

# Agricultural Education and Training as Panacea for Sustainable Food Security in the Developing Countries

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**Abstract:** This paper examines the challenges confronting agricultural education and training in the context of the significant roles of agricultural education and training in food security and poverty alleviation. Agricultural education plays major roles in achieving food security and sustainable development through the development of human resources required for agricultural productivity. Despite this recognition, education and training institutions have been criticised for being unable to adequately equip agriculturists and farmers with tools to produce adequate food, generate income and employment and reduce poverty. However, it has been argued that education and training institutions in many developing countries are still faced with many challenges which have prevented them from adequately addressing these vital questions. The paper concludes that education and training institutions need to step beyond their traditional roles by developing innovative strategies, emphasise better in-service training, participatory revision of agricultural education, training and extension curricular; prepare agricultural extension graduates to be job creators, improve facilitative and methodological skills, adult learning, mentoring and participatory training approaches.

**Keywords:** Agricultural education and training, food security, poverty alleviation.

## 1. Introduction

The World Food summit held in Rome in 1996 and in 2002 and the Millennium Development Goals all highlighted the importance of food security. Similarly, the World Food Programme (WFP) Executive Director, Mrs. Osette Sheeran [1] in a statement issued in London in April 2008 said the food crisis has created the biggest challenge the agency had faced in its 45-year history. She said the situation calls for a large scale and high level action by the global community focused on emergency and longer term solution.

Many developing countries are endowed with great potentials for a highly productive and profitable agricultural sector. However, food security has increasingly become matters of major concern. Many factors are responsible for sustainable development and food security but agricultural education and training play a vital role in preparing researchers, educators, extension staff, and farmers to make useful contributions [2]. Similarly, a direct link has been established between food supplies and agricultural education and training [3]. This is because finding answers to the sustainable food production problems and providing services and opportunities to rural people is the role of graduates of the entire agricultural education and training. Rogers [4] also indicated that the poor training of agriculture extension staff has been identified as part of the problem of the relative ineffectiveness of much of extension staff in the field. This applies not only to extension staff but also to agricultural professionals in general.

Despite the recognition of the significant contributions of agricultural education and training in the growth and modernization of agricultural production, it has failed to respond to challenges facing agriculture and rural development. This is because according to the focus has been on providing education and services towards the professional development of those responsible for agriculture and rural development [5].

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Secondly, it has not been able to adequately equip agriculturists and farmers with tools to produce adequate food, products for income and employment generation and reduce poverty.

This paper examines the challenges confronting agricultural education and training in the context of the significant roles of agricultural education and training in food security and poverty alleviation and how to address these challenges.

## **2. Challenges of Agricultural Education and Training Institutions**

Agricultural Education and Training covers a broad range of mostly public sector education and training programmes provided to those who work in and benefit from agriculture and rural development activities [3]. Agricultural Education and Training in many developing countries are facing a lot of challenges which affect the quality of education and impact on rural development and subsequently food security.

Some of the challenges faced by Agricultural Education and Training institutions are:

## **3. Reduced Funding for Agricultural Education and Training**

In many developing countries, the absence of national policies on agricultural education and training and the shift in donors focus to other developmental areas has been found to affect funding of agricultural education and training. Therefore, there has been a general decline in funding for agricultural education and training institutions. The reduction in funding might have made it difficult to maintain high quality programmes as agriculture teaching is expensive because it requires teaching aids and lot of materials for practical activities.

Towe [6] indicated that one of the greatest constraints of agricultural training, research and extension is that it has leaned too heavily on government funding. He also indicated that the inadequate funding of agricultural training is very well reflected in the slow pace with which the colleges of agriculture are responding to the drive of modernization. Furthermore, budgets for the universities in Africa often run dry before the end of the semester and finding the extra money for research and training of any kind has been a big problem [7].

## **4. Deteriorating Standards in Teaching and Research and Infrastructure**

Lack of creativity and inability to adjust to multidisciplinary needs of a changing sector has been one of the major challenges facing agricultural education and training institutions. This is because many university teachers of agriculture in developing countries are discipline or subject specialists who have little or no training as educators. They teach as they were taught and are therefore, accustomed to using the theoretical lecture method only without giving students adequate practical exposure. One of the major problems responsible for the poor performance of the agricultural sector and non-attainment of self-reliance and food self-sufficiency in many developing countries is the defective training that fails to generate relevant practical oriented and middle-level manpower in the agricultural sector [8].

Agricultural education and training is expensive since it requires teaching aids, scientific and technical equipment as well as adequately equipped training and experimental farms. The agricultural education and training institutions in many developing countries face great difficulties in ensuring a properly equipped, maintained and functioning school farm. As a result, the school farms rarely achieve their objectives in experimentation, teaching or agricultural production.

The quality of facilities and equipment available is also a major factor in determining the quality of graduates produced. According to Towe [6], the quality of facilities in most of the tertiary institutions has been inadequate within the last decade.

## **5. Employer Dissatisfaction with Degree Holder'S Knowledge and Skills**

Some of the major challenges of agricultural education and training institutions are their failure to undertake market analysis, lack of contacts with potential employers and education stakeholders so as to know what skills employers require from their graduates. As a result, many universities have not been able to develop their graduates to function in business environments, therefore, increasing a growing concern that

some universities are only developing white collar graduates without hands-on-practice and with no entrepreneurial skills. Agricultural curricula, content, organization and teaching strategies should be capable of building the capacity of students to such a level of excellence that will make them job creators, productive members of the work force and improve their quality of life to such a degree that will make them cope with the demands of life [9]. One of the results of isolation of agricultural education in developing countries is the decline in teaching and learning standards [10]. As a result, graduates produced do not have the required competence and confidence to be self-employed and therefore, always looking for public service jobs that is now difficult to get.

## **6. Low-level of Information Technology**

The development of information technologies now makes new mode of collaboration and cooperation possible among institutions both locally and internationally and students can communicate with their supervisors in and off-campus. However, many of the institutions still do not have access to Internet. This is because training institutions in many developing countries lack financial resources for the purchase of computer hardware, Internet facilities and software to poor supply of electricity and telephone system to power the machines [11].

## **7. New Directions for Agricultural Education and Training to Overcome Challenges**

Education and training institutions need to step beyond their traditional roles by developing innovative strategies which should include the following:

## **8. Meeting the Learning Needs of the Rural People**

Agricultural Education and Training Institutions especially universities have a direct role in poverty alleviation. Majority of poor people live in rural areas and education is a key factor in helping to reduce the level of poverty. In addition to the traditional roles of research and teaching, universities are expected to respond to the specific needs of the rural people through their community based activities. Therefore, Agricultural and Training institutions need to be innovative by responding to the changing needs of rural areas through provision of learning opportunities to rural people as such adult learning/literacy programmes.

## **9. In-Service Training**

It is clear that the senior advisers in many extension organisations are in great need of further training in human resource management, training theory and instructional techniques [12]. This means providing in-service training can improve the performance of many extension staff. However, governments and institutions need to encourage staff by providing adequate resources for them to be informed and updated of advances and developments in their specific disciplines. Involvement with research activities and development projects is also needed for staff to keep in contact with practical developments in their fields.

## **10.Improvement of Teaching Methods**

Agriculture education and training institutions require a re-engineering of teaching methods. However, in addition to the conventional formal teaching, inclusion of some learning activities into their programmes should be considered such as: greater emphasis on practical field work, student-conducted field surveys; training through village and farm outreach activities; and case studies and problem-solving exercises oriented to local rural development needs. There is a need to emphasise mentoring and participatory training approaches.

## **11.Revision of Curricula**

A continuous programme of curriculum development and adaptation of methods and materials to suit current and local needs are required in many institutions. This is because many course outlines are outdated. The revision can be done in a participatory way involving the stakeholders in agricultural education and training in order to incorporate their inputs. In the process of formulating the curricula, need for a paradigm

shift of moving curricula from only public service employment to the private sector and self-employment need is required. Issues to be included should focus more on need for more practical experience, markets, environmental conservation and ICT applications.

## **12. Formation of Partnership**

The University of Swaziland in partnership with some institutions have accrued benefits such as: capacity building through long and short training programs, improved curricula with global flavor, better equipment and facilities for teaching and research activities, mobilization of funds for internship program which are valuable to students, increased research outputs, fellowships and grants for staff and students and establishment of network [13].

Therefore, it is essential that universities listen to their clients, and foster new skills and opportunities require making agriculture and rural work exciting and attractive to young people. There is a strong need for international mentorship programmes for education, training and collaborative research and establishing public-private-industry partnerships. There is also a need for agricultural institutions to network so as to share information, organise exchange visits and workshops.

## **13. Entrepreneurial and Internship Programs**

Agricultural education institutions should adopt teaching approaches that include facilitating the teaching of practical and entrepreneurial education including internship for business exposure, encouraging students to develop micro-enterprise plan while still in school, assisting students to develop business plans and provide them information on appropriate credit institutions.

## **14. Organization of Training Courses, Seminars etc. on Enterprise Development**

For agricultural education and training institutions to contribute to a long-term sustainable development, they should periodically organize training courses in enterprise development to meet the needs of diverse groups such as unemployed people, retired civil servants and professionals wishing to change careers. This will help those who have not attended the universities and are unemployed to gain knowledge in enterprise development and start their own business.

## **15. Funding of Agricultural Education and Training**

The source of funding and financial support for agricultural education and training in most developing countries has always been the national government. However, the reliance on government alone for funding of education has been found to be inadequate and unsustainable. Agricultural education and training institutions need sustainable funding. Therefore, in order to maintain sustainable agriculture, universities and colleges of agriculture in developing countries should try other ways of searching for funds apart from writing innovative proposals to private organizations and donors by setting up of consultancy services, and develop partnership with other organizations.

## **16. Conclusion**

Agricultural education will continue to play major roles in achieving food sufficiency and sustainable agriculture. This is because no country can develop without well-educated people and a strong agricultural base which provides food security. The role for agricultural education is to provide improved, relevant and effective teaching, research and outreach and achievement of food security requires a critical mass of dedicated, well-trained men and women.

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