

Executive summary

This report is a representation of the activities and achievements attained in various units in the College of Agricultural and Environmental Science (CAES) covering the year 2012-2013. The report covers the strategic areas as outlined in the University strategic areas, events and achievements within the prescribed period.

These areas include the academic profiles in the different units which include student enrolment and registration, Student graduation and new programs. The report also outlines innovations in teaching and learning, research and innovations, knowledge sharing and transfer to society. Sections on research publications, human resource and capacity building under each unit have also been included.

In this reporting year, the college scored major success in terms of winning grants, research and innovations that included the delivery and launch of the Mobile fruit processor in Yumbe district that was designed by a UK Company on specifications by experts in the School of Food Technology, Nutrition and Bio engineering.

Several agro processing, animal and crop production technologies were developed and made available to the public. A number of staff won awards in relation to their research work.

The college also signed a number of Memorandum of Understandings with some leading institutions for staff and student exchange, and to provide technical expertise to increase the agricultural production, productivity and entrepreneurship.

Besides the Presidential support of 4.5 bn to the Food Technology and Business Incubation center (FTBIC), the college won big grants from her development partners and donors to support different research activities and programs.

CAES has a total of about 190 academic staff and 145 support staff. A number of staff furthered their careers with some rising in ranks. The college also boasts of a continuing rise in the number of professors as indicated below:

Professors and Associate professors in CAES

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Contents

Executive summary	1
Professors and Associate professors in CAES	2
TEACHING AND LEARNING.....	7
Student enrolment data.....	7
Student graduation table	7
New Programmes approved by senate.....	7
Proposed programs.....	8
Innovations in teaching and Learning.....	9
Strengthening undergraduate practical skills training.....	9
Residential Recess Term curriculum at MUARIK reviewed.....	9
Strategic partnerships within the country	10
Ministry of internal affairs GOU.....	10
Ministry of Agriculture	11
MOU with Israel Agro studies program sealed:.....	11
Program for training Plant doctors launched.	11
MoU signed with Tottori University Japan.....	12
A new Module on Nutrition Education to be piloted	12
Innovations in teaching in DABE	12
Innovations in teaching in DEM	13
RESEARCH AND INNOVATIONS	13
Recognition Awards by Local and International Agencies.....	13
Research Grants and a brief overview on areas of coverage.....	14
Output new innovations from existing and new college research progams.....	15
Crop production Technologies.....	15
Two new Maksoy bean varieties (Maksoy 4N and 5N) released	15
20 high yielding, sweet potato varieties that are tolerant to Drought and sweet potato viruses	15
New sweet sorghum variety (MUK 60) availed to farmers in Eastern Uganda.	16
Banana Tissue culture technology	16
Development of Molecular Diagonostic tools for diseases	16
Integrated Pest Management (IPM) technologies promoted	16
Animal production Technologies.....	16
The feedlot technology to increase beef production	16
The milk booster and Calf accelerator developed from industrial waste.....	17

Implementation and dissemination of Artificial insemination in pigs	17
Improved livestock breeds.....	17
Organic Piggery Technology (IMO)	17
Rakai residents get water tanks for home use and irrigation.....	18
Nakasongola Residents get valley tanks	18
Agricultural Extension workers trained	18
Farmer field schools piloted.....	19
Starter culture selections	19
Other research innovations	19
A 400,000 US Dollars Mobile Fruit Processor designed and acquired.....	20
New value added products and agro processing enterprises developed.....	20
New initiatives in Laboratory/ Facility Development	21
State of the art Biotechnology Lab acquired	21
Makerere University Climate Change Centre (MUCCRI) Opened.....	21
The Controlled Environment Plant Chamber established	21
CURAD Center opened at MUARIK	21
Post graduate unit upgraded	21
Plant Breeding and Biotechnology Centre of Excellence won.....	22
A number of Laboratories running.....	22
3 KNOWLEDGE SHARING AND TRANSFER TO SOCIETY	23
FANRPAN Uganda Node launched	23
Collaborative linkages	23
Exhibitions.....	23
Workshops and seminars.....	24
Social Responsibility activities.....	24
Involvement and participation of society in approved innovations	25
The Skills Training Program for SMEs.....	25
National and International Paper presentations/Conferences	25
Other outreach activities	26
4 . RESEARCH PUBLICATIONS	26
5. SUPPORT FUNCTIONS	30
Human Resources (New appointments, promotions and capacity building)	30
Gender mainstreaming.....	33

TEACHING AND LEARNING

Student enrolment data

Program	Admitted	registered
BSc. Horticulture		
BSc. Agriculture		
BSc. Land Use and Management		
Master of Science in Animal Science		
Master of Science in Crop Science		
Bachelor of Agribusiness Management		
MSc. in Agricultural and Applied Economics		
Master of Agribusiness management		
MSc. in Agricultural Economics		
PhD in Agricultural Economics		
Bachelor of Agriculture and Rural Innovation		
M. Sc Agricultural Extension/Education		
PhD in Agriculture and Rural Innovations		
BSc Food Science and Technology		
BSc. Human Nutrition		
MSc. in Food Science and Technology		
MSc. in Applied Human Nutrition		
BSc Agricultural Engineering		
MSc. Agricultural Engineering		
PhD Agricultural Engineering		
BSc. in Tourism		
BSc. Conservation Forestry and Products Technology		
BSc. Social and Entrepreneurial Forestry		
Geography subject		
BSc Meteorology		
MA Geography		

Student graduation table

In the 63rd graduation that lasted for four days from 22nd to 25th January 2013, CAES graduated 450 candidates as tabulated:

Date	College	PhD	Masters	Undergraduate	Diploma	Total
24-01-13	CAES	5	75	370		450

New Programmes approved by senate

The Regional PhD in Agricultural Rural innovations (ARI) and an MSc Watershed Management were finally implemented. A new program of training plant doctors was also initiated starting with the undergraduate BSc Agriculture during the recess term

training at MUARIK. A New program BSc. Meteorology was developed and implemented in the department of Geography Geo Informatics and Climatic Sciences.

Proposed programs

The curriculum was reviewed to integrate climate sciences to mitigate impacts of climate change both at undergraduate and graduate level. Short courses were designed awaiting approval of the university authorities for implementation.

The college level committee composed of members from Geography, Forestry, and Agriculture and Food science was constituted and was able to review all the programs and identified courses where climate sciences could be incorporated. A total of 56 courses were found deficient of climate change content and recommended to change them and came up with the following;

- A common climate change basic course
- A new degree core course
- A new degree course of BSc degree in dry land agriculture and Forestry.
- A practical course during recess term
- Reviewed all courses in MSc. and have 21 listed courses all reviewed at post graduate level
- A new MSc program as an elective was also developed already submitted or consideration by Senate due to start latest second semester 2013-2014 academic year.
- Short courses covering two aspects namely; Climate Change Governance and Building Resilience of Climate Change Vulnerable Communities for policy makers were developed.
- Over 100 staff was retooled.

Other two programs in the pipe line in the School of Food Technology, Nutrition and Bioengineering are:

1. BSc. in Water and Irrigation Engineering which is in its final stages of approval by Senate.
2. BSc. in Bio process engineering which is also in advanced stages of approval
3. Implemented short course on Tractor Driving and Operations

The Department of Environmental Management (DEM) is proposing new courses to address demands from the public. It is increasingly evident that public and private sectors are seeking knowledge in environmental management, environmental monitoring and environmental assessment. Most of these demands are coming from professionals in various disciplines that are employed by government non-governmental Organization (NGOs) and the private sector including consultancy firms.

DEM therefore is proposing the following courses:

- i. Environmental Impact Assessment and Auditing Certificate course. A 3 module course. Duration 1 month. Intended target group(EIA Practitioners, District Environment Officers, Public Health Officers, Factory Inspectors)
- ii. Environment and Natural Resources management course(District Environment Officers, municipal Environment Officers, Local Government Environment Offices, EIA Practitioners)

The department will in the coming year 2014 look into the possibility of expanding the Undergraduate and postgraduate programmes to cope with the increasing public demand in the country for training in Environment and Natural Resources Management.

The Department of Geography is in the process of starting a masters course in Disaster Risk Reduction and Management (DRRM) to help in strengthening links with government organizations such as Department of Geological Surveys and mines; Office of the Prime Minister (OPM), National Environment Management Authority (NEMA), Meteorology Department, Population Secretariat (POPSEC), Ministry of Healthy (MOH) and Ministry of Disaster and Preparedness.

Innovations in teaching and Learning

Strengthening undergraduate practical skills training

Residential Recess Term curriculum at MUARIK reviewed

Consultations with staff and students were conducted to improve practical skills development in undergraduate training. Based on these discussions, the Deans Office School of Agricultural Sciences (SAS) undertook to expand the practical skills training during the residential stay at MUARIK. A semi-commercial learning plot similar to the Earth-University Costa-Rica programme was initiated at MUARIK. The plan was to:

- Establish, a horticultural field;
- Revamp, the poultry unit (located in Kyetume ridge);
- Support piggery;
- Field operations for willing students, a programme initiated under Prof. Bekunda which has produced entrepreneurial graduates some of whom are now engaged in CURAD.

Pineapple and vegetable gardens were initiated. These semi commercial plots will prove permanent learning plot for practicing farming as a business and skills development or transfer. A mentorship programme involving successful alumni was also initiated and now subsumed under the Business Incubator programme based at MUARIK.

Staff revisited the tool for summative assessment and evaluation that includes social skills for assessment and feedback that involves host organization, field supervisor, academic supervisor and peer assessment.

A team was selected to develop an evaluation and assessment tool for recess term activities where students working on different projects were assigned a mentor to guide them and demonstrate what they have learnt in a forum such as a seminar or open day.

To effectively implement the proposed curriculum, staff agreed to improve supervision by building competency in social skills of the academic and field supervisors and also give a thorough preparation of students for field attachment before hand, make three field visits including time for sharing experiences with host organization/communities; a week of personal reflection, preparing feedback and finally holding Feedback workshops.

To create conditions for deep learning by students, the school was looking at how enterprises are interlinked, putting emphasis on group student field attachments in specified field centres rather than individual using a problem based learning approach.

To strengthen co-ordination, it was agreed that there should be a full time coordinator working with a core team to identify host organizations, seek funding and create partnerships. The coordinator also establishes learning sites to ensure students are in the right environment give a reflection on experiences for Field Attachment improvement and look at other products beyond the student reports and other ways of motivating them into Field attachment.

The major identified key competence areas for Recess Term included skills in vegetable growing, Field crop and Animal production, Poultry (Broilers and layers), Dairy production and Goat production. Others were Piggery, Apiary (Bees), Rabbits, Farm records and accounts, Extension and Education and Engineering.

Strategic partnerships within the country

Ministry of internal affairs GOU. SAS was engaged as part of the college team to strengthen partnerships for training with Uganda Prisons Service and Uganda Police Force. An MoU was drafted to guide the partnerships that would see the school and other elements of the college collectively contribute to training of youth and inmates with agricultural entrepreneurship skills. The partnerships would also allow the school access prison farms for research and where possible, funding for joint undertakings from government.

The goal of the partnership is to increase the performance of the partner agricultural units by ensuring higher returns to investments of land and other resources, guarantee self sufficiency, staff welfare and improve service delivery.

The aspirations of the Uganda police in this partnership is to enhance agricultural production on existing land thus require technical backstopping from Makerere University and Uganda Prisons services in terms of technical skills development for staff who will be engaged in the enterprise; access to improved agricultural technology, farm implements and support to plan and start a demonstration farm.

The Police force wants to start enterprises to improve staff welfare through small scale and medium enterprise for police families, technical backstopping and improve their mess operation including development in urban farming, business and mindset change about agriculture.

Police also seeks to support skills development to prevent crime among the youth within the context of enterprise development. This will focus on providing support to the force's outreach community activities like awareness raising and strategic partnerships.

Uganda police further wants to add value to their products and enhance market opportunities through processing, joint ventures and reduction of post harvest losses.

The Uganda Prisons Services on the other hand also seeks to increase production and productivity by access and use of technologies for massive production, improved agricultural technology skills development, implements, irrigation and reduce post harvest losses. The other aspirations is to expand the scope of investment by creating new enterprises for seed production and management, livestock and poultry production; and to develop technical skills sets for staff who will be engaged in the enterprise and support rehabilitation of prisoners programmes.

The third party Makerere University College of Agricultural and Environmental sciences aspirations are to strengthen own capacity building programme, through the use of other partner resources to support student internship ; engage in strategic partnership for agricultural research in the area of land use and demonstration farms to the communities. The college will also provide research into the use of technologies by supporting value addition, incubation and clean seed multiplication. The college also seeks to strengthen its outreach service by supporting training and offering programmes for mindset change and technology transfer to all partners.

Ministry of Agriculture: A draft MoU with the Ministry of Agriculture was initiated. SAS was a core part of the discourse led by the Principal's Office. The aim was to open opportunities for the College to access funding for training, consultancies and research.

MOU with Israel Agro studies program sealed:

Makerere University in 2013 signed a memorandum of Understanding to be part of the Israel Agro studies International Internship program. The objectives are to enhance student's theoretical education and practical skills, on actual agricultural production system and expose students to modern ways of farming. The Department flagged off 31 students to Israel on a one year paid internship. 26 students were second years undertaking BSc. Agric and BSc. Horticulture, 3 graduates from the same department and 2 students from Busitema University.

The program is an 11 month paid apprenticeship. Israel government gives students a comprehensive medical insurance for the entire period of internship. The students receive a salary (minimum of USD 60 per day) for the work they do on the farms and the farm caters for their accommodation and upkeep in Israel. In addition each student receives a laptop. After every course, there is an exam in which the student gets a grade. The Agro studies assess the student's performance both in the field and theory and awards a Diploma from Agro studies and Ministry of Agriculture at the end of the internship.

Program for training Plant doctors launched.

The Department of Agricultural Production on July 3rd 2013 launched a training program for plant doctors starting with Undergraduate BSc. Agriculture students on Recess term training at the University Research Institute Kabanyolo. The initiative funded by donor funds was spearheaded by CABI through Plantwise - a global initiative that helps countries develop a sustainable national plant health system. The initiative mainly targets strengthening linkages among stake holders in a plant health system in the agricultural sector and its ultimate objective is to ensure that at least by 2015 a

million of farmers will have access to the information that they need to produce more and lose less.

In order to meet the increasing demand for human resources to run plant clinics, Makerere University was chosen as a pioneer institution for the institutionalization of training under three initiatives. The first initiative is equipping undergraduate students with practical skills in running plant clinics and offering good recommendations for pest management; the second initiative will involve training in-service extension agents through a certificate course offered at CAES while the third initiative will be the integration of plant doctor training into the curriculum under various programs offered at the college.

MoU signed with Tottori University Japan

Makerere and Tottori Universities signed the Memorandum of Understanding (MoU) and Memorandum on Student Exchange Based on Academic Exchange (MOSE), the first of its kind with the Japanese institution. The collaboration is to benefit CAES in terms of training, research, curriculum development, quality assurance, institutional development through student /staff exchange and the establishment of an Agro – Technology Park at Makerere University Research Institute - Kabanyolo (MUARIK).

The proposed Agro –Technology park system in the University farm would consist of an Aquaponic production, Bio char and Manure composting production from crop residues and animal dung, Horticultural production in glass house, Plant factory, Micro Hydraulic Power unit and crop production including Agro - forestry among others. The signing ceremony was presided over by the Makerere University Vice Chancellor, Prof. John Ddumba -Ssentamu at the Main building Council room witnessed by Deputy Head of Mission, Embassy of Japan in Uganda, H.E Junji Yamazaki on November 15, 2012. Discussions are ongoing on how to operationalise the program.

A new Module on Nutrition Education to be piloted

In the School of Food Technology, Nutrition and Bio engineering, the department of Food Technology and Human Nutrition introduced a new Module on Nutrition Education to be piloted by our Year II BSc. Human Nutrition.

Innovations in teaching in DABE

In the Department of Agricultural Bio systems engineering the following innovations in teaching and learning have been undertaken:

- AEN 4208 Land Evaluation for Irrigation: students carry out practical Land evaluation exercise in groups of two or three and present to the class and are graded.
- Students are assigned topics in class. They research on them and present their findings in a lecture style arrangement. The rest of the class is examinable on such topics.
- Students designing and constructing equipment in groups.
- Students are guided on how to identify scientific papers related to their topics of research from several journals. Read particular paper of choice, summarise the paper, and present to fellow students. Students are guided on how to effectively listen to a scientific talk, critic the presentation (both the slides quality and content and presentation style) and give positive feedback to the presenter.

- Co-teaching of MSc. Course with masters students taking up new topics. The students are given reference materials; they read widely and prepare to give a lecture which is scored by fellow students. The listeners look out for clarity of the lecture materials, relevancy of the examples given by the presenter and ability to respond to questions raised by the students on the day lecturer inclusive. The students later share their presentations as lecture materials for future revision and eventual examination. To ensure that each student covers the topic satisfactorily, marks are awarded by the lecturer, who independently marks the submitted presentations.

Innovations in teaching in DEM

In the School of Forestry, Environmental and Geographical sciences particularly in the Department of Environmental Management (DEM), the main lecture theatre and the PhD computer room have electronic boards with ceiling mounted projectors for teaching. These are the Smart Interactive White Boards and ceiling LCD projector that provide innovative and resourceful mode of teaching and learning. Because of the availability of desktop computers for students use, instructors provide websites relevant to the taught course for the students to source additional information of specific subject matters. The DEM has several other teaching equipments including LCD (PowerPoint) projectors, and laptops dedicated to teaching. The whole DEM building is connected to a Local Area Network with connection points. In addition, the DEM building has two wireless hotspots. It also has a modern Molecular Genetics Laboratory, Water and Wetlands Laboratory, a well stocked library and Makerere University Biological Field Station (MUBFS) in Kibale capable of handling 200 research students and staff. DEM is housing the National Biodiversity Data Bank (NDB) that is the repository and sources of national biological data. The NBDB is currently funded by projects supported by donors and international agencies. There is a plan to restructure and expand the NBDB to serve the whole East African region.

There are specially designed field visits to selected institutions so that students are conducted to a teaching tour and observe firsthand the practical part of the taught courses. These targeted tours are reinforced by students' attachment to environmental institutions (Environmental Departments) in the districts on internship where they participate in the day to day work of the departments under supervision by the districts officers (usually DEOs and DHOs). The internship is assessed and contributes to the overall marks for the BEV programme.

Further, the Department of Geography won a Linnaeus-Palme project with the department of Human Geography in the University of LUND –Sweden where exchange of Two lecturers will teach in either University for six weeks per academic year for a period of four years.

RESEARCH AND INNOVATIONS

Recognition Awards by Local and International Agencies

A number of staff won awards in relation to their research work. Dr. Fredrick Tumwine Senior Lecturer and Head, Department of Geography, Geo-informatics & Climatic Sciences(GGICS) got The *Pearl of Africa Lifetime Achievement Award* (PALITA AWARD) 2013 organised by the Public Opinions Inc. in honour and appreciation of

his contribution towards Socio-Economic transformation of Uganda and attainment of the United Nations Millennium Development Goals (MDGs) in Uganda.

Prof. Bernard Bashaasha from the Department of Agriculture and Natural Resource Economics (also Principal CAES) won an award for an excellent presentation during the African Crop Science Scientific conference. He presented a paper on *“Adoption and impacts of conservation agriculture: Quasi experimental evidence from East Africa”*. The paper was co-authored by R L Ojok from Appropriate Technology Uganda, J Norton from the Department of Renewable Resources, University of Wyoming USA and D Peck and M Owori from the Department of Agricultural and Applied Economics University of Wyoming USA. Prof. Bashaasha presented the underlying principles of conservation agriculture, the research process and results of the study that was conducted in Eastern Uganda and Western Kenya.

Dr. Donald Kugonza from the Department of Agricultural Production scooped a prize in the 5th position out of the 20 finalist in the young scientist competitions dubbed *“Women and young professionals in Agriculture”* at the 6th FARA Conference held in Accra Ghana.

Prof. Noble Banadda from the Department of Agricultural Bio systems engineering was honoured by the Inter University Council of Eastern Africa for outstanding performance on the Vic Res Project titled, *“ Modeling of non- point source pollution in the Lake Victoria Basin”*.

Dr. William Kyamuhangire was decorated with the “Class One Order of the Nile Medal” by the President of the Republic of Uganda, H.E Yoweri Kaguta Museveni for applying science and technology on traditional bananas and moving away from crude methods to industrial processes

Research Grants and a brief overview on areas of coverage

Of recent the college secured a 2.5bn UGX (EUR 748,865) grant to research the implementation of biogas technology in Uganda, Ethiopia and Cameroon. Dean of the School of Agricultural Science Prof. Johnny Mugisha is leading the formation of the **Afri-Flame Network**, a multi-institution and multi-disciplinary team of researchers, technology implementers and community trainers. The consortium won the grant from the African Union Committee’s 2012 research call, despite stiff competition from over 250 other applications. Over the next 3 years, Afri-Flame partners will research the effects of biogas technology on indoor air quality, use of bio-slurry on crops and improving the efficiency of biogas technology. ‘Energy Villages’ will be established in the three countries to trial biogas technologies of different scales. The project also recognises the human dimension as critical to a successful biogas project, and is researching social factors influencing use and proper management, and running training workshops and troubleshooting issues following installation. In total, the project will train 4 PhD and 9 MSc students, and support the development of an installation and support infrastructure for biogas.

Working alongside Makerere University, other Afri-Flame partners include Addis Ababa University and The Institute of Sustainable Development in Ethiopia, the Catholic University of Cameroon and the Phytobiotechnology Research Foundation in Cameroon. Others are the University of Aberdeen and the James Hutton Institute in Scotland, and SMEs, Green Heat Uganda, and Climate Futures in Scotland. Such a combination of multidisciplinary researchers, technologists and communicators makes this project unique in its scope.

Besides the annual Presidential support of 4.5 bn to the Food Technology and Business Incubation center (FTBIC), the college supported the applicants to the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) through peer review leading to award of three grants to staff totalling 180, 000USD. Additionally, partnership with RUFORUM led to winning of a major grant from the Inter ACP Mobility to support PhD in education in Agriculture and Rural innovation (2.0 Million Euro) and in October 2013 support (2.55 Million Euro) to the PhD Programme in Plant Breeding and Biotechnology, as well as other Crop Science related activities.

Output new innovations from existing and new college research programs

Crop production Technologies

In the area of crop production, new crop varieties that are high yielding, with shorter maturity period and resistant to pests, drought and diseases were bred, developed and released. These include:

Two new Maksoy bean varieties (Maksoy 4N and 5N) released

Two new Makerere soybean varieties were released to the public by the Ministry of Agriculture on the 25 November 2013 in Entebbe. Other Maksoy bean varieties that are high yielding (2- 3tonnes/ha), with short maturity period (90-105 days) and resistant to leafrust disease were developed between 2008-2010. These varieties can be obtained from the seed companies that have taken over the distribution.

20 high yielding, sweet potato varieties that are tolerant to Drought and sweet potato viruses

The Department of Agricultural Production bred 20 new sweet potato clones that are high yielding, tolerant to drought and sweet potato viruses. The clones were unveiled in Gorooba village, Buraru parish, Kyabigambire sub county in Hoima district during an open day for participatory variety evaluation for farmers to choose what they think was the best variety for them based on yield and colour on November 1st 2013.

Over 20 sweet potato elite clones developed at the Makerere University's Research Institute Kabanyolo named Kabanyolo Sweet potatoes (KSP) were supplied to a group of 30 farmers called "Ageteraine" chaired by Mr. Mugisa Geoffrey who provided land where the clones were put under three blocks. Other lines from Namulonge named (NASPOT) and local varieties *Dimbuka* and *Semanda* were also given to farmers to compare their performance against the Kabanyolo lines.

The three year project was funded under the Regional Collaborative Programs of the Swedish International Development Aid (SIDA). The project involves Makerere University, Namulonge Agricultural Research Station, KAZARDI in Kabale, Kenya Agricultural Research Institute (KARI), Mikochoeni Agricultural Institute (Tanzania), University of Addis-Ababa (Ethiopia) and Rwanda Agricultural Research Board among others.

Prof. Samuel Kyamanywa was the Principal Investigator Makerere University as well as the Regional Coordinator for Eastern Africa. Makerere received about 300,000 USD over the three years and about 1,000,000 USD for the region for the project which should be ending in December 2013 but because of problems of fund disbursement from donors, they have allowed a no cost project extension till June 2014.

New sweet sorghum variety (MUK 60) availed to farmers in Eastern Uganda.

The new sweet sorghum variety (MUK 60) that is drought tolerant, high yielding with short maturity period and sweet stalks for the production of food and molasses for brewing waragi was launched in Eastern Uganda in Bukedea district. Researchers led by the Dr. Patrick Okori (PI) embarked on this project in 2011 with support from Bio innovate and Macknight foundation with the aim of addressing the problem of food security and diversifying farmer's income. The breeding of resistant varieties was also part of the effort by the university to mitigate the impact of climate change and enhance crop production for value added use so that farmers change from food security crops to income generation.

Banana Tissue culture technology

The Department of Agricultural Production has continued to develop the protocols and media for banana tissue culture production currently used in culturing of banana plantlets in the region. This technique has enabled the production of clean planting materials and their quick multiplication of the vegetatively propagated crops line sweet potatoes and cassava.

Development of Molecular Diagnostic tools for diseases

The department also continued with the development of molecular diagnostic tools for a number of diseases including banana bacterial wilt, sweet potato viral disease, cassava brown streak and passion fruit woodiness virus. These technologies have helped in correct and timely disease diagnosis, management and supply of clean planting materials.

Integrated Pest Management (IPM) technologies promoted

Under the Integrated Pest Management (IPM) program the department has promoted technologies for improved production of crops like Ground nuts, beans, pigeon peas, cabbages, coffee, tomatoes. Use of Integrated Pest Management technologies eliminates the use of chemical pesticides that can be hazardous to humans if consumed. Through the promotion of IPM, the department has helped in: (i) reducing the impact of groundnut rosette virus on groundnuts in Eastern Uganda, (ii) reduced pesticide application by 50% on cowpeas and tomatoes.

Animal production Technologies

In animal production, DAP came up with innovations to improve the quality of animal breeds, control disease spread and improve farmers income such as:

The feedlot technology to increase beef production

Researchers led by Dr. Denis Mpairwe (PI) were able to convert agricultural and industrial waste materials into high quality feeds for livestock dubbed the "Feedlot technology to boost beef production in the country. The major feeds used in this program are the Maize bran, molasses, brewers spent grain from Luzira and Jinja, Maize stovers and mineral sources locally available. The research work was done in collaboration with a farmer in Mubende District, Rwaburindore Bishanga Tarsis.

Rwaburindore who owns a 4.5 square meter ranch called Betar Ranchers with over 2000 heads of cattle and over 2000 goats and sheep for beef production under extensive and intensive production. The farmer approached the university with the major interest of producing beef at faster rate to supply 400 animals per month to Fresh cuts . Animals under the Feed lot technology gain 30kg in a month and about 1.5 kg per day. However some animals referred to as champions have been able to gain 30 kg in two weeks.

The milk booster and Calf accelerator developed from industrial waste

This innovation involved the use of sugar cane industrial waste of molasses mixed with other ingredients like maize bran, cotton seed cake, urea, mineral salts and lime to mitigate malnutrition, extreme hunger and poverty through improved milk production, nutrition and improved daily cash flow among farmers. The project titled, “*Participatory research for technology development on use of Molasses Urea Blocks (MUB) and local feedstuff for improved dairy cattle production in Uganda*”, was spear headed by Dr Fred Kabi. The project started in September, 2008. The first production was recorded in December 2011.

In a public private partnership with Kakira Sugar Works Ltd, Kakira Outgrowers Rural Development Fund (KORD) and Dairy Development Authority (DDA), the unit embarked on participatory research for technology development aimed at utilizing sugarcane industrial waste like molasses for improved dairy cattle productivity in Uganda. This was under the World Bank funded Millennium Science Initiative (MSI) coordinated by the Uganda National Council for Science and Technology (UNCST). The funding facilitated provision of a platform for learning alliances geared towards translating science into tangible sellable products aimed at improving livelihoods of the rural folks. In addition to the sugar cane trash, other crop residues like coffee husks, rice and soybean husks were dry distilled in a study at Kabanyolo and in combination with sugar cane molasses, fuel briquettes were produced.

Implementation and dissemination of Artificial insemination in pigs

For the first time in Uganda, the department implemented Artificial insemination in pigs. It is now possible to store semen for 7days. With this technology, contact between male and female pigs has been reduced hence curbing the spread of African swine fever. Farmers can now select good quality breeds. At the same time a small sow can be serviced by a huge boar. A boar stud for semen collection was established at MUARIK and by just a telephone call, technicians can collect semen and service the sow on detecting the heat period. Many farmers have appreciated this technology and on average the college receives atleast one call per week seeking the service.

Improved livestock breeds

DAP has pioneered research on the improvement of Ugandan local livestock breeds including the Ankole cattle, the Mubende goat and local chicken.

Organic Piggery Technology (IMO)

Organic piggery, a cost effective farming system using Indigenous Micro Organisms (IMO) was adopted and promoted. The innovation was introduced by South Korean Professor Hong Yo Lee in 2011 at Makerere University Research Institute Kabanyolo under the theme “*Mindset Change in Uganda*”. Prof. Hong Yo Lee gave students the project of Organic piggery which they have tested and proved efficient. The innovation involves use

of Indigenous Micro Organisms (IMO). These organisms help to achieve very many things in livestock and crop production instead of using chemicals. The demand for this technology is also high.

Rakai residents get water tanks for home use and irrigation

In conjunction with Masaka Diocese Development Organisation (CARITAS-MADDO), a church based NGO, the department of Extension and Innovation studies supported ten farmers to construct water tanks for harvesting water from their roofs for both domestic use and irrigation of their kitchen gardens during the dry season. In addition, groups of farmers were assisted to set-up small holder irrigation systems to take advantage of a stream that runs through their village to grow high value crops such as vegetables. This initiative was supported by a project entitled: “*Strengthening Universities Capacities for Mitigating Climate Change Induced Water Vulnerability in East Africa*” (WATERCAP) funded by the Austrian Development Cooperation under the Austrian Partnership Programme in Higher Education and Research for Development (APPEAR). The project was coordinated by the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) and implemented by Makerere University in Uganda and Egerton University in Kenya. The three-year project with the Ugandan component worth 150,000 Euros has been implemented in Rakai and Nakasongola districts since 2011.

Nakasongola Residents get valley tanks

Residents of Kanyonyi village, Wanzogi - Subcounty , Kalungi Parish in Nakasongola district got two valley Tanks courtesy of Makerere University aimed at harnessing water and its use especially production in water stressed areas. Makerere University was collaborating with Egerton University (Kenya), RUFORUM which is an umbrella organization for African Universities, and Bok University in Austria. An old dam was disilted and widened to 10 meters deep and a fence built around. Another tank for domestic use, a drinking trough for animals and a water pump to pump water from the dam to the trough were procured to reduce the drudgery that people used to have by using traditional water troughs.

Agricultural Extension workers trained

On January 14-19, 2013, the department of Extension and Rural Innovations held a workshop to equip agricultural extension officers with new skills on innovation. The one week training Mid career course was conducted at the Continuing Agricultural Education Centre, Kabanyolo under the ACP Science and Technology program to build the capacity of African Universities graduates to Foster Development through Agricultural Innovations. The European Union Funded project was being implemented in Makerere University Uganda, Egerton University Kenya and Bunda College in Malawi. Over 30 participants and mainly graduates who missed out the component on innovation processes turned up for the training. These extension workers would be able to teach farmers the benefits of increasing production and value addition by taking lead in supporting innovation processes, facilitating multi - stakeholder processes and then build and manage partnerships. The training attracted participants from Government, NGO's and private sector. These included VEDCO, EADEN, NWESEA, Sasakawa G2000, Wold Vision, Africa 2000 Network, Kyambogo, Nkozi, Mukono and Gulu universities among others.

Farmer field schools piloted

Farmer field schools were established to support engagement with communities in agricultural R&D. These schools were established mainly in Eastern and Central Uganda for management of pests and diseases. School gardening projects were also established in Nalango and Tuburu primary schools in Kamuli and Soroti districts to promote agriculture and demonstrate school gardening as a viable project to supplement the feeding program in UPE schools.

Starter culture selections

The department of Food and Human Nutrition has starter culture selections for *obushera* which are under evaluation for biomass production. We also have a complete optimization of a faster industrial process for the production of *obushera*

Other research innovations

Staff from DABE have come up with a number of research innovations including:

Name	Research Innovation
Dr. Micheal Iwadra	<ul style="list-style-type: none">• Evaluation of effect of Climate change on crop water Demands and Yield• Design of subsurface dam for water harvesting in semi arid and arid areas]• Evaluation of Irrigation water demand and potential in Uganda.
Dr. J. Kiggozi	<ul style="list-style-type: none">• Migration of Contaminants from polythene foods during thermal processing.• Design of Pasteurizing Tank• Design of Soy Milk Machine• Modification of Ewing Grinder from hand powered to pedal and motor powered.
Peter Tumutengyereize	Utilization of maize cobs in making particleboards
Dr. Micheal Kiggundu	<ul style="list-style-type: none">• Developed irrigation and nutrient BMPs for tropic fruit production in shallow water table areas• Production of briquetted from pineapple and mango wastes• Modeling feeding rates and growth of cat fish

- Production of cardboards from maize cobs
- Assessment of a complete inorganic fertilizer and chicken manure on the yield of Nakati (*Solunum aethiopicum*)

Prof. Noble Banadda

- Generation of electricity from sewage
 - Optimization of Resources recovery from wastewater
 - Migration of contaminants from polyethylene to foods during thermal processing
- Design and Computational fluid dynamic modeling of a Municipal Solid Waste Incinerator for Kampala City, Uganda

A 400,000 US Dollars Mobile Fruit Processor designed and acquired

The Food Technology and Business Incubation Centre procured the Mobile fruit processor for the collection and processing of fruit to juice concentrates in the communities. The mobile fruit processor is the first of its kind in Uganda and was manufactured in the UK by a company called Alvan Blanch according to specifications sent by experts in the School of Food Science at a cost of 400,000 US Dollars. The source of funds is the Government of Uganda through the Presidential Initiative for value addition that is given to scientists at Makerere University.

The Mobile fruit processor was launched in Lobenga village, Apo Sub County in Yumbe district on 25th May 2013. The machine was flagged off from Makerere on Thursday 16 May, 2013. Over 20 tonnes of mangoes were processed in five days in Lobenga village.

This machine can process mangoes, oranges, pineapples and other fruits and vegetables. The machine is a complete factory of its own. It takes in raw fruit and delivers an intermediate preserved mango or pineapple pulp and because it takes care of itself, it has a generator on board, water treatment and processing unit to preserve the pulp and tanks for intermediate storage.

New value added products and agro processing enterprises developed

Th incubates (mostly fresh graduates) have access to processing facilities at the incubation centre and are provided with technical support to boost their capacity in production, marketing and business management. This has led to the development of new food value addition enterprises. So far, eleven agro processing enterprises have been set up. They include, Dawn Industries, Smart Foods, Hamko, Choice Cuts Ltd, Samalina Beverages, Jordan Foods, House of Russa, Nutreal Ltd, and Food and Nutrition Solutions Ltd.

Products such as bottled pineapple juice cocktails, soya bean products, sausages, smoked meat, Omulondo liquor, canned Katunkuma, lemon grass flavored tea, nutrient dense cookies, amarathus products, canned maize and beans and health bars are in leading retail outlets in the country, contributing to import substitution

New initiatives in Laboratory/ Facility Development

State of the art Biotechnology Lab acquired

On April 18, 2012 the department acquired a modern state – of – the- art biotechnology laboratory funded by the Millennium Sciences Initiative (MSI) a grant from World Bank to Government of Uganda. The 250 million shillings building is one of the activities to create cereal research centres under the initiative called Cereals Improvement project. The core objective is to produce cereals that are drought resistant and high yielding.

Makerere University Climate Change Centre (MUCCRI) Opened

The Climate Change Centre was inaugurated on July 30th 2013. This initiative was funded by the Rockefeller Foundation to develop capacity to address critical issues of climate change adaptation research, policy development and implementation in East Africa. The centre will promote awareness on climate change, conduct research on climate change science, climate change mitigation and adaptation in all sectors. It will also generate and disseminate innovations for climate change mitigation and adaptation in agricultural sciences and natural resources sectors. Through research and dissemination of findings, the centre will also advocate and influence climate change and development policy to enable Uganda address climate change challenges.

The Controlled Environment Plant Chamber established

The Completion of Laboratory renovations at MUARIK added a Controlled Growth Chamber for Plant Science Research and Molecular Biology Laboratory worth 1.5 million US Dollars. The structure was built and equipped with support from the Swedish International Development Agency (SIDA) through BIO – EARN and BIO – INNOVATE with co –funding from Danida. The facility was refurbished to support sorghum and millet research, training and innovation activities of the university for years to come under the BIO – INNOVATE consortium project “ *Delivering new sorghum and finger millet innovations for food security and improving livelihoods in eastern Africa*”, which Makerere University is implementing together with other projects.

CURAD Center opened at MUARIK

More recently, with support of the FARA funded Universities, Business & Research in Agricultural Innovation (UniBRAIN), the Consortium for enhancing University Responsiveness to Agribusiness Development Limited (CURAD), a public-private partnership initiative led by Makerere University opened its incubation center at MUARIK.

Post graduate unit upgraded

The postgraduate units were upgraded by installation of WIFI in the accommodation compound to enable a wireless access to the internet. This was supported by TEAL with Dr. Richard Edema being the link person. The department of Agricultural Production also undertook to upgrade the Postgraduate accommodation facilities at MUARIK. This was done with a grant from RUFORUM to support implementation of Regional PhD in

Plant Breeding and Biotechnology and MSc in Plant Breeding Seed Systems. The facilities were developed in phases; phases **1** (2010), and **2** (2010-2011), focused on improving accommodation of staff and students and in phase **3** 2012-(completion of the new accommodations- glazing, tiling fittings and furnishing

Plant Breeding and Biotechnology Centre of Excellence won

The Department of Agricultural production bided the centre of excellence and was awarded to be East Africa's centre of excellence in Plant Breeding and Biotechnology. The department obtained support from DAAD to support PhD training in plant breeding and biotechnology. The support is now in its second year. This support is in partnership with RUFORUM and provides funding foreign students to study at Makerere University.

A number of Laboratories running

A number of laboratories including the soil, animal and crop science laboratories are running. Others are the Biotechnology and plant breeding both at the main campus and Kabanyolo. The department also has the Tissue Culture laboratory for vegetatively propagated crops where analyses of feed and tissue sample for composition is conducted on a routine basis by the experienced technical staff. The department has a number of green houses, experimental and production farms.

The Pilot Plant the Food Technology and Business Incubation Centre received an Aseptic Tetrapak processing line for liquid foods equipment, and several lines were renovated including the dairy, meat and juice processing lines. Under the Peanut CRSP Project, we received the FTIR equipment for measuring aflatoxins; several equipment for nutrition lab were received under the HENNA Project

From the NUFU project 2007/2011/12, we received state of the art light microscopy equipment, visible and UV spectrophotometer, RVA, Humidity and temperature meters, two analytical weighing scales, two pH meter, automatic pipettes – there will boost both the microbiology and chemistry research laboratories.

From the Bio-Innovate project 2011/6 we received a filter press and a two head semi-automatic bottle filling and capping unit.

Department of Agricultural Bio systems engineering operates from two locations: One on campus in the Food Technology Building where it occupies the 9 staff offices mainly the 1st floor in addition to office of the HoD. There are 4 lecture theaters on the ground floor of the same building that are shared with the department of Food Technology.

At MUARIK, the department has a mechanical workshop with several metal working equipment and takes care of the tractor. There is also an under equipped weather station and a technical drawing theater at Kabanyolo.

Also at MUARIK, five acres of land have been set aside for irrigation demonstration and training.

Roads were Graded at MUARIK, installed culverts and side drains to divert runoff water from roads.

Department of Forestry, Biodiversity and Tourism links up production and natural resource use with conservation and education. Through its two training field stations namely: Makerere University Biological Field Station (MUBFS) Kibaale and Budongo Conservation Field Station in Masindi, the department has continued to promote sustainable utilization of natural and cultural resources while enhancing socio economic development and conservation.

3 KNOWLEDGE SHARING AND TRANSFER TO SOCIETY

FANRPAN Uganda Node launched

CAES launched a national multi-stakeholder program - the *Food, Agriculture and Natural Resources Policy Analysis Network* (FANRPAN Node Uganda) that will support the development of better food, agriculture and natural resources policies in Africa. The steering committee Uganda FANRPAN Node was on Thursday May 24, 2012 nominated bringing together representatives from government, farmer organizations, researchers, academia, private sector, parliamentarians, civil society and the media at function held at the School of Food Technology, Nutrition and Bio engineering. The FANRPAN network works in 16 African countries including Angola, Botswana, South Africa, DR Congo, Kenya, Lesotho and Zimbabwe among others. The mission is to see a food secure Africa free from hunger and poverty. It focuses on five thematic areas namely; food systems, Agricultural productivity and markets, Natural Resources and Environment, social protection and livelihoods and institution strengthening and capacity building.

The college through writing proposals for competitive grants has continued to receive funding from a number of donors including:- DFiD-British Council, EU-ACP EDULINK; Millennium Science Initiative, RUFORUM, Rockefeller Foundation, Carnegie foundation, AGRA, ASERECA, Sida, NORAD, DANIDA, USAID, Government of Uganda, MacArthur Foundation, The Dutch Government, McKnight Foundation MSI, BIOEARN, Agra.

Collaborative linkages

CAES boasts of a strong research program having established collaborative linkages with ILRI, The University of Life Sciences in Denmark, Sokoine University of Agriculture among others. Locally we have strong linkages with the National Crop Resources Research Institute (NACCRI) and the National Livestock Resources Research Institute (NALRRI) and the National Animal Genetic Resources Centre and Data Bank (NAGRIC&DB).

Units like that of Agricultural and Natural resources economics has strengthened its linkages with IFPRI, FASID and Earth University in Costa Rica among others and opened up new collaboration with the Norwegian University of Life Sciences (Norway), Bunda College (Malawi); and Hawassa and Makelle University (Ethiopia) .The Department is also in partnership with Moshi University of Cooperatives and Business Studies, and University of Zambia in an exchange program of young staff supported by the Norwegian government under the Fredskorpset-Norway

Exhibitions

The college held exhibitions and participated in the Annual Agricultural and trade show, to show case various products and technologies developed. Agricultural exhibitions help to convey the messages of good animal and crop management practices to farmers.

In addition students were also engaged in outreach activities to enhance public awareness about the college activities and programs as well as the role of agriculture in Uganda's economy. The unit has also expanded its outreach program by conducting appropriate research with farmers.

Workshops and seminars

Workshops and seminars were also held for different stake holders including farmers, agricultural extension officers and policy makers for knowledge transfer and partnerships. The college programs, activities and achievements were publicised in a number of channels such as the mainstream media, the website, newsletters, national and international conferences including the FARA General Assembly in Ghana, RUFORUM Annual General meeting held in Kigali Rwanda, the African Crop Science Society Conference held in Entebbe Uganda. CAES staff also provided information through interviews and talk shows, open days, student outreach activities among others

Social Responsibility activities

Several members serve on committees in Uganda, for example in UNBS, MAAIF, Private Sector; Prof. Muyanja is President, African Association for Food Protection; Prof. Kaaya is a member of the International Society for Mycotoxicologists.

Other members serve on different local and national bodies for instance;

Prof. Nobble Banadda:

- Regional Coordinator - Lake Victoria Water Pollution Cluster, VicRes Project
- Member - Department of Agricultural and BioSystems Engineering Postgraduate Committee
- Member – B.Sc. Bioprocessing Engineering drafting team

Dr. Nicholas Kiggundu

- **Project Leader:** Non-ATAAS Project for Mukono ZARDI (NARO). A project of the Promotion of irrigation technologies in the Lake Victoria Crescent Agro-ecological Zone.
- **Project Engineer:** WATERCAP project. Department of Extension and Innovation Studies, Makerere University.
- Member - Department of Agricultural and Biosystems Engineering Postgraduate Committee
- Member – B.Sc. Bio processing Engineering drafting team

J Kigozi

- Coordinator 3rd year undergraduate studies
- Member committee coordinating department functions and welfare.
- Patron School of Food Technology, Nutrition, and Bio-Engineering Student Fellowship
- Member – B.Sc. Bio processing Engineering drafting team

Involvement and participation of society in approved innovations

Staff assisted farmer groups in Bushenyi, Kayunga, Mbale, Serere and Lira to improve their harvesting and immediate postharvest technologies and practices for value added products

Prof. Nobble Banadda trained communities in South Sudan to manage a sorghum grain bank through proper drying, storage and processing Structures for the Sudan Productive Capacity Recovery Programme (SPCRP).

Trained staff in Mathematical Modeling at the Water Quality Directorate, Ministry of Water and Environment, Entebbe, November 2012

Trained Prison Staff and Prisoners at Luzira Prison Complex in Soap Making, March – April 2012

Dr. Nicholas Kiggundu trained farmers in Rakai on irrigation technology of horticultural crops under the WATERCAP project December, 2012. He also trained pastoral community in Nakasongola on the management of valley tank and operation and maintenance of 1 Hp centrifugal pump.

The Skills Training Program for SMEs

Several short courses were conducted in Fruit and vegetable juice processing; bread and cake baking; yoghurt processing; cheese processing; processing of jams and preserves; Nutrition for good health and productive life; sanitary and phyto-sanitary measures along the food value chain. Participants included youths, women, entrepreneurs, budding entrepreneurs, farmers, traders, exporters, super market staff, inspectors and extension workers.

National and International Paper presentations/Conferences

Members have further conducted National and International Paper presentations/Conferences including;

- Processing of peanuts to remove aflatoxins: Reduction below Regulatory Thresholds. Peanut CRSP UGA Workshop, January 24 – 25, 2012 Accra, Ghana.
- Efforts to reduce aflatoxin contamination of groundnuts in Uganda: role played by the Peanut Collaborative Research Support Programme (Peanut CRSP). 10th African Crop Science Society Conference, 9 – 13 October, 2011, Maputo, Mozambique.
- Overview on aflatoxin and human health in Uganda. FAO Workshop on Longitudinal Impact of HIV/AIDS on Agriculture and rural Livelihoods in Uganda. 13 – 14, April, 2011. Mukono, Uganda.
- Status of aflatoxin contamination of foodstuffs in Uganda. Africa College Food Security, Health and Impact Knowledge Brokering Conference, 22nd-24th June and the Mycotoxin Workshop, 25th June 2011. Africa College, University of Leeds, UK
- Farmers' knowledge and the need to control aflatoxin contamination of groundnuts in Uganda. MYCORED AFRICA Conference, April 4 – 6, 2011. Cape Town, South Africa.
- 6th African Population Conference 2011: 5th to 9th December 2011 Ouagadougou, Burkina Faso. Paper presented: "Impact of urbanization on cohabitation in Kampala city"

- International Conference on the East African Mountains (ICEAM) 2011 Mbale Uganda (14th –16th November 2011. Paper presented: “ Influence of high population densities in highland areas on marriage patterns and poverty alleviation: The case of Kisoro district in south western Uganda”
- 7th Annual International Conference 2011: Knowledge Creation and Dissemination for the Realization of Millennium Development Goals. 6th to 10th September 2011, Moi University, Eldoret, Kenya. Paper Presented: “Education and Training in Tourism and Hospitality, a case of Uganda”.
- 7th ATLAS Africa Conference 2011: Sustainable Tourism and Environmental Education: A natural link. 6th to 8th June 2011, Kampala, Uganda. Paper presented: “Implications of Rapid Population Growth on Sustainable Tourism Development in Uganda”.

Other outreach activities

Makerere University Geography Society (MUGS) revived. Students and the Assistant Patron travelled to Bishop Stuart –Kakoba and Uganda Geography Society formed (UGS). Opedes Hosea, a member of MUGS was elected the first president of UGS.

The Department of Forestry Biodiversity and Tourism (FBT) has extensively engaged in outreach activities with diverse stake holder institutions like Nyabyeya Forest College and Budongo Forest conservation and conducted student internships and attachments, open day and exhibitions and short training programmes.

FBT has links with Norwegian University of Life Sciences, NORAD,EU, Gateby Foundation, FAO,UNDP and others. There are good linkages with other local institutions like Nyabyeya Forest College, NARO, Budongo Forest Conservation, National Forest Authority and Uganda Wild Life Authority. The department links with other African institutions like Kenya Forest Reserve Institute, University of Nairobi, ICRAF, Sokoine University of Agriculture, University of Dar es salaam and Stellenbosch University South Africa.

DEM won The Sawlog Production Grant Scheme, and EU-funded project aiming at promoting commercial tree growing in the country. The DEM is strengthening its linkages with the Department of Ecology, Norwegian University of Life Sciences (Norway) through collaborative research

The Department of Geography won a Linnaeus-Palme project with the department of Human Geography in the University of LUND –Sweden where exchange of Two lecturers will teach in either University for six weeks per academic year for a period of four years. Makerere University Geography Students (MUGs) students participated in planting of trees in different parts of the country.

4 . RESEARCH PUBLICATIONS

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In: P. Okinda - Owuor, N. Banadda, J. Obua and S. Okoth (Eds.) Natural Resources Management and Land-Use: Proceedings of the Cluster Workshop, ISBN 978-9970-452-02-6. Sponsored by Lake Victoria Research Initiative *Sponsored by SIDA/SAREC*, 223p, 2013

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5. SUPPORT FUNCTIONS

Human Resources (New appointments, promotions and capacity building)

A number of staff were recruited and rose in their ranks as tabulated

Promotions in Department of Agricultural Production(DAP)

Name	Promotion
Dr. Tenywa M. Moses	Professor
Dr. Sekabembe Charles	Assoc. Professor
Dr. Ochwo Victor.A.O	Assoc. Professor
Dr. Okori Patrick	Assoc. Professor
Dr. Basamba Twaha Ali	Assoc. Professor
Dr. Nabasirye Margaret	Assoc. Professor

Staff who were on study leave in DAP

Name	Degree pursued
Walusimbi Sedati	PhD
Odongo Tomasi	PhD
Tibezinda Mary	PhD
Musinguzi Patrick	PhD

Kamatara Khanifa	PhD
Idibu Joachim	MSc
Mwije Antony	MSc
Olupot Gregory	PhD

Promotions in Department of Agriculture and Natural Resource Economics (DANRE)

Name	Promotion
Sembajwe W.S Gombya	Professor
Mukadasi Buyinza	Professor
Hyuha Theodora. S	Associate Professor
Kiiza Barnabas	Assoc. Professor
Mugisha Jonny	Professor
Serunkuma Dick	Assoc. Professor
Jackie Bonabaana	Senior Lecturer
Elepu Gabriel	Lecturer
Balirwa Elizabeth	Lecturer
Peter Walekwa	Lecturer

Staff granted study leave in DANRE

Name	Study program
Diro Malton	PhD
Omiat George	PhD
Alobo Sarah	PhD
Isoto Rosemary	PhD
Turinawe Alice	PhD

Staff promotions in the Department of Extension and Innovation studies (DEIS)

Jacob Agea was promoted to full Professor, Nelson Turyahabwe and Paul Kibwika became Associate Professors while Bernard Obaa, John James Okiror were promoted to the rank of Lectures. Alice Turinawe was promoted to Assist Lecturer.

Staff granted study leave in DEIS

Name	Study Program
Mkebezi Rebecca	MSc
Karubanga Gabriel	MSc
Richard Miiro	PhD
Oruum Boniface	PhD
Tumwine Jackson	PhD

Promotions and recruitments in the Department of Food Technology and Human Nutrition (DFTHN)

Dr. Archileo N. Kaaya and Dr. Charles Muyanja were both promoted from Associate Professor to Full Professor; Abel Atukwase and Ivan Mukisa completed their PhDs; Mr.

Robert Mugabi completed his MSc; Dr. Hedwig Acham and Dr. Florence Turyashemererwa were recruited new Lecturers; Prof. Joyce Kikafunda was appointed High Commissioner to UK.

Promotions in Department of Agricultural Bio systems engineering (DABE)

Name	Promotion
Noble Banadda	Professor
Issa Kabenge	Lecturer
Peter Tumutengyereize	Assistant Lecturer
Kiggundu Micheal	Lecturer

Staff who were granted student leave in DABE

Name	Qualification
Sendagi Stella Maris	PhD
Ssegane Herbert	PhD
Komakech Allan	PhD
Kigozi Jalia	PhD
Zziwa Ahamada	PhD
Kambogo Robert	PhD
Wanyama Joshua	PhD
Aya Fielda	MSc
Makumbi Tomas	MSc

Staff promotions in the Department of Forestry Bio diversity and Tourism (FBT)

Name	Promotion
Mnason Tweheyo	Professor
Philip Nyeko	Professor
Balaba Susan Tumwebaze	Senior lecturer
Fred Babweteera	Associate Professor
Jeremiah S. Lwanga	Senior Lecturer

Paul Mugabi

Senior Lecturer

Frank Mugizi

Assistant Lecturer

Staff on study leave in the Department of Environmental Management (DEM)

Name	Degree pursued
Tumusiime David	PhD
Nalwanga S Faidah	PhD
Natumanya Ezra	PhD
Kaembeke Hellen	PhD
Egeru Antony	PhD

Promotions and recruitments in DEM

- i. Dr. Justine Namaalwa was promoted to Senior Lecturer
- ii. Dr. James Okot-Okumu was promoted to Associate Professor

Promotions and recruitments in the Department of Geography, Geo Informatics and Climatic Sciences (GGICS)

Dr. Mugagga Frank and Dr Waiswa Daniel promoted from Assistant Lecturer to Lecturer

Gender mainstreaming

Makerere University has put in place a gender mainstreaming policy. This policy guides operations of all University Units and especially how it relates with all its partners. To improve participation of women in CAES programmes, the college has put in place the following strategies:

Improving women student enrolment:

The College has improved the participation of women in training programmes to address the issue of pre-university barriers by:

- Re-branding agriculture to dispel gendered myths and stereotypes of sciences.
- Addressing barriers that hinder women from progressing to post-graduate training. A special programme to address this shall be put in place.
- Adopting gender budgeting to ensure that scholarships address the gender needs of both female and male married students.
- Investing in training of women training and providing research opportunities.

Conducting awareness campaigns.

This involves conducting sensitization programmes regularly as well as progress review meetings of all leaders and staff on gender and development. This has increased awareness about importance of gender analysis and implementation.

Strengthening gender policy understanding: This includes strengthening institutional gender policies that commit institutions in taking lead role in ensuring gender equality.

Enhancing gender mainstreaming: The implementation of this involves institutional arrangements that support multi-disciplinary activities, teamwork, creative thinking, flexibility and risk-taking. The College will also develop a mechanism for monitoring progress of institutional learning on gender mainstreaming.

Scaling up training of younger graduates on gender analysis: This will include the following activities:

- Providing training on basic gender analysis to all students.
- Increase students' skills in gender and diversity through the curriculum.
- Build a supportive and participatory environment for all gender.

Introduction of mentoring programmes: The College will provide strong mentoring programmes for female students and staff on career professional upgrading. This effort is meant to build capacity of staff and students in gender and diversity.

Enhancing gender mainstreaming among partners: Partnerships between local and international institutions, NGOs and farmer organizations to help move towards success in addressing gender issues in agriculture. This will include up-scaling of best practices for gender mainstreaming.

Gender mainstreamed research agenda: The College will expand the research agenda to include the needs and problems of women farmers and other engaged in environmental R&D and development in general. Other actions include revisiting the criteria for research priorities from a gender perspective.

