

ATELIER INTERNATIONAL**« Crises alimentaires : la formation des ruraux en question »**

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**PROGRAMME PHARE DE PARTENARIAT EDUCATION POUR LES POPULATIONS RURALES
(FAO - OAA)****RESEAU INTERNATIONAL FORMATION AGRICOLE ET RURALE****PROMOTING FOOD SECURITY, AGRICULTURE AND
RURAL DEVELOPMENT THROUGH RELEVANT
EDUCATION AT ALL LEVELS**

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INTRODUCTION

Progress towards achieving the international development goals of 'Food for All' and 'Education for All' by the year 2015 has been too slow. Although the number of children attending school is increasing in many countries and the number of sufficiently nourished children and adults is rising globally, the challenges facing the achievement of these international development goals are still enormous, especially in rural areas of the developing world where food insecurity, low school participation, high school dropout rates and under-education are still all too common.

Food insecurity, poverty and educational deprivation often create a vicious circle from which underprivileged households and communities are unable to escape, especially in rural areas. Climbing out of this 'poverty trap' can not be achieved by addressing one sector alone, but requires multi-disciplinary approaches.

It is therefore timely and essential to explore feasible measures in which the interrelated issues of food security, sustainable rural development and relevant education can be tackled together. This should be done at all levels of the education system, starting with primary education where there are direct links between food and education.

ADDRESSING THE KEY ISSUES**Curricula should be updated**

Curricula for food security, agriculture and rural development tend to be outdated and disassociated from the economy. Curricula often focus narrowly on farm production rather than encompassing markets, agribusiness, and processing.

Curricula should be modernized by emphasizing analytical skills, problem solving, and "soft" but essential skills such as communication (including ICT) and teamwork; and including new topics such as agri-business, entrepreneurship, rural finance, food processing and marketing, post-harvest technologies, and sustainable use and conservation of natural resources.

This can only happen when curriculum development becomes more participatory, involving not primarily experts in education, food security, agriculture and rural development but also those who can

articulate demands, i.e. producer organizations, NGOs, commercial employers, researchers, and extension agents.

Some excellent tools are now available to assist educational institutions in updating and broadening their curricula towards improved food security, agriculture and rural development. At the tertiary education level for example, the African Network for Agricultural, Agroforestry and Natural Resources Education (ANAFE) has been assisting university faculties to undertake undergraduate curriculum reviews. And at the primary education level, FAO has developed an excellent toolkit "*Nutrition Education in Primary Schools: A planning guide for curriculum development*". This toolkit has been used in Kenya by UNICEF and the Ministry of Education to do a primary school curriculum audit to identify opportunities where knowledge, skills and attitudes on nutrition can be reinforced and enriched.

A few agricultural training institutions in Africa have demonstrated effectiveness in innovative curricula. One compelling example is the Songhai agricultural training center in Benin, which enables 65–70 percent of its graduates to settle into agriculture. The center is locally owned and privately managed and offers training in small-scale farming, farm management, and agricultural teaching. The instruction favors application with more than 75 percent of instructional time devoted to practical subjects. Innovations in the training include creation of a business center of agricultural products, a soybean marketing chain, and organization of a credit program to help trainees establish themselves after training. Other institutions that have encouraged students to develop business plans linked to the curriculum and helped them to obtain financing for business start-ups include the Botswana Agricultural College, the University of Swaziland, the agricultural polytechnics in Mozambique, and Makerere University in Uganda.

Teaching methods should be modernized

Teaching methods and facilities are often inadequate. Teaching methods are overwhelmingly traditional in their heavy use of classroom lectures. In many African countries, most teaching in agricultural education is comprised of "chalk and talk" presentations of theory and facts. The instructors deliver knowledge and information to students as passive recipients. Students have little opportunity to develop technical competencies, problem-solving experience, or organizational skills. Adhering to the linear model of technological innovation, the graduates then go out to instruct farmers on what they should do, with the risk that the classroom instruction may not be relevant to the specific problems confronted by the farmers.

Practical instruction receives insufficient emphasis, and students have little opportunity to develop technical competencies, problem-solving experience, or communication and organizational skills. Learning infrastructure is widely deficient due to insufficient budgets and over-dependence on public financing.

Modern pedagogy emphasizes that the teacher or professor is no longer the "font of all wisdom" but is rather a facilitator providing students with the inspiration to explore for themselves the ever-expanding oceans of knowledge. The educator's role should be to promote analytical skills, self-esteem, a sense of personal competence, and the capacity to participate in community and national affairs, as well as to build interpersonal trust and satisfaction.

As slow as the pace of curricular reform may be, curricula are nevertheless changing faster than teaching methods. The techniques employed by academic lecturers are particularly resistant to change and are badly in need of retooling.

Fortunately, this problem is increasingly being recognized and engaged. A useful reference for adapting pedagogy to new labor market demands is the manual "*Improving Approaches for Effective Teaching and Learning: Tertiary Agricultural Education*" for university instructors developed by ANAFE. The manual gives educators practical ideas on how to implement small changes in their teaching approach to classes without necessarily having to wait for major institutional reforms in support of new pedagogical approaches. The ideas it presents are generic and relevant to all areas of education, but its examples have been developed for specifically for agriculture, agroforestry, and natural resources.

Some notable examples indeed demonstrate that change is possible. Among these is the École des Cadres Ruraux Banbey, Senegal, which conducts training in agricultural enterprise management using commercial case studies. Another notable innovation is a rescheduling of the academic calendar at Bunda College in Malawi to mimic the crop cycle, starting the academic year with the planting

season and concluding at post-harvest. Baraka Agricultural College in Kenya has also incorporated innovations in curriculum and pedagogy on several levels, as described in **Box 1**.

Box 1: Innovations in teaching and learning at Baraka Agricultural College, Kenya

Baraka Agricultural College, a private institution in Kenya operated by the Franciscan Brothers, incorporates innovations in curriculum and pedagogy on several levels. The college focuses mainly on entrepreneurship and self-employment. Students undertake commercial operations on individual, 10-square-meter plots of land with a loan from the college. They keep proper records of production and expenses, employ the appropriate husbandry practices, purchase inputs, and sell the produce. The students then repay the loan and keep the net income. The learner-based approach to practice is also reflected in four-month field attachments for each student. The college collaborates with the ministries of agriculture and livestock, NGOs, and community-based organizations in arranging these attachments. In recognition of its achievements, Kenya's Ministry of Agriculture has seconded four of its staff to the institution. The college also provides learners with practical skills needed for income generation, such as making jam, yogurt, and bread¹.

Relevant learning materials should be made available

Even if teachers and lecturers are competent and well trained, they often find it difficult to teach effectively because of the lack of adequate teaching and learning support materials that are relevant to the local situation. Agricultural experiences can be used as a way of making education for rural people more relevant to the local situation.

An example of good practice in terms of relevant learning materials is the Young African Express, an innovative monthly educational newspaper for young people aligned to the curriculum of several East African countries and filled with illustrated articles, cartoons, facts and games focusing on essential life skills, improved health and nutrition, and environmental sustainability.

Partnerships

Agricultural education is a multi-sectoral issue that does not fall neatly into either the education or the agricultural sector. As a result, it may often "fall through the cracks" between the mainline sector programmes. Multi-sector teams and cross-sector collaboration are therefore necessary to ensure balanced attention to both the human development and agricultural knowledge aspects of education for rural people.

WHAT CAN BE DONE AT THE VARIOUS LEVELS OF EDUCATION ?

Different strategies will need to be pursued at each level of agricultural education and training.

Primary education

Raising the quality and relevance of primary education pays off in terms of food security and sustainable rural development: the quality and relevance of schooling can positively influence productivity, both in agriculture and off-farm employment. When schools are relevant and educate many children well, the process of sustainable rural development can occur relatively quickly; when schools and teachers are poorly equipped and educate few children well, education's impact on food security and sustainable rural development is relatively slow.

Relevant primary education should be aimed at equipping children and young people with skills, knowledge and understanding to help them deal with real life challenges and help them become active members of society. Not all of the skills needed for sustainable agricultural production, food security and rural development can be addressed directly through primary education. But the role of primary education is to lay a foundation which will allow for these skills to be developed through non-formal, informal and further education.

New approaches to contextualisation of content and pedagogy using locally available agricultural experiences offer encouraging options to improve the relevance of basic education. Teachers in Africa have indicated that teaching and learning activities using natural resource management can lead to better nutrition and income generation both at school and at home. It also makes students to be more interested in school work. Some primary schools serve as a resource centre where parents, farmers and other community members can learn from. Schools can work jointly with groups in the community to implement projects in school and in the community to enhance sound

¹ Website: <http://www.sustainableag.org>.

agricultural and environmental practices. School gardens and agricultural practices such as agroforestry can be used as media for contextualizing teaching and learning in rural areas and have potential to enable children to cope more effectively with general subject matter in school. The Healthy Learning programme in Kenya (see **Box 2**) provides a good example of this approach.

Box 2: The Healthy Learning programme in Kenya

The Kenyan Ministry of Education and other stakeholders – including WFP – now advocate moving away from over-reliance on food aid for school meals, which creates disincentives for local farmers, to a system that incorporates local agriculture and opportunities for learning about nutrition, agriculture and the environment. This is why the Kenyan Ministry of Education initiated the “Healthy Learning” programme in 2008 in partnership with the Flemish Association for Development Cooperation and Technical Assistance (VVOB) and the World Agroforestry Centre. The programme is integrated in the Kenya Education Sector Support Programme (KESSP) 2005-2010 and includes capacity strengthening at different levels and demonstrations in model primary schools while at the same time documenting and researching lessons learned for wider application. The programme explores the introduction and strengthening of school gardens/farms with agroforestry technologies, livestock production, water management and other school projects to support learning in natural resources management and nutrition in primary schools and their communities. Model primary schools in disadvantaged arid and semi-arid areas are applying multi-disciplinary methods of life skills development for improved nutrition and health to the benefit of poor and vulnerable children, their families and communities.

Secondary education

Vocationalization of secondary education – with a curriculum structure which remains overwhelmingly general or academic in nature, but which includes vocational or practical subjects such as agriculture as a minor portion of the students’ timetable, without by so doing closing their prospects for higher education – is a long-standing controversy in development planning. Experiences with agriculture as a subject in general secondary schools have been mixed. There seems to be some agreement however that agriculture as a subject in general secondary schools should continue to exist, but with the understanding that most students who complete general secondary education do not become active small-scale farmers. Secondary school agriculture has provided many students with an understanding of agricultural principles and practices, but only a few of these young people become active agricultural producers.

In secondary education, efforts might best focus on preventing premature specialization, especially in lower secondary education, where a solid basic education remains the most important goal. A recent survey of secondary school students in Kenya indicates that students who study agriculture in general secondary schools do so as a preparation for advanced studies in the area. There is, however, a significant proportion who studies the subject as a preparation for employment and farming.

Upper secondary technical programs are most effective when they emphasize the acquisition of specific competencies for properly selected trainees and least effective when they serve as an alternative pathway to university admission. Greater flexibility in the length of courses would also enable secondary-level AET to meet the training needs of a wider range of potential students.

Secondary agricultural education in Africa has generally been very unresponsive to rapidly changing patterns of demand for trainees and failed to adapt and respond to new realities. Curricula, syllabi, and timetables at secondary education level are almost always overloaded with classroom lessons on factual knowledge, at the expense of practical applications, especially if the subject is examinable. And unfortunately, topics are mostly related to agricultural production and only in very few cases include aspects of agricultural entrepreneurship, income-generating activities and agricultural processing and marketing.

Tertiary education

The major focus of tertiary agricultural education has been on the production of public sector employees. Traditionally, graduates have largely found employment in ministries of agriculture, universities, state operated enterprises and other government functions. Agricultural graduates have worked as policy advisers, lecturers, researchers, extension workers, business managers and financial experts. Since the universities are lacking in delivery of the graduates demanded by the industry and communities, there is a need for transforming tertiary higher agricultural education into producing

effective drivers of agricultural and rural development. Issues of faculty retention, institutional management, curricula content and education delivery, urgently require review and re-designing.

In tertiary education for food security, agriculture and rural development, reforms in curricula and teaching methods are likely to be the most immediately useful undertakings. In the medium term, modification of institutional governance structures so as to introduce greater institutional flexibility and increased responsiveness to stakeholders would be a valuable complement. Conscious efforts to recruit more women students are needed in order to maintain quality within the technical and professional skills pool while ensuring that it possesses the capacity necessary to work with the large numbers of female farmers and traders found in the agricultural sector.

Harnessing the potential for agricultural distance education and online provision of technical training will enable lifelong learning to emerge as a way of maintaining workforce competitiveness. Advances in ICT and knowledge management nowadays offer new and exciting opportunities also for the teaching and learning of agriculture and natural resources management subjects. Centres of the Consultative Group for International Agricultural Research (CGIAR) are exploring several approaches and tools that facilitate such eLearning in order to reach the ever growing demand for training on these subjects. They range from the development and use of Learning Objects (LO), Learning Objects Metadata (LOM), Learning Objects Repositories (LOR) and Knowledge Banks to the actual teaching support itself using Learning Management Systems (LMS) and various other tools and approaches that facilitate and enhance learning and teaching for lecturing staff at universities and colleges and their students. Tertiary African institutions are actively engaged in establishing South – South and North – South collaboration in eLearning and open and distance learning. This collaboration provides some good opportunities for African institutions. The Agence Universitaire pour la Francophonie (AUF) is an important driver of the development of distance learning programmes in francophone West and Central African Universities. The African Virtual University (AVU) is a pan-African intergovernmental organization whose aim is to significantly increase access to quality higher education and training through the innovative use of ICT. The AVU has more than 50 partner institutions in over 27 countries in Africa.

At the postgraduate level, circumstances call for MSc and PhD degree programs within Africa to be strengthened in quality and expanded in numbers, enrollments, and gender balance. This is becoming urgent in order to address local staffing shortages and give impetus to local research. Collaborative regional MSc and PhD programs offer cost-effective ways to build professional capacities in a range of important specialized areas.

CONCLUSIONS AND RECOMMENDATIONS

In order to have a greater impact on increased food security, rural productivity and economic growth agricultural education should encompass much more than just food production. It should include entrepreneurship, financing, processing, marketing, distribution of agricultural products, health, nutrition, and food consumption, the application of science, information and communication technologies (ICTs), and the sustainable use and conservation of natural resources.

In that respect, the relevance of curricula to learners' needs and interests is essential. Curricula should be meaningful regarding the life situations of rural people and relevant to local needs and conditions. Participatory curriculum development where relevant stakeholders and experts are involved can contribute to creating more relevant curricula. Decentralized curricular interpretation and adaptation needs to be possible within prescribed curricula.

In order to achieve relevant curricular interpretation, educators need adequate training and support, especially in innovative teaching and learning approaches including participatory techniques, both pre-service and in-service. Improvement in the quality and relevance of education entails continuous competence and skills upgrading for teachers and lecturers.

Educators also need adequate teaching equipment and support such as reference materials and textbooks. Learning support materials should be linked to the local environment and learners' experience. The local environment can be used as a learning resource and teaching and learning materials can draw on agriculture and natural resource management as the local context for learning. Educators (as well as other stakeholders and experts) need to be involved in materials development from the very start, to build on existing good practices.

Agricultural education provided at the primary and secondary levels should be further synchronized with those of the intermediate and higher levels. Agricultural education at all levels

should provide vast opportunities for lifelong learning, leadership development, personal growth and career success.

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