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Research Application Summary

**Students as agents of change in achieving food security and reduced unemployment in sub-Saharan Africa: The case of CESAAM project at Egerton University**

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**Abstract**

In a country where the average age of a farmer is 60+ years, it is a “tall” order to realize food security. This is especially so given the shrinking acreage under cultivation, erratic climatic conditions, and poor access to financial services, underdeveloped infrastructure, and slow adoption of new technologies in the agricultural and agribusiness value chains. The existing policies on land acquisition makes it especially hard for the aspiring farmer to get started in agricultural production. Following these challenges, young people (especially those with good education) have migrated to the urban centers to seek for better opportunities, which exacerbates the problem of unemployment. Youth unemployment remains one of the most pressing challenges to the realization of Kenya’s vision 2030. Over 34% of Kenyans are within the active productive age (18-34 years). Unfortunately, this bracket remains the most negatively affected by the unemployment problem. The consumer economy created and sustained by high unemployment levels cannot support food security, especially in a country like Kenya where agriculture is touted to be the backbone of the national economy. Egerton University through the Center of Excellence in Agriculture and Agribusiness Management (CESAAM) has created a model to ensure that the knowledge created at the University produces a tangible impact in the society. In this model, high level human resources are trained on sustainable agricultural production technologies and systems. From here, they are expected to be the resource persons for the society to help disseminate the knowledge and accelerate the adoption of new technologies. Additionally, the center also focuses on producing entrepreneurially oriented graduates who create jobs rather than seek employment after graduating. There are working prototypes to prove that this model is effective.

Key words: Agribusiness, Agrienterprise development, Egerton University, Student-run enterprises

**Résumé**

Dans un pays où l’âge moyen d’un agriculteur est de 60 ans et plus, c’est un «grand» ordre de réaliser la sécurité alimentaire. Cela est particulièrement vrai compte tenu de la diminution des superficies cultivées, des conditions climatiques irrégulières et du faible accès aux services financiers, des infrastructures sous-développées et de la lenteur de l’adoption de nouvelles technologies dans les

chaînes de valeur agricoles et agroalimentaires. Les politiques existantes sur l'acquisition de terres rendent particulièrement difficile pour le futur agriculteur de se lancer dans la production agricole. Face à ces défis, les jeunes (particulièrement ceux qui ont une bonne éducation) ont migré vers les centres urbains pour chercher de meilleures opportunités, ce qui aggrave le problème du chômage. Le chômage des jeunes demeure l'un des défis les plus urgents à la réalisation de la vision 2030 du Kenya. Plus de 34% des Kenyans ont atteint l'âge productif actif (18-34 ans). Malheureusement, cette classe demeure la plus affectée par le problème du chômage. L'économie de consommation créée et soutenue par des taux de chômage élevés ne peut pas soutenir la sécurité alimentaire, particulièrement dans un pays comme le Kenya où l'agriculture est considérée comme l'épine dorsale de l'économie nationale. L'Université d'Egerton par le biais du Centre d'excellence en Gestion Agricole et Agroalimentaire (CESAAM) a créé un modèle pour garantir que les connaissances créées à l'Université produisent un impact tangible dans la société. Dans ce modèle, des ressources humaines de haut niveau sont formées sur les technologies et systèmes de production agricole durable. À partir de là, elles sont supposés être les personnes ressources de la société pour aider à diffuser les connaissances et accélérer l'adoption de nouvelles technologies. De plus, le centre se concentre également sur la formation de diplômés à l'esprit d'entreprise qui créent des emplois plutôt que de chercher un emploi après avoir obtenu leurs diplômes. Il existe des prototypes de travail pour prouver que ce modèle est efficace.

Mots clés: Agroalimentaire, développement d'une entreprise agricole, Université d'Egerton, entreprises conduites par des étudiants

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## **Background**

The rate of adoption of new technologies in sub-Saharan Africa remain quite low. Studies have attributed the slow adoption of these technologies to lack of training (especially for the smallholder farmers), poverty, limited market access, and low level of education. In addition, has research also found out that some agricultural technologies are likely to be adopted by one gender and not the other (Kinyangi, 2014). A report released by the Brookings Institution in 2011 underscored the effect of financial inclusivity in the adoption of new technologies in Sub Sahara Africa. It painted a positive future owing to the increasing adoption of mobile money banking which made it possible to access the stipulated form of financing (Kimenyi and Moyo, 2011). Over the years, the number of mobile banking platforms have increased making it easier than ever to access financial services (Kenya Bankers Association, 2014). The fever has spread to an extent where the traditional banking institutions are making mobile banking a standard feature of their core services.

Despite the increased access to this form of financing, there still seem to be stagnated growth in agricultural production in Africa, Kenya inclusive. The incremental high cost of production is driving many farmers out of business. Kinyangi (2014) found that market availability marginally influenced the rate of technology adoption, such that many farmers find it difficult to plan their production when they cannot predict what the market will be

like by the time their produce is ready. This is a demotivating factor that eventually contributes to reduction in total output. Farmers therefore tend to time their production to coincide with certain climatic seasons when they can produce the farm produce at the least cost. This leads to seasonality, which affects food security by reducing food availability during certain times of the year. In addition, the food produced at such times may be lacking in certain vital nutrients since farmers are trying to cut costs as much as possible (UN Standing Committee on Nutrition, 2014). This affects the nutritional quality of the available food.

Kenya population is growing at an average rate of 2.6% (Trading Economics, 2017). This growth rate adds approximately 1.17 million people into the burgeoning population every year. This rapidly growing population needs to adequate food, which can only be sustained by increased production. There is therefore a critical need for the adoption of new technologies that will not only address the deficit but also the nutritional quality of the food produced. Farmers need to be sensitized on nutritionally sensitive agriculture and trained on ways to achieve it. There is also the need for diversification and use of disease tolerant plants and animals for agricultural production purposes.

The missing link has been the limited availability of resource persons who can disseminate the knowledge about the new technologies that farmers can adopt to reduce their cost of production, increase their yields and improve the quality of their produce. In as much as the higher institutions of learning have been conducting research on a regular basis, the research findings end up gathering dust in the university libraries. Little to no action is taken on the applicable technologies that, if adopted, would put the country on a fast track to food security, adequate employment, and general improvement to the human development indices.

### **Method of intervention**

The World Bank is creating a model that will address the skill gap in a sustainable manner through the African Higher Education Centers of Excellence (ACEs). These centers are created to address the major issues of food security, technology, and diseases. Egerton University is privileged to host the Center of Excellence in Agriculture and Agribusiness Management (CESAAM), which is one of the ACEs. Through CESAAM, the World Bank in Collaboration with the University seek to address the issue of food insecurity in sub-Saharan Africa by training high level human resources in various areas along the agricultural and agribusiness value chains. Once trained, the graduates will be expected to act as the resource persons and agents of change back in their societies. They will be able to create a domino effect by training members of the society who will in turn train more people on the new agricultural technologies. This will drastically reduce the time it would normally take to teach a large group of people.

CESAAM is also committed to reducing youth unemployment in the country by equipping the graduates with knowledge, values and skills they can be used to create employment for themselves and other members of the society rather than seek for employment after graduation. At Egerton University, graduate students registered for the Master of Science in Agrienterprise Development are required to run profitable and sustainable businesses as a prerequisite for the completion of their studies. This creates an entrepreneurial mindset in the student and creates a spirit of job creation rather than seeking for employment upon graduation. There is a provision for seed funding to establish the enterprises, which the students can expand into large scale businesses after completion

of their studies. This model has proven to be very effective in the short span since the inception of the programme two years ago. Already, there are several student-run agri-enterprises ranging from agricultural production, value addition, to consultancy services.

### **Metrics of Success**

CESAAM has availed many training opportunities for the student fraternity and Egerton University. Students are always at the center of CESAAM's operations because the youths have always been sidelined by many community development programmes (O'Planick and Garloch, 2016). The youth have the energy and the burning desire to succeed and are, therefore, best placed to be the agents of change who will help accelerate the realization of food security and reduction of the unemployment menace.

CESAAM aims at building the capacity of the students and putting them at the forefront of driving the center's agenda. For instance, the center facilitated a training on scientific writing, which was conducted by Elsevier Africa. The students got insights on Dos and Don'ts of writing a scientific paper and the ethics that go with it. They were also given the overview of the review process and some research tools availed by the publisher to help the author achieve higher levels of efficiency and effectiveness during research. Bayer East Africa also conducted a training on quantification of research metrics to determine the applicability of new technologies in the target market.

The trainings are not only research and academically oriented. In the recent past, the center collaborated with the key industry players including farmer representatives, government ministry representatives, student representatives, research institutions, private sector players and experts to create short courses on agricultural produce handling to prevent post-harvest losses and improve the value of the products. These are hands-on courses that run for a maximum of two weeks. By the end of the training, the learners are expected to be in a position to grasp the subject matter and apply the taught technology to improve their agricultural production, reduce post-harvest losses, and create high value products that will fetch higher process in the market. Some of the short courses created were in the following value chains: Apiculture, Post-harvest handling, Dairy, Fruits and vegetables, Agribusiness: Business planning, Livestock production, and Soil science: Minimum tillage

Many students-run agri-enterprises have mushroomed around the university. Many students are taking up practical entrepreneurship and creating enterprises that attract funding by potential investors. For instance, Agri-Fresh Supplies has established a niche market with loyal customers from around the university. The enterprise sells fresh fruits, fruit salads, and fruit juices. This serves as a healthy snack for the patrons who are increasingly becoming aware of their nutritional health needs and are ditching junk food.

Another student-run enterprise is Tamu Nuts. This business focuses on adding value to nuts (peanuts, macadamia nuts, cashew nuts) to create nut butters and other conveniently packaged roasted nuts. These too, serve as a healthy snack packed with a lot of energy and proteins. The enterprise was one of the exhibitors in the 2018 Agricultural Science Knowledge (ASK) show at Nakuru.

Another thriving student-run enterprise is the CMS Agropriprises. The enterprise adds value to potatoes by processing potatoes into crisps of various flavors. The different flavors cater for the needs of various market segments identified by the student entrepreneurs during their market research. The crisps have proven to be very popular with the student fraternity at the university because of the convenience the snacks provide. The enterprise solves the problem of perishability of potatoes by transforming the produce into a stable ready to eat product. The processing helps to reduce post-harvest losses that would otherwise cause massive losses to the farmer. The enterprise uses simple technology that can be replicated without heavy capital expenditures.

Agriplus Solutions is a student-run agribusiness consultancy business that works with farmers to establish sustainably profitable agrienterprises. The firm helps farmers and agribusiness persons create a sound business plan, set key metrics, and follow up with the client to ensure they follow the plan through. The consultancy unit has helped several farmers optimize their business operations. One of the current projects is in the process of setting up a 50-cow dairy unit. The proprietors of Agriplus Solutions are regular contributors to the Saturday Nation's popular pullout magazine, *The Seeds of Gold*. Through this outlet, they help answer farmer's questions on agribusiness development and business planning needs. The enterprise also offers training on agribusiness development to students, farmers and farmer groups to help build capacity for adoption of good agribusiness practices.

The Center also facilitated several students to attend the just concluded 12th International Conference, which was held at Egerton University from 28th to 30th March 2018. As a result of this facilitation, many students were able to present their work, and share their research findings with industry experts.

## **Conclusion**

Sub-Saharan Africa can attain food security, eradicate rampant disease, and reduce unemployment through initiatives like CESAAM. The CESAAM has proven that students can create thriving agribusiness enterprises when presented with the right environment. Food security can be attained through training and sensitizing farmers and agribusiness persons to enroll for some of the short courses availed by the University through the center.

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