for export/Local Content Development	5.5	6.1	7.5	7.9	8.4	35.4
ICT Hardware Assembling	7.9	8.1	8.3	8.6	7.55	40.45
Total	19.8	21.76	24.25	25.5	23.55	114.86

3.10 MINERALS & MINERAL PRODUCTS (IRON ORE AND DIMENSION STONES)

3.10.1 Situational Analysis

Uganda is endowed with a number of minerals notably Iron ore, Copper, Phosphates, Dimension stones, limestone, vermiculate, uranium, bentonite, Tin, Tungsten, Tantalum, Gold etc. The commercial viability of most of these minerals has not been established due to lack of exploration capacity in terms of infrastructure, human resources, and testing laboratories.

The demand for Iron and steel in the EAC region is enormous and currently total imports into the region amount to 1.7 billion. None of the EAC states processes iron ore to steel rendering the entire region a net importer. Uganda has significant volume of iron ore viable for exploitation estimated at over 500 million MT in various deposits around the country; (155 Million MT at Muko, Kabale; 200 million MT at Buhara in Kabale District, 55 million MT at Butologo in Kanungu, 45 million MT at Sukulu, Tororo District; 41 million MT at Bukusu, 8 million MT tonnes in Bufumbira, Kisoro; and 12 million MT in Mugabuzi, Mbarara), Geological Survey and Mines Department.

According to the International Trade Centre data (2015), Uganda's exports of iron and steel products amount to about US\$ 86.597 million, exported to mainly the EAC, DRC and Sudan. Meanwhile imports of Iron and steel products to Uganda are amounted to US\$279.557 million creating a trade deficit of US\$192.960.

Table 27: Country of origin of Uganda iron/steel imports and Uganda iron steel exports

Country	Imported in 2012 (USD, 000)	Importers	Exported value in 2012 (USD, 000)
South Africa	71,150	Sudan	26,989
India	61,102	DRC	25,229
Kenya	41,915	Rwanda	10,438
China	18,098	Burundi	8,923
Turkey	17,512	Tanzania	8,384
Japan	9,542	Kenya	3,271
Ukraine	3,709		
United Arab Emirates	3,508		

Source: ITC World Trade Statistics

Table 27: Regional Iron Steel demand 2014

Country	Value of iron steel imports (USD)
Rwanda	82,625,000
Uganda	251,053,000
Sudan (North + South)	221,996
Tanzania	384,470,000
Kenya	765,025,000
Total	1,705,169,000

Source: ITC – Trade Map (2015)

Uganda's current demand for iron and steel products is worth about USD 279.557 million. The world market prices for crude steel ranges from USD 650-750 per ton. By taking an average price of USD 700 for crude steel, Uganda's current demand for crude steel can be taken to be approximately 400,000 tons annually. In addition, the regional crude steel requirement stands at 1,881,050 tons.

Despite the above, Uganda and the entire EAC region lack a downstream iron and steel production plant, to process raw iron ore into iron and eventually steel. Establishment of an iron and steel production plant to meet Uganda and the region's demand will benefit the country in terms of forex savings and creation of a number of jobs along the iron and steel value chain. (Table 4)

3.10.2 Key Interventions to develop the Minerals Industry

(a) Short to medium interventions

i) Institute appropriate institutional and Regulatory Frame work

In order to limit excessive speculation by licensees on acreage and transfer of mineral rights with no substantial work done; the following regulatory framework will be implemented:

- Review of all mineral rights and streamline award of licenses
- Introduce competition as opposed to first come first serve basis of consideration
- Put in place stringent quarterly performance indicators for licensees and ensure no transfer of licenses take place when no adequate work programme is complete
- Non-compliant licensees should not be granted renewal
- In case of sale of exploration licenses, government will approve of the sale price
- Separate granting of mineral rights from monitoring of compliance.
- Establish a national mineral exploration and mining company

- ii) **Conducting a feasibility study on developing a comprehensive iron and steel industry**
- iii) **Put in place appropriate Infrastructure for the Iron ore industry**
 - Put in place a mineral analysis laboratory and mining equipment.
 - Incorporate small mining projects to rural electrification.
- iv) **For Dimension Stones** – provide dedicated financing for the sector in addition to linking rural electrification to small mining projects.

(b) In the Long Term,

- i) **Fast track the establishment of a comprehensive iron and steel processing plant (Long term) ⁸**

There will be need to fast track the establishment of the factory as a key game changer in the industry.

⁸ A summary of the requirements of establishing an iron and steel plant and the benefits that will accrue are annexed

3.11 OIL AND GAS

3.11.1 Situation Analysis

Uganda is in the process of commercializing the discovered oil and gas resources. The government has put in a place a robust fiscal framework to manage oil and gas revenues. It is important to ensure that the oil and gas potential to boost investment and export development is maximized through: Efficient exploration and development activities, efficient pricing of oil and its products and appropriate exercise of the legal and regulatory frame works.

This must be done to ensure that the country's oil and gas and its accompanying products are competitive nationally, regionally and internationally. It is the goal of the country, as reflected in the National Oil and Gas Policy of 2008, to use the country's oil and gas resources to contribute to early achievement of poverty eradication and create a lasting value to society.

Commercially viable crude oil reserves in the Albertine Graben were discovered in 2006. To date 21 discoveries have been made and evaluated. The reserves in place are estimated at 6.5 billion barrels of oil with a recoverable volume of 1.4 billion barrels. One of the measures to achieve the key objective of the National Oil and Gas Policy (2008) of reducing poverty is to commercialize the existing oil and gas reserves.

Transformation of the Ugandan economy into a modern one can be achieved through various strategies that harness the potential of resources that Uganda has of which oil and gas is one. Value addition is a key driver of increased foreign exchange. In the oil and gas industry in Uganda, value addition is to be executed in the form of refining.

Following the selection of the lead investor RT-Global Consortium, plans are under way to construct a refinery that will have an initial capacity of 30,000 BOPD that will eventually be ramped up to 60,000 BOPD to ultimately 120,000 BOPD. The benefits of refining domestically which include boosting foreign earnings, reduction in foreign exchange loss through local petroleum products replacing imported products as well as linkages with other sectors pave way for improving the Balance of Payments position and economic growth and development.

Critical investment in supporting infrastructure to help the refinery become a reality is crucial. The critical investment support necessary includes:

- a) Realization of the government equity contribution of approximately U.S.D 560m to the refinery project
- b) Operationalization of key institutions, the National Oil Company and the Petroleum Authority of Uganda to commercially manage the governments share of the oil and provide the necessary regulatory framework for sustainability.

- c) Capacity building of nationals to ensure fair and equitable participation in the oil and gas industry

The export development strategy explores the key strategies that will fast track the commercialization of oil and gas resources in Uganda through sustainable exploitation of oil and gas resources in order to bring immediate and long lasting benefit to the country.

3.11.2 Strategic Interventions for Oil and Gas

There are five key strategic interventions identified in oil and gas as listed below:

- 1) Licensing of new exploration blocks
- 2) Infrastructure Development
- 3) Operationalisation of new institutions
- 4) Implement the Local Content Policy and the Workforce Skills Development Strategy & Plan
- 5) Infield facilities for field development (pipelines, CPFs and wells)

These are further elaborated as in table 31 indicating the specific activities to be done under each and the responsibility centres.

Table 28: Strategic Interventions for Oil and Gas

Strategic Actions	Specific activities	Responsibility
1. Licensing of new exploration blocks		
Licensing of new exploration blocks	<ul style="list-style-type: none"> • Establishment of data room • Procurement of software for data interpretation and management • Support bid evaluation • Capacity building on various oil related disciplines • Fast tracking Production Sharing Agreement negotiations 	MEMD
2. Infrastructure Development		
Refinery Development	<ul style="list-style-type: none"> • Fast tracking the establishment of an Airport at Kabaale • Realize Government contribution to refinery project • Making the pipe line from Kabale to Buloba a reality(making the project bankable) and fast tracking financing and the construction • Finalize and implement the Master plan and Physical Development Plan of the Albertine Graben. 	MEMD
Crude export pipeline	<ul style="list-style-type: none"> • Fast track the bankability of the Uganda tanga Utility Service line (piple line,electricity line as well as express southern corridor road) • Accelerate the negotiations and financing arrangements for the Uganda Tanga service line including construction 	
3. Strengthening of new institutions		

Strengthening of new Institutions	<ul style="list-style-type: none"> Strengthen the Petroleum Authority of Uganda to enable it deliver its mandate effectively and efficiently Strengthen the National Oil Company to enable it deliver its mandate effectively and efficiently 	
4. Implement the Local Content Policy and the Workforce Skills Development Strategy & Plan		
	<ul style="list-style-type: none"> Operationalize the Local content Policy for oil and gas Operationalize the Workforce Skills Development Strategy & Plan. 	
5. Infield facilities for field development (pipelines, CPFs and wells)		

Table 29: Oil and Gas Costed Interventions

Activity	2015/16 UGX BN	2016/17 UGX BN	2017/18 UGX BN	2018/19 UGX BN	2019/20 UGX BN	Total UGX BN
Licensing of new exploration blocks	1.70	0	0	0	0	1.70
Infrastructure Development a. Refinery Development and Crude export pipeline	0	881.8	2.00		883.8	883.80
Strengthening of new institutions	13.00	50.00	54.00	54.00	55.00	226.00
Implement the Local Content Policy and the Workforce Skills Development Strategy & Plan	0.4	0.4	0.4	0.4	0.4	1.6
Total GoU	13.40	932.20	56.40	54.40	55.40	1,111.40
Total private sector: Infield facilities for field development (pipelines, CPFs and wells)⁹	4,688.00	6,411.0	8,163.0	8,719.00	10,810.0	38,791.0
Overall Total	4,701.4	7,343.2	8,219.4	8,773.4	10,865.4	39,902.4

⁹ Oil Company costs: upstream oil companies (Total, Tullow & CNOOC)

3.11.3 Mode of Implementation

- There is need to strengthen the current institutional framework to facilitate the promotion and exploration of oil and gas. There is need to enhance this framework with a view of enabling it to handle the continuing exploration effort together with the development and production of oil and gas. This also requires that an institutional framework be put in place to handle the refining of oil, conversion of gas to valuable products like ammonia, together with the transportation and storage of oil, gas and their byproducts.
- Government should thus develop all the relevant legislation; strengthen petroleum administration, licensing, monitoring and administration of compliance as well as ensuring the right national participation in petroleum operations. Government should ensure that petroleum revenues are used to build durable capacity through education, development of infrastructure and a competitive economy.
- The private sector especially the oil companies should sustainably explore, develop and produce the country's oil and gas resources so as to maximize national benefits. In order to achieve this, the companies require highly competent staff, financial strength, ability to manage risk and establish good working environment with Government.

CHAPTER FOUR: OVERALL FINANCING FRAMEWORK FOR THE ACTION PLAN

4.1 Strategy/Action plan financing

This Action plan requires a total fund of up to **UGX 2.63 Trillion** excluding the Minerals, Oil and Gas cost implications. However, factoring in oil and gas, the total cost increases to **UGX 42.53 Trillion** with private sector contribution amounting to **UGX 38.7 Trillion**. Table 3.1 presents the summary of annualized cost implication for the selected commodities.

Table 30: Total Costs Excluding Minerals, Oil and Gas

Commodity	Year 1 BN	Year 2 BN	Year 3 BN	Year 4 BN	Year 5 BN	Total
Coffee	51.8	40.3	40.3	40.1	39.5	212
Tea	12.533	90.965	92.981	87.552	87.969	372
Grains	143.38	146.75	131.25	124.95	124.15	670.58
Cotton	54.144	65.006	58.018	56.011	57.186	290.365
Horticulture	87.65	82.65	78.55	78.55	78.55	405.95
Livestock	104.92	75.15	76.74	74.59	68.29	399.66
Fish	26.99	23.465	14.01	16.38	19.74	100.585
Tourism	14.381	11.281	12.766	10.167	12.146	61.925
ICT	19.8	21.76	24.25	25.5	23.55	114.86
Total	507.288	558.717	536.315	515.75	512.281	2631.605

4.2 Public Sector Financing

Government will finance the plan directly through its ministries, agencies, departments and local governments. The sources of public financing will be realized through;

- Realignment of existing resources from within the budget
- Leveraging efficiency gains from utilization of existing funds
- Tailoring new projects / pipeline projects to this plan of action
- Allocation of additional resources to specific game changers

Funds under this category will purposively be directed to the specific interventions in this action plan. MOFPED shall remit the funds directly to this institutions and strict physical accountability will be required in respect of this action.

In other instances where it's deemed necessary, the private sector will be financed under clear conditions agreed upon with the MOFPED.

4.3 Private sector Financing

Private sector will provide investment funding in infrastructure and management. Public private financing will also be promoted along the value chain for instance, in input development and provision, storage and processing levels.

4.4 Establishment of an Export Development Fund

In order to effectively support the private sector in export development led growth, a fund shall be established. This fund will consolidate all the numerous existing and proposed development funds such as Agricultural Credit Facility Fund (ACF), Grain Facility Fund (GFF), the proposed Coffee Development Fund, Enterprises Development Fund and any other form of fund for purposes related to this agenda.

This fund will be developed through the medium to long-term with the ultimate aim of providing sufficient export development financing for the country which should be self-sustaining over time. A possibility of consolidating other funds geared towards wealth creation including the Youth Livelihood Project Fund, Women Enterprises Fund as well as Enterprise funds under operation wealth creation into the Export Development Fund would also be explored.

However, in the process of managing similar funds, experience has revealed the following challenges with such funds:

- (i). Administrative delays: This has commonly arisen from the separation of the executing agencies and the institution managing the funds for example, the Central Bank and the commercial banks. This in some cases, has led to double due diligence on the beneficiary resulting into a long credit processing cycle.
- (ii). Wrong perception by some beneficiaries: The funds from government have been viewed as free, leading to high default rates.
- (iii). Lack of clarity in certain aspects in the terms and conditions governing the management of the funds: Clarity enhances the operational ease in managing the fund.
- (iv). Nature and extent of the collateral required to access the fund [e.g. the ACF which limits the contribution of the fund to working capital to a maximum of 20% of the total working capital]
- (v). Lack of support services to build capacity on the part of the beneficiary (technical assistance) during the tenure of the loan as a process of nurturing the business

4.4.1 Guiding Principles and Methodology for the Export Development Fund

To effectively manage the re-occurrence of some of the challenges highlighted, the following criteria should be considered in the selection of the institution that will manage the fund:

- (i). The operation of the fund shall be through a financial institution(s) with a development focus and will be operated based on agreed upon terms and conditions.
- (ii). Direct interface with the borrowers to minimize the administrative delays arising from double due diligence and fund processing cycle.
- (iii). Past experience of executing agency/fund manager in value chain financing with a development finance orientation.
- (iv). The executing agency/Manager of the fund should preferably be a locally owned bank with clear development mandate.
- (v). The executing agency / manager of the fund should demonstrate a clear structure and capacity suitable for managing such fund. Where need be, effort should be made to build capacity of the institution to position it adequately to manage the EDF so as to achieve its intended objectives.
- (vi). The Ministry of Finance Planning and Economic Development, Office of the President, Uganda Export Promotion Board, National Planning Authority, Ministry of Trade Industry and Cooperatives shall take form a task force for monitoring the fund.

Once the EDF is instituted, all commodities, services and products identified for investment will be financed from this single fund. The fund will be available to all those involved in viable investment projects along the entire commodity/service /product value chain. The portfolio in terms of credit would cover among others, the following credit levels;

- i) Primary production financing
- ii) Capital investments for the commodity sector
- iii) Working Capital financing
- iv) Export Financing
 - a. Pre-shipment financing (Export guarantees, export credit facility)
 - b. Invoice discounting
 - c. Post-shipment financing
 - d. Export guarantees

The operational guidelines for the fund shall be developed by the Ministry of Finance Planning and Economic Development together with BOU, UDC, UEPB, MTIC, OP and NPA

CHAPTER FIVE: IMPLEMENTATION FRAMEWORK

This chapter sets out the institutional arrangements that will facilitate the implementation of the proposed interventions over the medium term. It also indicates the roles the various actors will play in implementing this plan. To effectively deliver this action plan, it's strongly recommended that government works closely with the private sector.

5.1 Institutional Arrangements

For purposes of smooth implementation of this strategy, a steering committee co-chaired by the Permanent Secretaries of MTIC and MOFPED shall be established to provide the overall oversight and policy guidance in the execution of the plan. Other key parties in this committee will include OP, OPM, MAAIF, MTWA, MEMD, MOICT UEPB and NPA represented by Permanent Secretaries and Executive Directors.

A technical working committee chaired by UEPB comprising members from both the public and private sector with a representation of all commodities will be formed to provide technical oversight and guidance. This committee will be responsible for regular planning, monitoring, reporting, and evaluation of the action plan. The Office of the President's Department of Economic Affairs and the Budget Monitoring and Accountability Unit at the MOFPED, will spearhead quarterly monitoring and reporting on the progress of plan implementation to the technical committee.

The think tanking committee co-chaired by the PS/ST and the Chairperson NPA and comprising members of the Steering Committee and Technical Working Committee shall continue to move forward this and other agenda of a similar nature in line with the NDPII development strategy.

Table 31: Roles of stakeholders

Stakeholder	Roles
MAAIF	<ul style="list-style-type: none"> i) Put in place appropriate legal and regulatory framework (coffee, tea, fish laws etc.) ii) Enforcement of the legal framework iii) Implementation of fish interventions, Government stock ranches redevelopment
MOICT	<ul style="list-style-type: none"> i) Put in place appropriate legal and regulatory framework
MOFPED	<ul style="list-style-type: none"> i) Provide stewardship of the steering committee ii) Mobilize resources for implementation of the plan iii) Carry out quarterly monitoring and reporting on the implementation of the plan
MTIC	<ul style="list-style-type: none"> i) Put in place appropriate legal and regulatory framework (grain protection policy, grain export policy etc.) ii) Provide stewardship of the steering committee iii) Negotiate for markets iv) Put in place appropriate storage and processing facilities

Stakeholder	Roles
MEMD	i) Put in place appropriate legal and regulatory framework
NPA	i) Put in place appropriate value chain frameworks for all identified committees and services ii) Produce papers for think tanking iii) Integrate the agenda in the national planning frameworks iv) Identify Export turnkey projects
Office of the President	i) Together with MOFPED Periodically track the utilization of these resources
NITA	i) Regulate the ICT investment industry ii) Implement ICT interventions prescribed in this plan
BAMAU	i) Spearhead quarterly monitoring and reporting on the progress of plan implementation to the technical committee
UCDA	i) Regulate the coffee industry players ii) Implement interventions in this plan
UWRSA	i) Regulate the warehouse system ii) Implement interventions in this plan
CDO	i) Regulate the cotton industry players ii) Implement interventions in this plan
DDA	i) Regulate the Dairy industry players ii) Put in place appropriate infrastructure and system for the sector.
UEPB	i) Provide necessary market information to producers and traders ii) Support product development initiatives iii) Carry out Export market identification, development and promotion iv) Carry out attitude / mind set changing v) Export skills development
UNBS	i) Promote standardization of commodities and services along the entire value chains
UIA	i) Identify and facilitate investors ii) Provide land and appropriate infrastructure for turnkey projects. iii) Support the private sector implementing this plan of action
UTB	i) Product development of identified products and developing marketing of new and existing products.
NARO (NACoRI, NACRRI, NASSARI)	i) Implement interventions as prescribed in the action plan
NAGRIC and Databank	i) Implement interventions prescribed in this action plan

Stakeholder	Roles
NAADS (OWC),	i) Procure and distribute certified inputs ii) Concentrate on a few key commodities in specified in zones to create substantial impact iii) Implement other interventions
YLP, PRDP/III	i) Stimulate input supply (seedlings) by providing working capital to youth for seedlings production for onward direct sale to OWC ii) Finance interventions within the identified value chains
Private Sector Institutions	i) Mobilize resources for implementation of the plan ii) Invest in the entire value chain including input supply, output production, provision of storage ,processing, marketing and export of goods and services iii) Continue engaging with government on this agenda

The Private Sector represented by associations of producers, processors, manufactures, transports, and exporters will participate in the direct implementation of the plan of action either directly or on a PPP arrangement which will be determined from time to time.

5.2 Prerequisites for implementation of this strategy

For this action plan to be successful, the following need to be addressed as proposed:

- a) Strengthening of the institutions responsible for investment and export promotion such as Uganda Investment Authority, Uganda Export Promotion Board, and Uganda Registration Services Bureau, and Free Zones Authority among others. This will also include further development of the Industrial Parks and Free Trade Zones.
- b) Regulation and access of Inputs. In order to address issues relating to counterfeited seedlings, fertilizers, agrochemicals etc., the following will done;
 - Develop regulations and standards for inputs
 - Certify nurseries and other input suppliers
 - Supply of Seedlings will be through certified nursery operators direct to the farmers (by pass of middlemen)
 - Seed access to farmers shall be through certified suppliers in appropriate quantities affordable to farmers.
 - For livestock related interventions, equipping of the district veterinary offices with appropriate equipment for disease identification and management. Capacity to manage technologies that enhance productivity will be developed.

- c) Seasonality requirements of certain inputs such as seedlings and seed. All planting materials should be procured taking into account seasonality sensitivities. Earlier planning and procurement will be done in time and in some circumstances exemptions on procurement processes will be sought.
- d) Strengthening and capitalizing on yearly basis the financial services sector that is specifically involved in development financing.
- e) Turnkey Project Approach. The plan recommends a turnkey project approach to boosting investment for exports. NPA, MoFPED, UEPB and UIA will explore this approach further with a view of identifying commodities, required resources (financing, land etc.) and carryout appropriate implementation.
- f) Establishment of commodity platforms as a mechanism through which stakeholders along the commodity value chains can share information and experiences.

- g) Review of institutional framework within the mineral sub-sector (policy, monitoring and regulation and management of government business)

5.3 Addressing Macro-Economic Challenges

To address key macroeconomic challenges, the following actions are recommended:

- i) **Development of Export processing zones** taking into account other players outside the designated zones.
- ii) **Fast-tracking regional market integration** through the removal of NTBs to ease market entry for the business community to increase investments and exports.
- iii) **High interest rates:** Reduction on Government Domestic borrowing to avoid crowding out of private sector. Secondly by increasing domestic savings to lower the cost of money. This could be done through among other things, liberalizing the Pension sector by fast tracking the Enactment of the Retirements Benefits Bill to end NSSF monopoly in the pension sector.
- iv) **Volatility in exchange rate:**
 - (a) Government needs to adopt a policy of using local currencies in public procurements to save on the need for foreign currencies.
 - (b) Additionally, Government should adopt the “Buy Uganda, Build Uganda” Policy with respect to Government procurements. This will boost local production, increase domestic market for local goods, and build capacities of local producers, while saving the economy from excessive demand for foreign currencies.

- (c) Improving project implementation issues and absorption capacities especially for donor /foreign financed projects would maintain a stable inflow of funds especially concessional loans and grants that would increase the foreign exchange availability

v) **Limited Investment promotion:**

Proposed interventions include;

- (i) Continue focusing the Budget to Capital Investment Expenditure, and also control Maintenance and Operation expenditure.
- (ii) Diversify public investments in the capital expenditures to develop selected export related value chains to increase production and supply capacities.
- (iii) There is also need to enforce efficiencies in current public investments so as to maximize the Return on Investment and make savings from Government operations, which can be invested to support increased production and service delivery without necessarily finding new resources.

vi) **Fluctuating Commodity Prices**

Proposed interventions include;

- (i) There is need to minimize price fluctuations and reduce vagaries on the market, since price fluctuations were identified as key disincentive to farmers and thus greatly undermining agricultural production.
- (ii) There is need to undertake a value chains analysis along the key export products and design and support interventions that create a conducive environment for the operators along the chains e.g. providing storage facilities, processing and value addition among others.

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ANNEXES

ANNEX 1: COFFEE VALUE CHAIN ANALYSIS

Coffee Research and Development	Develop and promote pest & diseases resistant varieties.	MAAIF, NAADs
	Establish a Coffee Research institute	NARO, UCDA, DP, Private sector
	Ensure sustainable financing for coffee research	MAAIF, MFPED, DP, UCDA
	Strengthen the linkages among coffee research, Dev't & extension	MAAIF, NARO, MOLG, MFPED, UNFF, UCDA, Extension workers
	Establish a center of Excellence for Robusta Coffee in the region	UCDA, NARO, DP, Extension workers
Coffee Planting Material/seeding /seeds	Promote and support adoption of good agronomic practices	UCDA, Extension system, NARO, MAAIF
	Increase area under coffee production	UCDA, UNFF, Extension workers
	Intensify integrated coffee pests and disease control programmes	MAAIF, UCDA, DP, NARO, pesticide dealers, extension workers
Coffee planting /Crop Management	Improve the use of agro-inputs for pests and disease control	UNFF, farmers, input dealers, private sector, UCDA, extension workers, MAAIF, LG
	Promote the environmental and biodiversity conservation practices in the coffee production systems	MAAIF, UCDA, UNFF, LGS, Extension workers
	Promote business development in the coffee value chain through women and youth entrepreneurship programmes.	Private Sector, UCDA, Extension workers, financial institutions
Coffee Harvesting & Post Harvest handling	Construct storage facilities	Extension workers, MAAIF, LGs
	Disseminate information on proper harvesting and post harvest loss control	
Coffee Storage	Construct ware houses in coffee areas	Extension workers, Farmer groups, private sector
Coffee Processing	Accelerate rural electrification	Private sector, MTIC
	Construct cottage factories	

Coffee Marketing	Train farmers in business management & dev't skills at coffee production & marketing level.	Farmer Organizations,
	Establish mechanisms for trade linkages between farmers & export markets.	

ANNEX 2: TEA VALUE CHAIN ANALYSIS

PRIMARY				
PLAYERS	TYPE IN CHAIN	ROLES	CONSTRAINTS	NECESSARY INTERVENTIONS
Tea Researcher	Supporter b) public Actor NARO	<ul style="list-style-type: none"> • Research and development of high yielding, drought resistant tea varieties • Implements pest and disease control in tea • Generating technologies • Setting up a miniature tea factory for testing qualities of the various clones. 	Limited research activity since 1977 Inadequate funding Inadequate human resource No new tea technology developed in many years	Establish a fully-fledged tea research activity to develop Ugandan tea clones which are high yielding, draught and disease resistant Develop improved fertility and water management technologies. (This is game changer) (Actors Government and private sector)
Input Suppliers (Stockists)	Actor b) Public Actors MAAIF,MTI C,UNBS,	<ul style="list-style-type: none"> • Supplies farm inputs: glyphosate herbicide, etc. • Machinery, tools and production equipment • Consumables e.g. plucking baskets, cleaning material Chemicals like fertilizers, fuels, packaging materials, etc. 	Inadequate storage for fertilizer Non or poorly trained fertilizer dealers Lack of proper and adequate storage for agricultural chemicals	Train input dealers Establish at every sub-county storage facilities for agricultural inputs
Nursery operator	Actor b) Public, NARO	<ul style="list-style-type: none"> • Produce good healthy plantlets & delivered to the farmer 	High cost of nursery materials High cost of transport	Subsidize cost of nursery material
Producers	Actor	<ul style="list-style-type: none"> • Cultivation and harvesting of green leaf. • Manual transportation of the harvest to designated leaf collection centres • Leaf quality control through maintaining good plucking standards 	Low yields Inadequate advice from extension Lack of suitable country specific high yielding, drought and disease resistant clones High cost of inputs like, plantlets,labour, fertilizer etc.	See items “Tea research and extension service” Also Train farmers to establish their own tea nurseries Continue distribution of tea plantlets free of charge Subsidize fertilizer and other tea inputs prices

			Low labor output and lack of most recent technologies in most companies.	Harmonize import inspection of agricultural inputs regimes in the region; this will make it easier for farmers to get inputs.
Extension Service	enabler	<ul style="list-style-type: none"> Pass on modern information of new and update technology from research etc. to farmer's e.g. new clones, right planting, timing, garden management etc. 	Inadequate Extension service to tea farmers	Strengthen extension service by posting adequate staff who are well facilitated
Green leaf Transporters/ Middlemen		<ul style="list-style-type: none"> Leaf quality control by rapid field checks Collection and transportation of leaf from the collection centers to the factory Acts as a communication channel between the factory and the producers 	<p>Unsuitable trucks for transporting green leaf</p> <p>Poor feeder and tea roads</p>	<p>Improve tea roads and rural feeder roads and maintain them</p> <p>Introduce properly designed trailer with hooks to hold green leaf tea bags</p>
SECONDARY				
PLAYERS	TYPE IN CHAIN	ROLES	CONSTRAINTS	NECESSARY INTERVENTIONS
Processors	Actor Public. MAAIF, MTIC, UEPB, UNBS,	<p>Payment for the collected leaf and processing it into black tea</p> <p>Provides to out growers agro inputs e.g. fertilizers to smallholders through a credit scheme</p> <p>Processing and quality control</p> <p>Grading processed tea into internationally recognized standards and quality</p> <p>Packaging and labelling of final product, transportation of the finished product to Mombasa, warehousing and Coordinates marketing activities at Mombasa through contracting of brokers.</p>	<p>At times receives low quality green leaf due to poor plucking and also plucked from very old tea bushes hence low price of made tea</p> <p>High cost of machinery and spares</p> <p>Unreliable energy supply</p> <p>High cost of energy</p> <p>High cost of packaging material</p> <p>High cost of transport to Mombasa</p>	There is a need for a subsidy especially spares, fuel and energy
MARKETING				

PLAYERS	TYPE IN CHAIN	ROLES	CONSTRAINTS	NECESSARY INTERVENTIONS
Processors	Actor b) Public MTIC, UEPB, UNBS,	Packaging and labelling of final product, transportation of the finished product to Mombasa, warehousing and Coordinates marketing activities at Mombasa through contracting of brokers	<ul style="list-style-type: none"> High cost of transport to Mombasa Loss of identity of Uganda tea mark at Mombasa <p>(Uganda tea blended with Kenya teas and exported as Kenya tea; hence the Uganda tea name is not known beyond the shores of Mombasa).</p> <ul style="list-style-type: none"> Low price: Uganda tea is considered a “price reducer” for blenders at Mombasa; for example: (Uganda PF1 grade may be priced at US\$ 1.5 and the same Kenya PF1 may be priced at US\$ 2.8. The two blended, the average price is US\$2.15. 	<ul style="list-style-type: none"> Revive the railway transportation of tea as this is cheaper than road transportation There is a need for a subsidy on fuel Improved roads in general Eliminate all Non tariff barriers e.g. Payment of Plant Import Permit (PIP) required by the Kenya Plant Health Inspectorate Service (KEPHIS) Find other direct markets for Uganda Tea
Local tea packers	Actor b) Public MTIC, UNBS	Blending of bulk teas into branded tea Convenient Packaging and value addition Distribution and advertisements of their brands	Lack of suitable blending packaging, and storage facilities Absence of an association of tea packers for proper guidance etc.	Government should register all packers in order to improve the process i.e. hygiene Encourage formation of a tea packers’ association
Super Markets and shops	Actor b) Public, MTIC, UNBS	Carry out good and attractive display of teas of different brands ready for the consumer		
Transporters of made tea	Actor b) Public,	<ul style="list-style-type: none"> Transports tea to Mombasa market 	Poor roads and poorly managed weigh bridges	Improve and maintain highway roads and feeder roads Reduce corruption at the Weigh bridge places

	MOW especially roads			
East African Tea Trade Association (EATTA) Auction	Supporter	Coordinates all the handling and marketing activities of tea and ensures orderly sale of tea at Mombasa auction Collects and circulates statistics and trade information on weekly basis and maintains such records		
Under EATTA above are: After the producer: i) Warehouses, ii) The Brokers iii) The Buyers	Actors	<ul style="list-style-type: none"> • Takes delivery of tea by weighing, storing, and publishing weight ✓ Prints the teas in the catalogue using details in the weight note ✓ Apportions and distributes the 4kg samples to buyers ✓ Determines the value of tea by testing and publishes valuation ✓ Selling tea on behalf of producers <p>Tests the pre-auction samples to determine suitability for blend requirements and bids in line with values</p> <ul style="list-style-type: none"> ❖ Purchases bulk tea from different processors at the auction ❖ Implements shipment of tea worldwide 		
Retailers/packers	Actors	<ul style="list-style-type: none"> • Blending of bulk teas into branded tea • Convenient Packaging and value addition 		

		<ul style="list-style-type: none"> • Marketing and advertisements of the products • Quality control and monitoring 		
Consumers	Supporters	<ul style="list-style-type: none"> • Purchases branded tea from the retailers • Taste and preferences dictates market trends 		

ANNEX 3: DAIRY VALUE CHAIN ANALYSIS

Dairy and Beef Medium Targets

1. Increase national milk collection capacity from 1.3 million liters to 1.9 million liters
2. Increase the value of dairy exports from US \$ 23 million (2014) to US \$ 50 million by 2019/20.
3. Increase beef production from the current 197,019 MT to 300,500 MT by 2019/20

Chain level	Primary Production	Secondary Production	Marketing
Production and marketing levels	<p>Inputs Level:</p> <ul style="list-style-type: none"> a) Pasture Seed b) Commercial feeds and feed mills c) Breeding stock and assisted reproduction (AI, ET) d) Veterinary drugs, vaccines and chemicals e) Farm machinery and equipment <p>Primary output level: Post-harvest handling</p> <ul style="list-style-type: none"> a) Milk handling equipment e.g. milking buckets, strainers, milk cans b) Milk coolers and generators, testing equipment and reagents 	<p>Storage</p> <ul style="list-style-type: none"> a) Milk coolers <p>Processing Requirements</p> <ul style="list-style-type: none"> a) Dairy processing equipment b) Packaging material c) Additives e.g. flavors, starter culture d) Land for dairy processing plants e) Quality control (Laboratories, certification, accreditation) <p>What is the flagship product</p> <p>UHT milk</p>	<p>Branding & Packaging</p> <ul style="list-style-type: none"> a) Local market requirements b) Export market requirements c) Quality issues d) Market access <p>Key products</p> <p>Cream, Pasteurized milk, Yoghurt, Milk powder, Ghee, Butter, Butter oil, Cheese, Ice cream, Casein</p>
Required services	Veterinary extension services , Assisted reproduction, Business development, Financing, Research and Development	Certification, Financing, product development and Development	Export Development
Actors	<p>a) Private Actors</p> <p>Producers: dairy farmers, dairy farmer associations, Cooperative Societies, private milk collection centre operators, milk transporters, UNDF, UNDATA, Public Actors</p> <p>DDA, MAAIF, NAGRC&DB, NAADS, NARO, UIA, NDA, MTIC, Local Governments, NGOs</p>	<p>a) Private Actors</p> <p>Processors:</p> <p>Dairy processors (small, medium and large), UDPA</p> <p>b) Public Actors</p> <p>DDA, MAAIF, UNBS, UIA, MTIC, UIRI, UEPB</p>	<p>a) Private Actors</p> <p>Retailers, wholesalers and exporters</p> <p>b) Public Actors</p> <p>DDA, UNBS, UIA, UEPB, URSB, MTIC</p>

Chain level	Primary Production	Secondary Production	Marketing
<p>Constraints</p> <p>Constraints</p>	<ul style="list-style-type: none"> • Inadequate feed and water more especially during the dry season • Cattle kept have low genetic potential for milk production • Livestock diseases • Inadequate milk collection infrastructure • Weak farmer organizations • Substandard inputs • Insufficient coverage of Artificial insemination service (liquid nitrogen, equipment, personnel) • Inadequate breeding stock • Poor record keeping and statistics • Expensive inputs such as veterinary drugs and chemicals • Inadequate milk handling equipment • Inadequate infrastructure (roads and electricity) • Poor quality of raw milk 	<ul style="list-style-type: none"> • Inadequately skilled labour force • Fluctuation in quantity of milk available for processing • Un fair competition from the informal milk marketing • Lack of affordable credit for expansion • Weak stakeholder associations 	<ul style="list-style-type: none"> • Inadequate market information • Non-Tariff Barriers • Low milk consumption • VAT on milk
<p>Areas of possible actions and interventions by GoU and the Private sector</p>	<ul style="list-style-type: none"> • Strengthen the dairy sub sector regulatory framework • Institute a Quality Based Milk Payment system • Retooling Entebbe Dairy Training School so as to bridge capacity gaps amongst stakeholders • Provide milk handling and chilling equipment to dairy cooperatives under Public-Private Partnership • Rehabilitating the existing but dilapidated milk collection centers and establish new strategic milk bulking centers • Building local capacity in conserved feed production • Supporting farmers to do on farm water harvesting under PPP • Capacity building and equipping of AI Technicians 	<ul style="list-style-type: none"> • Provide incentives such as tax exemptions on machinery. • Provide appropriate Investment financing through UDB. • Enforce standardization of equipment and products. • Establish mini laboratories • Under the Private-Public Partnership (PPP), support processors, especially cottage processors to put up processing infrastructure. • Strengthening stakeholder associations • Implementing the ban of sale of loose milk 	<ul style="list-style-type: none"> • Enforce standardization of products to meet international standards. • Negotiate for new markets

Chain level	Primary Production	Secondary Production	Marketing
	<ul style="list-style-type: none"> • restocking with high quality dairy breeds • Capacity building of dairy breeders • Public-Private-Partnerships in dairy breeding • Establishment of a dairy sector recording and information system • Ensuring ready availability of vaccines in the country • Re-enforcing the national animal disease/vector diagnostic and surveillance system 		

ANNEX 4: BEEF VALUE CHAIN ANALYSIS

Level in meat value chain	Responsible stakeholder	Mandate / Role / Activity	Policy issues at each level
1. Household/Farm (breeding animals, slaughter animals)	Farmers & Herdsmen	<ul style="list-style-type: none"> • Animal Health and reporting of animals diseases, housing and nutrition of animals • Animal identification and registration • Keeping farm records • Pasture and water management • Breeding 	<ul style="list-style-type: none"> • Disease Control • Availability of good genetics • Pasture and water Management • Marketing • Training/Human Resource development (HR)
	Chiefs And counsellors	<ul style="list-style-type: none"> • Verify ownership • Support enforcement of disease control measures e.g. quarantine, movement control, vaccinations etc. 	<ul style="list-style-type: none"> • Inadequate enforcement • Lack of awareness
	Veterinarian/ extension workers	<ul style="list-style-type: none"> • Animal health & advisory services • Ensuring humane animal handling • Enforcement of animal laws and regulations at farm level 	<ul style="list-style-type: none"> • Low staffing levels • Inadequate logistical support • Inadequate enforcement • Training/HR development
	Input suppliers	<ul style="list-style-type: none"> • Veterinary medicines and veterinary biologicals • Animal feeds, • Farm machinery, tools and equipment 	<ul style="list-style-type: none"> • Not readily available • Seasonal supply of raw materials for the feeds • High cost of inputs and machinery
	Researchers and breeders	<ul style="list-style-type: none"> • Development of appropriate breeds • Undertaking feed trials 	<ul style="list-style-type: none"> • Human resource • High cost involved
2. Movement to the market	Farmers & herdsmen	<ul style="list-style-type: none"> • Select healthy animals only for the market • Humane handling • Providing traceability data • Request for animal health certification and movement permit 	<ul style="list-style-type: none"> • Public awareness • Lack of proper identification system
	Livestock traders and transporters	<ul style="list-style-type: none"> • Humane handling • Purchase and sale of animals • Request for animal health certification and movement permit 	<ul style="list-style-type: none"> • Public awareness • Inadequate supply of good quality animals
	Veterinarians	<ul style="list-style-type: none"> • Inspect and ascertain health of animals (deliver Animal Health certificate) • Collect and submit samples for laboratory examination 	<ul style="list-style-type: none"> • Logistical support • Low staffing levels • Training/HR development

Level in meat value chain	Responsible stakeholder	Mandate / Role / Activity	Policy issues at each level
		<ul style="list-style-type: none"> • Issue movement permit taking into account the animal/herd traceability • Keep records of sales at the market and authorized movements 	
3. Animal check points	Enforcement officials	<ul style="list-style-type: none"> • Verification of animal health certificate and animal movement authorization documents • Verification of compliance to animal welfare requirements 	<ul style="list-style-type: none"> • Logistical support • Low staffing levels • Training/HR development • Lack of supporting infrastructures at check points (holding grounds and quarantines)
4. Livestock Markets	Traders	<ul style="list-style-type: none"> • Buy healthy animals • Humane handling • Pay market fees and licences • Obtain movement permit from the Veterinarian • Offer a fair price 	<ul style="list-style-type: none"> • Lack of collective marketing system • Inadequate operational capital • No grading of animals • Lack of awareness on animal welfare requirements • Lack of compliance to regulations
	Farmers	<ul style="list-style-type: none"> • Provide animal health certificate and identification data • Receive payment 	<ul style="list-style-type: none"> • Lack of collective marketing system • Selling sick animals • Seasonal marketing • Poor record keeping
	Veterinarians	<ul style="list-style-type: none"> • Inspect and ascertain health • Deliver Animal Health certificate • Issue a movement permit to trader taking into account the animal/herd traceability • Collect and submit samples for laboratory examination • Keep records of sales at the market and authorized movements 	<ul style="list-style-type: none"> • Logistical support • Low staffing levels
	Trade officials/ commercial officers	<ul style="list-style-type: none"> • Issue trading licence to traders • Collect market fees 	<ul style="list-style-type: none"> • Inadequate coordination in licensing • Lack of awareness of animal industry related regulations, standards and procedures
	Local authorities	<ul style="list-style-type: none"> • Construct and maintain livestock marketing infrastructure 	<ul style="list-style-type: none"> • Poor maintenance and management of livestock marketing infrastructure • Insufficient budgetary allocation

Level in meat value chain	Responsible stakeholder	Mandate / Role / Activity	Policy issues at each level
			<ul style="list-style-type: none"> • Lack of appropriate livestock marketing infrastructure • Lack of appropriate infrastructure for on loading
5. Movement to slaughter facilities	Traders	<ul style="list-style-type: none"> • Move with valid documents/permits • Humane handling (watering, feeding) 	<ul style="list-style-type: none"> • Poor compliance to livestock movement regulations • Lack of awareness on animal industry related regulations including animal welfare
	Veterinarians	<ul style="list-style-type: none"> • Check validity of movement permits • Check humane handling 	<ul style="list-style-type: none"> • Uncoordinated system of issuing movement permits • Logistical support • Low staffing levels
	Transporters	<ul style="list-style-type: none"> • Humane handling • Cleaning and disinfecting vehicle before and after each transportation • Accompany each consignment with valid documents/permits • Observe designated stock routes and destinations specified on the movement permit 	<ul style="list-style-type: none"> • Lack of appropriate vehicles for livestock transportation • Lack of appropriate infrastructure / material for vehicle cleaning and disinfection • Lack of awareness on animal industry related regulations including animal welfare
6. Slaughter facilities <i>6.1 Design, construction and operation</i>	Abattoir/Slaughter house/Slab owner and managers/Staff	<ul style="list-style-type: none"> • Obtain appropriate structural design • Obtain environmental certificate • Implement approved plans • Obtain operational license • Put in place appropriate staff and management structure • Provide necessary amenities (water, tools, waste disposal, cold storage, light, protective gear, disinfectants, wheel burrows, etc.) 	<ul style="list-style-type: none"> • Lack of compliance to set standards, regulations and procedures • High cost of investment • Unavailability of meat industry equipment and construction materials in the country • Lack of professional in the meat industry related designing, construction, operational and management • Insufficient supply and high cost of utilities • High cost of waste management systems
	Environment Officers	<ul style="list-style-type: none"> • Issue environmental compliance certificate 	<ul style="list-style-type: none"> • Lack of awareness animal industry related regulations, standards and procedures • High cost of environmental audits
	Urban / Local authorities	<ul style="list-style-type: none"> • Approve the plans • Issue operating license 	<ul style="list-style-type: none"> • Approval of inappropriate / inadequate Abattoir/Slaughter house infrastructure plans

Level in meat value chain	Responsible stakeholder	Mandate / Role / Activity	Policy issues at each level
			<ul style="list-style-type: none"> • Poor understanding of animal industry related regulations including hygiene
6.2 <i>Lairage/Reception yard</i>	Traders and Transporters	<ul style="list-style-type: none"> • Deliver animals to an authorized destination • Present valid documents to the (Abattoir / Slaughter) Veterinarian • Cleaning and disinfect the vehicle before leaving the slaughter facility 	<ul style="list-style-type: none"> • Lack of compliance to set standards and regulations and procedures • Falsification of documents • Lack of appropriate infrastructure for offloading, cleaning and disinfection of vehicles
	Veterinarians	<ul style="list-style-type: none"> • Check validity of accompanying documents • Inspection on arrival and before slaughter (Ante Mortem Inspection) • Keep records • Collect and submit samples for laboratory examination 	<ul style="list-style-type: none"> • Uncoordinated system for verification of accompanying documentation (movement permits) • Logistical support • Low staffing levels • Poor enforcement of standards, regulations and procedures.
	Lairage Attendant	<ul style="list-style-type: none"> • Humane handling • Record keeping • Maintain sanitation 	<ul style="list-style-type: none"> • Untrained personnel • Lack of appropriate tools and infrastructure for humane handling of animals and sanitation.
6.3 <i>Killing floor</i>	Butcher men/Slaughterers/ Muslim supreme council	<ul style="list-style-type: none"> • Humane and clean slaughter • Observe hygiene standards • Halal slaughter 	<ul style="list-style-type: none"> • Unavailability of tools and equipment for humane slaughter • Lack of awareness and understanding from humane slaughter techniques
	Flayers/Dressers	<ul style="list-style-type: none"> • Observe hygienic flaying technique • Preserve hide quality • Hoist animals off the ground for effective bleeding, flaying and eventual splitting of the carcass • Undergo medical examination and obtain medical fitness certificate periodically 	<ul style="list-style-type: none"> • Unavailability of flaying tools and equipment • Poor hoisting tools, flaying and splitting • Lack of understanding of hygienic handling techniques • Inadequate skilled personnel
	Cleaners	<ul style="list-style-type: none"> • Cleaning and disinfecting before, during and after operations • Good personal hygiene • Proper waste disposal 	<ul style="list-style-type: none"> • Unavailability of cleaning tools and equipment • Lack of understanding of proper hygiene and sanitation

Level in meat value chain	Responsible stakeholder	Mandate / Role / Activity	Policy issues at each level
		<ul style="list-style-type: none"> Undergo medical examination and obtain medical fitness certificate periodically 	<ul style="list-style-type: none"> Inadequate skilled personnel
6.4 Inspection hall	Veterinarians/Meat Inspectors	<ul style="list-style-type: none"> Carry out Post-Mortem inspection Stamp approved meat for human consumption Supervise disposal of condemned meat Keep records Collect and submit samples for laboratory examination Undergo medical examination and obtain medical fitness certificate periodically 	<ul style="list-style-type: none"> Uncoordinated inspection and certification procedures (duplication role of Human Public Health staff at abattoirs for Post Mortem inspection) Logistical support Low staffing levels Poor enforcement of standards, regulations and procedures Lack of handling and detention dentition facilities for suspect and condemned meat
6.5 Storage and dispatch	Slaughter facility manager	<ul style="list-style-type: none"> Ensure proper packaging and handling Ensure appropriate storage conditions including temperature 	<ul style="list-style-type: none"> Lack of appropriate storage facilities Unreliable power supply to sustain the cold chain
	Cold room attendant	<ul style="list-style-type: none"> Monitor hygiene and temperature of the cold chain Undergo medical examination and obtain medical fitness certificate periodically 	<ul style="list-style-type: none"> Lack of appropriate storage facilities Unreliable and high cost water and power supply
7. Transport of meat to retail shops/butcherries	Butchers	<ul style="list-style-type: none"> Obtain meat movement permit before leaving the slaughter place Provide vessels that protect meat from contamination from dust, fumes, rain etc 	<ul style="list-style-type: none"> Lack of appropriate vessels for transportation of meat Lack of awareness on hygienic handling of meat and transportation vessels
	Transporters	<ul style="list-style-type: none"> Clean and disinfect vessels before and after each use, Register/licence the vessels Undergo medical examination and obtain medical fitness certificate periodically 	<ul style="list-style-type: none"> Lack of awareness on hygienic handling of meat and transportation vessels
8. Retail shops/butcherries	Butcher attendants	<ul style="list-style-type: none"> Undergo medical examination and obtain medical fitness certificate periodically Ensure hygiene and sanitation of premises and equipment Good personal hygiene and handling practices 	<ul style="list-style-type: none"> Lack of proper tools and equipment to handle, display, cut and store meat Lack of understanding of hygienic practices

Level in meat value chain	Responsible stakeholder	Mandate / Role / Activity	Policy issues at each level
	Butchery owners	<ul style="list-style-type: none"> • Obtain appropriate structural design of butcher • Obtain operational licence • Put in place appropriate staff and management structure • Provide necessary amenities (water, tools, waste disposal, cold storage, light, protective gear, disinfectants) 	<ul style="list-style-type: none"> • Lack of compliance to standards and regulations and procedures • Unreliable and high cost water and power supply
	Local councils	<ul style="list-style-type: none"> • Approve and licence (retail shops / butcheries) • Collect taxes • Provide utilities (water, electricity) 	<ul style="list-style-type: none"> • Uncoordinated licensing and taxation procedures • Insufficient budget allocation
	Health officials	<ul style="list-style-type: none"> • Medical examination and certification • Ensure observance of hygiene and sanitation 	<ul style="list-style-type: none"> • Uncoordinated procedures
	Consumer	<ul style="list-style-type: none"> • Create or strengthen a Consumers Association (Organisation) to get consumers' rights respected • Demand for hygienic and high quality meat • Provide feedback • Report any non-compliance to relevant authorities 	<ul style="list-style-type: none"> • Lack of awareness on consumer rights and obligations • Low purchasing power
9. Export market ports	Exporters	<ul style="list-style-type: none"> • Comply with export market requirement 	<ul style="list-style-type: none"> • Stringent market requirements • Insufficient investment capital • Lack of understanding and ability to comply with these requirements • Insufficient supply of quality meat • High cost of transportation • Poor marketing and promotion
	Cold storage managers	<ul style="list-style-type: none"> • Maintain the cold chain requirements 	<ul style="list-style-type: none"> • Lack of appropriate storage facilities at strategic places • Unreliable and high cost water and power supply
	Export Certification Office	<ul style="list-style-type: none"> • Inspection, test and issue of relevant certification documents 	<ul style="list-style-type: none"> • Logistical support • Low staff levels • Insufficient testing, inspection and certification tools, equipment and facilities including laboratories

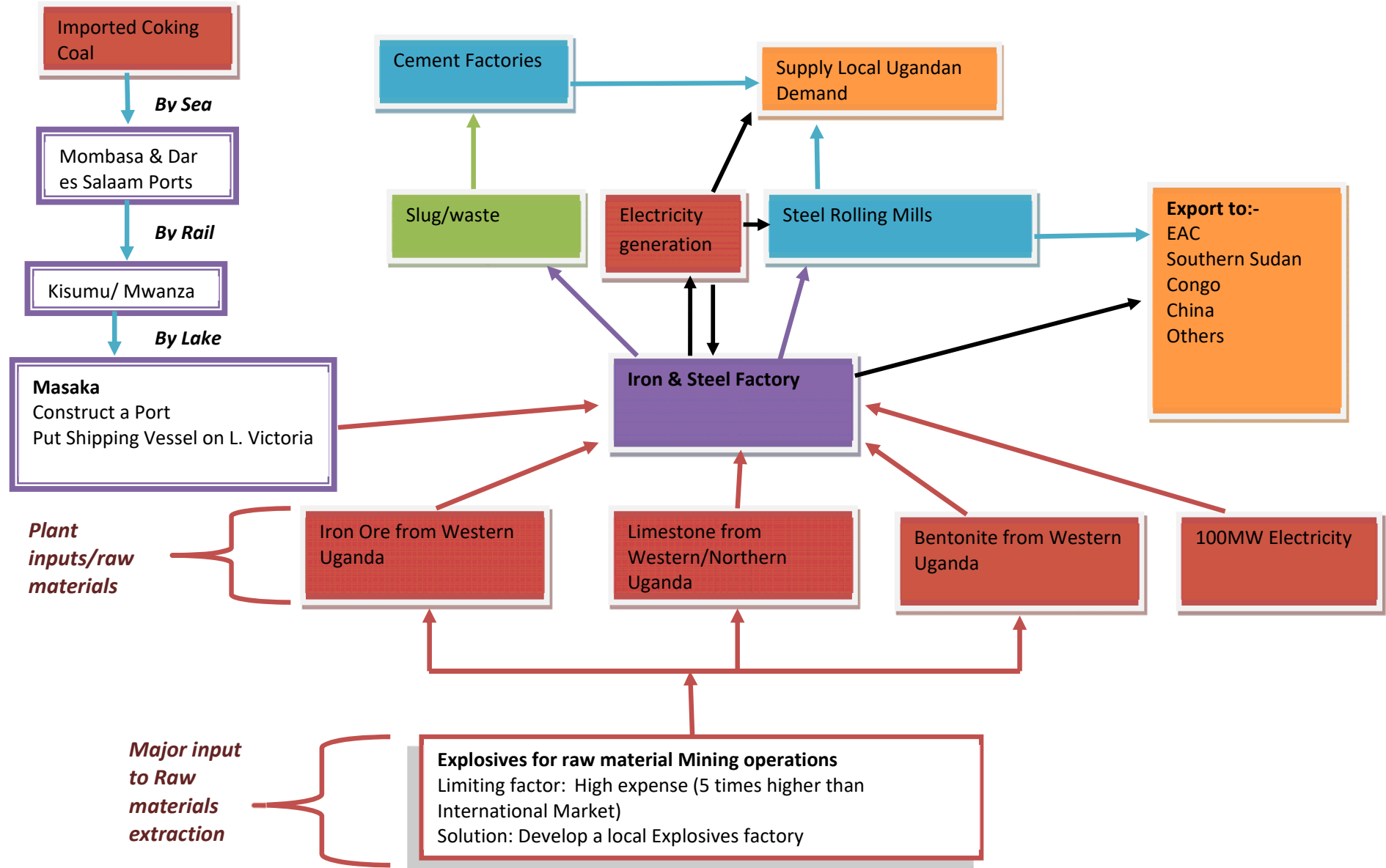
Level in meat value chain	Responsible stakeholder	Mandate / Role / Activity	Policy issues at each level
10. Cross-cutting	Ministry responsible for Health	<ul style="list-style-type: none"> • Health certification of meat industry staff and hygiene and sanitation certification of meat handling facilities 	<ul style="list-style-type: none"> • Duplication role of human and veterinary inspectors at abattoirs
	Ministry responsible for Environment	<ul style="list-style-type: none"> • Environmental audit of slaughter places 	<ul style="list-style-type: none"> •
	NGOs & CBOs	<ul style="list-style-type: none"> • Public awareness of meat quality and safety • Advocate for consumer protection • Resource mobilization 	<ul style="list-style-type: none"> •
	Private Veterinary Associations	<ul style="list-style-type: none"> • Advocacy for veterinary practice • Offer veterinary services 	<ul style="list-style-type: none"> •
	Financial Institutions	<ul style="list-style-type: none"> • Offer user friendly credit services 	<ul style="list-style-type: none"> •
	Veterinary Board	<ul style="list-style-type: none"> • Register and regulate the practise of Veterinarians (through ethic and professionalism evaluation and validation) • Promote the front line role of veterinarians for Ante and Post Mortem inspection (rather than the role of human public health staff form MOH) 	<ul style="list-style-type: none"> •
	Suppliers of equipment and tools	<ul style="list-style-type: none"> • Supply user friendly equipment and tools 	<ul style="list-style-type: none"> •
	Ministry responsible for Water	<ul style="list-style-type: none"> • Provide adequate and reliable water supply along the value chain. 	<ul style="list-style-type: none"> •
	Ministry responsible for Livestock	<ul style="list-style-type: none"> • National Planning • Policy formulation and review • Setting standards • Ensuring animal health, production, productivity and marketing • Coordinating meat regulatory activities • Supervising and monitoring • Providing technical support and capacity building • Regulating all activities of the meat industry 	<ul style="list-style-type: none"> • Logistical support • Low staff levels • Some outdated laws and regulations • Inadequate enforcement • Training/HR development • Uncoordinated system of issuing movement permits • Lack of proper national animal health and production data base

Level in meat value chain	Responsible stakeholder	Mandate / Role / Activity	Policy issues at each level
			<ul style="list-style-type: none"> • Poor enforcement of standards, regulations and procedures • Uncoordinated inspection and certification procedures • Lack of handling and detention facilities
	Veterinary Faculty and Allied Institutions	<ul style="list-style-type: none"> • Human resource development for private and public staff • Disease investigation • Applied field (practical) and theoretical research and technology development 	<ul style="list-style-type: none"> • Non specified /unfocused training targeted for meat value chain development and management. • Limited research on the meat value chain • Low adoption of research findings
	Consumer Organisations	<ul style="list-style-type: none"> • Advocate for meat quality production. • Participate in setting standards and regulation. • Report cases of malpractice in the meat industry 	<ul style="list-style-type: none"> • Weak Consumer organisation (lack of human and financial resources) • Poor linkages and understanding of consumer rights and obligations • Lack of a legal and institutional framework • Low logistical support

ANNEX 4: COTTON VALUE CHAIN ANALYSIS

Chain level	Primary production	Secondary production	Marketing
Production and marketing	Inputs level: - Planting seed, fertilizers, pesticides, spray pumps, ox ploughs. Post-harvest handling: - Picking bags, field stores, market yards	Processing requirements: - Moisture meters, drying and sorting sheds, seed cotton cleaners Key products: - Lint and cotton seed	Quality control, weighing equipment
Services required	Research, Extension services, tractor hire services, bush clearing services	Financing, quality control and collateral management services	Crop finance
Actors	Farmers CDO UGCEA NARO	Ginners Collateral managers CDO	Buying agents Lint exporters Spinners UNBS CDO
Constraints	- Fluctuating prices - Climate change - Pests and diseases - Mechanization - Soil fertility - Storage	- Fluctuating prices - Quality - High cost of borrowing	- Fluctuating prices - Quality/contamination - High cost of borrowing - Low domestic consumption

ANNEX 5: IRON AND STEEL VALUE CHAIN ANALYSIS



Annex 5.1: Summary of requirements and benefits for the scenarios of setting up a sponge iron plant to meet Uganda’s and EAC region’s iron and steel demand

	Requirements		Benefits	
	Item	Quantity (per year)	Item	Quantity (per year)
Uganda	Lump iron ore	580,000 t	Employment	80,000
	Natural gas	4,200,000 GJ	Forex saving	USD 279.557 million
	Oxygen	4,800,000 Nm ³		
	Electrical power	40,000 MWh		
	Water	600,000 m ³		
	Cost	USD 2 million		
EAC Region	Lump iron ore	1.45 trillion t	Employment	200,000
	Natural gas	10.5 trillion GJ	Forex saving	USD 279.557 million
	Oxygen	12 million Nm ³	Forex earning	USD 1 trillion
	Electrical power	100,000 MWh		
	Water	1.5 million m ³		
	Cost	USD 5 million		

ANNEX 6: PETROLEUM VALUE CHAIN

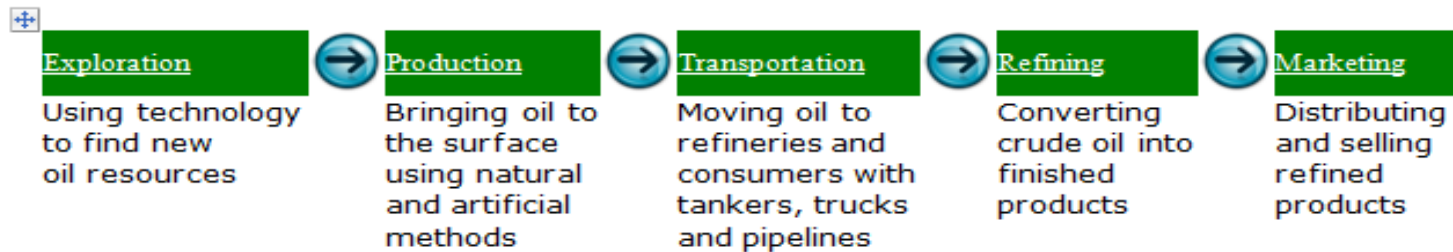
The Petroleum Value Chain

The Petroleum Value Chain consists of three stages namely: Upstream, Midstream and Downstream.

The Upstream stage having activities such as collection of initial data by GOU to establish presence of elements of oil, licensing of acreage to investors, exploration by licensed oil companies, appraisal and development.

The Midstream stage consists of transportation of recovered hydrocarbon resource mainly through a pipeline, trucks or rail, construction of a refinery to process the finished crude product and gas processing to treat gaseous hydrocarbons.

The Downstream sector stage mainly deals with Distribution, Marketing and Sales of the refined products to the end user.



ANNEX 7: GRAINS VALUE CHAIN ANALYSIS

The bean value chain consists of input suppliers, producers, villager assemblers/middlemen, traders, processors and consumers. The producers sell approximately 69% of the beans to village collectors and brokers and 5percent to institutional buyers like schools and WFP. The remaining 26percent is retained for home consumptions and seed. Village collectors then sell all their beans to traders which include big traders in major trading towns. Thereafter, the big traders transport the beans to mass markets, institutional buyers, urban traders or exporters. Urban traders then sell to institutions or export to Kenya, South Sudan, Rwanda, DR Congo and Burundi (UNDP, November 2012). There are very few bean processors in the country. These processors utilize about 1percent of the total dry beans to process bean flour.

ECONOMIC ACTIVITY	INTERVENTION	PLAYERS
Maize Research and Dev't		NARO, MAAIF,
Maize Planting Material/seedlings	Multiply foundation seeds	NARO, MAAIF, Private sector, extension workers, farmers, UNFF, MTIC, UNBS, NARs
	Undertake monitoring, supervision, inspection & certification of seed	
	Monitor distribution of certified maize seeds to farmers	
Maize Planting /Crop management	Build capacity of extension/advisory service providers	MAAIF, private sector,
	Provide Technical back up	MAAIF, Extension workers
	Harmonize extension services	MAAIF,
	Provide production & market information	Extension, private Sector, MTIC, UNFF, farmers, MAAIF
	Form-public private partnerships for distribution of fertilizers.	
	Monitor proper technical labelling, packaging and transportation system for fertilizers	
	Facilitate distribution of fertilizers to farmers	
	Develop options for soil/ sustainable natural resource management in maize production	NARO,
Maize Harvesting and Post-harvest handling	Training maize farmers on quality standards and post-harvest handling technologies and practices	
	Training maize traders on quality standards and post harvest handling technologies and practices	
	Support maize millers to expand factories	
	Train maize mill managers mill operators	
Maize Storage	Establish ware houses	
	Distribute storage materials	
Maize Processing	Support maize millers to expand factories	
	Accelerate rural electrification	MTIC, MEMD,
	Train maize mill managers and operators	MAAIF

	Establish feeder roads	
	Promote packaging, R&D	
Maize Marketing	Promote packaging and branding of maize flour	Private sector, farmers, MAAIF, MTIC, UNBS, ICT, UEPB
	Mobilize farmers for collective marketing	
	Build capacity of FOs to become cooperatives	
	Strengthen MIS to provide market information to maize farmers	
	Conduct regular market research in East & Central Africa	
Consumer		
ECONOMIC ACTIVITY	INTERVENTION	PLAYERS
ECONOMIC ACTIVITY	INTREVENTION	PLAYERS
Beans		
Research and Development		
Beans Planting Materials/seedlings/	Multiply foundation seed	NARS, Extension workers,
	Undertake monitoring, supervision, inspection & certification of seeds	
	Monitor distribution of certified beans seeds to farmers by the private sector	
Beans Planting & crop management	Provide technical back up and support	MAAIF, Extension workers,
	Build capacity of extension/advisory services	
	Provide production & marketing information	
	Conduct trainings in soil input use & management for extension staff	
	Facilitate distribution of fertilizers to farmers	
	Avail farmers with information on access of machinery and equipment and cost of utilization and maintenance	
Beans harvesting & Post harvest handling	Train bean farmers on quality standards & improved post-harvest handling practices & technologies.	
	Link farmers to loan facilities to procure post/harvest handling equipment	
Beans Storage	Establish stores	
Beans Processing	Establish the necessary infrastructure	
	Avail finances for establishment of cottage industries	
Beans Marketing	Promote collective marketing of beans through cooperatives	
	Promote use of WRS	
	Strengthen MIS service providers to provide market information to beans, farmers, traders & millers.	

	Conduct regular market research in east and central Africa	
Beans Consumers		

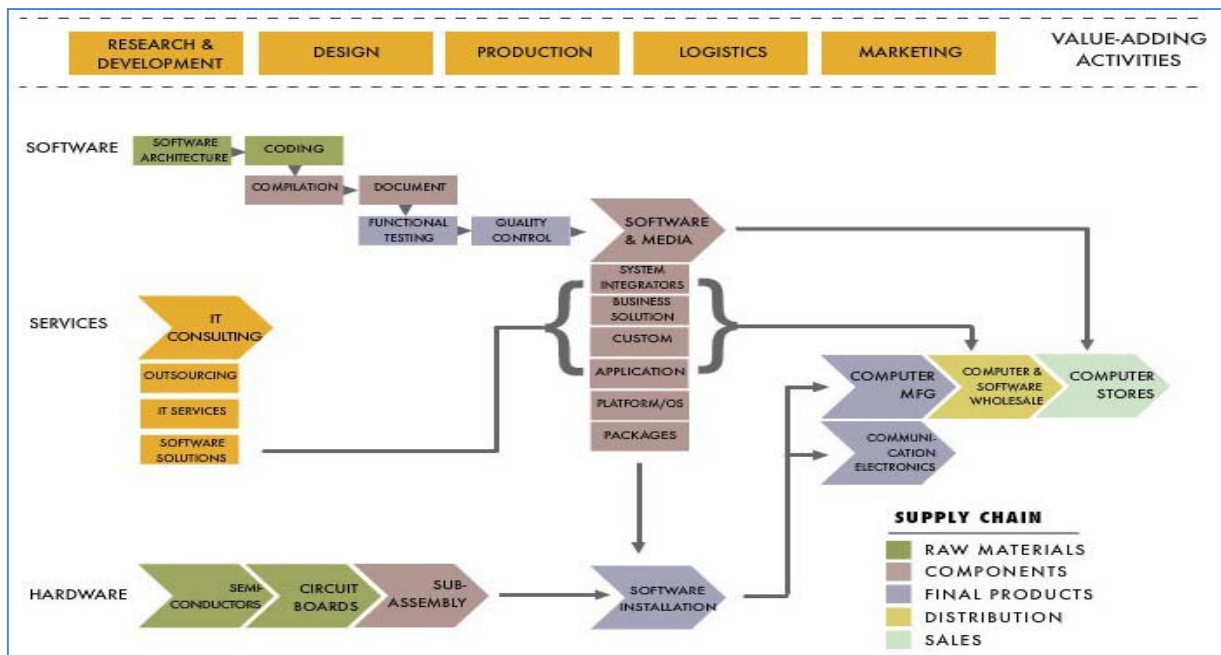
ANNEX 8: TOURISM VALUE CHAIN ANALYSIS

The tourism value chain focuses on the different service operators/actors, the different roles played along the entire value chain and the constraints that hinder the development of the tourism subsector. The operators include Tour operators/PR firms/sales agents, Airlines, In-country ground operations, Domestic transportation and guide services, Hospitality and restaurant and Excursions as explained below

- i)** Tour operators/PR firms/sales agents in the source markets who heavily influence the decisions of the tourists as to where to visit. In addition a country's foreign Mission plays an important role too in selling and marketing her country as a tourist and investment destination.
- ii)** Airlines; International transport/connection is very crucial as flexibility and cost of transport and convenience of the tourist to connect from one point to another.
- iii)** In-country ground operations; these include all the services a tourist receives immediately on landing in the destination country. Immigration officials are very important since they form the first interface with the tourists. First impression matters a lot hence lasting impression.
- iv)** Domestic transportation and guide services; the comfort and quality of the vehicles, the quality of the character and professionalism
- v)** Hospitality and restaurant; this includes whole range from care, food to cost
- vi)** Excursions; the experiences the tourist undergoes through

ANNEX 9: ICT VALUE CHAIN ANALYSIS

The ICT enterprises are inter-related and inter-dependent much as a separate value chain has been drawn for each of the different enterprises. A common Value chain analysis is as shown below. The value chain consists of five key activities namely Research & Development, Design, Production, Logistics and Marketing.



The analysis of capabilities along the different the value chain activities has been analyzed based on the specific commodities.