Vote: 110 Uganda Industrial Research Institute

Vote Summary

V1: Vote Overview

This section sets out the Vote Mission, Strategic Objectives, and provides a description of the vote's services

(i) Snapshot of Medium Term Budget Allocations

Table V1 below summarises the Medium Term Budget allocations for the Vote:

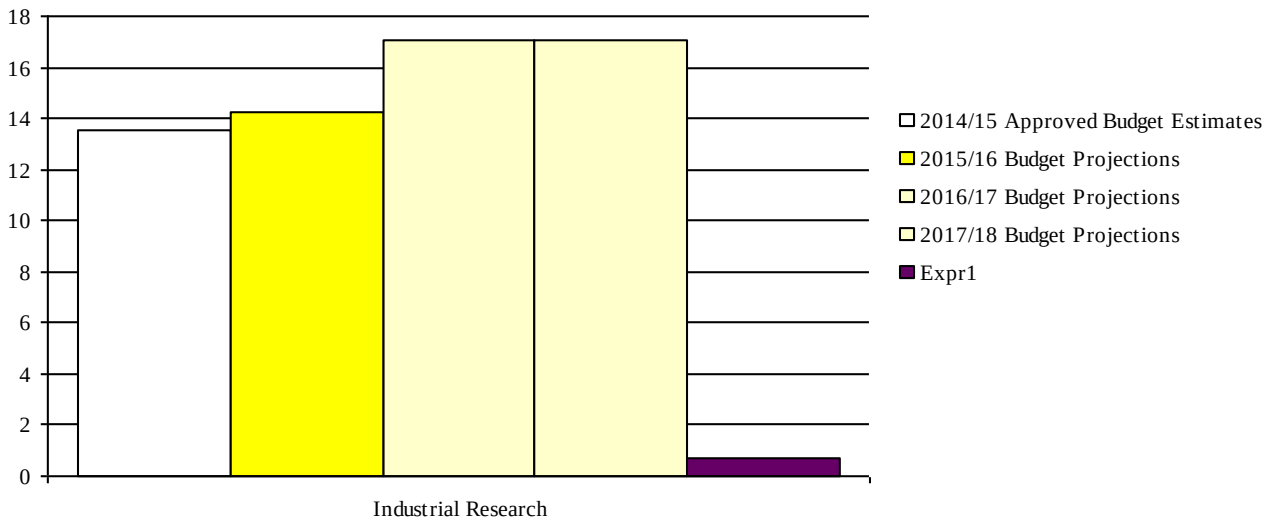
Table V1.1: Overview of Vote Expenditures (UShs Billion)

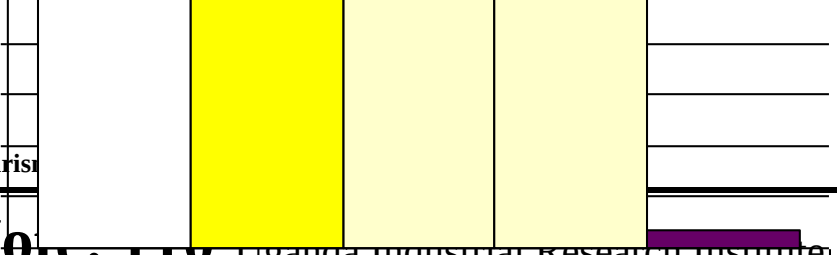
		2013/14	2014/15		MTEF Budget Projections		
(i) Excluding Arrears, Taxes		Outturn	Approved Budget	Spent by End Sept	2015/16	2016/17	2017/18
Recurrent	Wage	0.000	4.398	0.898	4.398	5.236	5.236
	Non Wage	5.587	1.520	0.342	1.520	1.823	1.824
Development	GoU	8.817	8.323	1.756	8.323	9.987	9.988
	Ext.Fin	0.000	0.000	0.000	0.000	0.000	0.000
GoU Total		**13.905**	**14.240**	**3.093**	**14.240**	**17.046**	**17.048**
Total GoU+Donor (MTEF)		**13.905**	**14.240**	**2.996**	**14.240**	**17.046**	**17.048**
(ii) Arrears and Taxes	*Arrears*	*0.000*	*0.000*	*0.000*	*0.000*	*N/A*	*N/A*
	*Taxes***	*0.500*	*0.706*	*0.048*	*0.000*	*N/A*	*N/A*
Total Budget		**14.405**	**14.947**	**3.044**	**14.240**	**N/A**	**N/A**
(iii) Non Tax Revenue		*0.000*	*0.100*	*0.000*	*0.000*	*0.000*	*0.000*
Grand Total		**14.405**	**15.047**	**3.044**	**14.240**	**N/A**	**N/A**
Excluding Taxes, Arrears		13.905	14.340	2.996	14.240	17.046	17.048

** Donor expenditure data unavailable* *** Non VAT taxes on capital expenditure*

The chart below shows total funding allocations to the Vote by Vote Function over the medium term:

Chart V1.1: Medium Term Budget Projections by Vote Function (UShs Bn, Excluding Taxes, Arrears





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(ii) Vote Mission Statement

The Vote's Mission Statement is:

To catalyze the social economic transformation of Uganda and the region, through enhanced technology use. To carry out applied research and develop or source appropriate technology in order to create a strong, effective and competitive industrial Sector for the rapid industrialisation of Uganda. Hence catalyse the socio-economic transformation of Uganda and the region through enhanced technology use.

(iii) Vote Outputs which Contribute to Priority Sector Outcomes

The table below sets out the vote functions and outputs delivered by the vote which the sector considers as contributing most to priority sector outcomes.

Table V1.2: Sector Outcomes, Vote Functions and Key Outputs

Sector Outcome 1:	**Sector Outcome 2:**	**Sector Outcome 3:**
A Competitive and Export-oriented Industrial Sector	***Improved Heritage Conservation and Increased Tourism Earnings***	***Improved Competitiveness and Market Access of Uganda's Goods and Services***
Vote Function: 06 51 Industrial Research		
Outputs Contributing to Outcome 1:	***Outputs Contributing to Outcome 2:***	***Outputs Contributing to Outcome 3:***
Outputs Provided	None	*Outputs Provided*
065101 Administation		065102 Research and Development
065102 Research and Development		
065103 Industrial Incubation		
065104 Maintenance - Civil works		
065105 Maintenance - Machinery and Equipment		
065106 Student Industrial Training and Capacity Building		

V2: Past Vote Performance and Medium Term Plans

This section describes past and future vote performance, in terms of key vote outputs and plans to address sector policy implementation issues.

(i) Past and Future Planned Vote Outputs

2013/14 Performance

Analysis of Vote Performance:

In the financial year 2008/09, Uganda Industrial Research Institute planned 50 New Innovations and High Value Added Products but the actual outcome was 14 and also this is not included in the vote strategic objectives. And also no exam pass rates indicated. The Institute planned 4 SME incubates, however, looking at table V3.1 (vote functions Outputs and Expenditure) the actual outturn is 25 which are good results. However, it is also not indicated among the objectives.

However, had planned 30 but no information given on number of Research undertaken to increase Targeted value addition for rural Industrialisation to reduce post harvest.

Summary of Vote Performance:

In the FY 2008/09, 25 SME's were provided with technical support in initiatives ranging from fruit juice, vegetable and meat processing, mushroom production, creative hands crafts. The institute has also undertaken maintenance of Pilot Plants at UIRI which include; Meat, Fruits and Vegetables, Handmade Paper, Ceramics, Electrical and water maintenance, ICT maintenance and also maintenance offsite projects. Also in this FY 08/09, 40 industrial trainees where admitted from different Educational

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Institutions for practical and hands on training in various disciplines, 15 Industrial trainees, 10 business incubates in Fruits and Vegetable processing bakery processing, Meat processing, Handmade paper production.

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Preliminary 2014/15 Performance

The performance by end December can be categorised under the broader terms of 1. Product Development, a range of new and improved products are under research and development, these include cosmetics, ceramics, handmade paper, baked products, juice, meat products, cow horn products, bamboo products, texilte are all underway and in advance stages of development. 2. Establishment of New Castle Vaccine Production Unit where 90% of civil works and renovations of the Vaccine unit has been completed. Vaccine machinery and equipment have been procureed and await delivery and installation. 9 technican staff have been recruited and training is in progress.

3.Establishment of Processing Facilities.- a) Final test running of the Potatoe and Vegetable Factory in Kabale have been completed and awaiting commencement of commercial production. b) Nabusanke women group friut project in Mpigi has 95% civil works completed, machinery has been installed and test run. The water supply system has been installed. The project awaits commissioning and operationalisation. c) 80% civil works have been completed for a Peanutbutter project in Lira. Machinery is already procured and delivered and awaits installation d) Mushroom Training and Resource Centre MTRC has been established and is fully operational, it is benefiting a significant number of women in Kabale. e) A meat processing facility serving Easter Uganda and Western Kenya has been launched and is now operational in Busia. Support has beeb directed to improving its infrastracture and technicial capabilities. The facility is fully operational. f) Arua agro-processing centres from mango juice processing, meat and milk processing facilities in West Nile are at different stages of development, technicial support and monitoring continued and should all be operational by end 2010. 4. Technology Transfer and Engineering Innovations. Contraptions for an electric conventional oven, hatchery, textile looms, electronic equipment, software for biometric solutions are under progress. 5. Business Incubation. Varying support services have been provided and extended to in-house and virtual business incubation. Techinican support to business incubation programes has expanded beyond food processing to , vaccine production. The utimate aim is to nature start up businesses into reputable enterprises. 6.Skill&capacity building and Awareness &Promotional campaigns 50 staff have been trained internationally in various techinical areas. UIRI's capacity to source and assess appropriate technology has thus improved significantly and the knowledge base to fabricate our own machinery has increased in similar measures. Local and regional exibitions (In Tanzania and Sudan) have been conducted. In pursuit of addressing skills development UIRI hosted 48 industrial trainees from higher institutions of learn to expose and enable them relate theories studied in class to practical application. 7. International Collaborations various MoU's have been signed with reputable research centers, luminaries like China Bamboo Research Centre (CBRC) IN Huangzhou. SIRIM-Berhad of Shah Alum Malaysia, In October another MoU was signed with the prestigious National Science and Technology Development Agency of Thailand, our very own Makerere University. These MoUs have opened up a lot of opportunities for UIRI staff capacity building, exhanging of ideas and expansion of our horizons- for instance the fabrication of bamboo processing line in collaboration with CBRC, and also fabrication of our paper making machinery are veritable case studies in this regard 8. Infrastrucural improvements and upgrading overhaul of the water system, renovations of pilot plants, construction of access gate to UIRI, new Internet Service Provider, design and construction food laboratory are all at different stages of procurement and implementation as capacity to accommodate the aforesaid intiatives and activities.

Table V2.1: Past and 2015/16 Key Vote Outputs*

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Vote Summary

Vote, Vote Function Key Output	2014/15 Approved Budget and Planned outputs	2014/15 Spending and Outputs Achieved by End Sept	2015/16 Proposed Budget and Planned Outputs
Vote: 110 Uganda Industrial Research Institute			
Vote Function: 0651 Industrial Research			
Output: 065101	**Administation and Support Services**		
Description of Outputs:	Recruit 50 high caliber scientists and engineers, pay salaries & other staff benefits to 260 employees; Pay asset insurances, utility & property expenses, Clear communication and general supplies expenditures, Pay maintenance and professional services expenses	1.A Microbiology Research Officer trained ingood measurement, weighing and pipetting practices organized by Palin and Metler Toledo on 4th – 5th September 2014Good weighing practices 2.The Vaccine Production Unit Quality Assurance Manager currently undertaking a Master's program attended a Biotechnology Innovation and Regulatory Science at the Kilimanjaro School of pharmacy in Moshi, Tanzania on 1st to 12th SeptemberTanzania. This has resulted into the restructuring of the current Vaccine Quality Management System to International Standard 3.One staff is studying MSC chemistry at Makerere University 4. Four staff to attend ISO 17025 Laboratory Training at South African National Accreditation system (SANAS), Tumuheirwe, Mijumbi, Muhereza & Arishaba 5.Mr. Asuman Ratibu attended EU-EDES laboratory business plan course in Addis Ababa , Ethiopia 6.Three staff attended Documentation, System and Auditing Training at SANAS (Preparation for Accreditation), Mugisha, Nabaggala & Ratibu 7.Nine staff to attend Method validation and measurement of uncertainty in laboratory application at UNBS 8.A staff attended the International conference on Organic sysnthesis in Europe 9.(2 Staff) have attended Advanced Instrumentation training in HPLC, AAS, GC/MS 10.Trained students/ scientists in Good Laboratory Practice (GLP) and chemical analysis. 11.Trained 1 intern from	- Recruit 45 New Employees -Undertake staff training and skills development - Pay off current staff salaries and benefits - Insure Institute Assets Equipment, Vehicles, IT Servers and IT Equipment Subscriptions Online Membership subscription for 1.AOAC (Association of Analytical Chemists 2.American Public Health Association 3.Science Direct Journal. 4.Laboratory Proficiency Testing Schemes (PTS) 5.Annual Subscription for •PTS, •AgriLASA, •EAC •SADCMET •FAPAS (as a requirement for Accreditation of the laboratory)

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Vote Summary

Vote, Vote Function Key Output	2014/15 Approved Budget and Planned outputs	2014/15 Spending and Outputs Achieved by End Sept	2015/16 Proposed Budget and Planned Outputs
		Makerere University (Mr. Atukwasibwe Peter) 12.Trained 3 interns in laboratory training (GLP) 13.One staff undertook capacity development in Embroidery for Three months in ChinaOn-going 14.A Research Technician of Materials and Minerals Engineering Division undertook trainings in. Tea growing between the 29th of August 2014 – 11th October 2014 in China.	
Output Cost:	*UShs Bn:* 6.018	*UShs Bn:* 1.240	*UShs Bn:* 6.018
Output: 065102	**Research and Development**		
Description of Outputs:	Develop new value added products. Provide chemical, material and microbial analytical services for UIRI internal and external clients. Design and fabricate prototypes of affordable and appropriate technologies for dissemination. Initiate new project research agendas. Undertake research projects for targeted value added products to reduce post harvest loss and house hold incomes. Launch and commercialize already developed products. Commercialization and marketing of Newcastle vaccine. Operationalise established valued addition centers.	74 internal samples and 24 samples from external clients were analyzed at the Analytical Microbiology Laboratory for parameters like TPC, Total coliforms, E.coli, Yeast and molds, Staphylococcus aureus, & Salmonella typhimurium. Other tests include; Sterility, Antimicrobial activity of products and microbial surface swabs. 195 laboratory samples of food, alcoholic beverages, cosmetics, plantswere analyzed for chemical composition and properties	Research and development The different sections engaged in Research and Development shall undertake as follows Production Systems shall 1.Formulate and develop chicken feeds out of the bio waste of fruit waste 2.Formulate and develop Jackfruit jam 3.Formulate and develop Pomegarnate juice 4.Formulate and develop Sugar cane syrup and jam 5.Formulate and develop healthy Green tea drinks 6.Formulate and develop healthy cocktail (pumpkin, lemon & passion) 7.Formulate and develop pumpkin powder Under the Food Laboratory 8.Food Laboratory remains committed to undertake food product development, and related research 9.Study the stability of curcuminoids and lignans in foods 10.Analysis of milk using lactoscan hence the need to procure consumable materials including alkali 11.Analysis of juices for TTA, Phhe need to procure consumable materials including indicator 12.Testing products under development for temperature,

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Vote, Vote Function Key Output	2014/15 **Approved Budget and Planned outputs**	**Spending and Outputs Achieved by End Sept**	2015/16 **Proposed Budget and Planned Outputs**
			moistureQ1,Q2, Q3Moisturemeter 13.Carryingout milk platform tests he need to procure consumable materials including a base 14.3 types of Breakfast cereals will be madehence the need to procure, production materials including raw materials and packaging 15.4 types of Instant porridges will be madehe need to procure production materials including raw materials, packaging, emulsifiers, stabilisers and preservatives 16.2 types of nooddles from local food material will be developedhe need to procure production materials including appropriate packaging 17. 7 gas mixtures for MAP packaged fruits, vegetables, meats, bakery products, dairy products will be developedhe need to procure raw materials and appropriate packaging 18.5 levels of Production of pectinhe need to procure production materials 19.Develop breakfast cereals, instant porridges, nooddles from local foods like cassava and sweet potato 20.Improve on food packaging technologies for meats, fruits, vegetables, baked products using modified atmosphere packaging (MAP) as a preservation procedure that doesn't use chemicals 21.Producing pectin from fruit wastes, extraction of plant and animal materials that can be used as ingredients during product development. 22.Enable physical preservation of fluid foods at laboratory level before packaging 23.Fast and efficient drying of food products during product development Microbiology shall develop 3 Products

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Vote Summary

Vote, Vote Function Key Output	2014/15 **Approved Budget and Planned outputs**	2014/15 **Spending and Outputs Achieved by End Sept**	2015/16 **Proposed Budget and Planned Outputs**
			24.Research & development of shea/Bentonate Anti-Acne, anti-wrinkle creams, shampoo, face scrub, toner & moisturizer 1st, 2nd, 3rd and 4th QuartersChemicals& reagents for cosmetics formulation 25.Research & development of an antibacterial soap 1st, 2nd, 3rd and 4th QuartersChemicals & reagents for cosmetics formulation 26.Research & development of Spirulina1st, 2nd, 3rd and 4th QuartersLaboratory consumables Research projects applied shall include 27.Design & Dev't of production process of an antibacterial herbal remedy1st, 2nd, 3rd and 4th QuartersMaterials & Equipment 28.Field trial of Aflatoxin Biosensor in Arua 2nd QuarterMaterials, Equipment and subsistence allowances Research Projects shall be initiated shall include 29.Pro-Lactic acid production from cassava1st, 2nd, 3rd and 4th QuartersMaterials, Equipment and subsistence allowances 30.Bioplastics development 1st, 2nd, 3rd and 4th QuartersMaterials, Equipment and subsistence allowances 31.Biosurfactants for environmental bioremediation1st, 2nd, 3rd and 4th QuartersMaterials, Equipment and subsistence allowances 32.Biosensors and Bioengineering1st, 2nd, 3rd and 4th QuartersMaterials, Equipment and subsistence allowances Chemistry laboratory 33.Routine Laboratory analysis, Research & Development 34.Procurement of Laboratory standards chemicals, Reagents, Apparatus and other lab materials. 35.Procurement for Soxtec

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Vote, Vote Function Key Output	2014/15 **Approved Budget and Planned outputs**	2014/15 **Spending and Outputs Achieved by End Sept**	2015/16 **Proposed Budget and Planned Outputs**
			system (Fat content), Fibertec system(fiber content) & Kjeltec system (protein) 36.No. of product analyses undertaken1000Routine analysis of External and Internal laboratory samples, food, juice, water & waste water, drugs, minerals, soap, Detergents, cosmetics, natural products and petroleum products The Chemistry Laboratory shall undertake five product formulations 37.Formulation of shoe polish, 38.car polish, 39.sanitizers, 40.match box, and 41.Anti-microbial agents using local raw materials in Uganda The Chemistry Laboratory Research projects shall include. 42.Antimicrobial activity of banana flowers extract against bacteria 43.Application of zeolites in removal of heavy metals in wastewater. 44.Isolation of curcuminoids from turmeric plant. 45.Commercialization of flavored clay pot water The Materials and Minerals Engineering Division The Materials and Minerals Engineering Division looks to innovate the following new technologies 46.Production of recycled Glass Products 47.Production of concrete Tiles and Pavers 48.Production of plastic Recycled Products 49.Undertake the physical and chemical analysis of the different mineral ores used in the section 50.Refinement of production of cups, plates and saucers 51.Undertake R&D in Bentonite and Allied requiring chemicals & Reagents 52.Undertake R&D in Artificial Ceramic Corals in fish breeding 53.Undertake R&D in

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Vote, Vote Function Key Output	2014/15 **Approved Budget and Planned outputs**	**Spending and Outputs Achieved by End Sept**	2015/16 **Proposed Budget and Planned Outputs**
			Gemstone cutting technology this requires equipment &Consumables 54.Continue with R&D in dustless Chalk making from Gypsum ore 55.Undertake R&D in Glass recycling Technology 56.Continue with R&D in Water filtration 57.Continue with R&D in concrete tiles and Pavers 58.Undertake R&D in Production of mineral oxides 59.Undertake manufacturing of adhesives Fruits and Vegetables department shall develop seven new products 60.Development of chicken feeds out of fruit waste 61.Development of jackfruit jam 62.Development of pomegranate juice 63.Development of sugar cane jam and syrup 64.Development of a healthy green tea drink 65.Development of a healthy cocktail (pumpkin, lemon & passion) 66.Development of pumpkin powder Bamboo 67.Development of Biochar fertilizer now on market trail especially National Forestry Authority and Tea Growers. The developed bamboo fertilizer products shall be analyzed monthly in different laboratories for product refinement 68.Two Products (Bamboo tooth Picks and Bamboo Mats) to be developed up to commercial stage 69.Toothpick and mat production, packaging and market testing, process and product refinement shall be undertaken. Bamboo, assorted processing chemicals and materials, packaging material to be procured

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Vote, Vote Function Key Output	2014/15 **Approved Budget and Planned outputs**	**Spending and Outputs Achieved by End Sept**	2015/16 **Proposed Budget and Planned Outputs**
			70.There shall be installation of Bamboo processing equipment, test running and commissioning of the Kabale Bamboo Processing Unit 71.There is a requirement to monitor & evaluate the Kabale Bamboo Process Department ICT 72.UIRI shall undertake development of Mobile application platforms and testing mobile phones services for instance equip of staff with mobile apps development skills and providing SMS Messaging Development or equiping individuals with SMS software development skills Button Mushroom 73.To further the research on Button Mushroom there is need to procurement of the following consumables, Millet grains, Urea, Muriate of potash (MOP), Supper phosphate, Insecticide (Dimilin), Calcium carbonate, Wheat straw, Rice straw, Spawn bags, Wheat bran, Calcium ammonium nitrate (CAN), Gypsum, Black polythene bags, Big saucepans (stainless steel), Bench wipers, Cloths wipers, Parafilm''M'' Roll, Bunsen burner + Small gas cylinder 74.Wheat grains, molasses, Plastic containers for sterilization of substrate in the bunkers, Tapline 30x30 m long, Bags of rice grains for spawn production Water spraying pipe with a pump, Water pumper from the drainage for recycling water at the composting yard
Performance Indicators:			
No. of value added products developed for industralisation to reduce post harvest losses.	50	15	40
No. of research projects initiated	5	4	60
No. of product analyses	300	293	55

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Vote, Vote Function Key Output	2014/15 Approved Budget and Planned outputs	2014/15 Spending and Outputs Achieved by End Sept	2015/16 Proposed Budget and Planned Outputs
undertaken for quality checks			
Output Cost:	*UShs Bn:* 1.563	*UShs Bn:* 0.208	*UShs Bn:* 1.863
Output: 065103	**Industrial and technological Incubation**		
Description of Outputs:	Expand the UIRI Industrial and Technological Business Incubation portfolio. Extend support to business incubation and MSME. Promote and create awareness of new products by SME's, Develop business management skills through ICT applications. Train MSMS in product formulation, skills development and capacity building.	UIRI's Industrial and Technological Business Incubation portfolio has expanded to 44. Virtual, on site incubatees and SMEs are supported technically in the areas of product development, standards, technology adaption, business management and marketing, to attain self-sustainability The Institute had undertaken various platforms to promote and create awareness of new products by SME's through exhibitions, publications, awareness seminars and collaborations Business enterprises' and MSMS have been trained by the UIRI Business Development Center in a number of business management skills through ICT applications and capacity building.	1.Expansion of Direct Access Distribution Strategy for Newcastle Vaccine. Following the successful completion of the novel pilot distribution mechanism in Eastern Uganda, The vaccine is to be launched nationwide. It will involve initially targeting distribution in 50 districts in the Northwest and Eastern parts of the country. In 2015-2016 the vaccine department intends to implement the lessons learnt in the pilot distribution area in eastern Uganda to launch KUKUSTAR, the vaccine against Newcastle disease, nationwide to be accessible to all poultry farmers. 2. There are currently 13 interested in Materials and Mineral Engineering Business incubation who shall be accessed aimed to create 30 jobs 3.Establishing one dairy incubation centre in Ntungamo 4.Monitoring and evaluation of virtual incubatees 5.Consumables for bamboo plant to commercialize toothpick and mats production lines in Kabale and at UIRI 6.Support towards sustainability & improvement of virtual incubatees' production capacity 7. Take on four new incubatees under Production Systems i.e USSIA, IEN, Tropical Connections, IKN Holdings 8.2.Trained incubateesApproval of requisitions for training materials 9.3.New commercialised productsProcurement of training materials 10.4.Increased production capacity in the juice pilot plant 11.5.New job opportunitiesCommercialisation of new products for incubatees 12.Initiation and approval of a

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Vote, Vote Function Key Output	2014/15 Approved Budget and Planned outputs	2014/15 Spending and Outputs Achieved by End Sept	2015/16 Proposed Budget and Planned Outputs
			requisition for a batch pasteuriser 13.Procurement of a batch pasteuriser 14. 15.Installation of the batch pasteuriser 16.Imroved product qualityRefinement of existing products for incubatees i.e pineapple juice,pineapple jam,chillie sauce,mango cordial,mango juice,mango & orange cocktail,tropical cocktail,passion,orange juice 17.Provide technical support for refinement of existing incubatee products 18.undertake incubateemonitoring and evaluation of incubatees(both in-house and virtual)
Performance Indicators:			
No. of technologies deployed with incubatees	20	5	25
No. of SME's incubates taken on	25	8	50
Output Cost:	*UShs Bn:* 1.577	*UShs Bn:* 0.297	*UShs Bn:* 1.702
Output: 065104	**Model Value Addition Centre Establishment**		
Description of Outputs:	Establish and equip value additional centers in regions of target raw material. Operatonalise value addition centers to stimulate farmer raw material as the centers would provide ready market for their produce.	•UIRI establishes model value addition centers and demonstration plants to illustrate the benefits of new technologies for employment and wealth creation •To promote the development of value added industries especially the agro-industries to widen the tax base •To build capacity in specific targeted skills needed for industrial development and value addition •To increase competitiveness of local industries and Ugandan products •Establish and equip value additional centers in regions of target raw material. •All functional facilities are now fully operational aiming at value addition centers to stimulate farmer raw material as the centers would provide ready market for their produce. •Other	Establishment of Model Value Addition Centers has proved to impact on poverty reduction. The Established Model Value Addition Centers stimulate increased farm production. The farmers' area assured of ready market where they can generate some income. The centers assist on reduction of post-harvest losses as what is produced is processed. The Model Value addition centers are a skills and training hub for capacity building in farm production, post-harvest handling, processing and creation of employment and hence poverty reduction The following Model Value Addition Establishments are at different stages as detailed here below 1.Establish a functional Fruit

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Vote, Vote Function Key Output	2014/15 Approved Budget and Planned outputs	2014/15 Spending and Outputs Achieved by End Sept	2015/16 Proposed Budget and Planned Outputs
		value addition centers underway are in advance stages of completion as continuing or cross cutting projects between financial year owed to their construction implementation timeframes.	juice and water processing facility in Kawempe by modification of an existing processing facility 2.Development of new products for the centres and training of production staff 3.Establish a Model industry to manufacture the polylactic acid and make bioplastics; and cosmetics centre 1st, 2nd, 3rd and 4th Establish infrastructure for pilot plants and recruit personnel to manage the centres 4.Maziba Winery Project, Kabale Establishment of a complete functional processing winery plant whose construction work included a sub structure, walling and roofing, sanitary facilities, internal and external finishes, external works have been completed and handed over. Defects liability period supervision is underway. 5.Establishment of a Model Diary Farm in Ntungamo The establishment of a model farm entails constructing a Dairy shade, Feeding shade, Chaff Cutter shade, Milk collection area. Site has been handed over to the Contractor for commencement of work. 6.Extra works at Essential Oils Pilot Project Luweero Construction of allowed variation for additional scope to include office premises and wet areas is underway at 90% of works complete. 7.Construction of a nursery shed at Essential oils Luweero Construction of a nursery shed at Luweero Essential Oils is underway. Civil works Construction were completed. Welding works are pending 8.Proposed Fruit juice processing plant in Itojjo A functional fruit juice processing plant whose works include a substructure, walling and roofing, internal and

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Vote, Vote Function Key Output	2014/15 **Approved Budget and Planned outputs**	**Spending and Outputs Achieved by End Sept**	2015/16 **Proposed Budget and Planned Outputs**
			external finishes is underway. Construction is ongoing and the substructure is complete 9.Proposed Cheese processing plant at Rubale Ntungamo District Works include to design for construction of the Cheese Processing Facility is underway. Site reconnaissance, to assess the nature of land, was done by the UIRI technical team on 17th Sep 2014. Bills of Quantities have been prepared. 10.Proposed Soap processing plant in Kabale Industrial Area for Yildi enterprisesis underway. Works to include Design for construction of the facility is underway. Site reconnaissance, to assess the nature of land, was done by the UIRI technical team on 17th Sep 2014. Preliminary estimates have been prepared. 11.Proposed rehabilitation of Esia mixed farm, Adjumani Rehabilitation of the facility and activity scope to be discussed with UIRI Management 12.Tile manufacturing facility in Wakiso Designs and Bills of Quantities have been prepared for establishment of a manufacturing facility for Tiles in Wakiso 13.Proposed Peanut Processing Plant in Soroti District The design is complete and preliminary estimates for a complete functional Peanut Paste Processing Plant in Soroti District have been prepared. A report has been submitted for approval. 14.Development of a Fabrication Lab for small scale manufacturing of circuit boards and casings for complete prototypes. A Project proposal is currently being developed. A start-up meeting was convened inviting interested stakeholders for the project. 15.Internal Painting of selected

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Vote, Vote Function Key Output	2014/15 **Approved Budget and Planned outputs**	**Spending and Outputs Achieved by End Sept**	2015/16 **Proposed Budget and Planned Outputs**
			Buildings at UIRI Design and BOQ's and implementation supervision of Internal painting of the plants are meant to improve the sanitary conditions of the facilities to enable them attain UNBS inspection standards. External painting is to improve the aesthetics and general outlook of the UIRI campus. Painting of toilets at the conference hall is complete. Painting in ceramics is on going 16.Proposed Chemistry Laboratory RefurbishmentModel Chemistry A Model Chemistry laboratory to facilitate the research activities currently being undertaken is ongoing. Contractor was procured. Construction work scheduled to begin in Q3. 17.Proposed Renovation of TDC Engineering workshop floor A hard wearing suitable floor surface for activities being carried out on the workshop is required for reinforcement of workshop floor surface with terrazzo. Renovation works in the workshop floors commenced and are underway.
Performance Indicators:			
No. of products up-scaled and commercialized by the centres	30	9	35
No. of model value addition centres at 75% completition	3	2	1
No. of local raw materials developed and populated in the scientific databases	40	8	45
Output Cost:	*UShs Bn:* *0.519*	*UShs Bn:* *0.076*	*UShs Bn:* *0.619*
Output: 065105	**Facility Repair and Maintenance**		
Description of Outputs:	Continued preventative / routine maintenance, upgrades of technologies, system and servicing of unplanned break downs. These include machinery equipment, of electricial system, water and drianage,cold rooms, air	The Institute continues to undertake preventative / routine maintenance, upgrades of technologies, system and servicing of unplanned break downs. These include machinery equipment, of electrician system, water and	1.Repair and maintenance of machinery and equipment for a well maintained pilot plant 2.Procurement and upgrading of the Existing Wastewater Treatment Plant with Advanced Immobilized Cell Reactor (AICR)

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Vote Summary

Vote, Vote Function Key Output	2014/15 **Approved Budget and Planned outputs**	**Spending and Outputs Achieved by End Sept**	2015/16 **Proposed Budget and Planned Outputs**
	conditioners. Replacements and refabrication of parts.	drianage, cold rooms, air conditioners. Replacements and refabrication of parts. Processing Infrastructure facilities, machinery, equipment and laboratory instruments that have been obtained to facilitate value addition through research and small-scale enterprise support have been routinely repaired, maintained and serviced.	Smart Treatment Plant (STP) 3.Establishment of a model wastewater treatment plant for training. 4.Cleaning materials & protective wear 5.Fuel For the Boiler and Standby Generator 6.Repair of Microwave Digestor(Multiwave 3000) 7. Repair the laboratory Refrigerator(EkoFrigoLab 1500) and Freeze Dryer (Telstar LyoAlfa 6) 8.Undertake routine preventive maintenance for HPLC (2), AAS, CHN, and Uv/visible Spectrometer 9.Undertake calibration of Analytical balance, 2 ovens, 2 muffle furnance, water bath & pH meter 10.Repair of Food Laboratory fridges by replacing the funs and utilise the fridge for chilling/freezing samples 11.Repair of the centrifuge to separate sample components using the gabber centrifuge 12.Procurement of testing equipment and kits for wastewater treatment plant. To ensure efficient and effective performance of the plant. 13.Construction and installation of new washrooms/toilet for the pilot plantTo improve on the hygiene and congestion during time of training 14.Drilling and installation of the underground water.To cut down the water bills by 60% from NWSC and the money is used for other development. 15.General servicing and repairs of Pilot plant 16.3rd phase water overhaul (internal piping system) 17.To replace the corroded old pipe and improve on the pipe layout. 18.Maintenance tools & equipmentTo improve on work efficiency and service delivery. 19.Maintenance worksTo

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Vote Summary

Vote, Vote Function Key Output	2014/15 **Approved Budget and Planned outputs**	2014/15 **Spending and Outputs Achieved by End Sept**	2015/16 **Proposed Budget and Planned Outputs**
			maintain better performance of the utility 20.Professional capacity development trainingTo improve on skills and knowledge for better performance. 21.UIRI facilities shall require fumigation services, 22.Cleaning Materials to include fuel for mauler, toilet paper, soap(liters), detergents, toilet brushes, brooms, contracting rubbish disposal, towels, tarpaulins 23.First Aid Boxes for the four pilot plants 24.Microbiology and Biotechnology Equipment calibration 25.Equipment service and preventative maintenance 26.Chemistry civil worksRepairs & remodeling 27.General plant clean up and maintenance of the Materials and Mineral Engineering Division 28.Functional machinery and equipment 29.Repair and maintenance of machinery 30.Repair of Kilns, Extruder and Ball mills of the Materials and Minerals Engineering Division 31.Well maintained pilot plant and improvement of civil works 32.Renovation of PCB Facility into a Fabrication Laboratory Kampala and equipment procurement. This shall require renovation of PCB lab Consultancy and procurement of equipment 33.There shall be continued maintenance (Repair, replacement and servicing) of electrical and electronic appliances and Serviced equipment and appliances by Instrumentation Division 34.Repair and creation of extra data ports in the BDC requires purchase of materials necessary and gear

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Vote Summary

Vote, Vote Function Key Output	2014/15 **Approved Budget and Planned outputs**	**Spending and Outputs Achieved by End Sept**	2015/16 **Proposed Budget and Planned Outputs**
			35.Hire of external company to undertake maintenance of over 30 printers 36.Hire of external company to undertake maintenance of over 150 computer 37.Replace ICT consumables like printers toners, computer accessories, fax ribbon, computer mice, keyboards, UPS batteries whenever applicable
Output Cost:	*UShs Bn:* 0.600	*UShs Bn:* 0.113	*UShs Bn:* 0.600
Output: 065106	**Industrial Skills Development and Capacity Building**		
Description of Outputs:	The Institutes Industrial Skills and Capacity development includes internship programs, industrial training for university continuing students, staff trainings for skills upgrading and enhancement of new evolving technologies. It also includes production trainings in various food processing fields and engineering technics for potential entrepreneurs	Limited skilled, technical manpower and lack of entrepreneurial skills continue to impede industrial development. Industrial skills development and capacity building is deliberately undertaken to create competent capacity for industrial development. Hence the Institutes imparts Industrial Skills and undertakes Capacity development that includes internship programs, industrial training for university continuing students, staff trainings for skills upgrading and enhancement of new evolving technologies. It also includes production trainings in various food processing fields and engineering technics for potential entrepreneurs	1.Provide skilled & practical internship training to students 2.Train skilled SMEs 3.Train Small cottage industries for fruits and vegetables processing created 4.Train SMEs in reduction of post-harvest losses 5.Hands on training for 6 people in bamboo processing skills, bamboo, processing chemicals, packaging material 6.Three Internships to be offered in Molecular Biology& Biotechnology and Microbial analysis 7.Train 200 in cosmetics formulation, biotechnology and microbial analysis in Culture media, chemicals and reagents 8.Training of production staff 9.Train skilled & practical internship students in food processing and quality management 10.Train skilled SMEs 11.Train different groups that are establishing small cottage industries in reduction of post-harvest loss handling 12.Certifications to be done in Networking, Programming, hardware maintenance for Internal staff capacity strengthening 13.Lira Peanut Research Processing Center shall train 150 farmers in Good Agricultural practices and Good post-harvest practices. This requires sensitization meetings and training materials

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Vote Summary

Vote, Vote Function Key Output	2014/15 **Approved Budget and Planned outputs**	**Spending and Outputs Achieved by End Sept**	2015/16 **Proposed Budget and Planned Outputs**
			UIRI shall provide Instrumentation skills development 14. Advanced Embedded Systems and Advanced applied electronics 15.Hardware Description Language, Applied Instrumentation and Control Engineering 16.Computer Applications and databases for embedded systems, Double sided PCB design and processing and surface mount technologies 17.Real Time Operating Systems (RTOS) and Project and System Engineering Management 18.Provide training to 5 people in special skills relevant their Materials and Minerals Engineering skills gaps paradox Chemistry laboratory 19.Train 100 students in Good Laboratory Practice (GLP) and chemical analysis. Makerere University, Kyambogo University, Mulago Paramedics, Uganda Petroleum Institute Kigumba (UPIK) ICT 20.Provide professional workshops & conduct seminars regarding the legal, Taxation & marketing aspects of a business, understanding national policy on industry and trade in the East African Community 21.Provide enrolled incubates training on how to start, manage a business and incorporate ICT for business efficiency (both on site and outreach programs) 22.Provide training in enhanced records keeping & management, use of ICT tools & corporate image, Business Skills & Management Training, Business development coaching with emphasis on records management, Corporate image improvement and the use of ICT tools for efficiency and profitability 23.A minimum of 2 and

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Vote Summary

Vote, Vote Function Key Output	2014/15 Approved Budget and Planned outputs		Spending and Outputs Achieved by End Sept		2015/16 Proposed Budget and Planned Outputs	
					Maximum of 4 linkages established coordination of round table meeting with financial institutions, initialization of collaboration with international and local business development centers 24.Participate in BDC strategic exchange programswith other institutions for capacity building 25.Develop Customized Business Development Courses and Consultations, in Course designing & development of course outlines, Content development, Content reviews, compilation, publishing of course manuals and integration of multimedia 26.At least two primary market surveys carried outAnalysis of incubates business systems, conceptualization of both manual and possible automated systems, design, testing and deployment of developed systems 27.UIRI shall under take analysis of incubates business systems, conceptualization of both manual and possible automated systems, design, testing and deployment of developed systems 28.Commercialization of the video conferencing facility. Video conferencing subscription fees to be established	
Performance Indicators:						
No. of apprenticeships taken on	70		15		80	
No. of SMEs trained in industrial development and value addition processing	300		132		1,000	
Output Cost:	*UShs Bn:*	*0.121*	*UShs Bn:*	*0.029*	*UShs Bn:*	*0.150*
Vote Function Cost	***UShs Bn:***	***15.047***	***UShs Bn:***	***2.996***	***UShs Bn:***	***14.340***
Cost of Vote Services:	*UShs Bn:*	**14.340**	*UShs Bn:*	**2.996**	*UShs Bn:*	**14.340**

* *Excluding Taxes and Arrears*

2015/16 Planned Outputs

1.Establishment of a Regional Hub for Science, Technology, and Innovations (STI) in East and Central Africa in support of industrialization of EAC states.

Following the award of UIRI as Center of Excellence in R&D for the East African Region on 30th

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November 2013.
The Institute will in FY 2014/15 undertake feasibility plans and activities aimed at establishing a Regional Hub for Science, Technology, and Innovations (STI) in East and Central Africa in support of industrialization of EAC states.
The project will majorly focus on Research and Technological Organizations (RTOs) and Industrial Research Institutes and other agencies involved in technological aspects of Industrialization.
The objectives of establishing a Regional Hub for Science, Technology, and Innovations (STI) will be to harness, coordinate, and harmonize the collective efforts of regional governments and their respective agencies involved in the industrialization process. To complement the efforts and resources committed by the EAC secretariat in advancing industrialization of the sub-region. To share UIRI's experiences with research institutes on how to build a viable and respectable R&D institution.

The rational is that at Uganda's Independence Jubilee last year, His Excellency Yoweri K Museveni identified ten strategic bottlenecks that have been cause and consequences of Uganda's slow pace towards modernity. Included in the list is "Lack of industrialization." Indeed robust industrialization is the catch-all for solving most of our development ills.
In turn, industrial research institutes and RTOs are the fuel that fires the engines of socio-economic transformation.

The proposed project is aimed at the following:
- Coordinate, facilitate, and foster activities that will lead to efficient and effective delivery of services by the regional RTOs to the industrialization process.
- Enhance capacity for scientific innovations and create pathways and platforms for their implementation and application.

- Establish a regional hub for scientific and technological innovations.
- Plug the gaps within the agribusiness value chains by enhancing technology use in value addition.

The scope requires individual countries within EAC and their neighbors all subscribe to the same rhetoric regarding development, socio-economic transformation, et al. But their funding priorities tend to belie these sentiments. For example their commitments to invest in R&D have not been fulfilled. 1% of GDP for each member should be allocated to R&D.

Individual countries have made attempts to establish RTOs, e.g. UIRI; KIRDI, TIRDO. However, unlike their agricultural research counter parts; these RTOs are limping because of traditionally inadequate facilitation. There is palpable ambivalence about funding of RTOs in our region.

The proposed project will, among other things, strive to provide a forum for exchange of ideas, sharing of experiences, and mutual mapping of strategies for R&D activities, especially those related to industrialization.

Participating Institutions; with UIRI taking the coordinating lead, sister organizations in the region will form the core of the envisaged hub. These include: KIRDI; TIRDO; TEMDO; etc
UIRI stands ready to assist the member states of EAC which don't yet have similar RTOs, to establish them.
UIRI is already active with peer organizations globally. Our association with the likes of SIRIM, FARA, and CSIR will help to assure the success of this project.

UIRI remains committed to fulfill its mandate and objectives during FY 2014/2015. The Institute's competence shall be availed to undertake the following projects/activities;

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2.Establishment of Model Agro- Processing facilities as per National agricultural zoning of resource abundant areas. These will act as
•Hubs for knowledge and skills transfer.
•Envisaged significant reduction in post-harvest loss of agricultural produce.
•The agro processing facilities will stimulate increased agricultural raw material and farm production for primary industry
•Work with Agricultural research institutions in developing and promoting crop varieties and animal breeds suitable for high value products and promoting crop varieties and animal breeds suitable for high value products.
•Demonstration of the benefits of value addition and hence widen awareness and interest in the public.
•Establish platforms for value addition and product development

3.Commercialization of essential oil
UIRI and under the technical guidance of Council for Scientific and Industrial Research - Enterprise Creation for Development (ECD) of South Africa has established an essential oil pilot project in Uganda consisting of five suitably selected essential oil varieties. The project will provide information on crop yields as well as the quality and marketability of the essential oils that are steam distilled from the harvested plants. The information is required for future decisions on the economic viability of cultivating and processing essential oil plant species for commercial purposes in Uganda. Design Phase (Phase I) and the Establishment Phase (Phase II) have already been completed. The Pilot Operation Phase (Phase III) is underway. Full Operation (Phase IV) and Close Out (Phase V) shall be undertaken in FY 2014/15. The major objective of the project is to inform the processes and procedures to the development of Essential Oil Sector in Uganda.

4.Establishment of a foundry
The Institute urgently needs to establish a foundry for "total technology development" capability, for competence reverse engineering of basic technologies for industrial application and production of spare parts. Currently limited fabrications of basic machine parts. Others more complex parts (gears, blocks, motor casting) can only be done by foundry casting our limited ability in reverse engineering the Bamboo line is a good example. With a foundry we can replicate the entire line

5.Cosmetics formulation and training
This is a research, development, and popularization project for soaps and cosmetic products with an organic foot print. Under this project entrepreneurs are trained in cosmetics production techniques, and technically supported to formulate and develop different products for commercial purposes. In addition to supporting different entrepreneurs, the project aims to develop and standardize two products in the next financial year (2014-2015):
•A Shea butter /Bentonate based anti-Acne cream, and
•An antimicrobial soap
Shea nut or moo yaa grows naturally in Sahel region of North Eastern Uganda, and bentonite is a mineral that occurs in Kasese and Mbale regions of Uganda. These two have very beneficial quality attributes for skin which enhance product acceptability

6.Research & development of Spirulina
This project aims at development and production of Spirulina, edible high protein blue - green algae.
7.Research & Development of Actinomycin D (Anti-cancer chemotherapeutic drug)
This project undertaken by Kess Biotechnology & UIRI, aims to develop cheap and readily available anti-

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cancer drug (Actinomycin D). The strains producing the drug have already been isolated and are being in the biotechnology center of excellence.
8.Development and application of a bacterial system for the production of industrial biocatalysts.
This project is being undertaken by AMiTek (Applied Microbial Tekinologies) in collaboration with UIRI for the production of industrial biocatalysts (Enzymes); initially proteases to be used in cleaning agents and as food additives. The strains of bacteria have already been isolated

9.Research & development of an antibacterial herbal remedy
Under this project, selected herbal remedies have been scientifically tested and verified to be efficacious. In the next financial year, it is planned to design and develop a production process for herbal ear-drops thereby establishing a model value addition centre to commercialize our natural herbs in Kamuli district of Uganda.
10.Research and development of a biosensor for afflatoxin testing
The project to develop the technology resulted from the demand for a hand-held tool for demonstrating safety from aflatoxin B1 in agricultural products specifically fermented cassava products that are traded within the East African Region in Arua, Tororo and Busia Districts of Uganda. The scientific principle and electronics have been developed and are being validated by comparison with existing standard techniques. During the next year we envisage to prototype; assemble the biosensor; study environmental stability; and do performance testing in the field. When complete this tool will enhance regional trade
11.Establishment of Ugandan Shea processing Platform
The project is aimed at strategic development of shea butter and oil processing to enhancing market access. Although the product is high value, market access has been impeded due to poor quality products. A model value addition center will be established and processors shall be trained in good manufacturing practices for development of competitive shea butter products in the region.

12.Minerals and material engineering section
The section aims to undertake physical and chemical analysis of different mineral ores used for development and production of
•Cups, Plates and saucers
•R&D in Bentonite and Allied
•R&D in Artificial Ceramic Corals in fish breeding
•R&D in Gemstone cutting technology
•R&D in Water filtration
•Concrete tiles and Pavers
•Production of oxides
•Manufacture of adhesives
13.Food product development
The food laboratory shall engage in research and development of different food formulations and product development of products including but not limited to
•Development of breakfast cereals, instant porridges, noodles from local foods like cassava and sweet potato
•Package foods including meats, fruits, vegetables, baked products using modified atmosphere packaging (MAP) as a preservation procedure that doesn't use chemicals
•Producing pectin from fruit wastes, extraction of plant and animal materials that can be used as ingredients during product development.
•Undertake activities for laboratory accreditation

14.Research and Development of Agriculture based projects:
•Smart Drip Irrigation System
Uganda is said to be the food basket of the Africa and that her economy relies heavily on Agriculture.

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However, we see that this is being threatened by the continual unpredictable weather patterns among other factors. This thus merits that irrigation is adopted as a means to supplement the unreliable rains. It's from is background that the Instrumentation team has embarked upon designing a Smart Drip Irrigation System to mitigate this challenge. The irrigation system under design will not only reduce wastage of water but will also provide for soil moisture and Ph monitoring, fertilization, and a crop database.

15.Neonatal and Maternal Healthcare projects:

•Automated Intravenous Fluid Delivery Regulator

Intravenous Fluid delivery is a medical procedure which is carried out to either quickly replenish fluids in the body or/and administer drugs through a tube known as a catheter inserted into the body. This life saving procedure can become very dangerous and possibly fatal if the fluid flow is not correctly regulated especially for infants and young children. High volumes of a fluid administered in a very short time results into drug overdose and heart overload which escalates into heart failure. Furthermore, high flow rates of a fluid damages blood vessels at the point of insertion.

It's from this background that the Instrumentation Division embarked on design of an Automated Intravenous Fluid Delivery Regulator which will render fluid flow rate control a function of volume to be administered for a particular time period. The device will also provide for occlusion detection, fluid run-away and near-empty detection with an alert/ alarm system.

16.MUTIMA project (Heart rate and Blood oxygen saturation monitoring)

According to the Uganda demographic and health survey 2011, low levels of haemoglobin in blood decreases the amount of oxygen reaching the tissues and organs of the body and reduces their capacity to function normally. This is associated with impaired cognitive and motor development in children. This condition can be avoided if early detection is made. Other medical conditions such as hypoxemia and sickle cell also result into low blood oxygen. Also, heart rate measurement and monitoring is a vital tool in diagnosis and treatment of cardiovascular related diseases, heart attacks, stroke and heart failures. These, once foreign diseases are now on the increase in Africa. Early detection of such conditions is thus vital for life to be sustained. The development of the Mutima project is therefore to facilitate monitoring of blood oxygen saturation and heart rate through the use of non-invasive methods.

17.Mother's baby thermometer project

The Mother's baby thermometer project is set out to design and develop a non-invasive miniature thermometer for mothers at home to monitor the temperature of their babies at critical stages of growth so as to allow them make urgent and informed decisions about their baby's state of health especially Fever onsets in Rural Uganda. The onset of fevers (high body temperatures) in most cases is a common indicator of infection in neonates. Since an infant's immune system is not fully developed, they are vulnerable to infections thus this will go a long way to enable mothers monitor the health of their baby.

18.Energy Efficiency projects :

Temperature Measurement and Control device

Manufacturing Industries and Production plants often have critical processes in which proper temperature regulation/ control is a prerequisite for a quality product to be produced. As such, this device is designed to be retrofitted on an existing system or customized to solve a specific temperature control and/or monitoring problem. This system can be used to control and monitor room temperature, incubator temperature, electrical oven temperature, water heater temperature, dryer temperature, kilns and furnace temperature among other things.

19.Solar Powered Chicken Eggs Incubator

This Incubator is designed to allow farmers to hatch chicken eggs using a method that requires minimal energy and is self-regulating. Uganda receives plenty of solar energy which can be harnessed to reduce reliance on hydro and thermal electricity. For farmers who have hens that are not ready to net or/and for large chicken raising facilities, and for researchers/students, this method provides green-energy and cost

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effective solutions.

20.Control System projects – Interactive Traffic Light Control System Project

In Uganda, the sequence in which a set of traffic lights at a junction is turned on has a fixed delay period regardless of the volume of traffic at the intersections thus underutilization of the roads and unnecessary increased delays. The interactive traffic light control system under development takes this into consideration and provides a platform through which the delay periods for each set of lights at the intersection can be varied.

21.Security applications

Fingerprint and Pin code Based Security Access Control System

Access control systems have over time become more sophisticated and several security measures have been employed to combat the menace of insecurity of lives and property. This can be done by preventing unauthorized entrance into buildings using conventional and electromagnetic security door locks, discrete access codes, and biometric methods such as finger prints, the eye and facial recognition. Security systems having realized the value of biometrics to verify or identify users, it has become the most secure and convenient authentication tool used today. This is because it cannot easily be borrowed, stolen, or forgotten and forged.

This project deals with identification, authentication, discrete access code and setup of a security system

22.Measurement applications

Digital Weighing Scale design (Reverse engineering)

Weighing scales have found numerous applications in the field of Medicine, Agriculture, Production, Trade, and Education among others. In some of these, precision is an important factor and the line between good quality and poor quality may be a small change is weigh measurement. The cost of these scales is also very high and as such is not affordable. Basing on these factors, the design of this device will mitigate some of these problems.

23.Instrumentation, Control and Automation projects

Automation of weaving machines (Bomboo section UIRI)

Weaving is one of the income earners for many women in Uganda and yet, most of these methods and tools used are rudimentary as such, the turnover is very low and labour intensive. Therefore, as a means to maximize profits, reduce on the labour demands, and increase throughput, the Instrumentation Division is set out to automate the weaving machine at UIRI as case study.

24.Moisture meter for wood.

The measurement of moisture contain has proved to be a big challenge for dealers in wood and the end-users i.e. the carpenters. As such, wood decay, infection by pests and poor quality products have resulted into huge loss of money and market for wood products since these persons cannot measure the moisture contain in their wood. In addition the price of a wood moisture is too high and unaffordable by many. It is from this background that the device will be developed to mitigate these challenges.

25.Design and development of a Sterilizer

Sterilizers are instruments that are used to disinfect a number of tools and raw materials in the medical sector, and food technology sector among others. Failure to sterilize may result into fatal contamination, infections and erroneous experimental results. Even though this procedure is mandatory many health facilities and food labs are inadequately stocked hence posing treat to lives. The design and development of this instrument will fill this gap.

26.Industrial And Technological Incubation

UIRI operates an Industrial and Technological Incubator program. The incubator program has grown into a vibrant, robust and competent platform that sets up and hand holds enterprises to self-sustainability. Its portfolio continues to grow from strength to strength. The Institute supports both in-house incubates and

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virtual incubates at different levels of operation.
All innovations and value added products developed at the Institute are positioned for incubation by the private sector. Functions of the UIRI Incubator program include:
•Nurturing and growing start-up agribusiness enterprises,
•Training in application of best practices, international standards of management and enhanced work ethic for indigenous enterprises,
•Mentoring and cultivating other professional business management practices.
•Practical trainings in business managerial competence, book keeping and business discipline.
•Trainings in principles of technology acquisition, deployment and diffusion.
27.Upgrading of technologies, procurement of new technologies, machinery and equipment for the following areas
Technology development center
•Machinery and equipment for the Foundry
•Technologies for the foundry
Vaccine production unit
•Incubator for the Vaccine Production Unit
Bakery
•Four Deck Baking Oven i.e. used for baking especially cakes
•Dough Mixer (75kg dough capacity) to be used for mixing dough of up to 75kg
•Extruder to be used for making instant breakfast cereals e.g. cornflakes and pet foods
•Other small equipment/tools needed for Chocolate Making Project
Essential oil project
•Agri-weave technology
•500kg Essential Oil distillation unit
•Irrigation Systems
•Purchase nursery inputs
•Renew organic certification services for essential oil project
Chemistry laboratory
•Soxtec system (Fat content), Fiber Tec system(fiber content) & Kjel-tec system (protein)
•Procurement of Laboratory Analytical Balance
•Procurement of Gas Chromatography/ Mass spectrometer (GC-MS) equipment
•10 Analytical Chemistry & Laboratory text books
Instrumentation division
•3D rapid prototyping printer
•Light Intensity meter
•Air Flow rate meter(Anenometer)
•Pressure meter/Manometer
•Hygro-Thermometer
•Power supply with variable negative range
•Reflow ovens
•Drilling machine(handheld)
•Drilling machine(bench machine)
•Printer/Scanner/Copier, Computer (to be handled by ICT)
•Logic Analyzer
•Moisture meter
•Clamp meter
•Multi-meter
•Documenting Process Calibrator
Food laboratory

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•Lines of various food processing equipment
•MAP packaging technology
•Extrusion technology
•Separation technology
Bakery
•Deluxe Professional Airbrush Cake Decorating System
•Infrared Thermometer
•Countertop Microwave Oven
•Polycarbonate Chocolate Moulds
•Silicone Scoop Shovel Scrapper Rabbler Multipurpose Spreader (pack of 3)
•Spoon Shaped Silicone Spatula Scrapper
•Fondant modeling Set
•Table Top Tempera
•Bench Scraper(large)
•Bench Scraper (Medium)
•Offset Spatula
•Pastry Scraper
•Multi-purpose Bowl Scraper
•Chocolate Shaver
•Chocolate Decorating Comb and Smoother (4"x6")
•Ladle (½ oz)
•Chocolate Dipping Tool Set
•Chocolate Dipping Tool Basket
•Mixing Bowl (4 quart)
•Double Boiler Insert 8 Cup Capacity
•Non-Stick Chocolate Bark Mold & Baker's Quarter Sheet
•Silicone Non-stick Baking Sheets
•White Marble Superfine Grain Slab
•Hot Air Gun
•Aluminum Chocolate Wrapping foil
Meat technology
•Ice Flake Machine 500 Kgs/ 24 Hrs
•Sausage Filler 30 Lt
•Blast Freezer 4m X 4m Min Temp -18 Degrees
•Band Saw Free Standing
•Brine Injector
Dairy technology
•Aluminum Milk Cans (50 Litre Capacity) - 50 Pieces
•Manual Cup Sealers - 3 Pieces
•Heavy Duty Plastic Crates - 200 pieces
•Positive Displacement Pump - 1 unit
On- Line milk filter - 1 unit
Automatic Vertical Form, fill & Seal Packaging Machine
Small Scale Dairy Processing Equipment
Lira Peanut and Research Center
•Peanut grinderfor grinding ground nuts into peanut butter. This will enable us meet the demand because we roast a lot but the current grinder has a low capacity compared to the roasted capacity
•Generator is need especially when there is load shedding there is no other way to push ground nuts out of the roaster or cooler. All the big losses we have had are attributed to this.

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•Compressor to deliver compressed air to filling machine for automatic filling
•Sachet packing machine for filling Peanut butter into sachets
•Welding machine for joining/welding processing machinery together especially during maintenance
•Laboratory Centrifuge
•Moisture analyzer
•Analytical balance
•Laboratory Oven
•Laboratory Blender

28.Maintenance of UIRI technologies, machinery and equipment
Maintenance of pilot plant equipment for efficiency and productivity
Bakery and cereal processing plant require Lubricants and grease, wear spare parts.
The (Ceramics) mineral and material laboratory require complete overhaul. Meat production and training, Fruits and vegetables production plant, Dairy technology section (Fresh Milk, Yoghurt and Ice Cream) require Cold room maintenance and preventative /routine serving consumables like oils, lubricants, wear spares,
Food, Chemical, microbiology and biotechnology analytical labs require fridges services, electrical fittings and gas filling.
Maintenance of engineering shops requires acquisition of spares, tools, consumables, components and controls, service and maintains the plants
Maintenance of satellite projects (Arua fruit Juice, Mbale meat processing facility, Lira Peanut Processing and Research Centre, Nabusanke fruit Juice, and Kabale potato and bamboo plants) require acquisition of spares, tools, consumables, components and controls, for service and maintenance
Refurbishment and remodelling of existing infrastructure at UIRI to include
Applying Epoxy floor finish to TDC workshop floors
Repair of UIRI pilot plants roofs
Modify roof free of leakages steel trusses, new iron sheets, roof drainage
Replacement of internal water distribution systems
Waste water treatment Maintenance materials
Periodic maintenance of UIRI buildings. These include painting works, minor repairs and roof cleaning
Repairing of High Performance Liquid Chromatography (HPLC), Atomic Absorption Spectrophotometer (AAS)
Repair of Microwave Digester (Multi-wave 3000),
Repair of Laboratory Refrigerator (EkoFrigoLab 1500) and Freeze Dryer (Telstar LyoAlfa 6)
Preventive maintenance for HPLC (2), AAS, CHN, and Uv/visible Spectrometer Preventive Maintenance/service & labour, Air ticket(Experts from Egypt)
Remodelling of the chemistry laboratory
Calibration of Analytical balance, 2 ovens, 2 muffle furnace, water bath & Ph meter
General servicing and repairs of bakery pilot plant equipment. Spare parts for repair of dough mixer, rotary oven, bun divider, cake mixer, digital weighing scales & dough sheeter
Routine servicing, maintenance and repair of meat technology equipment's
Preventive Maintenance, Break down repairs Engineering machinery and equipment
Routine servicing, maintenance and repair of bamboo technology equipment's
Plant preventive maintenance for both Bamboo plants
Hygienic maintenance of all food pilot plants, estates& Bamboo pilot plant
Maintenance of UIRI Servers

Table V2.2: Past and Medum Term Key Vote Output Indicators*

Vote Function Key Output	2013/14	2014/15 Approved	Outturn by	MTEF Projections		
				2015/16	2016/17	2017/18

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Indicators and Costs:	Outturn	Plan	End Sept	2015/16	2016/17	2017/18
Vote: 110 Uganda Industrial Research Institute						
Vote Function:0651 Industrial Research						
No. of product analyses undertaken for quality checks		300	293	55	60	
No. of research projects initiated		5	4	60	65	
No. of value added products developed for industralisation to reduce post harvest losses.		50	15	40	45	
No. of SME's incubates taken on		25	8	50	35	
No. of technologies deployed with incubatees		20	5	25		
No. of local raw materials developed and populated in the scientific databases		40	8	45	55	
No. of model value addition centres at 75% completition		3	2	1	1	
No. of products up-scaled and commercialized by the centres		30	9	35		
No. of SMEs trained in industrial development and value addition processing		300	132	1,000	1,000	
No. of apprenticeships taken on		70	15	80	100	
Vote Function Cost (UShs bn)	***14.405***	***14.340***	***2.996***	***14.340***	***17.046***	***17.048***
Cost of Vote Services (UShs Bn)	**14.405**	**14.340**	**2.996**	**14.340**	**17.046**	**17.048**

Medium Term Plans

Bearing in mind that, just like any other Institution, UIRI is not immune to the challenges of inadequate financing which continue to impede the Institute's efforts in pursing technology transfer, value addition, and meaningful contribution towards industrialization.

UIRI's medium term strategy is to;

•Establishment of a Regional Hub for Science, Technology, and Innovations (STI) in East and Central Africa in support of industrialization of EAC states.

•Establish platforms for value addition and product development

•Take technology to the people through the establishment of Model Agro- Processing facilities upcountry as per National agricultural zoning of resource abundant areas.

•Technology based business incubation

•Engaging in prudent technology transfer, technology development and fabrication of machinery

•Develop electronic and electric components

•Establishment of Model Agro- Processing facilities as per National agricultural zoning of resource abundant areas

•Skills development through training of entrepreneur and community based groups

•Develop the Essential oil sector in Uganda

•Support to manufacturers and scientists through provision of analytical laboratory services

•Establish Uganda Shea Butter processing Platform

•Establish a strong and vibrate business incubation center

•Establish adequate industrial infrastructure to stimulate industrialization

•Kick start small business enterprises for government revenue generation through taxes

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Vote Summary

•Develop skills capacity for meaning R&D
•Strengthen collaboration relations with sister institutions
•Embark on transfer of cost effective technologies and processes
•Deploy processing facilities as per the national agro zone regions and availability of raw materials for startup of primary industry.
•Creation of metallurgical center of excellence.

(ii) Efficiency of Vote Budget Allocations

Through the Tourism, Trade and Industry Sector Working Group, the Institute is dedicated to efficiency in Budget allocation and execution to ensure that in all its plans, activities and outputs, there is Value for Money. This is carried out through providing adequate capacity for staff to enable them carry out their duties and responsibilities in a professional manner and in accordance with the law. In addition to professionalization of the different cadres in the Sector's MDAs, proper staffing tools are availed to foster accuracy, effectiveness and service delivery in a timely manner.

Under the Institute's Vote Function, the Departments shall, in FY 2015/16 and in the medium term continue to ensure efficiency in resource allocation and utilisation in order to achieve value for money to ensure promotion of economic growth, job creation and improved service delivery.

The Finance and Administration Department shall continue to ensure that funds are allocated in accordance to work plans which are linked to the attainment of the NDP short-term and long-term goals. This shall eliminate unnecessary allocations and reallocation of resources which are not in line with the agreed upon outputs, work plans and procurement plans. The F&A Department and Directorate Offices are mandated to carryout annual and quarterly Budget monitoring and produce periodic reports and Policy briefs to the Ministry which facilitate identification of inefficiency in allocation and use of the public funds.

The Institute shall ensure effecting of the Electronic Funds Transfer systems to enable transparency and adherence to, laws, standards, guidelines, policies and procedures and other financial management regulations. The Institute shall also carry out performance audits, IT and Forensic audits in addition to conducting quality assurance reviews to further ensure compliance to the law which shall lead to the attainment of Value for Money and efficiency in service delivery.

Transport policy for Entitled Staff - Managers will be facilitated to use personal cars instead of using Agency vehicles. This will cut the cost by more than 92%.

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Table V2.3: Allocations to Key Sector and Service Delivery Outputs over the Medium Term

	(i) Allocation (Shs Bn)				*(ii) % Vote Budget*			
Billion Uganda Shillings	2014/15	**2015/16**	2016/17	2017/18	*2014/15*	***2015/16***	*2016/17*	*2017/18*
Key Sector	10.4	**11.0**	11.8	11.9	*72.5%*	***76.4%***	*69.3%*	*69.9%*
Service Delivery	2.8	**3.1**	4.0	4.1	*19.6%*	***21.4%***	*23.3%*	*24.0%*

Refer to Step 5

Table V2.4: Key Unit Costs of Services Provided and Services Funded (Shs '000)

(iii) Vote Investment Plans

The funding in the medium term is still very inadequate to achieve an industrialized and manufacturing economy yet industrialization is a key strategy in the National Development Plan to addressing the high levels of unemployment. It is mainly through support to value addition that primary industries will develop and hence fed into a manufacturing lead economy.UIRI shall undertake procurement process of the following UIRI required Machinery, Equipment and Technologies Technology Development Center

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•Machinery and equipment for establishment of a Foundry
Vaccine production unit
•Incubator for the Vaccine Production Unit
Bakery
•Four Deck Baking Oven i.e. used for baking especially cakes
•Dough Mixer (75kg dough capacity) to be used for mixing dough of up to 75kg
•Extruder to be used for making instant breakfast cereals e.g. cornflakes and pet foods
•Other small equipment/tools needed for Chocolate Making Project
Essential oil project
•Agri-weave technology
•500kg Essential Oil distillation unit
•Irrigation Systems
•Purchase nursery inputs
•Renew organic certification services for essential oil project
Chemistry laboratory
•Soxtec system (Fat content), Fiber Tec system(fiber content) & Kjel-tec system (protein)
•Procurement of Laboratory Analytical Balance
•Procurement of Gas Chromatography/ Mass spectrometer (GC-MS) equipment
•10 Analytical Chemistry & Laboratory text books
Instrumentation division
•3D rapid prototyping printer
•Light Intensity meter
•Air Flow rate meter(Anenometer)
•Pressure meter/Manometer
•Hygro-Thermometer
•Power supply with variable negative range
•Reflow ovens
•Drilling machine(handheld)
•Drilling machine(bench machine)
•Printer/Scanner/Copier, Computer (to be handled by ICT)
•Logic Analyzer
•Moisture meter
•Clamp meter
•Multi-meter
•Documenting Process Calibrator
Food laboratory
•MAP packaging technology
•Extrusion technology
•Separation technology
Bakery
•Deluxe Professional Airbrush Cake Decorating System
•Infrared Thermometer
•Countertop Microwave Oven
•Polycarbonate Chocolate Moulds
•Silicone Scoop Shovel Scrapper Rabbler Multipurpose Spreader (pack of 3)
•Spoon Shaped Silicone Spatula Scrapper
•Fondant modeling Set
•Table Top Tempera
•Bench Scraper(large)

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•Bench Scraper (Medium)
•Offset Spatula
•Pastry Scraper
•Multi-purpose Bowl Scraper
•Chocolate Shaver
•Chocolate Decorating Comb and Smoother (4"x6")
•Ladle (½ oz)
•Chocolate Dipping Tool Set
•Chocolate Dipping Tool Basket
•Mixing Bowl (4 quart)
•Double Boiler Insert 8 Cup Capacity
•Non-Stick Chocolate Bark Mold & Baker's Quarter Sheet
•Silicone Non-stick Baking Sheets
•White Marble Superfine Grain Slab
•Hot Air Gun
•Aluminum Chocolate Wrapping foil
Meat technology
•Ice Flake Machine 500 Kgs/ 24 Hrs
•Sausage Filler 30 Lt
•Blast Freezer 4m X 4m Min Temp -18 Degrees
•Band Saw Free Standing
•Brine Injector
Dairy technology
•Aluminum Milk Cans (50 Litre Capacity) - 50 Pieces
•Manual Cup Sealers - 3 Pieces
•Heavy Duty Plastic Crates - 200 pieces
•Positive Displacement Pump - 1 unit
On- Line milk filter - 1 unit
Automatic Vertical Form, fill & Seal Packaging Machine
Small Scale Dairy Processing Equipment
Lira Peanut and Research Center
•Peanut grinderfor grinding ground nuts into peanut butter. This will enable us meet the demand because we roast a lot but the current grinder has a low capacity compared to the roasted capacity
•Generator is need especially when there is load shedding there is no other way to push ground nuts out of the roaster or cooler. All the big losses we have had are attributed to this.
•Compressor to deliver compressed air to filling machine for automatic filling
•Sachet packing machine for filling Peanut butter into sachets
•Welding machine for joining/welding processing machinery together especially during maintenance
•Laboratory Centrifuge
•Moisture analyzer
•Analytical balance
•Laboratory Oven
•Laboratory Blender

Table V2.5: Allocations to Capital Investment over the Medium Term

	(i) Allocation (Shs Bn)				*(ii) % Vote Budget*			
Billion Uganda Shillings	2014/15	**2015/16**	2016/17	2017/18	*2014/15*	***2015/16***	*2016/17*	*2017/18*
Consumption Expendture(Outputs Provided)	10.4	**11.5**	13.0	13.1	*72.7%*	***80.5%***	*76.0%*	*76.7%*
Investment (Capital Purchases)	3.9	**2.8**	4.1	4.0	*27.3%*	***19.5%***	*24.0%*	*23.3%*
Grand Total	**14.3**	**14.3**	**17.0**	**17.0**	***100.0%***	***100.0%***	***100.0%***	***100.0%***

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Vote Summary

The major capital investments during FY 2013/14 shall include but not limited to;
• Essential oils extraction equipment;
• Savoury meat equipment for UIRI ;
• A range of different fruit juice pulpers for UIRI;
• Chill unit equipment for UIRI;
• Cosmetics and detergents technology;
• Grains and animal feeds processing technology;
• Refrigerated cool boxes;
• Procurement of toothpick packaging machine;
• ICT hardware & software, ICT requirements, ICT network security systems, ICT utilities;
• Establishment of Multi-purpose Engineering training lab, plumbing tools and equipment, energy
Laboratory purchase of equipments for the initial phase of establishing Energy systems lab;
The above mentioned equipment account for a total of 4.2 billion.
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Table V2.6: Major Capital Investments

Project, Programme Vote Function Output *UShs Thousand*	2014/15 Approved Budget, Planned Outputs (Quantity and Location)	 Actual Expenditure and Outputs by September (Quantity and Location)	2015/16 Proposed Budget, Planned Outputs (Quantity and Location)
Project 0430 Uganda Industrial Research Institute			
065172 Government Buildings and Administrative Infrastructure	- Upgrading of access road to the Eastern gate as it is Laying of stabilized gravel - Proposed Incubation center at Namanve - A model facility - Chemistry lab refurbishmentA model facility - Proposed water bottling plant in Bushenyi - Proposed Kigezi Diocese Poultry House - Proposed Maziba Winery Project, Kabale - Proposed Kika Farm Juice processing facility in Luweroo - Proposed MAFFACO (Masindi fruits farmer's Company) Mango Juice Processing Plant. - Proposed Ikirah Soap Processing Factory Lyatonde, Mitooma - Proposed Model Diary Farm in NtungamoA model farm - Proposed Itojo Juice processing plant. Ntungamo District - Proposed G.nut processing plant in Agago.A model facility - Extra works at Essential oils LuweeroVariation to additional scope to include office premises and wet areas - Proposed Water bottling plant for J & S in KawempeA model facility - Arua Savoury Classic meat processing Plant	UIRI has made deliberate effort to establish value addition centers as mode / means of taking technology to the people, by engaging in Technology Transfer, Technology Diffusion, technology dissemination, and Technology adaptation to spur industrial development - Feasibility of Proposed Incubation center at Namanve - A model facility is being planned in under a grant collaborative arrangement with the Chinese government to establish a Machining, Manufacturing, Tooling, Skills Training Center at Kampala Industiral Business Park Namanve. - Bills of Quantities for remodeling works of Chemistry laboratory to facilitate the certified standard requirements for research activities have been compiled. The Chemistry Laboratory is being restructured aimed at recognition of the laboratory by Uganda National Bureau of Standards, UNBS. Procurement process of contractor process - Establishment of a complete poultry house to support the poultry rearing for Kigezi Diocese located in Rugarama	- Establish a functional Fruit juice and water processing facility in Kawempe by modification of an existing processing facility - Development of new products for the centres and training of production staff - Establish a Model industry to manufacture the polylactic acid and make bioplastics; and cosmetics centre 1st, 2nd, 3rd and 4th Establish infrastructure for pilot plants and recruit personnel to manage the centres - Maziba Winery Project, Kabale Establishment of a complete functional processing winery plant whose construction work included a sub structure, walling and roofing, sanitary facilities, internal and external finishes, external works have been completed and handed over. Defects liability period supervision is underway. - Establishment of a Model Diary Farm in Ntungamo The establishment of a model farm entails constructing a Dairy shade, Feeding shade, Chaff Cutter shade, Milk collection area. Site has been handed over to the Contractor for commencement of work. - Extra works at Essential Oils Pilot Project Luweero Construction of allowed

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Vote Summary

Project, Programme Vote Function Output *UShs Thousand*	2014/15 Approved Budget, Planned Outputs (Quantity and Location)	Actual Expenditure and Outputs by September (Quantity and Location)	2015/16 Proposed Budget, Planned Outputs (Quantity and Location)
		Substructure, walling and roofing, sanitary facilities, internal and external finishes are complete, Roofing works is also complete, Floor screeding is finished, All doors have been fitted, Fire mesh (reinforced wire BRC) has been fitted in all windows, Ceiling works at the verandah is complete . 90 % of works are complete - Establishment of a complete functional juice processing plant in Luweero for Kika group of farmers. Substructure, walling and roofing, sanitary facilities, internal and external finishes are complete. All refurbishment preliminary works are complete. Internal and external finishes are complete. Only ground levelling (external works) is ongoing. - Establishment of a complete functional processing winery plant at Maziba in Kabale Construction of Substructure, walling and Roofing works have been completed. Doors and windows have been fixed. Finishing works are complete. Chain link is complete. The gate has been fitted. External works are ongoing - Construction of habitable staff housing at the Kabale Bamboo processing plant Demolitions, construction of retaining wall, house construction, and toilet facilities for the staff housing have been completed as per terms and conditions of contract. Toilet facilities construction has also been finalized. The site was commissioned and is under defect liability period - Establishment of a model farm at Karibuga -Ntungamo Detailed designs and BOQs for construction of a dairy shade, Feeding shade, Chaff Cutter shade, Milk collection area have been completed. The Bid Evaluation process has been completed. Contract preparation is underway.	variation for additional scope to include office premises and wet areas is underway at 90% of works complete. - Construction of a nursery shed at Essential oils Luweero Construction of a nursery shed at Luweero Essential Oils is underway. Civil works Construction were completed. Welding works are pending - Proposed Fruit juice processing plant in Itojjo A functional fruit juice processing plant whose works include a substructure, walling and roofing, internal and external finishes is underway. Construction is ongoing and the substructure is complete - Proposed Cheese processing plant at Rubale Ntungamo District Works include to design for construction of the Cheese Processing Facility is underway. Site reconnaissance, to assess the nature of land, was done by the UIRI technical team on 17th Sep 2014. Bills of Quantities have been prepared. - Proposed Soap processing plant in Kabale Industrial Area for Yildi enterprisesis underway. Works to include Design for construction of the facility is underway. Site reconnaissance, to assess the nature of land, was done by the UIRI technical team on 17th Sep 2014. Preliminary estimates have been prepared. - Proposed rehabilitation of Esia mixed farm, Adjumani Rehabilitation of the facility and activity scope to be discussed with UIRI Management - Tile manufacturing facility in Wakiso Designs and Bills of Quantities have been prepared for establishment of a manufacturing facility for Tiles in Wakiso - Proposed Peanut Processing Plant in Soroti District The design is complete and preliminary estimates for a complete functional Peanut Paste Processing Plant in Soroti District have been prepared. A report has been submitted for approval.

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Vote Summary

Project, Programme Vote Function Output *UShs Thousand*	2014/15 Approved Budget, Planned Outputs (Quantity and Location)	Actual Expenditure and Outputs by September (Quantity and Location)	2015/16 Proposed Budget, Planned Outputs (Quantity and Location)
		- Construction of a nursery shed at Luweero Essential Oil Pilot Project Excavation has been complete. Foundation base concrete has been completed. Plinth walling is ongoing. - Implementation of UIRI Internal painting works of the Pilot Plants meant to improve the sanitary conditions of the facilities to enable them attain UNBS inspection standards have been completed. External painting is to improve the aesthetics and general outlook of the UIRI campus. Painting of toilets at the conference hall has been completed. Painting of the Materials and Minerals Engineering Division is ongoing - Materials for the Provision of a UIRI Road Barrier at the Check Point have procured waiting installation - Bills of Quantities for remodeling works of Chemistry laboratory to facilitate the certified standard requirements for research activities have been compiled. The Chemistry Laboratory is being restructured aimed at recognition of the laboratory by International standards and Uganda National Bureau of Standards, UNBS. Procurement process of contractor process - Designs for a fruit juice processing plant have been completed. The bid evaluation process is ongoing. - A hard wearing suitable floor surface for activities being carried out on the engineering workshopReinforcement of workshop floor surface with shali screed. Shaliscreed is extremely tough, durable, slip resistant and ideally suited for areas subjected to high impact, abrasion and areas exposed to chemicals and oil spillage. Designs and Bills of Quantities completed, Bid evaluation has been completed waiting commencement of renovation	- Development of a Fabrication Lab for small scale manufacturing of circuit boards and casings for complete prototypes. A Project proposal is currently being developed. A start-up meeting was convened inviting interested stakeholders for the project. - Internal Painting of selected Buildings at UIRI Design and BOQ's and implementation supervision of Internal painting of the plants are meant to improve the sanitary conditions of the facilities to enable them attain UNBS inspection standards. External painting is to improve the aesthetics and general outlook of the UIRI campus. Painting of toilets at the conference hall is complete. Painting in ceramics is on going - Proposed Chemistry Laboratory RefurbishmentModel Chemistry A Model Chemistry laboratory to facilitate the research activities currently being undertaken is ongoing. Contractor was procured. Construction work scheduled to begin in Q3. - Proposed Renovation of TDC Engineering workshop floor A hard wearing suitable floor surface for activities being carried out on the workshop is required for reinforcement of workshop floor surface with terrazzo. Renovation works in the workshop floors commenced and are underway.

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Vote Summary

Project, Programme Vote Function Output *UShs Thousand*	2014/15 Approved Budget, Planned Outputs (Quantity and Location)	Actual Expenditure and Outputs by September (Quantity and Location)	2015/16 Proposed Budget, Planned Outputs (Quantity and Location)
		works. - Establishment of a complete functional cheese processing plant in Ntungamo Design for construction of cheese processing facility is underway.Site reconnaissance, to assess the nature of land, was done by the UIRI technical team. Contract document under preparation. - Designs for the proposed water bottling plant in Bushenyi are being reviewed - Proposed Kigezi Diocese Poultry House is at completion level - Proposed Maziba Winery Project, Kabale is at completion level - Feasibility study for the proposed MAFFACO (Masindi fruits farmer's Company) Mango Juice Processing Plant is under way. - Feasibility study and capacity building for the proposed Ikirah Soap Processing Factory Lyatonde, Mitooma is underway - Feasibility study and capacity building for the proposed G.nut processing plant in Agago is underway. - Feasibility study and capacity building for the proposed Water bottling plant for J & S in Kawempeis under way	
Total	**542,500**	*179,257*	**980,000**
GoU Development	***542,500***	*179,257*	*980,000*
External Financing	***0***	*0*	*0*
065177 Purchase of Specialised Machinery & Equipment	The Institute continues to procure machinery and equipment for planned projects. Below is a list of procurement status of several that items under procurement process - The Division received the first phase of electronic components and electrical equipment to	The Institute continues to procure machinery and equipment for planned projects. Below is a list of procurement status of several that items under procurement process - The Division received the first phase of electronic components and electrical equipment to	This involves procurement of specialised equipment,design and fabrication of Specialized Machinery - Newcastle Vaccine Dropper Bottles - Pathogen Free Eggs - Newcastle Vaccine Laboratory Supplies - Moisture AnalyzerAnalysis of

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Vote Summary

Project, Programme Vote Function Output *UShs Thousand*	2014/15 Approved Budget, Planned Outputs (Quantity and Location)	Actual Expenditure and Outputs by September (Quantity and Location)	2015/16 Proposed Budget, Planned Outputs (Quantity and Location)
	facilitate the development of project prototypes. - A second batch is being populated and will utilize a similar procurement method to obtain the necessary goods. - Procurement of Hydrogen Generator for GC is underway - Procurement of Laboratory Centrifuge is underway - Procurement of Analytical Balance is underway - Procurement of GC-MS (for Essential Oil Analysis) is underway - Procurement of FTIR libraries (2) - Procurement of Gases (acetylene, Helium, and Oxygen) - Procurement of mobile laboratory - Procurement of Laboratory standards chemicals, Reagents, Apparatus and other lab materials are underway - Procurement for Soxtec system (Fat content), Fibertec system(fiber content) & Kjeltec system (protein) are underway - Procurement for 5 Desktop Computers - Procurement of Laboratory Analytical Balance - Procurement of Gas Chromatography/ Mass spectrometer (GC-MS) equipment - Mobile laboratory (equipment inclusive) - procurement of hydrogen generator for GC - Procurement of laboratory centrifuge - procurement of 2 libraries for FTIR - Analytical Chemistry & Laboratory text books	facilitate the development of project prototypes. - A second batch is being populated and will utilize a similar procurement method to obtain the necessary goods. - Procurement of Hydrogen Generator for GC is underway - Procurement of Laboratory Centrifuge is underway - Procurement of Analytical Balance is underway - Procurement of GC-MS (for Essential Oil Analysis) is underway - Procurement of FTIR libraries (2) - Procurement of Gases (acetylene, Helium, and Oxygen) - Procurement of mobile laboratory - Procurement of Laboratory standards chemicals, Reagents, Apparatus and other lab materials are underway - Procurement for Soxtec system (Fat content), Fibertec system(fiber content) & Kjeltec system (protein) are underway - Procurement for 5 Desktop Computers - Procurement of Laboratory Analytical Balance - Procurement of Gas Chromatography/ Mass spectrometer (GC-MS) equipment - Mobile laboratory (equipment inclusive) - procurement of hydrogen generator for GC - Procurement of laboratory centrifuge - procurement of 2 libraries for FTIR - Analytical Chemistry & Laboratory text books	residual moisture in the vials after lyophilisation. It will facilitate the determination of extended expiry periods. - Refrigerators for storage of large quantities of finished product - Installation of walk in freezers for meat pilot plant - Procuring meat equipment for the meat pilot plant - Procurement of meat equipment for Virtual incubatees - Upgrade fruits and vegetable pilot plant equipment - Procurement of equipment for the new cheese pilot plant (50-100kg per shift) - Procurement of a toothpick packaging machine - Procurement of a continuous ice cream freezer - Procurement of new dairy equipment to upgrade milk powder plant to 1 ton per shift - Extraction of orange juice - Need for modification of the gas pasteurizer to a double jacketed gas pasteurizer - Modification of the juice master - Procurement of Laboratory Analytical Balance - Procurement of Gas Chromatography/ Mass spectrometer (GC-MS) equipment - 10 Analytical Chemistry & Laboratory text books - Procurement of hydrogen generator for GC - Procurement of laboratory centrifuge - Procurement of 4 libraries for FTIR - Procurement of mycotoxin testing kit - Procurement of Laboratory Blender - Procurement of HPTLC set for Natural products - Mobile laboratory (equipment inclusive) - Acquire an effective heat source in the lab - Acquire an equipment that can blend and mix - Sacket packaging technology - Peanut grinding technology for product development - Basic laboratory equipment centrifuge, analytical balance,

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Project, Programme Vote Function Output *UShs Thousand*	2014/15 Approved Budget, Planned Outputs (Quantity and Location)	 Actual Expenditure and Outputs by September (Quantity and Location)	2015/16 Proposed Budget, Planned Outputs (Quantity and Location)
			glass ware, pipette, measuring cylinder, pastuer pipette, beakers, funnels, pipette fillers, reagent bottles, glass rods, conical flask, burette, chemicals and consumables, Hydrochloric acid, sulphuric acid, sodium hydroxide, methyl orange indicator, phenolphthalein, sodium thiosulphate, potassium iodide, starch, sodium chloride, chloroform, ethanol reagent, filter paper(whatman) - Procurement of safety ware, organic respirator, chemical resistant gloves (carton), chemical resistant shoes, and overcoats - Procurement of 2 units of Humidifiers for the button mushroom research Project - Procurement of a florescent microscope with identification software with computer system connected - Procurement of a Plant weighing scale of maximum weight of 100kg - Procurement of an air conditioning system with humidity and temperature control system - Procurement of a Pressure Casting machine. Draw equipment specifications - Procurement of a Hydro Cyclone unit - Kaolin Pre-treatment. Draw equipment specifications - Procure Integrated X-Ray Florescence (XRF) /X-ray Difraction (XRD) Machine. Draw equipment specifications - Procure sets of Standard Screens/Sieves - Procurement of a Thermal Pyrometer. Draw equipment specifications - Acquisition of Raw Materials - Procurement of safety gears of different sizes and types/brands - Procurement of Ceramics Surface Decoration Equipment - Testing equipment for the juice plant - Procurement of testing equipment - Purchase of a steam jacketed kettle - Purchase of two Domain servers

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Project, Programme Vote Function Output *UShs Thousand*	2014/15 Approved Budget, Planned Outputs (Quantity and Location)	Actual Expenditure and Outputs by September (Quantity and Location)	2015/16 Proposed Budget, Planned Outputs (Quantity and Location)
			- Purchase of one Storage and replication server - Purchase of two printers to be networked to serve all UIRI staff - Procurement of ICT maintenance firm - Coordinate campus wide and offsite computer maintenance - Procurement of other ICT consumables (4 C5020, 50CD's, 50 DVD's,2 Fax Film, 10 Flash Disk, 5 HP 130 & 134, 5 HP 131 & 135, 4 HP 13A, 4 HP 2600N, 4 HP 36APCS, 6 Hp 3800, 4 HP 49A, 4 HP 53A, 4 HP 70 A, 4 HP 78d & 45d, 4 HP 5500DN, 5 C530,1,2,3A, 4 HP 35, 6 Toner for HP Desk jet 500 MFP, 4 TK-540 Kyocera toner, 3 Canon C-EXV14, 2 Printer Ribbons, 4 HP 05A, 5 Network Cards, 10 Mouse PCS, 20 Ups Batteries, 14 Extension cables, 10 RAM, 5 CMOS battery - Enhance records management for incubates, and Creation of an alternative source of revenue for the BDC. Purchase of Palladium Ent, QuickBooks, Tally and Business Plan pro - Create more training terminals and repair of existing desk computers in the BDC Lab. This requires purchase of workstation and computers in the BDC Lab - Enhance training at the BDC through acquisition of visual aid tools. This requires purchase of Laptops and projectors for BDC - Provide Internet service, Internet bandwidth provision and subscription
Total	**3,994,303**	*877,388*	**1,707,971**
GoU Development	***3,994,303***	*877,388*	*1,707,971*
External Financing	***0***	*0*	*0*

(iv) Vote Actions to improve Priority Sector Outomes

UIRI's key policy and process to be carried out and planned to address vote performance issues include but not limited to:

•Enhanced training and skills capacity building as included in the training budget item. Staff to Continuous training for technical personnel keeps them updated with evolving technologies and information that propels them to perform more effectively and efficiently.

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•Collaboration with other agencies, WAITRO, CSIR, provide knowledge and experience sharing platforms that benefit and improve on methodology of best practices
•Facilitating dialogue and workshops for necessary exposure from those ahead of us
For Value for money assurance UIRI shall continue to engage in:
•Prudent and informed choices of technology sure by deploying competent of staff and best strategies for technology transfer
•Establishment of model agro processing that will stimulate raw material production for primary processing and subsequent secondary processing that will result into industrial manufacturing
•Taking technology to the people will encourage local participation at different levels of industrialization
•Extended services to incubatees and private sector
The above intuitive will aim at addressing the following challenges
Low level of technology use
Lack of technical skills
Flawed planning and imprudent resource allocation
Inadequate facilitation impedes technology transfer, value addition, etc
Lack of information and access to value addition funds.
Poor infrastructure and low connectivity
Very slow pace for industrial growth
Inadequate pool of specialized scientists and engineers.
Dealing with a business community that seriously lacks entrepreneurial competences
National planning process does not promote inter-institutional collaborations.
Unfunded mandates / projects.
Inadequate funding for r & d continues to be a national malady
Limited skilled manpower and lack of entrepreneurial skills
Infrastructure problems (e.g. Connectivity, energy, transport, etc)
Inadequate facilities for research and prototyping
Funding UIRI would help mitigate the above challenges and would have immediate impact on Uganda's socio- economic transformation

Table V2.7: Priority Vote Actions to Improve Sector Performance

2014/15 Planned Actions:	2014/15 Actions by Sept:	2015/16 Planned Actions:	MT Strategy:
Sector Outcome 1: A Competitive and Export-oriented Industrial Sector			
Vote Function: 06 51 Industrial Research			
VF Performance Issue: *Inadequate Application of Scientific Research and Technology for Development*			
Upgrade staff skills to measure up to the ever evolving technologies to be able to design and develop competititve products and services	UIRI greatly values the importance of upgrading skills to keep up with the trend of evolving technologies. Employees below have attained superior training from leading research organizations. UIRI has also established collaborative platforms that have been very beneficiary in creating avenue for knowledge and experience sharing. Like, Council for Scientific and Industrial Research (CSIR) of South Africa, National Standards & Technology Development Agency (NSTDA) of Thailand,		Development of human resource capacity to undertake applied research; Establish project pilot center in two municipalities; Development of industrial projects and technologies for commercializatio

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Vote Summary

2014/15 Planned Actions:	2014/15 Actions by Sept:	2015/16 Planned Actions:	MT Strategy:
	AICAD, Standards and Industrial Research Institute of Malaysia (SIRIM). - A Microbiology Research Officer trained in good measurement, weighing and pipetting practices organized by Palin and Metler Toledo on 4th – 5th September 2014Good weighing practices - The Vaccine Production Unit Quality Assurance Manager currently undertaking a Master's program attended a Biotechnology Innovation and Regulatory Science at the Kilimanjaro School of pharmacy in Moshi, Tanzania on 1st to 12th SeptemberTanzania. This has resulted into the restructuring of the current Vaccine Quality Management System to International Standard - One staff is studying MSC chemistry at Makerere University - Four staff to attend ISO 17025 Laboratory Training at South African National Accreditation system (SANAS), Tumuheirwe, Mijumbi, Muhereza & Arishaba - Mr. Asuman Ratibu attended EU-EDES laboratory business plan course in Addis Ababa , Ethiopia - Three staff attended Documentation, System and Auditing Training at SANAS (Preparation for Accreditation), Mugisha, Nabaggala & Ratibu - Nine staff to attend Method validation and measurement of uncertainty in laboratory application at UNBS - A staff attended the International conference on Organic sysnthesis in Europe - (2 Staff) have attended Advanced Instrumentation training in HPLC, AAS, GC/MS - Trained students/ scientists in Good Laboratory Practice		

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Vote Summary

2014/15 Planned Actions:	2014/15 Actions by Sept:	2015/16 Planned Actions:	MT Strategy:
	(GLP) and chemical analysis. - Trained 1 intern from Makerere University (Mr. Atukwasibwe Peter) - Trained 3 interns in laboratory training (GLP) - One staff undertook capacity development in Embroidery for Three months in ChinaOn-going - A Research Technician of Materials and Minerals Engineering Division undertook trainings in. Tea growing between the 29th of August 2014 – 11th October 2014 in China.		
VF Performance Issue:	*Uncompetitiveness of Local Industries*		
			Set up a technology depository at UIRI; Establish regional business incubation centers in industrial parks; Install a foundry and mineral beneficiation testing lab at UIRI.
Sector Outcome 3: Improved Competitiveness and Market Access of Uganda's Goods and Services			
Vote Function: 06 51 Industrial Research			
VF Performance Issue:	*Inadequate Capitalization of Current Model Processing Facilities and Commercialisation of Business Incubation Projects*		
			Establishment of five multi-function value addition centers across at regional level; Developed value added industries especially agro industries as per the National agro zone centers.

V3 Proposed Budget Allocations for 2015/16 and the Medium Term

This section sets out the proposed vote budget allocations for 2015/16 and the medium term, including major areas of expenditures and any notable changes in allocations.

Table V3.1: Past Outturns and Medium Term Projections by Vote Function*

	2013/14 Outturn	2014/15 Appr. Budget	2014/15 Spent by End Sept	MTEF Budget Projections 2015/16	2016/17	2017/18
Vote: 110 Uganda Industrial Research Institute						
0651 Industrial Research	14.405	14.340	2.996	14.340	17.046	17.048
Total for Vote:	**14.405**	**14.340**	**2.996**	**14.340**	**17.046**	**17.048**

(i) The Total Budget over the Medium Term

Please see table.

(ii) The major expenditure allocations in the Vote for 2015/16

UIRI's major expenditure is on purchase of specialized machinery and equipment. The focal point in

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industrializing Uganda is to establish primary industries that would feed into manufacturing industry. The machinery and equipment purchased are for establishment of model or primary industries that would stimulate increased production of raw materials, increased processed volumes necessary for industrial production.

(iii) The major planned changes in resource allocations within the Vote for 2015/16

•Inadequate investment in R&D which had been proposed to be at least 1% of GDP but is still lower than 0.04%
•Societal mindset in respect to quality, especially quality products, continues to hamper creation of competitive enterprises
•Society's inclination towards retail business also doesn't encourage investment in production facilities
•Other drawbacks include lack of entrepreneur skills within private sector low availability of affordable financing, low level of technology use and lack of requisite technical skills
•Institutions of higher learning are not adequately preparing graduates to take participation in industrial activities

Table V3.2: Key Changes in Vote Resource Allocation

Changes in Budget Allocations and Outputs from 2014/15 Planned Levels:	2015/16	2016/17	2017/18	Justification for proposed Changes in Expenditure and Outputs
Vote Function:0601 Industrial Research				
Output: 0651 01 Administation and Support Services				
UShs Bn:	*-1.520*	*UShs Bn:* *-0.536*	*UShs Bn:* *-0.536*	
Output: 0651 02 Research and Development				
UShs Bn:	*0.300*	*UShs Bn:* *0.787*	*UShs Bn:* *0.787*	
This output will be measured against number of regional pilot processing plants set up. Number of value added products produced Number of SMEs				
Output: 0651 07 Technology, Innovation, Transfer and Development				
UShs Bn:	*0.540*	*UShs Bn:* *0.800*	*UShs Bn:* *0.800*	
Output: 0651 72 Government Buildings and Administrative Infrastructure				
UShs Bn:	*0.438*	*UShs Bn:* *0.238*	*UShs Bn:* *0.238*	
Set up infrastructure for mineral beneficiation, foundry, and incubation block at Namanve Industrial Park to house industrial and technological incubatees				
Output: 0651 77 Purchase of Specialised Machinery & Equipment				
UShs Bn:	*-1.580*	*UShs Bn:* *-0.088*	*UShs Bn:* *-0.088*	
The increase in purchase of machinery and equipment is to boost our industrial incubation program. The Institute will also embark on capital intensive projects like implementation of essential oil project for commercial application.				

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V4: Vote Challenges for 2015/16 and the Medium Term

This section sets out the major challenges the vote faces in 2015/16 and the medium term which the vote has been unable to address in its spending plans.

It should be noted that there has been high staff turnover during FY 14/15 due to salary. The current budget highlights UIRI 's staff in post. There is urgent need to revise the remuneration of UIRI staff to maintain their motivation mometum as to keep them motivated

Table V4.1: Additional Output Funding Requests

Additional Requirements for Funding and Outputs in 2015/16:	Justification of Requirement for Additional Outputs and Funding
Vote Function:0601 Industrial Research	
Output: 0651 01 Administation and Support Services	
UShs Bn:	*Capacity building efforts would mitigate against lack of skills, competences and enterpreneurship that is a weakness squarely faced by the country. The acquired skills that are diverse in nature would be distributed across other sister institutions, like the petrolum industry, manufacturing industry which would indeed catalyse the industrialisation process of Uganda.*
Output: 0651 02 Research and Development	
UShs Bn:	*Additional funding would be directed to re-equipment and accreditation of analytical laboratories, recruitment of high calibre talent to conduct meaningful R&D with ability to operate hi-tech machinery and equipment being procured, support for UIRI business incubator and set up of a modern unit for product development.*
Output: 0651 03 Industrial and technological Incubation	
UShs Bn:	*As part of the effort towards Uganda's socio-economic transformation. A direct method of increasing house hold incomes is the platform of the envisaged Business Incubator Center of Excellence which is intended to apply the principles of technology transfer and leapfrog some of the evolutionary steps of the business incubation process, an approach that has been rated 85% successful as a proven mechanism to nurture start up enterprises.*
Output: 0651 77 Purchase of Specialised Machinery & Equipment	
UShs Bn:	*Government intiative for One Villiage One Product (OVOP) would be addressed on the assumption that Ministry of Finance allocates more funds to improving technology through acquisition of specialised machinery and equipment , development of technical skills through capacity building&training, business incubator programes to kick start primary industries a prerequiste for a manufacturing and an industrilised economy.*

This section discusses how the vote's plans will address and respond to the cross-cutting policy, issues of gender and equity; HIV/AIDS; and the Environment, and other budgetary issues such as Arrears and NTR..

(i) Cross-cutting Policy Issues

(i) Gender and Equity

(ii) HIV/AIDS

(iii) Environment

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(ii) Payment Arrears

The table below shows all the payment arrears outstanding for the Vote:

N/A

(ii) Non Tax Revenue Collections

The table below shows Non-Tax Revenues that will be collected under the Vote:

Source of NTR	UShs Bn	2013/15 Actual	2014/15 Budget	2014/15 Actual by Sept	2015/16 Projected
Rent & rates – produced assets – from private entities		0.000	0.100		0.000
	Total:	**0.000**	**0.100**		**0.000**

Contributions by UNBS