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Capacity Development for Modernizing African Food Systems (MAFS) Working Paper

An Annotated Bibliography of Agricultural
Education and Training Impact Evaluations

By

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The Modernizing African Food Systems (MAFS) Consortium



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Modernizing African Food Systems (MAFS) Consortium

Objective: The MAFS Consortium aims to help African agricultural education and training (AET) institutions develop the technical skills and institutional capacity required to modernize African food systems.

MAFS Consortium Members:

- Makerere University
- Michigan State University
- Stellenbosch University
- University of Pretoria

Activities and Outputs: The MAFS Consortium has assembled a technical team from four major agricultural universities to produce a series of empirical background studies that will provide evidence necessary for informing capacity development efforts in African AET institutions. Substantively, the activities center around the following four thematic areas.

Theme 1. Food System Dynamics in Africa and Consequent Skill Requirements in the Private and Public Sectors

Theme 2. Models of AET Engagement with Private and Public Sector Employers

Theme 3. Existing Capacity of African AET: Case studies of African universities with regional footprints

Theme 4. Impact of past AET institution-building efforts in Africa

Advisory Board:

- Chair, Prof. Richard Mkandawire, Vice President African Fertilizer and Agribusiness Partnership (AFAP)
- Dr. John Purchase, Chief Executive Officer, Agricultural Business Chamber, South Africa
- Dr. Irene Frempong, Director, Capacity Strengthening, Forum for Agricultural Research in Africa
- Prof. Hamidou Boly—Coordinator, TEAM-Africa based at RUFORUM, Makerere University, Kampala
- Dr. Maggie Kigozi—Formerly Executive Director of the Private Sector Foundation in Uganda

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- The MAFS Consortium gratefully acknowledges financial support from the [International Fund for Agricultural Development](#) (IFAD).

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1. Acker, D. 1999. Improving the Quality of Higher Education in Agriculture Globally in the 21st Century: Constraints and Opportunities. Annual Meeting of the Association for International Agricultural and Extension Education, Trinidad~Tobago, March 22-26, 1999.
2. Alberts,T; Abegaz,B; Coughlin,P; Jehrlander,G ;Skjonsberg, E ; Wield,D. and Manhica, S.(2003). Sida's Support to the University Eduardo Mondlane, Mozanbique. Sida evaluation 03/35. Department for Research co-operation.
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Literature Review Template
Impact of Past AET Institution Building in Africa

Document citation:

AET Institution:

Impact summary:

- 1) Who has invested in this African AET?
- 2) How much did they invest and over what time period?
- 3) What impact studies have been conducted?
- 4) How was impact measured?
- 5) What impact was achieved?
- 6) What do these results imply for future efforts at AET capacity building in Africa?
 -
- 7) What interesting models have emerged?

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Acker, D. 1999. Improving the Quality of Higher Education in Agriculture Globally in the 21st Century: Constraints and Opportunities. Annual Meeting of the Association for International Agricultural and Extension Education, Trinidad~Tobago, March 22-26, 1999.

Abstract:

This article argues that current agricultural education systems are in need of fundamental reform to support improvements in global food security and environmental sustainability. Constraints and opportunities are presented relative to improving the quality of higher education in agriculture globally. Challenges discussed are the lack of global cooperation, the limited frame of reference associated with educational nationalism, underutilized sources of knowledge, the need for globalization of educational content, gender imbalances among students and faculty members, narrow disciplinary approaches used in organizing learning, and the narrow definition of scholarship and its impact on recognition systems at institutions engaged in higher education in agriculture. Advances in communication technology coupled with a rebirth of global cooperation make it possible to achieve significant advances in higher education in agriculture.

6) What do these results imply for future efforts at AET capacity building in Africa?

- Provincial or nationalistic views are a significant constraint to the improvement of systems of higher education in agriculture.
- Educators in the field of agriculture need to operate with an expanded frame of reference to ensure a balance of domestic and international educational content.
- Agriculture fields are unattractive to women students and professionals. These fields can be made more attractive through inducements such as scholarships to study in non-traditional areas, career planning and guidance from supportive mentors, and specially designed support structures at colleges of agriculture.
- Agricultural education systems often take too narrow a definition and curriculum; students need a more broad, “agricultural systems” approach
- Institutions should be more balanced in their focus—moving away from a purely research approach to one that includes “teaching, discovery, integration and application.”

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Alberts,T; Abegaz,B; Coughlin,P; Jehrlander,G ;Skjonsberg, E ; Wield,D. and Manhica, S.(2003). Sida's Support to the University Eduardo Mondlane, Mozambique. Sida evaluation 03/35. Department for Research co-operation. <http://www.sida.se/publications>.

AET Institution:

University Eduardo Mondlane, Mozambique

Impact summary:

1) Who has invested in this African AET?

SIDA

2) How much did they invest and over what time period?

SEK 6.5 Million

PERIOD: 1998-2003

3) What impact studies have been conducted?

- A systematic review on the impacts of capacity strengthening of agricultural research systems for development and the conditions of success.

4) How was impact measured?

- Data search, with an evidence data base constructed in excel.
- Results synthesized using the qualitative narrative approach.
- Cross-study synthesis carried out around specific themes, based on the grounded-theory approach using atlas.ti software.

5) What impact was achieved?

- post (graduate) training, short courses students graduated
- Organisational capacity strengthening (604 full time staff trained)
- 267 publications recorded
- Student population increased by 54.7%
- 110 PhDs achieved
- Significant improvements in staff development
- Researchers obtaining postgraduate qualifications

6) What do these results imply for future efforts at AET capacity building in Africa?

7) What interesting models have emerged?

- Gender equality was given priority in Mozambique's strategies

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Association of African Universities. 2004. Higher education in Sub-Saharan Africa with specific reference to universities. Accra: Association of African Universities.

AET Institution:

53 Institutions across Sub-Saharan Africa

Abstract:

This publication is the output of a major research endeavor by the Partnership for Higher Education that sought to identify innovations taking place in African universities. The study was not specific to agriculture; it looked for innovations across finance, governance, curriculum, and staff development among other categories. The publication includes an inventory of reported innovations, as well as an in depth case study of the higher education reform in Ghana in the early 1990s. The innovations in this report have not been evaluated with regard to their effectiveness

Impact summary:

6) What do these results imply for future efforts at AET capacity building in Africa?

- Innovations targeting statistics are rare though necessary
- Innovations in staff development and retention are very low on the “innovation agendas” of universities

7) What interesting models have emerged?

- *Collaboration with the private sector* (University of Douala, Cameroon, Cape Technikon, SA, University of Namibia, University of Nairobi, JKUAT, KIST) in forms including: joint research to boost commercialization research, joint curriculum review, industrial attachments, provision of grants and scholarships, and support to dissemination activities.

-The Leventis Company sponsors a program at the University of Ghana that brings farmers to the Ag Research Station of the Faculty of Ag for 10 months to train in their areas of interest.

- *Quality assurance* (Rands Afrikaans University, Potchefstroom University, University of Mauritius) such as research qualifications frameworks, quality care committees and assurance teams
- One common theme among the innovations was improving “relevance” by orienting toward local communities and increasing indigenous-focused curriculum.
- Problem-based learning (PBL) as a new pedagogy has been adopted by many institutions to address issues of relevance and connect the university to its surroundings

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Berg, 1998. Institutional cooperation (twinning) programme. Oslo: NORAD.

AET Institution:

- Sokoine University
- Norwegian Agricultural University
-

Impact summary:

1) Who has invested in this African AET?

Norwegian Agency

2) How much did they invest and over what time period?

NOK 250 Million

3) What impact studies have been conducted?

- A systematic review on the impacts of capacity strengthening of agricultural research systems for development and the conditions of success.
-

4) How was impact measured?

- Data search, with an evidence data base constructed in excel.
- Results synthesized using the qualitative narrative approach.
- Cross-study synthesis carried out around specific themes, based on the grounded-theory approach using atlas.ti software.
-

5) What impact was achieved?

- 122 MSc. Scientists produced
- 21 PhD scientists produced
- Enhanced capacity to identify, design and implement as well as assessing research projects for local application.
- Faculties and institutes at Sokoine strengthened as independent education and research units.
- Central functions of university strengthened.
- Equipment and rehabilitation of dilapidated physical infrastructure and communication systems.

6) What do these results imply for future efforts at AET capacity building in Africa?

▪

7) What interesting models have emerged?

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Busch, L. 1988. Universities for Development: *Report of the Joint Indo-U.S. Impact Evaluation of the Indian Agricultural Universities*. A.I.D. Project Impact Evaluation No. 68. Washington, DC: USAID.

AET Institutions:

- G.B. Pant University of Agriculture and Technology (Uttar Pradesh)
- Andhra Pradesh Agricultural University
- Haryana Agricultural University
- Tamil Nadu Agricultural University
- Orissa University of Agriculture and Technology
- University of Agricultural Sciences (Karnataka)
- Mohanlal Sukhadia University (Rajasthan)
- Rajendra Agricultural University (Bihar)
- Jawaharlal Nehru Krishi Vishwa Vidyalaya (Madhya Pradesh)
- Mahatma Phule Krishi Vidyapeeth (Maharashtra)

Impact summary:

1) Who has invested in this African AET?

USAID & the Government of India

2) How much did they invest and over what time period?

Approximately \$31 million in U.S. dollars and \$11 million in U.S.-owned rupees (total for all state agricultural universities, not limited to the 10 included in the study)

3) What impact studies have been conducted?

USAID Impact Evaluation (part of larger CDIE study)

4) How was impact measured?

Five interdisciplinary review teams were recruited, primarily from U.S. land-grant universities and A.I.D., to visit 10 universities in India. Each team, consisting of five to six social and agricultural scientists, was able to visit two universities, spending approximately 10 days at each of the campuses. Interviews in India with SAU faculty and administrators, state officials, and farmers, focused on the purposes served by the people, departments, colleges, universities, ICAR, the SAU system as a whole, and the Government agencies. Researchers tried to identify the strategic planning mechanisms that were used to define and redefine the SAUs' purposes, missions, and goals, in light of the changing conditions and demands facing them. They also examined the processes used to evaluate the progress of SAUs in achieving the stated purposes and objectives at various levels.

5) What impact was achieved?

The establishment of State Agricultural Universities (SAUs) in India between 1954-1972 is widely considered one of the most successful university development programs based on a

number of impacts, most of which mirror the US land grant university model. India now has one of the largest systems of agricultural universities in the world. It became one of the first developing countries to offer Ph.D programs, and it integrated practical experience into its curriculum. The SAUs are global leaders in agricultural research, contributing significantly to international agricultural literature. They provide support to state extension services and create extension demonstration projects. The CDIE evaluation also measures the impact of the SAUs on “the life of the people”—meaning, ways in which the greater economy has changed as a result of the universities. For example, vast improvements in food production and seed varieties are attributable to the SAUs, and there are increasingly more opportunities for women in the fields of agronomy and animal science. The evaluation does, however, note that it is impossible to disaggregate the changes due to SAU research because of their close interrelationship with the government research agency. The report recognizes further indirect impacts—such as better quality banks, companies, and government agencies—that are likely due to the quality of staff having graduated from SAUs, though this is difficult to isolate or quantify.

6) What do these results imply for future efforts at AET capacity building in Africa?

Factors contributing to the success of the SAUs:

- Leadership and Support From the Indian Council for Agricultural Research
- State Government Support
- Government Demand for Agriculture Graduates
- SAUs have greater impact in states with more equitable and progressive systems of land tenure
- Continuity and Commitment of University Leaders
- Emphasis on Farmers
- Development of Linkages With Other Institutions
- Pool of High-Quality Students
- Openness to Evaluation

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Davis, K., Ekboir, J., Mekasha, W., Ochieng, C., Spielman, D. and E. Zerfu. 2007. Strengthening Agricultural Education and Training in Sub-Saharan Africa from an Innovation Systems Perspective: Case Studies of Ethiopia and Mozambique. IFPRI Discussion Paper 00736. Washington, DC.

Abstract:

This paper examines the role of postsecondary agricultural education and training (AET) in Sub-Saharan Africa in the context of the region's agricultural innovation systems. Specifically, the paper looks at how AET in Sub-Saharan Africa can contribute to agricultural development by strengthening innovative capabilities, or the ability to introduce new products and processes that are socially or economically relevant to smallholder farmers and other agents in the agricultural sector. The paper emphasizes the importance of improving AET systems by strengthening the innovative capabilities of AET organizations and professionals; changing organizational cultures, behaviors, and incentives; and building innovation networks and linkages.

The paper uses case studies of recent and ongoing AET reforms in Ethiopia and Mozambique to demonstrate its framework. They use surveys and interviews with key informants to evaluate the AET systems, but it is not an impact evaluation per se.

Impact summary:

6) What do these results imply for future efforts at AET capacity building in Africa?

Key recommendations for reform include:

- aligning the mandates of AET organizations with national development aspirations by promoting new educational programs that are more strategically attuned to the different needs of society;
- inducing change in the cultures of AET organizations through the introduction of educational programs and linkages beyond the formal AET system;
- strengthening individual and organizational capacity by improving incentives to forge stronger linkages between AET and diverse user communities, knowledge sources, and private industry

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Eley *et al.*, 2002, 2003: ILRI graduate fellows program. Addis Ababa: ILRI.

AET Institution:

Many universities in Africa

Impact summary:

1) Who has invested in this African AET?

ILRI

2) How much did they invest and over what time period?

1978-1997

3) What impact studies have been conducted?

- A systematic review on the impacts of capacity strengthening of agricultural research systems for development and the conditions of success.

4) How was impact measured?

- Data search, with an evidence data base constructed in excel.
- Independent consultant analysed data using SPSS BASEon;
 - √ Conducive learning environment and interactions experienced by fellows
 - √ Improved knowledge and skills and associated research outputs gained by fellows.
 - √ Rate of return to the national agricultural research system (NARS) and career progress obtained.
 - √

5) What impact was achieved?

- 233 African graduate fellows carried out their research projects at ILRI
- The increased number of scientific publications
- Increased development of scientific leadership with many fellows promoted to higher positions in their organizations.
- Faster promotions of the fellows to senior scientific positions.
- Increased knowledge dissemination by fellows in their work stations/institutions.

6) What do these results imply for future efforts at AET capacity building in Africa?

- Academic support and increased opportunities can be enhanced through graduate training.

7) What interesting models have emerged?

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Eriksen, J., Busch, L., King, J., Lowenthal, J. and R. Poirier. 1987. *The Hassan II Institute of Agriculture and Veterinary Medicine in Morocco: Institutional Development and International Partnership*. A.I.D. Project Impact Evaluation Report No. 65.

AET Institution:

Hassan II Institute of Agriculture and Veterinary Medicine

Impact summary:

1) Who has invested in this African AET?

USAID

2) How much did they investment and over what time period?

1969-1989, \$33.5 million

3) What impact studies have been conducted?

USAID Impact Evaluation (part of larger CDIE study)

4) How was impact measured?

The assessment was done rapidly; the team used a snowball sampling approach, conducting in depth interviews to gather information and identify additional interviewees. The team conducted both group and individual interviews on campus and in the principal agricultural regions of Morocco, as well as in Minnesota to both faculty and Moroccan students located there. The research team also administered a written questionnaire to all participants of the graduate training program. The research team did not quantify specific metrics but rather compiled responses from a range of perspectives, drawing general—and mostly qualitative—conclusions about the impact of the program.

5) What impact was achieved?

The evaluation of Hassan II in Morocco shows that graduates now occupy a range of management positions in the government and private enterprise. The faculty has grown from one to 350, 85% of whom are Moroccan nationals and are used widely by government, international and private organizations for agricultural research, training, and consulting in Morocco. The Institute now ranks highly among older Moroccan universities and is viewed as a “unique repository of agricultural knowledge.” The assistance from the University of Minnesota has helped to revise the curriculum, broadening the core courses to be more similar to a US program and integrating practical fieldwork into the curriculum. One of the major accomplishments of the Institute was developing linkages between agricultural education, research, and extension. This is often a goal of such projects but difficult to measure – the success in this area was determined by the snowball sampling and interviews described above supported with anecdotal evidence. For example, the Institute has developed an alumni association and various professional associations, which are linked closely with the government. Additionally, success in this area is demonstrated by faculty participation in sectoral planning and project development.

6) What do these results imply for future efforts at AET capacity building in Africa?

Factors identified as instrumental to success include:

- "Sense of Mission" and commitment to a uniquely Moroccan institute;
- Institutional leadership of several outstanding individuals;
- Selectivity in choosing faculty and students
- Acceptance by founders and faculty of international standards of content and quality
- Autonomy
- Incremental nature of IAV institutional development and A.I.D. project assistance
- Efficient management of multi-donor resources
- Long-Term Commitment by A.I.D. and the U.S. University to the Institute's Development
- Dedication of University of Minnesota faculty
- Entrepreneurial Attitudes of Institute Faculty in Building Support Constituencies
- Unique organizational structure and integrated curriculum model
- Receptivity of IAV Personnel to Continuing Evaluation
- Morocco's Well-Developed Secondary School System

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Eriksen, J. H., Compton, J.L., Konnerup, N.M., Thurston, H.D., and G. Armstrong. 1988. *Kasetsart University in Thailand: An Analysis of Institutional Evolution and Development Impact*. A.I.D. Project Impact Evaluation Report No. 69.

AET Institution:

Kasetsart University

Impact summary:

1) Who has invested in this African AET?

USAID

2) How much did they invest and over what time period?

1951-1965

3) What impact studies have been conducted?

USAID Impact Evaluation (part of larger CDIE study)

4) How was impact measured?

University in Thailand used snowball sampling approach (similar to that used in Morocco), interviewing the private sector, students' employers, former students, and other agricultural stakeholders.

5) What impact was achieved?

- Enrollment (at the time of the study) was 11,000 undergraduates, 2,236 masters degree candidates, and 55 Ph.D. degree candidates. The school offers 54 bachelor's degree programs, 52 master's degree programs, 5 Ph.D. degree programs, and 1 doctor of veterinary medicine program.
- Annual maize production in Thailand rose from 50,000 to 5 million tons over two decades.
- Graduates hold important staff and leadership positions in almost every agency of the Government of Thailand concerned with agriculture and rural development.
- 85% of the staff at the newer agricultural universities are Kasetsart graduates
- Contributions to the development of new industries (orchids, poultry, early-ripening tomato, dairy)
- Publication of internationally circulated journals
- Research accomplishments in fruit propagation techniques, disease control, beekeeping, silkworm production, aquaculture, and straw mushroom culture
- Establishment of National Biological Control Research Center, National Corn and Sorghum Research Program, Institute of Food Research and Product Development

6) What do these results imply for future efforts at AET capacity building in Africa?

- A fundamental reconceptualization of the concept and role of agricultural higher education is needed for enhancing the impact and relevance of agricultural universities and facilities.

- There is a need for strategic planning mechanisms within universities to integrate diverse faculties and disciplines around a common set of education and research priorities.
- New modes of university organization and structure are needed to allow faculty and students to engage in more problem-solving modes of active learning.
- The needs for university autonomy and accountability should coexist in a dynamic tension in order to ensure that university programs are responsive to a changing environment.
- Strong institutional incentives are needed to support the emergence of visionary and entrepreneurial leaders who can introduce change and innovation within the
- The constant replenishment and nurturing of university faculty and administrators will need to be more effectively addressed by host governments and by external donor agencies in order to sustain education and research effectiveness.
- External donors need to focus more attention on developing and institutionalizing external linkages between universities and the various policy, scientific, and industrial constituencies they are designed to serve.

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

FAO. 2010. Evaluation of FAO's Activities on Capacity Development in Africa. Rome.

Abstract:

This report is an evaluation of all capacity development programs undertaken since 2000. It is not specific to AET; one of the findings is actually that the FAO missed many opportunities to partner with universities. The paper notes the difficulty in measuring impacts of capacity development initiatives and does so primarily anecdotally. It presents general recommendations for improving FAO capacity development projects in the future. Below is an outline of the methodology used, though no indicators were provided.

The evaluation used a mix of tools, including:

- Inventory of CD activities at country level, covering the 48 countries of Sub-Saharan Africa
- Meta-synthesis of evaluations, the objective of which was to review, aggregate and synthesize the findings and recommendations on CD of 33 selected country project and programme evaluations carried out by the FAO Evaluation Service since 2003.
- Country case studies and complementary field visits: The country case studies were carried out in two phases. In the first phase, local experts with support from the core team completed the fieldwork. Their main task was to collect information on a selected number of CD activities in the field through participatory workshops, focus discussions, surveys and interviews with the beneficiaries of CD activities and other stakeholders. The second phase of the country case studies was part of the core team's field visits of about a week to each of the six selected countries. By interviewing a much wider group of stakeholders, the team supplemented the beneficiary analyses. The team consulted partnering agencies, existing and potential partners, as well as bilateral and multilateral agencies.
- Assessment of normative CD products: A purposive sample of thirty-one normative products including guidelines, manuals, compact discs (CDs) and e-learning tools, was assessed with regard to the quality and relevance of their content and, where appropriate, for their effectiveness in the field, including their accessibility to the targeted audience, their relevance to the objectives and the country contexts, their ability to be interactive and their potential to remain relevant over time or to adapt to change.

Three dimensions of CD are distinguished: individuals (with an emphasis on technical skills), organisations (government institutions, particularly with respect to information management) and an enabling environment (incentives, policies, legislation, regulations, accountability, institutional matters). Most interventions target only one of the dimensions.

The report concludes that "it is generally acknowledged by the development community that it is generally difficult to assess programme impact, especially programmes that are focused on CD. Impact cannot be assessed until long after a programme has ended and attribution is extremely challenging because there are usually many factors that affect impact beyond the programme itself. Furthermore, recent research on measuring CD underscores the difficulties associated with ascribing impact to specific interventions and suggests alternatively that

development agencies focus on processes and include measures of engagement and outcomes.”

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Freeman, P; Johansson, E. and Thorvaldsson, J. (2010). Enhancing Research capacity at Makerere University, Uganda through collaboration with Swedish Universities, 2000-2008. Past experiences and future direction. Annexes, Sida Review 2010:10:1 Sida.

AET Institution:

Makerere University, Uganda

Impact summary:

1) Who has invested in this African AET?

SIDA

2) How much did they invest and over what time period?

- USD. 25.3 million
- 2000-2008

3) What impact studies have been conducted?

- A systematic review on the impacts of capacity strengthening of agricultural research systems for development and the conditions of success.

4) How was impact measured?

- Data search, with an evidence data base constructed in excel.
- Personal interviews
- Focus group discussions
- Audit checks
- Field checks
- Results synthesized using the qualitative narrative approach.
- Cross-study synthesis carried out around specific themes, based on the grounded-theory approach using atlas.ti software.

5) What impact was achieved?

- Support for masters and PhD students at Makerere with co-supervision from researchers at universities in Sweden.
- University Research policy developed
- Increased participation of senior researchers with PhD students.
- Promotion of trained staff to higher ranks of the academic ladder.
- Increased faculty publications
- Changing gender relations in Uganda (public policy)
- Increased dissemination of research findings
- Increased speed of procurements
- New areas of research have been explored
- Increased number of PhD staff
- International collaborations strengthened.
- Team work among staff strengthened

6) What do these results imply for future efforts at AET capacity building in Africa?

-

7) What interesting models have emerged?

- Awarding the best paper published
- Women representation in research groups given priority.

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Gamble, W., Blumberg, R.L., Johnson, V. and N. Raun. 1988. *Three Nigerian Universities and Their Role in Agricultural Development*. A.I.D. Project Impact Evaluation No. 66. Washington, DC.

AET Institutions:

Ahmadu Bello University
University of Ife
University of Nigeria at Nsukka

Impact summary:

1) Who has invested in this African AET?

USAID

2) How much did they invest and over what time period?

Ahmadu Bello University: \$11,896,867, 1962-1978
University of Ife: \$5,474,930, 1962-1975
University of Nigeria at Nsukka: \$9,943,610, 1960-1967

3) What impact studies have been conducted?

USAID Impact Evaluation (part of larger CDIE study)

4) How was impact measured?

This evaluation used a rapid appraisal methodology primarily based on qualitative research techniques applied over a very short period of time. The methodology attempts to triangulate via multiple, targeted perspectives what the impacts actually were without the availability of a random sample. Such triangulation was achieved via group interviews (eg. small scale farmers), key informant interviews (eg. community leaders), surveys, and documentation (eg. university statistics.) The research team sought consistencies from these varying perspectives about impact of the three universities on “past and present agricultural problems of the country” (Gamble et al. 1988.)

5) What impact was achieved?

The evaluation of the three universities in Nigeria categorizes impacts as internal to the university and external, within the larger community. Each university rapidly expanded enrollment and exceeded growth targets during the years following the program. The evaluation reports that each can be noted for “high standards, vitality, approach to education, high quality of staff, method of teaching, curricula, and examination procedures.” The external impacts observed again include interaction between the university and government, and the university’s research. For example, faculty members serve on state and federal boards and commissions, and each university has developed improved varieties of agricultural crops, such as cowpeas, maize, guinea corn, and vegetables (Gamble et al. 1988.)

6) What do these results imply for future efforts at AET capacity building in Africa?

- The linkage of training, research, and extension remains a necessary but generally neglected function in the management of agricultural institutions.
- Under conditions of high levels of social and political mobilization, agricultural colleges may function primarily as a medium for providing social goods to students (i.e., the granting of degrees) and only secondarily as a mechanism for generating and transferring skills, technology, and services for the agricultural sector.
- The Nigerian experience suggests that donor resources should be stretched over a longer time period and distributed more evenly throughout the institutional development process, with the intent of generating impact both internal and external to the university setting.
- In the absence of strong external pressure groups, additional organizational forms, such as the Institute of Agricultural Research at Ahmadu Bello University, that complement discipline-based academic departments should be used to enable an agricultural university or college to respond to the needs of its environment.

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Gilboy, A., Carr, H., Kane, T. and R. Torene. 2004. *Generations of Quiet Progress: The Development Impact of U.S. Long-Term University Training on Africa from 1963 to 2003*. Aguirre International for USAID.

AET Institution:

N/A – Overseas participant training program; degrees sponsored by ATLAS and AFGRAD

Impact summary:

1) Who has invested in this African AET?

USAID

2) How much did they invest and over what time period?

ATLAS and AFGRAD programs sponsored over 3,000 students' degrees using this model between 1963 and 2003. Cost was approximately \$182 million.

3) What impact studies have been conducted?

USAID commissioned an impact evaluation, done by Aguirre International.

4) How was impact measured?

For long-term training programs (ATLAS and AFGRAD), the most commonly used metric is the output—number of degrees obtained—and impact attempted to be measured indirectly by the percentage of participants returning to their home country and their future employment paths. Further indicators defined by ATLAS to measure impact included: employment of the individual in key African development-related institutions or productive private enterprise; level of authority and responsibility and promotion record of individual; personal accomplishments on the job; impacts of the individual on organizational decisions; authority and influence of the individual; performance of female graduates compared to males. To evaluate the impact of ATLAS and AFGRAD, USAID administered a survey to a random, representative sample of training participants. This was supplemented with site visits, interviews, and internet research to gain insight that the surveys could have missed. The assessment employs a modified Kirkpatrick framework to assess impact, which divides survey questions into four levels: reaction, learning, application and results. Most impacts fall under application (the on-the-job performance of a trainee) and results, typically defined as organizational changes brought by the trainee but adapted in this case to include changes beyond the organization—sectoral, regional, national, etc. Because the methodology employed verified and triangulated answers, it reduced inherent bias in participant “self-perceptions” of impact.

5) What impact was achieved?

ATLAS and AFGRAD have been found to have “extraordinary” impact. The programs report that between 85-90 percent of participants returned to their home country, though that result was not verified by the impact assessment described above. The impact evaluation did conclude that over 95% of participants have made changes at their institutions, and their ability to make that change was attributable to their training in the US. The evaluation also noted a change in “work attitudes”—many now link their changed perception of the

importance of their work to their US training. Other significant impacts noted were improved management and non-technical skills, resulting from US immersion rather than direct training.

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Hall, A., Sulaiman, R., Clark, N. and B. Yoanand. 2003. From measuring impact to learning institutional lessons: an innovation systems perspective on improving the management of international agricultural research. *Agricultural Systems*. 78(2003): 213-241.

Institutions (case studies):

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)

Abstract:

This paper argues that impact assessment research has not made more of a difference because the measurement of the economic impact has poor diagnostic power. In particular it fails to provide research managers with critical institutional lessons concerning ways of improving research and innovation as a process. Our contention is that the linear input–out- put assumptions of economic assessment need to be complemented by an analytical frame- work that recognises systems of reflexive, learning interactions and their location in, and relationship with, their institutional context. The innovation systems framework is proposed as an approach where institutional learning is explicit. Three case studies of recent developments in international agricultural research are presented to illustrate these points. We conclude by suggesting that the innovation systems framework has much to offer research managers wishing to monitor and learn new ways of addressing goals such as poverty alleviation. The greatest challenge however, is that such holistic learning frameworks must contend for legitimacy if they are to complement the dominant paradigm of economic assessment.

Impact summary:

1) Who has invested in this African AET?

USAID: Sorghum and millet improvement program (SMIP)

DFID: Crop Post Harvest Programme

2) How much did they invest and over what time period?

SMIP: 1983-2003

6) What do these results imply for future efforts at AET capacity building in Africa?

Principles for the innovation systems approach (research institution-focused):

- Research is an inherently social process where learning and institutional innovations are part and parcel of technology development and promotion.
- Research approaches and outcomes are intimately related to institutional contexts.
- The institutional context of research is principally played out in the combinations of actors involved in research and the patterns of relationships between these actors.
- A key feature is the capacity to innovate is the combined function of the actors involved, the skills they bring to partnerships and the institutional contexts that shape the interrelationships.

Practical changes toward institutional learning include:

- Moving the focus of impact and evaluation from examining changes in technology user groups to including changes in the way the research community operates as well as its interaction with other organisations and institutional (including political) contexts;
- Introducing institutional changes that provide incentives to formalise learning as part of the practice of research organisations. This requires changes among donors and senior managers of research organisations and probably within professional bodies relevant to the international agricultural research community;
- Recognising capacity development as an important outcome and purpose of research;
- Accepting the need to explore behavioural changes in innovation systems as a way of monitoring progress and learning, as well as a way of promoting critical institutional lessons to wider audiences in the R&D community;
- Recognising the systems nature of capacity development so that evaluation becomes a task that needs to be done collectively with partners as well as at the individual organisational level;
- Accepting the need to embed evaluation as learning in the day-to-day procedures of research staff and administrators and acknowledging the skill and resource implications of this. This implies the need for greater numbers of social scientists in international agricultural research organisations, but with a hands-on role of facilitating learning in addition to disciplinary research contributions. It also implies the need to build learning skills among all partners and to allocate time within the research process for collective learning and reflection.

7) What interesting models have emerged?

SMIP formed “task networks,” partners with NGOs and commercial sectors, and national agricultural research counterparts, clustered around specific themes as a way to achieve targets. Explicit incentives are required for those sponsoring research as well as those conducting research.

ICRISAT approved private sector-funded research, which changed the capacity of the organization in a more interactive, less hierarchical way with its partners.

The Crop Post Harvest Programme revised its indicators from conventional impacts on the poor to include capacity and systems changes.

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Jamora, N.V. 2007. Assessing the Impact of the Bean/Cowpea CRSP Graduate Degree Training. Masters Thesis. Michigan State University.

AET Institution:

Impact summary:

1) Who has invested in this African AET?

USAID

2) How much did they invest and over what time period?

1980-2007; supported 496 trainees; approx. \$6.9 million

3) What impact studies have been conducted?

Masters Thesis (MSU)

4) How was impact measured?

The assessment used the Kirkpatrick framework. Aside from the records and reports from the CRSP MO, this study gathered data from four sources to assess impacts of training: (1) survey of 76 trainees, (2) survey of 25 US-PIs (advisors or professors) involved in the CRSP graduate degree training, (3) via an internet search, and (4) individuals at a Sokoine in Tanzania (as a case study).

5) What impact was achieved?

Over 86 percent of host country (HC) trainees returned to their home countries (or at another developing country). In their enhanced capacity, trainees were making contributions to the advancement of bean/cowpea research that can be attributed to their GDT and CRSP research. Trainees felt that their GDT was necessary for their professional development (100%) and was highly relevant to their current work/job responsibility (92%). Moreover, the study found that there were higher rates of collaboration and continuous bean/cowpea research for HC trainees (versus U.S. trainees), for trainees in the plant sciences, and for Ph.D. trainees (versus M.S. trainees). Many more statistics are included in the report.

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Mabaya, E., Christy, R. and M. Bandama. The Current State of Agribusiness Education and Training in Africa. Contributed Paper presented at the Joint 3rd African Association of Agricultural Economists (AAAE) and 48th Agricultural Economists Association of South Africa (AEASA) Conference, Cape Town, South Africa, September 19-23, 2010.

Abstract:

With a focus on agricultural economics departments, the paper assesses the current status of agribusiness education and training offered in African academic institutions. While significant progress has been made in integrating agribusiness management into university curricula, the current offerings are far from comprehensive. Using a case study approach, new models of executive training for agribusiness being offered by non-governmental organisations, academic institutions and the private sector are benchmarked. The paper concludes by recommending strategies for developing agribusiness education and training initiatives so as to bridge the gap between current offering and industry needs.

Impact summary:

4) How was impact measured?

The article uses a litmus test to assess the quality of agribusiness education: Are holders of agribusiness qualifications able to effectively replace those with business administration backgrounds? They have no hard data but use anecdotal evidence to find that those with agribusiness masters do not earn as much as those with MBAs.

6) What do these results imply for future efforts at AET capacity building in Africa?

Authors' recommendations:

- Paradigm shift from agriculture to agribusiness
- Learn from other developed countries and adapt for Africa
- Include women and be cognizant of gender issues
- Introduce quality control measures (don't focus on quantity)
- Incorporate private sector
- Use local case studies
- Adapt to changing environment

7) What interesting models have emerged?

- Makerere University Faculty of Agriculture (MUFA) made a strategic decision to work with the private sector in updating its curriculum to enable it to produce graduates with the skills and qualifications desired by private-sector firms working in the agribusiness area with Uganda. Consequently, Makerere has gone on to separate its master's degrees into two distinct degrees, namely agricultural economics and agribusiness. In terms of the agribusiness degree, the university is planning to offer it on a part-time basis as well as full-time basis through holding evening classes. It is anticipated that a part-time agribusiness master's degree will attract private sponsorship both on the part of those employed full-time and, in some cases, employee institutions. In connection with the agribusiness master's degree, Makerere set up an advisory board consisting of representation from the private sector.

- The African Agricultural Economics Education Network launched the Collaborative Master Program in Agricultural and Applied Economics in Eastern, Central and Southern Africa in 2005 following the realization that demand for high-quality agricultural economists exceeded supply. Its underlying premise is that highly trained local professionals must address the challenges posed by far-reaching changes in global and local economies, technology and marketing by adapting their advanced knowledge and methods to the particular institutional, political and economic circumstances of Eastern, Central and Southern Africa.
- The University of Zambia invites current agribusiness managers and leaders as guest lecturers in order to provide students with insight on how to run a successful business
- The Department of Agricultural Economics at the University of Free State runs an Agribusiness Unit which holds market workshops every term, with a vision of “innovating strategy and management for the future success of Agribusiness”. Market workshops, held in an informal setting, are usually attended by about a 100 farmers, bankers or agribusiness people. Guest speakers who are experts in their field take part. The emphasis is on group discussions to anticipate future market trends and the appropriate business strategy. Scenarios and strategy sessions are also presented on request to agribusinesses and farmer or industry groups.
- The school of Agricultural Sciences at North-West University hosts the Centre for Agribusiness and Entrepreneurial Training. The centre is servicing mainly small farmers with short courses, the training of extension officers and any other contract business such as land assessment and feasibility studies for resettlement.
- Standard Bank, in partnership with Stellenbosch University, has established a Standard Bank Centre for Agribusiness Leadership and Mentorship Development. Based on the premise that successful agricultural transformation and land reform require skills and capacity development to enable proactive agribusiness leadership; effective business linkages and support systems; and pre- and post-settlement support, effective coaching and mentorship, the project consists of two separate interactive sets of program activities: post-graduate degree programs and a mentorship program that establishes a “learning by doing” approach with short, accredited courses.

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Maredia, M. 2011. *Curriculum Enhancement and Reform to Meet the Needs of Smallholder Farmers in Developing Countries: Survey of Literature*. Michigan State University: Staff Paper 2011-05.

AET Institution:

N/A

Abstract:

This paper reviews the literature on experiences gained in the development of innovative and demand-driven curriculum to make the post- secondary agricultural education system serve the needs of smallholder farmers in developing countries. The paper reviews the desired characteristics of the formal post-secondary educational system to be effective in fulfilling its role in supplying well-trained and productive work force for the agricultural economy. The current general state of agricultural curriculum in developing countries is reviewed with respect to these desired characteristics. The paper also presents a review of experiences gained in implementing different approaches to develop, enhance and reform agricultural curriculum, identifies constraints, challenges and successful examples of such approaches, and derives recommendations for ways forward.

Impact summary:

6) What do these results imply for future efforts at AET capacity building in Africa?

Curriculum must have as many of the following characteristics as possible:

- Adaptive to local environment
- Demand driven
- Innovative and interactive
- Dynamic (not fixed within an authoritative structure)
- Quality (meets accreditation standards)
- Cutting-edge (up to date with advances in science and technology)
- Versatile (meets the needs of diverse groups)
- Focused on imparting skills and abilities transferable to a range of occupations

7) What interesting models have emerged?

In a table, Maredia organizes “innovative responses” to each driving force of change in agricultural curriculum and its respective challenges. The innovative responses are as follows:

- Integration of students in rural life through practical training.
- Include field seminars organized with the participation of farmers and farmers' organizations throughout the courses.
- New course/program structures to meet diverse student community needs (intensive courses, week-end courses, flexibility in course requirements, time to complete a program, etc.)
- Shift away from a curriculum focused on production agriculture to productivity by integrating new subjects and courses.

- Curriculum focused on preparing highly trained specialists at higher degree levels and broadly educated generalists at intermediate levels
- Curriculum based less on memorization of facts and more on building critical thinking skills and analytical skills
- Curriculum flexibility and course structures that allow life-long learning
- Curriculum that strengthens effective delivery of non-formal education to farmers (through extension workers, teachers)
- Curriculum more focused on productivity issues and principles of market competitiveness
- Integrate new subjects and courses that will be in demand by private sector—viz., food processing and post-harvest technologies, biotechnology, agri-business management and farming systems development
- Curriculum that imparts students with good communication skills
- Integration of special student-developed projects in the curricula that impart business skills, promote entrepreneurship
- Integration of distance education in agricultural curricula
- Curriculum based on new teaching methods and approaches that utilize ICTs
- Curriculum focused on Interdisciplinary teaching and research
- A holistic/systems approach to economic, social, cultural, ecological and public policy concerns to technological change
- Problem-focused curricula
- Learning activities that are based on first-hand experience of the physical and social environment
- Participatory approaches/methods to teaching and R&D
- Curriculum that empowers local NR users to make their own analysis and decisions
- Incorporate new skills such as environmental economics and impact assessment.
- Curricula that provides education and information about rural women's problems, potentials and aspirations.
- Course structure and content that promotes equal gender benefits
- Curriculum that strengthens effective delivery of non-formal education to women in rural areas (through extension workers, teachers)

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Mizrahi, Y. 2004. Capacity Enhancement Indicators: A review of the literature. The World Bank Institute.

Abstract:

The purposes of this paper are to: (1) Identify indicators of capacity and capacity enhancement in the development- related literature produced over the past ten years, (2) Examine the difficulties and challenges of measuring capacity enhancement, and (3) Suggest an analytical framework format for designing capacity enhancement indicators. The paper does not offer anything specific to universities or agriculture, but inventories indicators from the UNDP, Tobelem, Paris21, and Morgan. The analytical framework at the end gives an example of how to design capacity enhancement indicators.

6) What do these results imply for future efforts at AET capacity building in Africa?

- Capacity enhancement involves something more than the strengthening of individual skills and abilities. Trained individuals need an appropriate environment, and the proper mix of opportunities and incentives to use their acquired knowledge.
- Performance indicators cannot be substituted for capacity enhancement indicators.
- Capacity enhancement is a process and therefore, it can be measured in degrees. The latter requires the definition of benchmarks.
- While capacity enhancement can be measured in three analytic dimensions, indicators of capacity enhancement cannot be built in abstraction. Indicators only become operational when they are related to a particular development objectives (capacity for what?) and make reference to specific actors towards which capacity enhancement projects are directed (capacity for whom?).
- Capacity enhancement projects must entail local ownership for them to succeed.

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Patel, B. K. and P. L. Woomeer. 2000. Strengthening Agricultural Education in Africa: The Approach of the Forum for Agricultural Resource Husbandry. *Journal of Sustainable Agriculture*. 16(3).

AET Institution:

Forum for Agricultural Resource Husbandry (not itself an AET Institution) supported:

- Africa University (Zim.)
- Bunda Agricultural College (Mal.)
- Eduardo Mondlane (Moz.)
- Egerton University (Ke.)
- Kenyatta University (Ke.)
- Makerere University (Ug.)
- Moi University (Ke.)
- University of Nairobi (Ke.)
- University of Zimbabwe (Zim.)

Abstract:

The Forum for Agricultural Resource Husbandry (FORUM) was initiated in 1992 by The Rockefeller Foundation to stabilize Faculties of Agriculture in Kenya, Malawi, Mozambique, Uganda and Zimbabwe by providing resources, mission and peer support, leading to knowledge contributing to improved lives of smallholder farmers. Mechanisms for improving M.Sc.-level agricultural education include distance learning in biometrics, presentation of awards to winners of student competitions, collaboration between universities in student supervision and comparison of M.Sc. programmes between universities. It is structured as a competitive grants programme designed to enhance the contributions of M.Sc. students in agriculture through interdisciplinary problem solving.

Impact summary:

1) Who has invested in this African AET?

The Rockefeller Foundation

2) How much did they invest and over what time period?

\$350,000 in 1992

\$900,000 per year between 1993 and 1998

\$1.3 million in 1999

(Published in 2000)

3) What impact studies have been conducted?

4) How was impact measured?

The authors use five major categories of impacts:

- Placement of M.Sc. graduates

- Professional advancement of FORUM Grantees
- University-to-university collaboration
- Interactions between FORUM grants and agricultural development agendas
- Better understanding through working with farmers

5) What impact was achieved?

(As of 2000):

- Research funded by FORUM resulted in 55 scientific publications with 34 papers appearing in conference proceedings and 22 published in scientific journals
- 37 students have graduated from nine universities with an additional 76 students currently enrolled in M.Sc. programmes
- Of those graduating, three are pursuing Doctorates and all others have found employment in government ministries (40%), non-governmental organizations (NGOs, 16%), universities (14%), and industry (8%).
- Increased collaboration between participating universities
- Many examples of research products from FORUM grants reaching beyond the level of scientific publication through the development of appropriate farm technologies and products.

6) What do these results imply for future efforts at AET capacity building in Africa?

- Grants were often constrained by capabilities of the universities/grantees (eg. communications and technology, computer literacy, office space, or laboratories)
- The most promising mechanism to ensure successful implementation of grants and completion M.Sc. projects is to infuse a heightened sense of pride and responsibility among FORUM grantees, particularly during In- country and Regional Meetings or when representing the FORUM at other professional gatherings.
- One of the greatest strengths of the programme is its in-built flexibility and interaction with suggestions voiced by Grantees.

7) What interesting models have emerged?

- FORUM established distance learning for topics (such as biometrics) in which most institutions had very weak capacity
- Biannual FORUM meetings encouraged timely and competitive research publication
- Research proposals that are “farmer-friendly,” that form objectives based upon farm constraints and then conduct experimentation that includes farmer participation have an advantage during technical review, but at the same time more basic or laboratory research projects are not excluded from consideration. But studies in “agricultural resources husbandry,” by necessity, involve land managers and their practical realities. Many FORUM investigations begin with problem identification or survey phases that lead into problem-solving phases where researchers and farmers work together and “learn by doing” in their search for management interventions.

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Price, E. and C. Evans. 1989. *Ethiopia: Alemaya University of Agriculture*. A.I.D. Project Impact Evaluation No. 68. Washington, DC.

AET Institution:

Alemaya University of Agriculture

Impact summary:

1) Who has invested in this African AET?

USAID

2) How much did they invest and over what time period?

1952-1968 (amount not specified in this publication)

3) What impact studies have been conducted?

USAID Impact Evaluation (part of larger CDIE study)

4) How was impact measured?

A rapid assessment based on interviews, university enrollment and hiring statistics, and tracking of graduates' careers and influence.

5) What impact was achieved?

- The placement of Alemaya graduates in Ethiopia's ministries, educational system, and the Institute of Agricultural Research, as well as in international organizations.
- Development of a continuing education program at two off-campus locations
- Development of junior agricultural colleges led by Alemaya graduates
- Research achievements in crop agriculture and forest technology, and adoption levels of such technology
- High demand for Alemaya research results from government, co-ops, and farmer associations
- Alemaya Extension established the gene banks, nurseries, breeding strategies, and other components of the national crop and animal improvement programs

(Note: because this university was actually established by USAID, its enrollment and faculty statistics can ultimately all be attributed to the project. At the time of the evaluation, enrollment at the university was as follows: the diploma program, 419; the B.S. program, 1,138; and the M.S. programs, initiated in 1981, 35. Alemaya had 72 Ethiopian faculty members, of whom 14 have a Ph.D., 41 the M.S. degree, and 17 the B.S. degree.)

6) What do these results imply for future efforts at AET capacity building in Africa?

- An agricultural college or university that operates under a ministry of education is unlikely to achieve its maximum impact unless institutional measures are taken to link the university more directly to the ministry of agriculture.
- A lack of institutional autonomy can reduce the entrepreneurship required to vitally link a college to its environment.

- A concerted effort is required to build an effective social science program that can move an agricultural college from a narrow emphasis on agricultural production to a broader emphasis encompassing agricultural productivity and sustainability.

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Rivera, M. 2006. Transforming Post-Secondary Agricultural Education and Training by Design: Solutions for Sub-Saharan Africa. The World Bank. Washington, DC.

Abstract:

The paper is one component of a six-part World Bank study that assesses secondary and post-secondary agricultural education and training systems in Africa, provides justification for increased donor attention to this largely neglected area, and identifies the most effective areas of investment for future development assistance. It focuses specifically on post-secondary agricultural education and training. It is derived from a review of relevant literature, seven country field studies, and interviews conducted by the principal investigator in three of these seven countries. Its purpose is to highlight promising options for constructive intervention in the system, institutional, curricular and funding spheres of agricultural education and training.

The report identifies the three main challenges for AET as:

- Creating appropriate incentives for human capital development in agriculture
- Establishing meaningful institutional linkages with national and global information networks,
- Putting in place the infrastructures necessary for initial learning and lifelong education.

Impact summary:

6) What do these results imply for future efforts at AET capacity building in Africa?

The report suggests two solutions:

1. “Broadening” the approach to post-secondary AET to reach beyond formal training and into “workforce education systems,” engaging with the relevant workforce. The system would bring formal education, in-service training systems, and non-formal training systems into closer collaboration.
2. Involve academic staff, students and workforce personnel in the development of a national agricultural innovation system.

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Spielman, D., Ekboir, J. Davis, K. and C. Ochieng. 2008. An innovation systems perspective on strengthening agricultural education and training in sub-Saharan Africa. *Agricultural Systems*. 98 (2008) 1–9.

Abstract:

The paper argues that while AET is conventionally viewed in terms of its role in building human and scientific capital, it also has a vital role to play in building the capacity of organisations and individuals to transmit and adapt new applications of existing information, new products and processes, and new organisational cultures and behaviours. The paper emphasizes the importance of improving AET systems by strengthening the innovative capabilities of AET organisations and professionals; changing organisational cultures, behaviours, and incentives; and building innovation networks and linkages.

Impact summary:

6) What do these results imply for future efforts at AET capacity building in Africa?

- Align AET organizations' mandates more strategically with the different needs of society and development objectives, rather than replicating Western mandates. Establish mandates by seeking inputs of diverse "users," not top-down.
- Induce cultural changes in AET organizations through educational programs and linkages beyond formal AET system
- Improve incentives to forge stronger linkages with diverse user communities, knowledge sources, and private industry
- Expand "informal" AET programs such as: technical and vocational training institutes, in-service and on-the-job programs, distance education, apprenticeships, or sandwich programs
- Expand private sector sources of AET

7) What interesting models have emerged?

Examples of "innovation systems" reforms:

- Mozambique has established two agricultural polytechnics in 2005 to specifically convey practical technical skills for those to be employed by government, non-governmental organisations, and private firms in the agricultural sector. The introduction of a competence-orientated curriculum in these polytechnics is a bold attempt to not only produce graduates who are endowed with practical skills and are ready for employment or ready to work as self-employable agribusiness entrepreneurs, but also to develop a model for replication by other countries.
- Ethiopia, in a drive to massively expand its agricultural extension system, has introduced several reforms to the agricultural technical and vocational education and training (TVET) curriculum. Today, TVET students are provided not only with training in basic agricultural sciences and modern agricultural input use, but also in skills such as community mobilisation to support local development efforts, accounting to support managers of smallholder cooperatives, and insights into how to link farmers to markets in an otherwise subsistence-orientated agricultural sector.

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Vandenbosch, T. 2006. Post-Primary Agricultural Education and Training in Sub-Saharan Africa: Adapting Supply to Changing Demand. World Agroforestry Center. Nairobi.

Abstract:

This report is a general assessment of the current status of AET in SSA and the need for improvement vis-à-vis emerging trends and changing labor demand. It does not refer specifically to impact assessment or investments in any specific AET institutions. It makes very general conclusions and recommendations that include improving linkages between education and the labor market and communities, diversifying funding mechanisms, and better monitoring and evaluation. The study has a brief section on “relevance and effectiveness” which summarizes a few unpublished “demand profile and supply response” reports done by the World Agroforestry Center. Weaknesses, gaps, and recommendations for specific countries (Benin, Burkina Faso, Ethiopia, Mozambique, and Rwanda) are identified based on these studies and others, but no assessment methodologies are indicated.

Impact summary:

3) What impact studies have been conducted?

CETA: Evaluation by WAF (GéCo, 2005) indicated strengths, weaknesses and recommendations for the training

Strength: Good preparation of students for continuation of studies (at LAMS)

Weaknesses: Insufficient practical courses and learning trips to accompany theory to be effective in the real life application; Lack of specialized courses; Poor career services; Insufficient teaching equipment and teachers; Lack of financing of graduates to start-up an agricultural business; Non-recognition of recruiters about the multidisciplinary of graduates

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

Welsch, D., Flora, J., Foth, H., Westing, T., and G. Hansen. 1987. *Malawi: Bunda Agricultural College*. A.I.D. Project Impact Evaluation Report No. 64.

AET Institution:

Bunda College of Agriculture

Impact summary:

1) Who has invested in this African AET?

USAID

2) How much did they investment and over what time period?

\$2.2 million 1966-1970

\$4.6 million 1976-1982

3) What impact studies have been conducted?

USAID Impact Evaluation (part of larger CDIE study)

4) How was impact measured?

A rapid assessment of USAID's assistance to Malawi's Bunda Agricultural College was based on qualitative interviews performed over a short period of time, in conjunction with project documentation. Interviews sought to garner a holistic perspective, reaching out to the private sector, employers of students, previous trainees, and other agricultural stakeholders.

5) What impact was achieved?

The Banda Agricultural College assistance program in Malawi was not designed to mimic the land grant model or integrate the college with national agricultural activities. Its goal was to supply the economy with "trained agricultural manpower," so its success is primarily measured by its operation at maximum enrollment capacity and the job paths of graduates. The report notes that "nearly all managers, researchers and extensionists in the Ministry of Agriculture" are Bunda graduates, "nearly all expatriates in the agricultural sector have been replaced by Bunda graduates," and that graduates have no difficulty finding jobs. The assessment also reports that the college curriculum "continues to be appropriate in addressing Malawi's manpower needs."

6) What do these results imply for future efforts at AET capacity building in Africa?

- Institutional development programs require a long-term perspective, strong field support, and considerable attention to professional excellence in the recruitment of technical assistance specialists.
- Institutional proliferation can weaken the impact of all components of higher education and research and, in particular, can deprive other sectors of essential investments.
- In small countries, a fragmented institutional structure in the education sector could greatly impede efforts in faculty career development.
- Greater emphasis needs to be placed on strengthening mechanisms of accountability in ensuring that agricultural universities are addressing relevant needs within the

agriculture sector.

- Small countries like Malawi should exercise considerable forethought in determining whether to embark on the development of graduate degree programs in the agricultural sciences.
- In small countries like Malawi, the rationale for supporting a more multifunctional role for an agricultural college is to maximize the college's contributions to national development.
- Donor projects designed to build any one component of a national agricultural education, research, or extension system should also include the development of linkages among these individual functions.

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

The World Bank. 2005. Implementation Status & Results Report: Tunisia Higher Education Reform Support Project. June 27, 2005.

AET Institution:

Higher Institutes of Technology at Jendouba, Kef and Kairouan
Virtual University

Impact summary:

1) Who has invested in this African AET?

World Bank; Government of Tunisia

2) How much did they invest and over what time period?

1998-2004; \$79 million

3) What impact studies have been conducted?

World Bank completion report, including economic cost-benefit analysis and tracer study

4) How was impact measured?

- Enrollment rates
- Retention rates
- Degree of devolution of managerial responsibilities from ministries to universities
- Selection panels for staff career decisions
- Level of responsibility and accountability (of the institution)
- Level of cost recovery for academic services
- Level of students' contribution to non-academic services and increase of scholarship/loans
- Regulatory framework to incentivize private investment

5) What impact was achieved?

- Doubled enrollment rates
- Pass rate increased from 45 to 60%
- Expansion of 2.5 year technical programs
- 94% employment rate after graduation
- transfer of decision-making to universities, increased management capacity, and better use of autonomy for institutional improvement
- Enrollment in Masters programs rose from 10,603 students to 15,942 students
- Incorporation of pedagogic training and establishment of centers for pedagogic resources
- Hired >1,000 new teachers per year
- Changes in recruitment procedures and the evaluation system of teachers and establishments, introducing more relevancy and transparency, were instituted. Under new criteria for recruitment, promotion and assignment of professors, emphasis was put on teaching activities and introducing a culture of quality assurance. In addition,

40 establishments voluntarily undertook internal evaluations and four establishments were evaluated externally

6) What do these results imply for future efforts at AET capacity building in Africa?

- Greater university autonomy is integral to improving the relevance and quality of higher education.
- Participation of beneficiaries and stakeholders in monitoring will strengthen accountability mechanisms and project performance.

7) What interesting models have emerged?

ISSETs introduced numerous innovations within the system: a five-semester program, internships with enterprises, and an end-of-program project.

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

The World Bank. 2007. Cultivating Knowledge and Skills to Grow African Agriculture: A Synthesis of an Institutional, Regional, and International Review. Washington, DC.

Abstract:

This report presents a case for increased investment in AET, analyzes issues in the subsector, and outlines possible options for policies and interventions to build skills and capacities appropriate for the changing circumstances of African agriculture. It uses an agricultural innovation systems (AIS) framework. The report does not touch on measuring the impact of capacity building efforts or review any specific institutions. Major conclusions are summarized below:

Constraints to African AET:

- Poor linkage with research/isolation from knowledge sources
- Fragmented organizational responsibilities
- Waning interest in AET; gender distortion
- AET staffing crises
- Inadequate teaching methods and facilities

Guidance from successes outside of Africa:

- Mobilizing and sustaining political support is the most important and most difficult issue
- Public investment in capacity building is essential
- Capacity accumulation takes sustained commitment over multiple generations
- Separation of research and higher education cripples AIS
- Incentives are necessary to retain staff
- Massive campaigns to develop human capital have been successful

Priorities for Modernizing Ag Education:

1. Generate political support
2. Integrate education into AIS by improving institutional and market linkages
3. Rebalance enrollment away from secondary/vocational training toward degree and postgrad levels
4. Curriculum should emphasize: analytical skills, problem solving, agribusiness processes, post-harvest technologies, and soft skills. Spark interest by rebranding with more appealing terms and educate public on range of career options in ag.
5. Expand MSc programs and incentivize staff retention
6. Proactively manage finances
7. Improve gender balance

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

The World Bank. Implementation Completion and Results Report: Ethiopia Agricultural Research & Training Project. December 20, 2007.

AET Institution:

Ethiopian Institute of Agricultural Research
Haramaya University

Impact summary:**1) Who has invested in this African AET?**

World Bank

2) How much did they invest and over what time period?

\$44.4 million; 1999-2007

3) What impact studies have been conducted?

World Bank completion report

4) How was impact measured?

The report used evidence from project documents, team field interviews, and field-level research observations to supplement weak project M&E data.

Indicators defined by the project included:

- Accelerated generation, identification, testing, release and transfer to the extension services of improved technologies in crop, livestock and tree production, and natural resource management.
- Client-centered, demand driven collaborative process for identifying, prioritizing, implementing and evaluating research programs established and managed at various levels
- Human resource capacity in technology development and transfer substantially improved.

5) What impact was achieved?

- It is likely that ARTP contributed to the number and type of released crop varieties. Over 2000-05, the crop varieties released were about 2 to 5 fold the numbers released in the previous decades (but causality cannot be proven.)
- ARTP has contributed to initiating and strengthening Biotechnology research
- ARTP has helped to establish 159 farmer research groups, with participation of 2831 farmers
- Trained 465 research staff; half of those trained abroad (South Africa, India, Thailand) but all completed Even if doing their course work overseas, most of these students completed thesis research at home institutions in Ethiopia. Over 88% of trainees completed their study.
- Trained 50 teaching staff from Haramaya University at MSc and PhD level abroad (with an estimated attrition rate of only 5 percent).
- Teaching facilities, classrooms, dormitories, a library, a resource center, a clinic, and related construction was build to strengthen the teaching facilities of Haramaya University.

- Actual data for local short-term local training is not available but it is estimated that about 4,000 employees have benefited from ARTP.
- New teaching facilities have been opened and Ph.D. training programs initiated.
- EIAR has developed linkages with 43 International Foundations and Institutions and Universities. These included long-term training for 4 PhD and 11 MSc studies and physical resource development (vehicles, office equipment and financing of operational expenses) of the research extension linkages divisions

6) What do these results imply for future efforts at AET capacity building in Africa?

- Emphasis should be placed on institutional structure for sustainable improvements in the overall agricultural research system rather than physical aspects
- Projects should develop a larger scope for non-state actors
- Using “South-south” collaboration in human resource development can be very relevant, effective and efficient.
- The relationship between the federal system and regional agricultural research systems needs to be carefully worked out and nurtured.
- Well-designed Competitive Grants can successfully mobilize additional national capacity and resources. However, such a mechanism should be prepared up-front to avoid delays in implementation and be managed by an independent entity limiting possible conflicts of interest.

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

The World Bank. Implementation Completion and Results Report: Ghana Agricultural Services Subsector Investment Project . November 30, 2007.

AET Institution:

Ministry of Food and Agriculture (MOFA)
Council for Scientific and Industrial Research (CSIR)

Impact summary:

1) Who has invested in this African AET?

World Bank, European Union (EU), Canadian International Development Agency (CIDA), Government of Ghana

2) How much did they invest and over what time period?

\$50.9 million; 2001-2007

(\$4.67 million for Component IV. Strengthening Agricultural Education and Training)

3) What impact studies have been conducted?

World Bank completion report

4) How was impact measured?

Intermediate outcome indicators included:

- Agricultural Education Policy review
- Curricula of agricultural colleges and farm institutes revised and improved to cater to needs of private sector
- Infrastructure of agricultural colleges and farm institutes rehabilitated

5) What impact was achieved?

- Increase in female enrollment from 10% in 2004 to 27% in 2006
- Provided resources for training and upgrading of the skills of 2,496 instructors, from which 1,815 were enrolled in short courses, 306 received diplomas, 241 graduated as BSc. and 134 with Masters Degrees.
- The Cooperative College trained 1,300 farmers as Farmer Business Organization executives, using curriculum developed for adults with little classroom experience, aimed toward networking, group dynamics, lobbying, and technical skills
- Reviewed and revised curriculum for diploma programs in farm institutes and technical colleges

6) What do these results imply for future efforts at AET capacity building in Africa?

- Institutional and policy reforms should not be folded into investment operations
- The first phase of institutional reform programs should not be less than 5 years

Literature Review Template

Impact of Past AET Institution Building in Africa

Document citation:

The World Bank. Implementation Status & Results Report: Cameroon Education Development Capacity Building Project. September 9, 2012.

AET Institution:

Ministry of Basic Education, Ministry of Higher Education, Ministry of Secondary Education

Impact summary:

1) Who has invested in this African AET?

World Bank; Government of Cameroon

2) How much did they invest and over what time period?

\$22 million; 2005-2012

3) What impact studies have been conducted?

None (World Bank status update report used – full completion report not published as of 8/15/12)

4) How was impact measured?

Indicators included:

- Preparation of budgets at the primary, secondary and higher levels of the education system based on statistical analysis
- Beneficiary participation in school functioning and school accountability
- Regularly updated documentation used to support the development of the sector
- Production of updated action plans for the education sector strategy
- Production of tools that facilitate knowledge exchanges and participation in the international dialogue on education (CITI and GDLN)
- Institutional audits prepared; results widely disseminated