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Taking a systems approach to agricultural education, research and extension: Analysis of the extension role and the Practical Attachment Program of Mekelle University, Ethiopia

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Abstract

The capacity to benefit from knowledge depends on the ability to acquire and apply existing knowledge and the ability to produce new knowledge. Agricultural education is central to the building of this capacity for the production, dissemination, and utilisation of knowledge. In Ethiopia, higher education is undergoing a major expansion and reform in light of its contribution to capacity building and development. This paper discusses the extension role of higher education in Ethiopia with reference to Mekelle University. The main focus of the paper is the Practical Attachment Program (PAP) of the university. The development effect of the university will be enhanced when its education, research and extension functions are integrated and developing organically. However, presently, extension is not a well articulated function of the university. While significant attention has been given to research, provisions for fully integrating extension within the research process have been inadequate. The paper examines efforts at Mekelle University in putting knowledge into use and identifies gaps in its knowledge transformation and management. The paper observes that improving the knowledge environment within the university requires the adoption of an effective academic reward structure and developing staff research-orientation and knowledge sharing culture.

Keywords: Teaching, research, extension, PAP, Tigray, Ethiopia.

Introduction

During the last decades, the policies of Ethiopia have drastically changed, and the Government has made enormous efforts to enhance the role of higher education in development. This paper discusses the extension role of higher education in Ethiopia with reference to Mekelle University. The changing role of higher education in Ethiopia, as well as insight from international experience, provides the motivation to examine the ways of organizing knowledge flows at Mekelle University and the activities of its faculty members and students. The authors analyze efforts at Mekelle University in generating, transforming and disseminating knowledge for local development from a knowledge systems perspective. The material presented in this paper is drawn primarily from key informant interviews, literature review, observations and personal experience of the corresponding author gained while working at the university, and the arguments here may be generalised for any higher education institution in Ethiopia.

The systems approach to agricultural knowledge

The role of agriculture has changed through time and continues to change. Today our conception of agriculture focuses increasingly on integrated agricultural systems. A systems approach to agricultural knowledge helps understand the complexity inherent in the knowledge process since it addresses the linkages among a multitude of actors, the performance of their relationships, and the social and institutional boundaries involved. The systems approach acknowledges the multiplicity of actors in the knowledge process, each playing one or more often overlapping tasks with functional interdependency (MCDERMOTT 1987). FAO and the WORLD BANK (2000)

developed a basic guiding framework for conceptualizing and developing agricultural knowledge systems for rural development¹. As is valid for the analysis of inter-system interactions, the guiding framework can also be used to analyze interaction of functions within sub-systems. Thus, the extent and nature of integration between education, research and extension at Mekelle University can be analyzed using this framework.

Emerging learning systems in higher education

In recent decades, the global perspective on higher education has changed, posing new challenges for higher education in the 21st century. Higher learning institutions are facing growing pressure to produce a new breed of professionals with new thinking and competence for facilitating sustainable development. Learning for transformation through systemic and critical learning for sustainable development has thus increasingly become crucial for higher education institutions (BAWDEN 1989; ISON 1990; JIGGINS and RÖLING 1994; TAYLOR and FRANSMAN 2004; STACKPOOL-MOORE et al. 2006). An illustrative case was the Hawkesbury Agricultural College in Australia. BAWDEN (1996) showed that the essence of reforms at Hawkesbury was in four key areas: 1) vision, mission and strategic management; 2) role and linkages within society; 3) organizational structure; and 4) curriculum. These features are reflected in the 20-Years Strategic Plan of Mekelle University. Another example is the German apprenticeship model which involves on-the-job training coupled with in-class support for students before they directly enter the workforce. This dual learning system is often seen as a model for an improved school-to-work transition (GITTER and SCHEUER 1997) and is currently being explored in many countries. The PAP of the Mekelle University is along this learning paradigm.

Results and discussion

Unlike research, extension is not acknowledged in higher education

In Ethiopia the research role of higher education is well established and recognized by the national agricultural research system. This is why the Mekelle University adopted policies and guidelines establishing research as its legitimate activity and emphasizing research and publication objectives. However, extension is the weak link at the university because of a lack of an equally deep recognition of the extension role of higher education by the national extension system.

The research guidelines and policies of the Mekelle University have given inadequate emphasis to extension functions in practical terms. The organizational structure of research at the university did not incorporate the PAP which provides a crucial link between education, research and extension within the university, as well as between the university and its stakeholders. This internal and external connectivity is vital in enhancing the development effect of the university. Yet little attention has so far been given to the actual transformation, dissemination and utilization of research results. While information has been available in documents and databases, there have been inadequate process documentation and synthesis of results and experiences from research and development projects and less effort to transform and disseminate usable knowledge. The strategic plan of the university has already identified this gap in knowledge transformation and utilization: *‘Though different types of research have been done at Mekelle University, there is poor utilization of available methods of disseminating research results’* (MEKELLE UNIVERSITY 2003).

¹ For further information, see the FAO/ World Bank Strategic Vision and Guiding Principles for Agricultural Knowledge and Information Systems for Rural Development at <http://www.fao.org/sd/EXdirect/EXre0027.htm>.

Compared to teaching and research, extension is less rewarding

An appropriate incentive system is key to developing staff research orientation and knowledge sharing culture. Distortions in incentive systems will be detrimental to the behavior and attitudinal norms of faculty members in performing their public services (GERBER 1994; MCDOWELL 2001; LADEBO 2003). At present, the high value given to teaching performance for horizontal promotion provides less motivation for academic staff to engage more in research and extension. Vertical promotion is based on scientific publications in peer reviewed journals, and inadequate attention is given to community services and publications such as extension manuals and newsletters. This type of promotion criteria does not provide strong incentive for academic staff to consider the utilization of their research results. While scientific publication is important, it is most urgent that academic staff hold an ideology of serving the farming community with orientation to seeing the usability of their research results. This requires the adoption of policies and actions that encourage and reward the execution of research and the dissemination of its results useful to society. This may involve changing the notion of research and publication, encompassing a broader understanding of learning as a process of knowledge creation and application, and including local relevance in the evaluation criteria for promotion and scholarship awards for faculty members.

The PAP: A critical link between teaching, research and extension at Mekelle University

The education system of Ethiopia has been criticized for being too theoretical, having too little emphasis on practicum, and for not inspiring creativity and giving sufficient skills to students. To address this situation, the Mekelle University designed a practical education program known as the Practical Attachment Program (PAP) with financial support from the Norwegian government. The program aims to enable students to gain a practical understanding of the realities of the farming community and to develop practical experience through exposure to research, development and extension activities in rural areas. The program was initially for six months, but was reduced to four, and then to three months since it was difficult to accommodate the four-year program of students.

Key aspects of the program are the exit and re-entry workshops. The exit workshop is held before the field attachment in order to introduce students and host organizations to the objectives and organisation of the program. In this workshop, host organizations present the context of their working area and the Terms of Reference for students, which are then discussed and refined to accommodate the interests of both students and host organizations. The exit workshop is an important forum for students, host organizations and university staff to develop a common understanding about the program and express commitment to its successful implementation.

Faculty members provide assistance to students in planning their fieldwork, visit them during the fieldwork, and guide them through writing and presenting their reports after the fieldwork. Host supervisors are identified to assist faculty members with the monitoring and supervision of students in the field. However, the extent to which this is adequately performed varies depending on the availability and motivation of host resource persons. The method of field supervision that faculty members employ is group supervision where lecturers from the departments of the Faculty of Dryland Agriculture and Natural Resources form a supervision team and visit students in the field. This system of supervision provides opportunity for collective learning and enables the supervision team to assist students from different disciplinary perspectives as the team interacts with one another and sees field problems from different perspectives. During the field supervision, students present their work to the supervision team, reflect on their work experience and challenges, and discuss future plans and the organization of their reports. The supervision team also meets with host institutions to discuss their observations. After the fieldwork, students

write reports under the supervision of faculty members and give oral presentations about their findings and experiences at a re-entry workshop. The re-entry workshop is attended by students, university staff and host organizations. In this workshop, representatives of host organizations highlight their observations, provide feedback and suggestions for future improvement of the program.

Problems and challenges facing the program

The PAP has gone through several learning cycles and has its own problems and challenges. The main problems include: poor preparation of students for the fieldwork; generality of the Terms of Reference; limited understanding of host organizations about the objectives of the program; discontinuity of the exit and re-entry workshops due to budgetary constraints; difficulty of getting adequate host organizations and providing adequate supervision for students; late and inadequate field supervision; lack of team work of students; poor quality of reports (no standard criteria or assessment form for reports); and no year books on abstracts of practical attachment reports. The main problem is the lack of continuity of experience in the organization of the program due to the discontinuity in the coordination staff for aboard training, making it difficult to maintain the continuity of the knowledge and experience gained and the contacts established with host institutions.

To address some of these problems, the university is taking actions to strengthen its working relationship with the private sector and NGOs and to develop mechanisms to obtain feedback from its graduates and host organizations. The university makes efforts to make use of visiting instructors from NGOs and the private sector to get more host institutions and field supervisors. Another advantage of this is that prospective graduates will have a higher possibility for entry into the job market. The university is also exploring the possibility of placing students in their home village in groups to reduce budgetary constraints and the lack of adequate host organizations and to promote collective learning.

Lessons learned

Several lessons have been learned from the analysis of the PAP of Mekelle University that could be useful to other higher education institutions in Ethiopia, planning to establish practical education programs.

Changing attitudes. The PAP provides a platform for challenging the intellectual superiority of faculty and students. Having accepted their relative ignorance, faculty and students have learned from local communities and understood their realities. They have learned the needs and demands of local communities and the importance of understanding local knowledge and working with local communities.

Improved theory-practice link. The PAP helps the university understand problems facing rural communities as an input into curriculum development and project design. The university articulates education and work through consulting various stakeholders about a set of skills and attitudes which prospective graduates would need in the work environment. The re-entry workshop provides a unique opportunity for the university to interact with stakeholders and students and to obtain their input into curriculum development and revision. At the re-entry workshop, host organizations identify the weaknesses and strengths of students focusing on local development problems and make suggestions for curriculum review, emphasizing on specific knowledge, skills and attitudes, thus helping the university keep the curricula dynamic and relevant. Their comments and suggestions are incorporated into the curriculum review process.

Social consensus and commitment. Promotion and acknowledgement of participation are crucial for the success of the PAP. The exit and re-entry workshops play a key role in building social consensus about the program. Moreover, the PAP coordination office puts enormous effort in promoting the goals and objectives of the program in order to gain the interest of stakeholders through distributing information materials. When students are on their summer vacation, they are encouraged to visit and provide host institutions with information materials describing the objectives of the program and requesting them to support the program by offering places for students and supervising their field activities. The efforts made to promote the program with regard to its long-term benefit of a better qualified employment pool helps the university gain continued support from NGOs and the private sector to host students and supervise their field activities. On the occasion of graduation, the university acknowledges the participation of host institutions by giving certificates and requests their continued support. Looking outwardly, the university makes efforts in disseminating its experience within the higher education system, leading the Ministry of Education to decide to institutionalize the program into the higher education system and to support the program financially.

Monitoring and evaluation. Process documentation and systematic analysis of experiences and lessons are key to improving the program. Instituting credible systems for monitoring, evaluation, follow-up and getting feedback from graduates and employers are important for improving the program's sustainable performance. Monthly reports of students, evaluation reports of faculty and host supervisors, and re-entry workshops are the main means of monitoring and evaluating program performance and offering suggestions for improvement. Feedback from graduates and employers have witnessed the overall effect of the program on work performance. Learning from its experience and striving to improve its relevance, the university realizes the need to develop mechanisms for sharing experiences and influencing the private sector and the government about the potential benefits of the program. The university also realizes that linkage with industry is key to developing curricula that enable prospective graduates to become critical thinkers and reflective practitioners and better prepare them for the job market.

Incentive and reward system. Motivation and commitment are crucial for stimulating the knowledge process within the university and between the university and its stakeholders. Acknowledging the contribution of host supervisors in terms of guest lectures and certificates of appreciation have helped the university gain continued support from host institutions.

Conclusion and recommendations

The development effect of the university will be enhanced when its education, research and extension functions are developing organically and have a common purpose. Research results need to be translated into knowledge that can be further developed to improve agricultural production and to solve pressing societal problems. The PAP is an important service to society and provides social continuity for the university, putting it in touch with rural communities and stakeholders. Student reports are useful input into defining researchable problems and priorities for the university. Thus, transforming and using student reports must be a major concern of the university, and this requires strengthening the extension role of the university by adopting an integrated approach to teaching, research and extension and by clearly defining it in the policies of the university and in the responsibilities of faculty members. More importantly, the extension role of higher education should be acknowledged and supported by the national extension system.

Presently, the PAP is not exclusively an integral part of the research and extension functions of the university. Until recently, student supervision has not been considered for staff promotion or reported as a staff load. Thus, the PAP should be well integrated into the teaching, research and extension functions of the university with a strong knowledge management system. The

geographic coverage of the program has increased over time, making supervision of students and coordination of the program more difficult. With the discontinuity of the exit and re-entry workshops due to budgetary constraints and the growing number of students, promoting the program and creating linkages with a range of development agencies and the private sector throughout the country becomes more important. This requires a new form of arrangement for the organization, implementation, evaluation and funding of the program and providing appropriate incentives for faculty and host organizations to improve program performance. Within the university, improving the knowledge environment requires the adoption of an effective academic reward structure of research and scholarship.

References

- BAWDEN, R. 1989: Towards action researching systems. A post conference submission for the Proceedings of the First International Action Research Symposium at Bardonia, Queensland 20-23 March, 1989.
- BAWDEN, R. 1996: A learning approach to sustainable agriculture and rural development: Reflections from Hawkesbury. Available at <http://www.fao.org/sd/EXdirect/EXan0010.htm>. Accessed on 24.04.2006.
- FAO/World Bank 2000: Agricultural Knowledge and Information Systems for Rural Development (AKIS/RD): Strategic vision and guiding principles. FAO, Rome and the World Bank, Washington, D. C.
- GERBER, John M. 1994: Integrating Research and Extension Education in the Agricultural Sciences: Models, Paradigms and the New Organization. Available at <http://www.umass.edu/umext/jgerber/entoappr.htm>. Accessed on 24.02.2006.
- GITTER, Robert J. and SCHEUER, M. 1997: U.S and German youths: unemployment and the transition from school to work. *Monthly Labour Review*, March 1997, 16-20. Available at <http://www.bls.gov/opub/mlr/1997/03/art3full.pdf>.
- JIGGINS, J. and RÖLING, N. 1994: Systems thinking and participatory research and extension skills: Can these be taught in the classroom? *Occasional Papers in Rural Extension* No. 10, Department of Rural Extension Studies, University of Guelph.
- ISON, R. L. 1990 : Teaching threatens sustainable agriculture. *Gatekeeper Series* No. 21, IIED.
- LADEBO, O. J. 2003: Attitudes toward research and teaching at some Nigerian agricultural university institutions. In: *The Journal of Agricultural Education and Extension*, 9(2): 83-91.
- MCDERMOTT, J. K. 1987: Making extension effective: The role of extension/research linkages. In: W. M. RIVERA and S. G. SCHRAM (Eds.), *Agricultural Extension Worldwide: Issues, Practices and Emerging Priorities*. NY: Croom Helm, pp. 89-99.
- MCDOWELL, George R. 2001: *Land-Grant Universities and Extension into the 21st century: Renegotiating or Abandoning a Social Contract*. Ames: Iowa State University Press.
- MEKELLE UNIVERSITY 2003: *Mekelle University 20-Years Strategic Plan*. Mekelle.
- STACKPOOL-MOORE, L., TAYLOR, P., Pettit, J. and MILLICAN, J. 2006: *Currents of change: Exploring relationships between teaching, learning and development*. IDS, Brighton.
- TAYLOR, P. and FRANSMAN, J. 2004: *Learning and Teaching Participation: Exploring the role of higher learning institutions as agents of development and social change*. IDS Working Paper 219, Brighton.