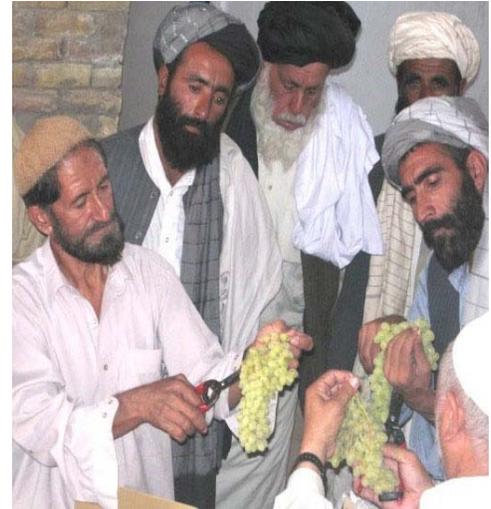




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Building Capacity in Agricultural Education and Training

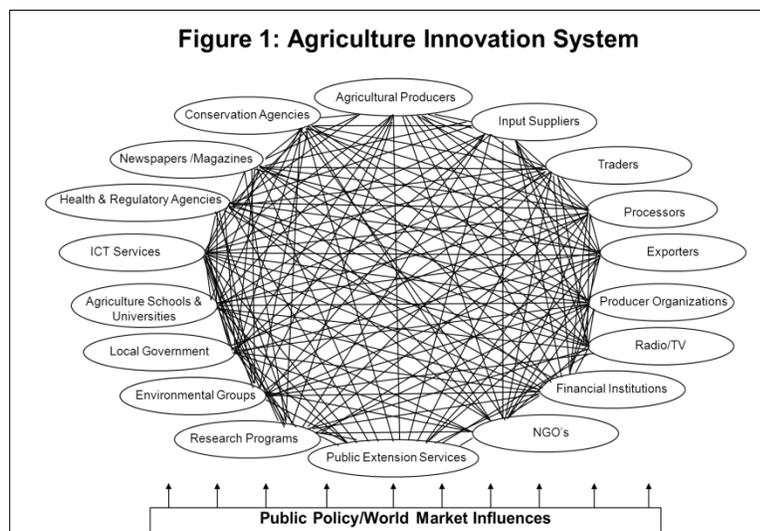
Agricultural education and training (AET) is the principle source of skilled human resources for agriculture and rural development and the third pillar of the Agricultural Knowledge and Information System (AKIS) model that comprises research, extension and education and that serves the rural population in both the public and private sectors. AET's network of Universities, institutes, vocational technical colleges, high schools and farmer training centers is designed to develop and upgrade knowledge and skill on a continuous basis. Regrettably, declining investments in the agricultural sector over the past two decades have led to neglect of AET. Now, with renewed interest in the sector, there is an opportunity and an imperative to upgrade AET networks and to provide new knowledge and skills in response to changes in the sector and the increasing influence of a number of external factors including climate change, rising energy costs, declining water resources and continuing population growth.



The Role of Knowledge and Information

Knowledge and information are fundamental to enabling change in rural livelihoods and institutions. Increasing agricultural productivity, accessing new markets, expanding businesses, and improving nutrition and family well-being require information, knowledge and organizational arrangements to guide innovation and change.

Figure 1 illustrates the sources of information and knowledge and identifies supporting agencies, organizations and institutions that permeate and populate the agricultural innovation system – that continuous interaction of people, ideas, services, media and natural phenomena that introduces new technology and opportunities to a range of actors in the rural space. For the potential adopter of innovations, knowledge and information are essential in understanding the relevance, value and practicality of new ideas and understanding the risks associated with adoption.



Agricultural Education and Training Systems

The term Agricultural Education and Training (AET) covers a broad swath of mostly public sector education and training programs provided to those who work in and benefit from agriculture and rural development activities. While the acronym is short and compact the AET “system” is complex and multi-faceted, spanning activities that range from: graduate and undergraduate degree programs; sub-tertiary diploma qualifications; certificate (secondary plus one) courses; Agricultural Technical Vocational Education and Training (ATVET); agricultural cooperatives training; in-service training for public and private sector service providers; and farmer training; to life-long-learning events.

The AET system is the knowledge and skills backbone for scientific agriculture and commercial agricultural development. The institutions and programs that comprise this system prepare men and women for sector employment. AET graduates must be able to deal with traditional production and marketing problems, plus emerging challenges such as climate change, globalization of markets, the rising cost of energy, persistence of rural poverty, looming water shortages and the continuing growth of world population.

Traditionally, agricultural education and training has been largely, but not exclusively, supplied and supported by the public sector. Although the various elements in the AET delivery chain are often referred to collectively as a “system” (Bawden 1998, 1999; Rivera 2008), in many developing countries the systems are not very robust. The impact of systems is reflected in the questionable relevance and quality of degree, diploma, and in-service training programs offered in many countries around the world. Key components of these systems are:

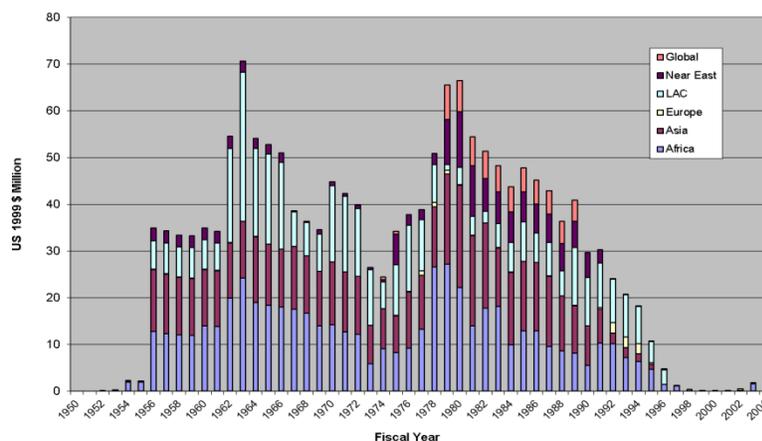


- **Tertiary educational institutions** such as agricultural universities or faculties and colleges of agriculture within comprehensive universities which can be viewed as the apex of this system. Management responsibility for tertiary education is usually entrusted to ministries of education.
- **Polytechnics, institutes, or colleges** that prepare technicians at the diploma level (the postsecondary, sub-degree level) also typically fall under the responsibility of ministries of education. This category of education, often termed “agricultural technical–vocational education and training” (ATVET) or “vocational education and training” (VET), prepares technicians in a variety of specializations in agricultural subsectors.
- **Secondary schools** under the management of the ministry of education may offer agriculture as an elective but in most developing countries these programs have a checkered history, influenced by the qualifications and experience of the teachers assigned to the subject and the motivation of the students who enroll.
- **Agricultural training centers or training institutes** frequently offer in-service training to public sector employees, farmer training to farmers, and short courses on demand to others in the public or private sectors. Ministries of agriculture are usually responsible for agricultural training programs.

Past Support to AET

From 1950 through 2004, USAID provided an estimated \$736 million (\$1.631 billion in 1999\$) in funding for agricultural education institution development (See Figure 2). This is a 'best-available-estimate' that captures investments in agricultural universities, but probably omits funding for training centers and does not count general participant training under which large numbers of students studied in the US and in third countries.

Figure 2: Estimated USAID Funding for Agricultural Education Institutions--1951-2004 (US\$ million)



USAID funding increased dramatically from the late 1950s and remained high until it declined in the late 1980s. Major funding was also provided by other donors, particularly the multi-lateral development banks.

Common Problems in Agricultural Education and Training Institutions

It is important to that not all AET systems are uniformly weak. There are examples of reforms, some successful, others not, and improved curricula, better stakeholder linkages, and the use of public-private partnerships to catalyze AET change. However, these examples are not widespread so the generic weaknesses of AET systems described below prevail in a large number of countries.

Division of responsibilities and its impact on AET: Whether it is part of a robust, well-integrated system or not, agricultural education and training is weakened by the division of AET responsibilities among ministries, the isolation of individual ministries and their failure to collaborate in designing and delivering education and training in a manner that meets the needs of all AET stakeholders. Under these circumstances, a broad vision for AET is rarely in place. An outcome of this lack of vision is that policies and strategies for modernizing agricultural education are seldom well developed and national and international donors are not keen to invest in what appears to be an institutionally weak and ill-defined AET system.

Lack of policy coherence: The unfortunate absence of policies to guide the system (or failure to apply those policies) and the consequent low level of investment impedes reform in AET institutions. A number of generic weaknesses in the planning and delivery of agricultural education and training in developing countries have persisted over time.¹ Briefly, these weaknesses include a lack of university autonomy, weak links to stakeholders, lack of accountability for quality or employability of graduates, outdated curricula and teaching approaches, weak training in practical skills, the variable quality of programs, weak adoption of information and communications technology, and low remuneration of faculty and staff.

¹ These generic weaknesses have been identified and documented by individual researchers and by gatherings of specialists around the world. See, for example, FAO/UNESCO/ILO (1970);FAO/UNESCO (2003) Busch (1988); Hansen (1990) Maguire (2000, 2007); Magrath (1999); Foster (1999); ; Hazelman (2002); Eicher (2009); and Ochola and Ekwamu (2008).

Many of these weaknesses create barriers to change and relate to governance of AET institutions. It is difficult to bring about governance change without clear policy guidance.

Weak links to Stakeholders: Diploma-level education and training, the source of skilled technicians, also exhibits weaknesses, including the absence of supporting policies, weak links to stakeholders, programs that fail to reflect labor market needs, inadequate and inconsistent funding, and a shortage of skilled teachers/instructors.

Poor Image of Agriculture: One outcome of the weaknesses and low investment in AET is the reluctance of students to choose agriculture as their preferred academic pursuit (Pratley 2008; Rivera 2009; Mulder 2010).

Weak Subject Areas: Many AET programs are weak in subject matter fields that were not emphasized during the period when donors invested in AET institutions. Agribusiness and marketing, trade, food safety, natural resource management, climate change adaptation and mitigation, agricultural economics, and biotechnology and ICT applications are relatively un-developed in some institutions, but are critical to future sector development.

New AET Strategies

Regardless of the choice of objective and focus for an AET investment there are some general guidelines that should inform the design and content of projects or programs. These can be seen in Table 1.

Table 1: Future directions of agricultural education and training investments

Higher agricultural education now	Future directions
Weak, unenforced, or absent policies	Clear AET policies with responsibilities defined and enforced
Weak governance	Strong governance inclusive of stakeholders
Little autonomy	Autonomy that enables staff decision-making, financial control, and standards setting
Uncertain funding	Steady and regular funding guaranteed
Isolation	Community and stakeholder connections established and maintained. Links to centers of excellence established and maintained
Curriculum now	Future directions
Outdated. Production focus	Updated , relevant and multidisciplinary
No stakeholder input	Stakeholder consultations; input solicited and incorporated
Teaching	Learning
Theory	Theory and practical application.
No student attachments	Regular, organized, and supervised attachments
Inappropriate pedagogy. Low use of ICT	Effective pedagogy tailored to subject matter and learner needs. Effective use of ICT
Technical training now	Future directions
Heavily supply driven	Mostly demand driven
Managed by the public sector	Managed through public–private partnerships
Poorly qualified and remunerated instructors	Qualified and fairly remunerated instructors
Qualifications not certified by professional bodies	Certification ensured
Employers disappointed with graduates’ skills	High level of employer satisfaction with graduates’ abilities
Equipment in short supply and outdated	Equipment/practice areas obtained through public–private partnerships
Public sector agriculture human resources	Future directions

now	
Indifferent management of human resources	Active human resources management
Weak human resources management leadership	Qualified human resources managers
Selection of trainees not merit or needs based	All selection based on , merit, need and future tasks
Training needs assessments not undertaken	Needs assessments are standard procedure
Little supervisor/manager involvement	Supervisors/managers consulted and involved
No evaluation of trainee performance on the job	On-the-job performance measured
Trainers not trained to instruct/teach	Qualified trainers standard
Life-long-learning not supported	Life-long-learning actively promoted and available

Investing in Agricultural Education and Training

In assessing and planning AET investment options, it is useful to consider the range of needs for a quality AET program. These break down into the following potential investment areas:

Curricula: Curriculum reform is needed in many institutions. It is not uncommon to hear of a course being taught that uses the same materials and course outline developed twenty years earlier. Issues frequently include: need for more practical experience; orientation to markets and the private sector; biotechnology and ICT applications; environmental conservation and natural resource management; and nutrition education to name a few. Increasingly curricula will have to accommodate demand for skills required for adaptation to climate change and in meeting the challenges of rising energy and input costs.



Faculty and staff: The looming retirement of faculty trained in the 1970s and 1980s is a widely noted concern. Replacing these leaders is a critical need. But, building staff and faculty to teach reformed and updated curricula is another reason to invest in faculty development. Options for training faculty and staff differ from 20 years ago. With more trained professionals in the job market, recruitment for position may be a better option – faster and cheaper – that funding training to fill a position. More training will need to be undertaken in-country and within the region, for reasons of cost and relevance. Training in the US is still an important means of introducing new perspectives on the agricultural sector and for institutional development.

Infrastructure: USAID funding is generally inadequate for large-scale infrastructure investments. The core infrastructure investments have usually been made, and there is a nearly insatiable demand for creating or expanding more space to accommodate the large influx of youth seeking education. Still, strategic infrastructure investments are often needed to enable institutions to carry out their mandates or reform programs to meet new needs. Infrastructure for laboratory and field work has been especially neglected.

Outreach and services: A priority for AET institutions and programs is to improve their outreach and engagement with the agricultural sector in order to remain relevant. Research is an important function for universities, but many lack policies, strategies, and programs for facilitating faculty involvement in research. Extension or community service linkages can give students exposure to rural communities and

practice problems. Sometimes these outreach activities can be funded by stakeholders wishing to draw on AET capacities, a clear win-win situation in attracting funding and engaging in sector outreach.

Student services: Students are often an afterthought, but investing in facilities for students that improves recruitment, motivates and facilitates their learning and later employment in the sector is critical to AET success. Recruitment should seek to attract students with experience in and commitment to agriculture. Student support should, depending on specific need, include: libraries, ICT access, scholarships and counseling, outplacement, and internship opportunities.

Policy and Administration: AET program and institutional policies and administrative arrangements often work to the detriment of an efficient and effective institution. This can be viewed largely as a governance issue. Financial sustainability of AET systems and appropriate incentives to faculty, staff and students is of prime importance. Bringing about change in publicly supported institutions can be slow because of organizational and institutional cultures, rules and regulations.

Sources of Support

The Bureau of Food Security (BFS) can provide technical support for work on AET programs, either directly or by helping Missions locate such services.

References for Further Information

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