

It has given demand driven short skills and SME entrepreneurship training in dairy products, bakery products, fruit juices and jams, sauces etc.

The centre is therefore a spring board through which Ugandans can start microenterprises in food processing leading to wealth creation and nutrition enhancement.

#### Youth Employment; imparting skills for production and development

The Presidential Initiative support through SPEDA and AFRISA has enabled the introduction and implementation of an innovative alternative model of delivering higher education through promoting skills, production, employment and development in animal resource value chains and industries (SPEDA). This initiative is spearheaded by the College of Veterinary Medicine Animal Resources and Bio-Security. The innovation is filling the gaps where the traditional models of tertiary education, research, outreach and human capital development had failed to transform the youth and common person and instead fueled youth unemployment and poverty.

The skilling initiative is turning veterinary and agricultural graduates who used to function as public officers into job creators and productive individuals that can transform society. The SPEDA innovation anchors tertiary education graduates directly into production and enterprise development as skilled and respectable professional producers, processors and entrepreneurs, thereby addressing the problem of mass unemployment and unskilled workforce.

The SPEDA initiative is creating employment and increasing household incomes, through a new and more organized generation made of skilled, productive, Entrepreneurial, developmentally organized, academically accredited & Nation-transforming individuals. It provides a holistic bottom-up higher education and extension model that enrolls a group or community and nurtures them through a combination of academic-community-public-private partnerships, training, learning, research and extension approaches to simultaneously graduate as skilled producers and entrepreneurs, enterprises & business ventures, cooperative groups / economic clusters, development leaders and cadres and academically accredited workforce.

The initiative has churned out certified producers and entrepreneurs in Soroti and Rubuguri Sub County, Kisoro. It is nurturing feed development innovations and enterprises in, soap, honey and other natural products innovation. The Africa Institute for Strategic Animal Resource Services and Development (AFRISA), has partnered with community based organisations such as the Bunyoro Transformation Platform, Amos Dairies, Ntungamo District Transformation Platform in poverty reduction and enrichment of the peoples' knowledge in the areas of livestock management and production. It has reconstructed and rehabilitated the SPEDA Incubation Centre at Nakyesasa, to transform it into a modern skills and technology centre and the young entrepreneurs' innovations are on-route to a certificate, diploma or a degree in the bee, poultry, leather, dairy and natural products value chains

The innovation program involves multiple actors and its implementation is in the form of academic-community-public-private partnerships. It has an engagement platform the Africa Institute for Strategic Services and Development (AFRISA) for implementation and formulation of new training models and programs.

#### Enhancing Innovation and competitiveness in business among SMEs

The Development of Innovative Business Clusters is one of the various initiatives that has focused on competitiveness for SMEs through innovation and cluster approach. It aims at making Uganda's businesses more competitive locally and globally, through innovations and cluster initiatives. Under the cluster system, groups of independent firms, collaborating and competing; geographically concentrated in one area, and are specialised in a particular fields linked by similar technologies or skills are brought together to form business clusters. The programme has targeted Small and Medium Enterprises (SMEs) and operates on the triple helix mode as a major driver consisting the Government, the academia/universities and the private sector. Innovative cluster initiatives are championed by trained facilitators, normally representing each component of the triple helix.

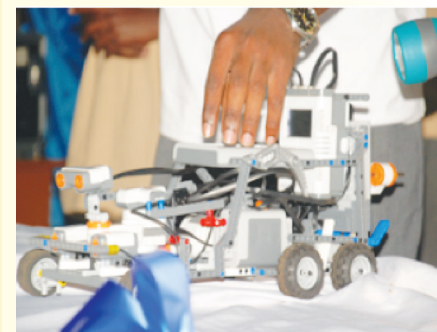
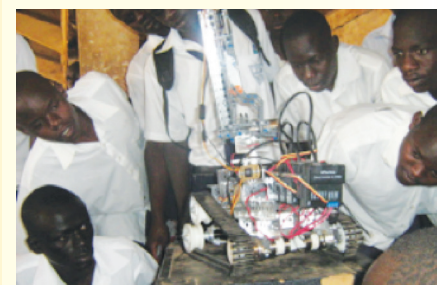


#### ARMS; Meeting the unique requirements of computer systems in Public and private Institutions

Institutions require different systems to manage their day to day transactions and to have security for every single data generated in their processes. The University is addressing the unique needs of various institutions by designing systems using Cutting Edge Technologies. The Academic Records Management System (ARMS) project has nurtured patrons, tools, techniques, and guidelines that meet the unique requirements of computer systems in Education, e-Governance, e-Health and e-Commerce. This has not only benefited the University but government institutions including Police. The project has been incubating home grown computer systems focusing on development of a comprehensive user-centric Academic Records Management Systems that support the university's logical and physical academic infrastructure and the public using state-of-the-art technologies and current generation industrial aesthetics.

#### The iLabs; addressing the challenge of access to resources for science and technology

The iLabs project has taken on the Development and Deployment of Internet Laboratories (On line Laboratories) to support curricula. This initiative is targeting the deficiency of conventional laboratories facilities experienced in universities in Africa. The initiative is implemented in collaboration with Massachusetts Institute of Technology (MIT), University of Dar es Salaam and Carinthia University of Applied Sciences in Austria. So far 31 online laboratories have been developed with over 500 students utilizing the iLabs every semester since its inception. There are efforts to have it rolled out in secondary school to address the acute shortage of lab equipment.



#### Transforming rural societies; rural technologies and innovations at a glance

Mechanized farming is a step in the right direction for this country and Makerere University is proud to contribute towards this cause. The University is a lead researcher in addressing the challenges faced by farmers at the grassroots. The Presidential Initiative through the College of Engineering, Design Art and Technology (CEDAT) has supported programs that alleviate most development challenges for the rural people. It has improved the training of engineering human resource with relevant skills, enabled the transfer of technologies from university to communities, and is doing research to increase production for the rural people. It has enabled the development of business incubation facilities to support commercialization of student and staff ideas.

#### 1) Prototypes for Rural Technologies

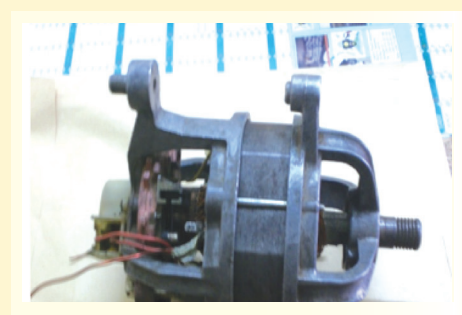
The Centre for Technology Design and Development is a student incubation centre that nurtures students' innovations into profitable and fruitful business enterprises to provide community based solutions. Through financial support students have come up with prototypes of machines targeting the rural communities and to solve local problems. These have been tested in the communities of Nakasongola and other districts. The projects include solar fruit driers, maize shredders, peddle washing, wind turbine have been deployed to help the rural communities. The centre also coordinates technology development and transfer activities.



Prototypes of machines made by students

#### 2) The MakPumps; irrigating the rural areas

The Irrigation project has designed and manufactured affordable pumps which are being used by farmers for irrigation in most part of Uganda. This is helping in boosting small holder farmers' production and improving food security. The project is testing pumps with tea growers in Kyenjojo and other farmers in Wakiso and the Eastern districts of the country. The research in pumps has also ventured in high capacity submersible water pumps and solar driven pumps to reduce the cost of irrigating fields. The project has provided technical assistance on solar pump system to several farmers in Muduma, Nakasongola and Amolatar.



The MakPumps prototype

#### 3) Lighting up the rural societies

The research in Energy and Energy Conservation has improved the livelihoods of the rural poor through providing alternative cheap energies. The university has created capacity and training in all fields related to renewable energy and energy management with a focus on areas of rural electrification, energy for productive use, energy efficiency, household energy and testing services for technologies including bioenergy (cook stoves, fuels, biogas, gasification) solar PV and pico hydro.

#### 4) The MakaPads; addressing the plight of girl child in rural schools

The Initiative through the MakaPads project designed and produces sanitary pads for girls made out of papyrus and paper waste. The MakaPads has helped keep the girl-child in school during menstruation by providing an effective low cost brand to the girls. Initially girls in rural schools were getting out of school during their menstruation period. For many schools, in the rural areas, the pads are given out free of charge or at 50% less than the cost of the imported

sanitary towels. Several schools that have benefited include; Nakanyonyi Girls School, Wairaka College, Wanyange Girls Jinja and Jinja Secondary School. In Eastern Uganda the schools that benefited included, Awoja, Owalei, Moruapesur, Soroti Islamic, Pioneer, Nakatunya, Oderai & Bamba Primary schools. In Oyam district. In Northern Uganda the schools were Kamdini, Obang, Omwa Dem, Aleny, Aminormir, Barmwony, Ayomapwano & Oyoe Primary schools.



Initially the production targeted girls in the rural areas but with improved research the project has improved the product that effectively compete with other imported brands on the market. The research for MakaPads has progressed into designing of the Maternity Bed Pads. These have been tested in selected hospitals and maternity clinics namely; Mulago Medical Centre Kitebi, Lions Medical and Laboratory Services in Kitebi, Kagoma Maternity clinic, Makindye Medical Centre, Cure Medical centre Salaama and in Wakiso district.

The Initiative has enabled the establishment of several production centres away from the University to various regions of the country. It has economically empowered women refugees living in the camps through UNHCR who are employed in the various production factories within the refugee camps.



#### MakaPads packaging bag and dryers

The biggest problem facing the development of our societies is not necessarily funding but lack of logistics to add value to most of their undertakings. Makerere University has demonstrated that with seed financing, it has the potential to come up with practical innovations that will contribute to the transformation of Ugandan society. This has been demonstrated by innovations targeting needs and aspirations of the rural society and specifically the agricultural sector. The University is also proud to contribute towards industrial development by taking innovations to a higher level of car design, manufacture and production. We therefore urge the Government to take this advantage to invest more in the human resource capabilities in higher institutions to take the nation to another level.