

Learning from the Past, Looking to the Future:

Noragric/NLH's partnerships with universities in Africa

By

Joanna A.A. Boddens-Hosang (Ed.)

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Noragric, Centre for International Environment and Development Studies
Agricultural University of Norway (NLH)
P.O. Box 5003
N-1432 Ås
Norway
Tel.: +47 64 94 99 50
Fax: +47 64 94 07 60
Internet: <http://www.nlh.no/noragric>

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INTRODUCTION

Ruth Haug¹

Universities, especially agricultural universities in developing countries, have been criticized for being too academic and remote from the practical needs of society. Graduates are not provided with the knowledge and skills needed by rural communities, agricultural businesses and producers. And yet universities play a critical role in contributing to sustainable development: future leaders are today's students who are expected to find solutions to increasing problems facing society, particularly in the tropics: poverty, food insecurity, population growth, and environmental degradation.

Noragric has long institutional collaboration with some 30-40 partners in Africa, Asia, Latin America and Eastern Europe, most of which are with universities. The programmes include joint research and education activities as well as support to institutional development. In Africa, examples of long-standing academic cooperation are with Sokoine University (Tanzania), Bunda College of Agriculture (Malawi), Makerere University (Uganda), Asmara University (Eritrea), and Mekelle and Debub universities (Ethiopia). In some cases, as with Sokoine University, the collaboration with NLH began 30 years ago. With NORAD as the main funder, and thus following their policy towards higher education in Africa, the partnership with NLH was focused mostly on capacity building – later shifting more towards applied research, in line with poverty reduction strategies.

Over the course of 30 years much has changed in all partner countries. The role and impact of higher education in Africa has undergone alterations due to, among others, social and economic factors. Besides these internal factors, external factors also enter into the picture: globalisation, accountability, transformation of the world economy, social movements, conflicts and peace-keeping, citizenship, rights, the role of consumers, genetic engineering, food sovereignty, etc. The world is ever-changing and a 30-year span amounts to a generation in terms of human life. What the current generation must face is very different from what their parents faced 30 years or more ago.

Within this context, it is opportune to stand still for a moment and reflect on where our partnerships have brought both the partner institute and us, Noragric/NLH, at this point in time. We should look back and critically ask ourselves some questions:

- Has the educational collaboration with Norwegian support to African universities been relevant? And is it still relevant today?
- Have we been able to facilitate in making higher education in Africa more pertinent to young people in order to meet the needs of their societies?
- Have we been able to create sustainable and innovative partnerships and, if so, what are the factors for success? And have we linked sufficiently to other initiatives?
- How can we contribute to the changes required in higher agricultural education in Africa in order for graduates to leave and be able to contribute to the overall goals of poverty reduction, social cohesion, and environmental sustainability?

¹ Director, Centre for International Environment and Development Studies (Noragric), Agricultural University of Norway (NLH).

These, and many more, questions are addressed in this paper as Noragric's experience in institutional cooperation with the above-mentioned universities is highlighted. The authors of the chapters have been involved with the respective universities over a long period of time and are well qualified to (critically) review the partnerships.

Political will, nationally and internationally, is needed to initiate and implement structural changes. But academic institutions have the responsibility to educate tomorrow's leaders to become the well-equipped citizens society requires to implement the changes needed.

CHAPTER 1. NEEDS FOR ENTREPRENEURIAL EDUCATION IN AGRICULTURE

Kjell Esser²

Education received high priority in African countries following independence. 'Africanization' of both curriculum and staff became a fundamental objective for the universities in the new states. Universities were given the role of 'development institutions' with a responsibility to undertake locally relevant research and participate directly in rural development (Girdwood, 1995).

In the early days of African liberation, UNESCO (1963) described the role of higher education in Africa as follows:

1. To maintain adherence and loyalty to world academic standards
2. To ensure the unification of Africa
3. To encourage elucidation of and appreciation for African culture and heritage and to dispel misconceptions of Africa, through research and teaching of African studies
4. To develop completely the human resources for meeting manpower needs
5. To train the 'whole man' for nation building
6. To evolve over the years a truly African pattern of higher learning dedicated to Africa and its people, yet promoting a bond of kinship to the larger human society.

In the 1960's and 1970's, African countries received a high social rate of return from higher education (Maliyamkono, Ishumi and Wells, 1982). Later assessments of the impacts of higher education appear, however, to be more critical. Expectations regarding the contribution of universities in the economic development were unrealistically high. Disappointment followed. According to Domatob (1998), Sub-Saharan African higher education presently faces a grave crisis. The problems are fundamental and complex. For many universities, the increase in funding has been significantly lower than the increase in enrollment (Eisemon and Kourouma, 1991). Overcrowding of student facilities seriously affects health and academic performance of students. Low salaries among academic staff lead to dual employment and little effort devoted to teaching and research (Godonoo, 1998). With an estimated exodus of professionals from Africa to industrialized countries in the order of 100,000 in the 1980's alone, much of what was gained in terms of education has been lost. During the 1990's, the difficult situation has been compounded by the tragedy of the HIV/AIDS epidemic.

1.1. NEEDS FOR A NEW DIRECTION

The roles of African universities stated above were based on the elitist tradition of British universities emphasizing intellectual growth and personal development among students as well as supplying government institutions with trained manpower. The universities may have done well in their contribution to state building. Their impact on national value creation and economic growth appears, however, to have been less prominent. The near automatic hiring of most graduates by the state administration in African countries for the last 40 years has led to weak links between universities and the private sector. Relatively little university

² Associate Professor, Centre for International Environment and Development Studies (Noragric), Agricultural University of Norway (NLH).

knowledge has, therefore, contributed directly to the production of commodities and value added. To a large extent, the private sector has lost its opportunity to achieve technological improvement. A redirection of universities towards (1) the needs of local communities, (2) applicable knowledge, and 3) economic growth, may improve their role as 'economic development institutions'. Saint (1992) stressed that liberal arts education for public service in Africa needs to yield to science, engineering and business management to support the private sector and facilitate self-employment. According to Ajayi, Goma and Johnson (1996), African universities should *"promote a culture of science-inspired creativity and technology innovations linked to the entrepreneurial enterprise"* in order to contribute to economic growth. Investments in education must be turned into profit for individuals and society. If not, education will remain a burden on taxpayers, and universities will remain underfinanced.

The economic growth in parts of Asia during the last 50 years can, to a large extent, be attributed to education policies. For instance, from 1960 to 1990, the gross domestic product in the Republic of Korea rose sevenfold, while it remained constant in Ghana. A comparison of tertiary education policies in the two countries illustrates some of the differences (World Bank, 2002):

<i>Country</i>	<i>% of eligible popul. enrolled in tert. inst. from 1960 to 2000</i>	<i>% of students enrolled in private tertiary inst. in 2000</i>	<i>Public spending per student from 1990 to 2000</i>	<i>Links between universities and industry</i>
Rep. Korea	5 % to 80 %	85 %	\$ 2700 to \$4500	Actively promoted by government
Ghana	Less than 2 % throughout	6 %	\$ 1200 to \$850	Relatively uncommon

The comparison between the Republic of Korea and Ghana suggest that two factors have contributed significantly to the economic growth in Korea: 1) High spending on education and 2) Close link between industry and tertiary education.

In a meeting by heads of African universities convened in Mali a decade ago, a stronger link between universities and the production sector was identified as a major strategy to promote the use of available knowledge in food production to overcome food shortage. The curriculum taught at many agricultural universities in developing countries was found to be largely theoretical and insufficiently linked to practical farm production. Many of the teaching staff have an urban background and are inexperienced in practical agriculture. During the last decade, many agricultural universities have recognized the need to play a new role. They have increasingly been changing their curriculum to educate graduates for self-employment in the private sector.

1.2. COMBINING ENTREPRENEURIAL EDUCATION, INVESTMENTS AND GOVERNMENT SUPPORT

Entrepreneurial education alone may not lead to the expected results. Graduates with entrepreneurial skills may not find appropriate jobs, sufficient credit to start their own business, or a suitable business environment. Entrepreneurs in developing countries often face major obstacles due to bureaucratic and corrupt public agencies and service providers. To assure that the knowledge and skills of graduates are translated into value creation, links

between universities and business incubation facilities should be developed. Employees of relevant government agencies need to be constructively involved in the promotion of entrepreneurship by timely providing critical services to the private sector. All involved parties may benefit from a suggested triangular cooperation programme including government agencies and educational institutions outlined in Figure 1.

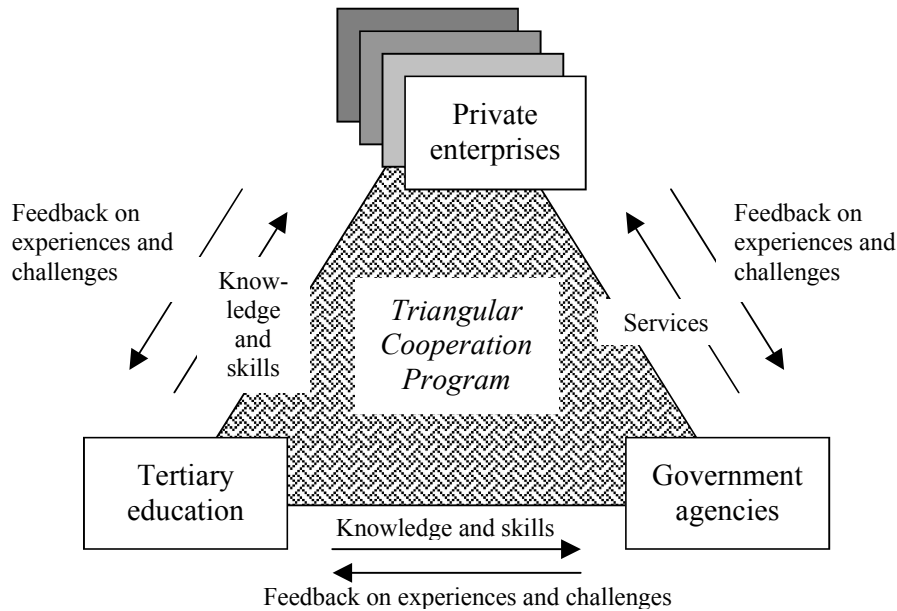


Figure 1. Suggested triangular cooperation programme to promote private enterprises.

Since private investors hesitate to invest in parts of Africa, direct credit assistance from donor agencies may be necessary in a transition period. Critics of spending aid money in the productive sector in Africa raise the questions: “If Northern aid is to be aimed more toward growth areas and private enterprise, how will poor people exposed to natural calamities be helped”? (rephrased from Timberlake (1985), “Africa in crisis”, p. 202). Considering the recent rapid poverty reduction in Asia and globalization of the world economy, we should also ask: “If foreign investments in developing countries are directed only toward Asia, how will Africa obtain economical growth”?

1.3. OPPORTUNITIES FOR SKILLS AND KNOWLEDGE IN A GLOBAL MARKET

A global agricultural market will bring new opportunities to Africa. To meet the demand from the world market for high quality products will require that production is managed by highly educated and skillful people. Many agricultural universities in Africa are therefore redesigning their educational programmes. Learning from other universities and from foreign markets can be useful inputs to this process.

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CHAPTER 2. THE COLLABORATION BETWEEN THE AGRICULTURAL UNIVERSITY OF NORWAY (NLH) AND SOKOINE UNIVERSITY OF AGRICULTURE (SUA)

Fred Haakon Johnsen³

2.1. INTRODUCTION

The present section explores the cooperation between the Agricultural University of Norway (NLH) and Sokoine University of Agriculture (SUA). SUA, which was established in 1984 from the former Faculty of Agriculture of the University of Dar-Es-Salaam, is Tanzania's leading institution in higher agricultural learning and research. It is situated in Morogoro, a town along the main road from Dar-Es-Salaam towards Zambia, about 200 km west of Dar-Es-Salaam.

This section first highlights the history of the collaboration between the two institutions. Then a brief analysis is presented on how the collaboration has changed over time and what has prompted these changes. Finally, there is a presentation of a few lessons learned so far.

2.2. THIRTY YEARS OF SUA-NLH COOPERATION

The collaboration between the two universities started in 1973, when the Norwegian Government decided to support the establishment of a BSc forestry degree programme in Tanzania (Abeli and Bryceson 1999). The programme was established at the Faculty of Agriculture in Morogoro, at that time still under the University of Dar-Es-Salaam. A memorandum of understanding was signed between the Division of Forestry (later Faculty of Forestry at SUA) and the Department of Forest Sciences at NLH to give the degree programme technical support.

During the following years, similar cooperation agreements were entered into between the Department of Animal Science and Production at SUA and the Department of Animal Science at NLH, between the Department of Soil Science at SUA and the Department of Soil and Water Sciences at NLH, and between the Institute of Continuing Education at SUA and Noragric at NLH. Collaboration included joint teaching, supervision and examination of students, joint research and publications, joint workshops, joint preparation of teaching materials, and joint curriculum development. Several SUA staff members went to NLH for MSc and PhD training, and a good number of NLH scientists were involved in MSc and PhD training at SUA.

The four co-operation links mentioned above had four separate agreements. This changed, however, in 1996, when an overall SUA/NLH agreement was signed to replace the four agreements between units at SUA and units at NLH. After an internal review of the cooperation (Abeli and Johnsen 2001) SUA and NLH entered into a new cooperation agreement for a second 5-year period in November 2001. This agreement, however, came to last for little more than a year.

³ Associate Professor, Centre for International Environment and Development Studies (Noragric), Agricultural University of Norway (NLH).

While SUA has its Faculty of Veterinary Sciences, NLH does not. Instead, Norway has a separate institution for veterinary science, the Norwegian School of Veterinary Science (NVH). A co-operation agreement between SUA and NVH was signed in 1999, but not much activity took place under that agreement. An effort to merge the two agreements was initiated, and a joint cooperation agreement between SUA, NLH and NVH that nullifies the two former agreements was signed in January 2003.

The impact of the cooperation over the past 30 years is substantial, and it is difficult to imagine what the two institutions would have looked like without it. It is a fact that the cooperation has had a major role in the impressive enhancement of scientific capacity at SUA, in terms of e.g. the increase in number of PhD holders. The impact can also be seen at NLH, since the experience that NLH researchers have achieved through the cooperation has contributed greatly to developing NLH to an institution that is capable of applying several of its disciplines to tropical conditions as well as addressing development issues at large.

2.3. CHANGES IN THE COLLABORATION – AND THE FORCES BEHIND THEM

There are many changes and developments in the SUA-NLH cooperation that could be mentioned. In this paper, however, only three relatively recent developments that seem particularly significant will be discussed:

- The change from collaboration at faculty/department level to collaboration at university level
- The change in perspectives from capacity building at SUA towards cooperation for mutual interest of both institutions
- The change in emphasis from MSc and PhD training towards joint research.

From an organisational and management point of view, the most important change in the history of collaboration took place in 1996, when four parallel cooperation agreements at department/faculty level were replaced by one agreement at university level. This change was not prompted by new thinking within the two universities, but rather by a policy change within NORAD. Until 1996 NORAD's support to SUA had been a department/faculty-wise support to specific projects and programmes. From 1996, the support was granted to the university as such, based on activity plans that were agreed between NORAD and SUA. In the agreement signed between NORAD and SUA, it was stipulated that SUA would enter into a formal institutional cooperation with NLH, and this was the basis for the agreement between SUA and NLH that nullified the four earlier agreements. This change was in accordance with more general policy changes in NORAD at that time, moving from specific project support to wider programme support and towards more recipient responsibility. In addition, two developments at SUA may also have contributed to the change. Firstly, the management capacity of SUA's financial administration had increased, enabling SUA to manage and administer funds more efficiently. Secondly, it was observed that units within SUA with NORAD funded programmes had increased their capacities substantially over time, while other units that did not have NORAD funded programmes nor other strong donor funding were lagging behind. From this observation, it was questioned whether it made sense to continue using most of the NORAD funds to support those units within SUA that were already considered to be better off.

Changes in the content of the collaboration are even more important than changes in the administrative set-up. During most of the 30 years that the collaboration has been ongoing,

the main emphasis has been capacity building at SUA. The most important activity during all this time was to train SUA staff to MSc and PhD level, an activity that took place partly in Norway and partly in Tanzania. In the mid 1990s, SUA had reached a stage where it was at similar academic level as NLH based on indicators like percentage of scientific staff with PhD. Though there was still need for competence building in some of the departments at SUA, the objectives of the cooperation had to be re-defined. This was reflected in the cooperation agreements from 2001 and 2003, where competence building on both sides is emphasised rather than a one-sided competence building at SUA. That is, SUA still needs competence building through cooperation with institutions abroad for some departments and disciplines, while NLH needs the contact with an advanced agricultural university in Africa in order to build its competence within tropical agriculture and rural development in low-income countries. Besides, any university would stagnate in the long run if it didn't have international contacts, and the good contacts already built up between SUA scientists and NLH scientists was a good foundation for further collaboration. This change in perspectives came as a result of a common understanding that SUA had developed into a mature university.

From the start of the NLH – SUA cooperation the main activity was training; in the infancy mainly BSc in forestry, but later emphasising MSc and PhD degrees. In the 1990's this emphasis led to a gradual decline in the volume of cooperation, mainly because the earlier set goals of the cooperation related to capacity building at SUA had been achieved. This picture changed dramatically in year 2000 with the launching of the NORAD-funded programme 'Food security and household income for smallholder farmers in Tanzania: applied research with emphasis on women'. The programme is also known under the acronym TARP II – SUA (TARP II is an abbreviation for Tanzania Agricultural Research Project Phase II). The programme is executed by SUA in collaboration with the Tanzanian Ministry of Agriculture and Food Security (MAFS) including its research stations in the Southern Highlands and Eastern Zones of Tanzania. Twenty-one researchers from NLH, NVH and the Norwegian Crop Research Institute participate in 18 research projects within the programme, and this participation is coordinated by Noragric at NLH. The research projects include most disciplines under agricultural sciences, like soil science, crop science, animal science, veterinary science and agricultural economics, and are generally oriented towards on-farm research. The change in emphasis from training towards applied research was partly due to a common understanding that the goals related to capacity building at SUA had been achieved, but also due to a commitment by NORAD to support research that could help in alleviating poverty.

2.4. LESSONS LEARNED

Firstly, it has proved useful to separate the general agreement expressing the intention to cooperate from the actual projects and programmes instead of mixing everything into one document like it used to be in the past. While projects and programmes have to adjust to changing needs as well as to donor priorities, the intention to cooperate is more fundamental in nature. For the time being, the cooperation between SUA and NLH is regulated by the following agreements and contracts:

- A general cooperation agreement between SUA, NLH and NVH expressing the commitment to cooperate, outlining the overall rationale and direction and giving details on the steering mechanisms of the cooperation. This agreement does not mention any specific programmes or projects and has no details on funding, only a general statement that all parties are responsible for seeking funding for collaborative activities.

- A contract between SUA and NLH on the participation in the TARP II – SUA programme, including the participation of NVH and Norwegian Crop Research Institute in addition to NLH. This contract has a budget ceiling at almost 10 mill. NOK for the four years period 2000 - 2004
- A contract between SUA and NLH on the participation in the NORAD supported FOCAL programme (Future Opportunities and Challenges in Agricultural Learning), including the participation of NVH and NINA (Norwegian Institute for Nature Research) in addition to NLH. This contract has a volume of about 2 million NOK for the four-year period 2002-2006.
- Ad hoc contracts between units or individuals on both sides on joint consultancies. In 2002 there were two such contracts, one on a tender that Noragric at NLH and Forconsult at SUA won together on resource economic analysis of catchment forests, and another one on poverty reducing effect of agricultural development, an assignment given by NORAD where NLH was the lead institution and SUA personnel were sub-contracted.

Secondly, joint decision-making turns out to be crucial in building partnerships. In the earlier stages of the collaboration, NORAD funds for joint activities were passed through NLH, which left SUA without enough influence. This was dramatically changed from 1996, when NORAD started granting funds directly to SUA with only an unspecified obligation to cooperate with NLH. This arrangement left NLH with very little influence. According to an external evaluation made in 1998 the situation was such that NLH researchers ‘take on a role primarily as consultants and/or service providers, at the direct request of SUA partners’ (Christensen et al. 1998:8). Since that time important steps have been taken to rectify the situation by setting specific budget lines for cooperation to be managed by joint steering committees.

Thirdly, capacity building needed to be the priority for the collaboration in the early stages of the SUA-NLH cooperation, and is still the priority for NLH’s cooperation with many of its partner universities in Africa and Asia. In recent years, it is gratifying to note that SUA has matured into a university which is not only staffed with a high number of PhD holders, but which is also fully capable of giving PhD degrees in most of its core disciplines. In this situation, therefore, the priorities as well as the modes of operating collaboration had to change. It is the first time for NLH to experience that a partner university in a developing country reaches this stage; hence it is also the first time for NLH to go through such a transition in the cooperation with one of its partner universities.

2.5 SUMMARY

Sokoine University of Agriculture (SUA) is the leading institution in higher agricultural learning and research in Tanzania. The cooperation between the Agricultural University of Norway (NLH) and SUA has been in progress since 1973. The main impact of the collaboration has been capacity building on both sides. At SUA this is indicated by the increased number of PhD holders, and at NLH it is reflected in increased capacity within tropical and development issues.

Several changes have taken place during the long history of SUA/NLH cooperation. The most significant ones are:

- The change from collaboration at faculty/department level to collaboration at university level. This change was mainly prompted by a policy change in NORAD.

- The change in perspectives from capacity building at SUA towards cooperation for mutual interest of both institutions. This change came as a result of a common understanding that SUA has developed into a mature university.
- The change in emphasis from higher education through degree programmes towards joint research. This change was partly due to a common understanding that most of the goals related to capacity building at SUA had been achieved, but also due to a commitment by NORAD to support research that could help towards reducing poverty.

Lessons learned are expressed in three items. Firstly, it has proved useful to separate the general agreement expressing the intention to cooperate from the actual cooperative projects and programmes. Secondly, joint decision-making is crucial in building partnerships. Thirdly, while capacity building at SUA was the main objective during most of the history of cooperation, the development of SUA into a mature university requires new priorities and modes of operation for the NLH-SUA cooperation.

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CHAPTER 3. COLLABORATION WITH BUNDA COLLEGE OF AGRICULTURE, MALAWI, AND EXPERIENCES FROM THE SADC REGION

*Frik Sundstøl*⁴

3.1 BACKGROUND

Malawi was approved as a prioritised cooperating country by the Norwegian Parliament in 1996 (*Innst. S nr. 229*). In the budget for 1997, 30 million NOK was allocated for the country. When the current development cooperation between Malawi and Norway was planned in February 1997, agriculture (and institutional cooperation with NLH) was one of the prioritised areas for support. A Memorandum of Understanding between Malawi and Norway regarding cooperation for the promotion of economic and social development was signed in June 1997.

A fact-finding mission to Malawi (October/November 1997) reviewed the opportunities in the agricultural sector. One of the conclusions of this mission was that “Support to Bunda College of Agriculture should be initiated through a visit to Norway and the Agricultural University of Norway (NLH) as a first step in developing a long-term programme”. The visit of a delegation from Bunda College to NLH took place in June/July 1998 and an agreement between the Governments of Malawi and Norway regarding assistance to Bunda College of Agriculture Phase I (1998-2000) was signed 1 December 1998. The goal of the project was “improved, sustainable agricultural production and productivity among smallholder farmers”. The objective was “to improve performance in technical and institutional planning and in research, education and outreach service of Bunda College of Agriculture”. The budget for Phase I was NOK 5.6 million.

In June 2001 a new agreement between Malawi and Norway was signed for a period of five years (Phase II). The goal was the same as for Phase I, and in addition “to enable the College to play a significant role in the development of the country and to attract other sources of funding for its development programme”. The objectives of Phase II were to:

- Strengthen the macro-economic stability of Malawi by contributing to human resource development relevant to economic growth,
- Facilitate more participation of women in the economical and agricultural development of the country,
- Promote regional cooperation in research, academic development and exchange of experiences for mutual benefits.

The budget for Phase II was NOK 20 million.

3.2 ACHIEVEMENTS PHASE I

The main achievements from the cooperation between Bunda College of Agriculture (BCA) and the Agricultural University of Norway (NLH) during Phase I were:

⁴ Associate Professor, Centre for International Environment and Development Studies (Noragric), Agricultural University of Norway (NLH).

- Strategic Development Plan for BCA developed.
- Five-Year Operational Programme developed.
- Teaching assistance provided in Social Forestry
- Logistic support with scholarship arrangements, administration of funds and procurements.

3.3. ACHIEVEMENTS PHASE II

- Technical support for ICT network at Bunda College
- PhD student from Bunda (APRU) trained at NLH (Department of Economics and Social Sciences)
- Development of a Research Master plan
- Development of joint research projects
- Staff exchange visits

A separate research project on experiences from Blantyre City Fuelwood Project in Southern Malawi was carried out in cooperation with Bunda College of Agriculture in 2001-2002. (The results of the project have recently been published in a book called NKHALANGO! A Social Forestry Model, to be found under Publications on the Noragric website).

3.4. HAS NORAGRIC/NLH'S MODE OF COLLABORATION WITH BUNDA COLLEGE OF AGRICULTURE BEEN ABLE TO CHANGE ACCORDING TO CHANGES IN SOCIAL AND ECONOMIC CONDITIONS?

The possibility to influence the university policy in the South should not be overestimated. After all, the official Norwegian policy is that support shall be on the recipient's terms. The time span over which NLH has cooperated with Bunda College is probably not long enough to draw firm conclusions regarding changes. The first years of the cooperation has mainly been devoted to planning activities and strengthening of the infrastructure at the College.

In the 1970's the second-year students at Bunda College used to go out to work with the Extension Service. According to their own view, the College has since then struggled to improve the academic performance (Esser et al. 2003).

In 1998-1999, NLH (Dr. Ragnar Øygard) assisted Bunda College in the development of the Strategic Plan 2000–2004 (University of Malawi 1999). According to this plan, the objectives for research were:

- To conduct relevant and quality research that contributes to improvement in food security, sustainable utilisation of natural resources and economic development
- To generate and disseminate information and technologies for the improvement and sustainability of agriculture and natural resources and policy formulation and review

The objectives for outreach were:

- To disseminate information and technologies for the improvement and sustainability of agriculture and natural resources
- To strengthen researcher – extensionist – farmer linkages
- To strengthen communication skills to facilitate effective dissemination of knowledge

- To engage in training of master trainers

Both these objectives indicate that future activities at the Agricultural College should be of relevance and applied nature.

The money available for joint research between Bunda and NLH has been very limited, hence the possibility to influence the direction and broaden the knowledge base has been almost non-existent.

The encouraging results from the applied research project under the Tanzania Agricultural Research Project (TARP II) has stimulated staff at Bunda College to go for more on-farm research in cooperation with the National Agricultural Research Institutes (NARIs), the extension service, the NGOs etc.

3.5. HAVE WE BEEN ABLE TO FACILITATE IN MAKING HIGHER EDUCATION IN AFRICA MORE PERTINENT TO YOUNG PEOPLE IN ORDER TO MEET THE NEEDS OF THEIR SOCIETIES?

Our possibility to influence the attainability of higher education in African universities is rather restricted. With the budget cut for the University of Malawi it becomes more and more dependent on fees to carry on with its activities. With high fees it becomes increasingly difficult for students to afford higher education. For post-graduate training, limited scholarships are the major constraint in most of the poor countries in Sub-Saharan Africa. By providing scholarships for MSc and PhD students, the NORAD-supported programme in which NLH participates, has been helpful in this respect.

In Malawi, as in many countries in Sub-Saharan Africa (SSA), there is a lack of specialists in a number of fields, both in the public and in the private sector. Competence building is therefore one of the most important areas for external support. The consequences of not educating people for important functions in the society may be severe and long lasting.

The relevance of higher education in Africa is highly variable. In view of the large porportion of the people in developing countries involved in agriculture, agriculture is a key subject area in a majority of the African countries.

At a workshop on Postgraduate Training for Improving Agricultural Production, Products, Food Security and Household Income in the SADC Countries, held in Pretoria, South Africa in September 2001, representatives from most agricultural faculties and colleges in the region met together with people from research institutions, the private sector, NGOs, farmer organisations etc. to discuss a future agenda for agricultural education and training (Sundstøl et al. 2001).

The participants agreed that the vision should be to have in place *“A network of institutions of excellence in higher learning with curricula and programmes, which produce high quality, appropriately trained and innovative agricultural scientists and field practitioners, who make a significant contribution to sustainable livelihoods in SADC”*.

To achieve this long-term vision, the agreed strategic goal was to: *“develop and implement relevant and cost-effective postgraduate programmes that are regionally linked, flexible and*

accessible by all, addressing gender, social, current and emerging issues while integrating indigenous knowledge and locally generated technology”.

It was recommended that governments and international agencies need to be involved at the stage of writing the proposals to achieve the above goal.

Knowledge about the local conditions is perhaps more important for agriculture than for any other subject. However, textbooks and other teaching material in agriculture are often written for agro-ecological conditions in Australia, Europe or USA. In Norway there has always been a close link between the Agricultural University and the farmers and their organisations, and farmers have been able to influence the agricultural research programmes. This is also to some extent emphasized in our cooperation with Bunda College and the link may grow stronger as the level of education among the farmers increases.

With liberal employment policies in SSA it is tempting for young and well-educated people to enter into “greener pastures” whenever opportunities occur. In Southern Africa, notably in South Africa, Botswana and earlier also Swaziland, a number of university staff are recruited from neighbouring SADC countries and other SSA countries in which salaries and working conditions may be less favourable. Needless to say, this will benefit the countries that are already better off, at the expense of the poorer, and thus broaden the inequality in the region.

3.6. HAVE WE BEEN ABLE TO CREATE SUSTAINABLE AND INNOVATIVE PARTNERSHIPS, AND IF SO, WHAT ARE THE FACTORS FOR SUCCESS?

The classical approach where information is delivered to the students through lectures in a lecturing theatre may only occasionally be the right approach in agriculture. Demonstrations and, even better, small practical exercises would be a much better way of communicating important messages – learning by doing.

For many decades in Norway a great number of those who wanted to become farmers enrolled in an agricultural school for 1,5-2 years where practical training at the school farm was combined with theoretical education. Passing exams from one of these agricultural schools (one or more in each county) used to be a prerequisite for enrolment at the Agricultural University (NLH). The graduates leaving NLH were well equipped to become advisors for farmers, leaders in organisations and managers of agro-industrial companies.

In Malawi, and in many other African countries, such a system is lacking or not well developed. This is why practical work in the field is extremely important in higher education in these countries. At universities, faculty members and postgraduate students are expected to carry out research. Publication of the results in international peer-reviewed journals is usually considered to be the most meriting way of communicating the research findings. These journals are hardly read by any farmer or farm advisor. Even the universities cannot afford to subscribe to these international journals. A summary of the research findings in the local language(s) should be obligatory whenever a scientific article is published internationally. We are afraid that, because of what has already been said, the answer to the question above is no, but to be able to have a real impact on the development of a university in the South, the level of cooperation has to be of a certain magnitude. Exchange of 3-4 staff members for one week once a year is not sufficient to have a tangible influence.

3.7. HOW CAN WE CONTRIBUTE TO THE CHANGES REQUIRED IN HIGHER AGRICULTURAL EDUCATION IN AFRICA IN ORDER FOR GRADUATES TO HAVE AND BE ABLE TO CONTRIBUTE TO THE OVERALL GOALS OF POVERTY REDUCTION, SOCIAL COHESION AND ENVIRONMENTAL SUSTAINABILITY?

More practical skills

In agriculture-based societies development has to be based on knowledge of a number of relevant subjects. Theoretical training and practical skill are valuable combination for people who become advisors, managers, government employees etc. This combination can be achieved in two ways: 1) agricultural training in secondary education (agricultural schools) is strengthened as has been the case for Norway (see above); or 2) the practical training is included as a component of tertiary education, e.g. at the university farm. Both systems may prove to be acceptable as a short/medium-term solution. In the long run the universities may benefit from a system whereby the practical training takes place before the students enter the university. During tertiary education the students should rather be involved in applied research and outreach activities related to their studies.

Better teaching

Teaching in tertiary institutions should as far as possible be science-based. Therefore teachers should be actively involved in relevant research.

Teaching materials such as textbooks and compendia for undergraduate and graduate students in agricultural training institutions in Africa are generally in short supply. Most of the textbooks recommended for student use, and currently available on the commercial market also tend to be too expensive for the average student. Another problem is that available textbooks may have been written for other agro-ecological conditions and are thus not relevant for the area where they are being used (as mentioned before).

Results from agricultural research within Malawi and her neighbouring states over the last decades could have been combined with sound local knowledge and incorporated into suitable compendia or textbooks. Also, the universities in the region have, over the past many years, been gathering material that would constitute “grey literature”. This is often found in lecture notes that have been used by the lecturers over the years. A regional project for development of relevant teaching materials has been suggested by SACCAR (Sundstøl et al. 2001). Even if there are differences in farming conditions within the region, there is normally no need for separate compendia or textbooks for each country.

Better teaching can also be obtained by upgrading teachers through short courses and staff and student exchange programmes, both South/South and South/North.

Outreach

Ideally, agricultural research should be close to the end users to make it relevant to the farmers’ situation and facilitate adoption of new technologies. When advocating on-farm research, one should keep in mind that such research often requires more resources than on-station research or laboratory experiments. There may also be other problems related to on-farm research, i.e. greater variation in growing conditions, lack of proper attention, lack of

control of the research work. One great advantage is that the farmers may see the effects of treatments in their fields and thus easier adopt new technologies.

Dissemination of results from research, lessons learned and import of new technologies is a very important task of an agricultural university in the developing world. Means of dissemination could be a “farmers week”, “agricultural show”, farmers’ journals and the like. There is, however, no medium in Africa that is more powerful than the radio when it comes to bringing information out to the rural communities. Therefore, the university should be more determined to use this medium in bringing out its messages and the students should be trained in this way of communication.

Scholarships

Small universities cannot afford to offer higher education in all subjects. Regional solutions are therefore more logical, rather than developing training programs in each country in very specialised subjects and with few students. Lack of scholarships is often the major obstacle for efficient utilisation of limited financial resources through regional programs. Through collaboration with universities in Africa for more than 25 years, our impression is that when a donor supports a programme at a university, the Government subvention is reduced. This is a policy that should be strongly opposed and the possibility of making support conditional should be considered.

Scholarships are also required for upgrading of the university staff through exchange programme, short courses and incentive packages.

Quality management

The above-mentioned workshop in Pretoria (Sundstøl et al. 2001) emphasized the importance of a sound quality management system. It was recommended that 1) leaders of institutions should be sensitised to the principles of quality management; 2) the quality management systems within SADC should be evaluated; and 3) a quality management system applicable to the region should be standardised.

Through proper quality management procedures shortcomings regarding curricula, relevance, facilities, outreach and the like could be corrected. The University of Malawi is currently hosting the secretariat for Higher Education Quality Management Initiative for Southern Africa, and the first regional conference on quality management in higher education will be held in Johannesburg 23-25 September 2003.

3.8. SUMMARY

Agriculture was given top priority when the Government of Malawi in 1996 entered into negotiations with the Government of Norway regarding financial assistance for development of the country. Bunda College of Agriculture (BCA) was identified to be a major implementing institution.

The goal of the first project, which started in December 1998, was to “improve performance in technical and institutional planning and in research, education and outreach service of Bunda College of Agriculture”. In June 2001 a second phase of five years was started essentially with the same goal. In agreement with the Norwegian Embassy, the project was

speeded up in 2003 and the intension is to complete the second phase by 30 June 2004, two years before the original time frame. Preparations for a third phase are already in place with the aim to contribute significantly to the reduction of rural poverty in Malawi. This will be a joint project with the Agricultural University of Norway (NLH), research stations and extension service under the Ministry of Agriculture and Food Security, Ministry of Natural Resources and Environmental Affairs, CGIAR institutions, farmers' organisations and NGOs, using the TARP II project in Tanzania as a model (see Chapter 2).

Within a relatively short time since the inception of the cooperation, the possibilities to influence changes in the university system have been rather limited. Direct influence has mainly been possible during the development of the strategic plan for Bunda College (1998-99), which was facilitated by Ragnar Øygard from NLH. So far there has been little money for joint research between BCA and NLH. The major bulk of the support to BCA has been used to improve the infrastructure at the college. This is a long-term investment that should be made by the Government of Malawi in accordance with the increasing enrolment of students. In my opinion, more should be done to upgrade the competence of the staff, carry out relevant, applied and demand-driven research and bring the knowledge out to the end users in a participatory approach.

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CHAPTER 4. NORWEGIAN SUPPORT TO AWASSA COLLEGE OF AGRICULTURE, ETHIOPIA

Trygve Berg⁵

4.1. BACKGROUND

After the Sahel drought in the 1980s, the Norwegian Government launched the SSE (Sahel, Sudan, Ethiopia) Programme in order to contribute to redevelopment of areas that had been affected by drought and disaster. A research component was included and the Agricultural University of Norway represented by Noragric became involved. We chose to use our share of the budget in collaboration with Awassa College of Agriculture in the Rift Valley of southern Ethiopia. Activities started in 1988. Early in the 1990s the project was transferred to NUFU (Norwegian Council of Universities' Committee for Development Research and Education) and has continued as a NUFU-project until this date. Budget allocation both during the SSE and the NUFU periods has been roughly 1 million NOK per year. Towards the end of the 1990s, additional NORAD funds were provided, also roughly 1 million NOK per year.

4.2. PERSPECTIVE

When collaboration started, the institution was a junior college offering diplomas in agriculture and home science. It was administered as a faculty under Addis Ababa University. During the 1990s, we saw it being upgraded to a BSc degree awarding college. It was detached from the mother university and became independent. In the year 2000 it was chosen to be the core faculty of a new university for the southern region of Ethiopia: Debub University. Now Awassa College is at the verge of starting post-graduate education (MSc).

The rise from a junior college to a university college has been facilitated by core funding from the government, and by scholarships and project funds for research and infrastructure from various external sources. It may not be easy to isolate the particular impact of the Norwegian support. But after twelve years of continuous involvement, we see that we have played a role in a story of visible progress. Comparing the Awassa College of today with that of 1988, we see more than a promotion in academic status. We see active research, more research-based teaching, and better graduates. Perhaps the most significant achievement is in the quality of education. It now depends less on standard international textbooks. Many of the teachers have relevant research experience and know how to relate the universal theories of science to the local contexts in which the graduates are supposed to work. Evaluation of the College does not have to be done on the campus. It can happen in the field or in institutions where the graduates work. And increasingly we get favourable feedback, not only because many Awassa graduates are clever, but particularly because of the usefulness and relevance of what they have learnt.

Twelve years of partnership provide perspective. Over the years we have seen the fruitful interaction of favourable conditions for success and strategic efforts in what I choose to call factors of success. Conditions for success are normally internal and not influenced directly by donors. Factors of success are what external partners can be involved in.

⁵ Associate Professor, Centre for International Environment and Development Studies (Noragric), Agricultural University of Norway (NLH).

4.3. CONDITIONS FOR SUCCESS

Government commitment

The Government of Ethiopia has established Awassa as an important and permanent centre for academic learning. All staff are permanent employees. Core funding, including salaries and running expenses for campus infrastructure, is fully covered by budget allocations from the central government.

Reflecting the financial situation of the government the budget is low, sometimes painfully low. But even in the worst of war times, the government has been able to provide enough to keep the college going. To my knowledge, the college leadership has never asked foreign donors to top up salaries and assist with running expenses, but always insisted on using external funds exclusively on scholarships, investments and research.

Recruitment of academic staff

Ethiopia has a tradition of posting top BSc graduates in junior positions at universities, colleges and other research organisations. Awassa College has always benefited from this policy. Whenever scholarships for MSc and PhD studies are made available, candidates prove to be highly qualified and suited for such studies.

Staff stability

Awassa College suffers less from brain drain than some, maybe most, other similar institutions in Ethiopia. Maybe the location is favourable? Awassa is reasonably close to Addis Ababa, it is a growing city with job opportunities for spouses and educational opportunities for children and many other attractions. We have experienced that most of those sent abroad for post-graduate training return and stay.

Political independence

During the period of our collaboration, Ethiopia has been through the most horrendous political upheavals and dramas. We started when the “Derg regime” under Mengistu Haile-Mariam was engaged in a desperate civil war against rebel movements in Eritrea and Tigray. In 1991, Mengistu fled the country and was succeeded by a Transitional Government followed by a regular government two years later. Then, in 1998, everybody was taken by surprise when a war with Eritrea broke out. It became a very bitter war that lasted for two years.

In spite of all of this, the College has been stable and steadily growing. No staff are political appointees. All are employed on the basis of academic merit. Also, in government offices there seems to be a determination to maintain academic institutions according to the requirements of academic standards and to protect them against the shifting winds and whims of politics. Therefore continuity and institutional stability have prevailed.

4.4. FACTORS FOR SUCCESS

While government funding is enough to keep the institution afloat, it does not include stipends for post-graduate education abroad or for other international travel such as conference participation, and it does not include foreign currency needed to purchase research and office equipment or books for the library. If all of these factors are missing, the productive potentials of the institution cannot be realised. Academic staff will be like a fallow producing little of value. The challenge is to use external funds in a strategic way turning fallows into fertile land yielding harvests of knowledge and becoming a source of ideas and inspiration for new batches of academics.

4.5. COMPETENCE BUILDING

A few MSc degrees in management of natural resources, one in animal science and one in food science have been supported. However, PhD training of junior staff has been considered the most critical need. Important decisions include selection of candidates, selection of academic discipline, choice of research topic and design of a sandwich-type of study plan. In addition to earning the degree, each PhD plan has the potential of building up a research area with essential research facilities in Awassa, and linking academic staff to international scientific networks and particularly to teaming up with colleagues in collaborating departments at the Agricultural University of Norway. The PhD programmes plan for all of this, with the clear understanding that each programme is an institutional affair.

So far, we have contributed through this programme to the building of competence and capacity in the fields of food science, agronomy and plant breeding, animal science and biotechnology. In one discipline, agricultural economics, our efforts have suffered the loss of one PhD student who died, and one MSc who left the college. However, another PhD in agricultural economics is in the “pipeline”.

4.6. RESEARCH

Both the PhD projects and other supported research have been tuned to the development needs of the peasant sector where farms are small and production largely for subsistence. Any technology element that requires investment or inputs beyond common affordability in this sector is considered irrelevant. Food science must deal with village level food processing technology. Agronomy and plant breeding must deal with low-fertility and drought stress conditions. Animal science must deal with utilisation of low quality fodder resources, and biotechnology is initiated with studies of natural, biological nitrogen fixation.

These are not all, but the main activities so far. Together with projects funded by other sources they contribute to a total body of research based knowledge that is approaching a critical mass. The importance is seen in the impact this has had on the teaching and on the quality of the education offered. Based on encouraging research findings, we believe that there is a great potential for the peasant sector to change from its current state of deeply entrenched poverty towards a slow, but steady growth.

4.7. LIBRARY AND OTHER INFRASTRUCTURE

The project funds have been utilised to a great deal by the PhD programmes and little has been available for library and infrastructure. However, some small contributions have been

possible, strategically targeted to office equipment, computers and miscellaneous laboratory equipment. When the NORAD funds came late in the period, heavier investments in the college infrastructure became possible. That revolutionised the library and also strengthened the college in several other ways. The synergy of different funding mechanisms has been clearly demonstrated. The combination of academic support channelled through the NUFU programme, and investments in infrastructure by means of NORAD funds has proven to be a good model.

4.8. LINKS TO NATIONAL AND INTERNATIONAL RESEARCH COMMUNITIES

We have included some study courses in third countries and international conference participation in most of the PhD programmes. When finished, the new PhD holders return home with a significant exposure to the international research community and an extensive network. The most important contacts are obviously with the advisor and other colleagues in their academic departments in Norway. They tend to continue working together formulating new projects and seeking new funds. As a spin off, there is now involvement of scientists from Awassa in various new projects where Ethiopian and Norwegian researchers keep working together. So far this includes one new NUFU project, one funded by the Norwegian Research Council, one EU project, and one multi-institutional project on soil fertility funded by the Norwegian Ministry of Foreign Affairs. There are more initiatives under planning.

4.9. CONCLUSION: THE PARTNERSHIP MODEL

The funding mechanism has allowed us to make direct contact establishing institution-to-institution collaboration. Since project documents are negotiated based on both Ethiopian and Norwegian policies, we do not bypass government policies, but we are allowed to bypass the bureaucracies at ministerial level. This has made day-to-day running of the project quite simple. Major decisions are made in Awassa by the College leadership (Dean and Vice-Dean for Academic Affairs) and the two coordinators (one from Awassa and one from Noragric). Otherwise, daily business is delegated to the coordinators who share authority according to agreed terms. When something unforeseen happens (it does all the time!), a telephone contact between the two coordinators is usually enough for decisions to be made. With shared vision and ideas, clear agreements, and clear division of roles, the project has been kept running in a smooth and, with respect to personal relations, a most pleasant way. There is a mutual wish to continue. And there is a lesson to be learned about the importance of continuity and long-term commitments.

FROM:

Haug, R. and Teurlings, J. (eds.), *Successes in Rural Development* (2001), Centre for International Environment and Development Studies, Noragric, Agricultural University of Norway. ISBN 82-92277-00-5

Note from the author:

Since this was written early in 2001, a new phase of the NUFU project running from 2002 through 2006 has started. Also NORAD has approved a new phase (2002 -2007) and two new collaborative research projects are submitted to the Norwegian Research Council. This reflects continued long-term commitment in the two collaborative universities as well as in the funding agencies in Norway, and it reflects increased interest in these opportunities of scientific collaboration among researchers in Norway.

CHAPTER 5. THE CONTRIBUTION OF THE TRAINING PROGRAMMES: ASSESSMENT OF ETHIOPIAN AND ERITREAN GRADUATES FROM NLH

Aregay Waktola⁶ and Sileshi Dejene⁷

Since 1996, agricultural universities covered by the collaboration agreement between NLH and Ethiopia, inspired by the SSE programme, have received substantial support. Even earlier, a number of Ethiopian students received MSc degrees from the MNRSA programme, offered under the NORAD Fellowship Programme. The general aim of these educational efforts was capacity building for institutional development. This (edited and condensed) chapter is taken from the publication “Educating Change Agents: The Contribution of the Agricultural University of Norway (NLH) in Ethiopia and Eritrea” (in print) and presents the progress of the partnership and the extent of the contribution made by NLH to capacity building in Ethiopia and Eritrea. Much of the information gathered was done by way of a questionnaire and through personal interviews by the editors.

The total number of Ethiopians who completed their training at NLH during the period 1986-2002 is 79, while for Eritrea the total is 12 (Figure 1). Out of these, graduates of MSc programmes and currently terminated postgraduate diploma courses make up the largest share.

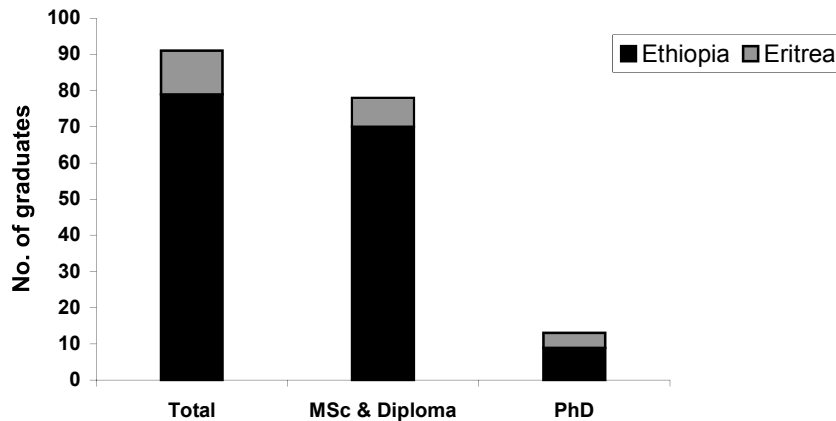


Figure 1. Number of graduates (1988-2002) by category and country.

The graduates came from a wide range of disciplines and professional backgrounds (Figure 2), although the majority had a background related to agriculture.

⁶ Associate Professor, Centre for International Environment and Development Studies (Noragric), Agricultural University of Norway (NLH).

⁷ Graduate of MNRSA class 2000, Centre for International Environment and Development Studies (Noragric), Agricultural University of Norway (NLH).

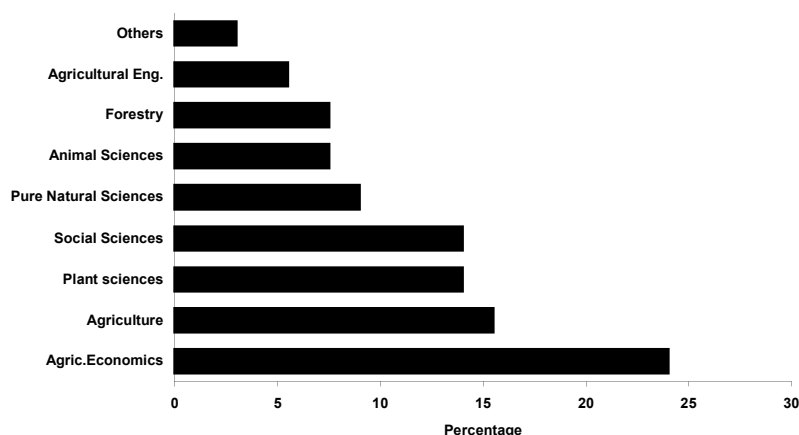


Figure 2. Professional background of MSc graduates at enrolment

5.1. EMPLOYMENT PROFILE OF FORMER STUDENTS

Although the content of the training (especially the MNRSA programme) covers the learning needs of, and was directed at, several sectors, employees of government agencies and NGOs in Ethiopia and university staff in Eritrea have largely dominated the candidacy for the human capacity building effort. Owing to the generalist nature of the MNRSA programme which attracted over three quarters of the trainees, universities and colleges have been represented less for the obvious reason that they are more interested in training specialists.

There are no reported cases of unemployment. According to the current employment status of the Ethiopian graduates from NLH (Figure 3), the NGO sector has taken most of the MSc graduates followed by universities and government agencies. Almost half of the graduates have different employers than they had before training, and only 40% have stayed with their previous organisations. While almost 68% of the graduates from universities went back to the same employer, the corresponding figure for NGOs and government agencies is 50% and 25%, respectively. Most graduates from government agencies have either moved to NGOs or stayed abroad with a few working in international organisations. There is a substantial movement of employees within the NGO sector.

The lack of appeal for the government sector was partly due to unattractive salaries and other benefits, while the preference to work in NGOs has mainly been influenced by higher remuneration, better opportunities for merit based promotions, relevance of job to competence, and a relatively more conducive working environment in the sector. Universities and colleges have comparatively benefited from the training programmes since they are at present the second most important employers of NLH graduates, although they are the third important suppliers of trainees. This is partly due to the fact that the majority (99%) of PhD graduates have gone back to the universities and colleges they originally came from. However, a comparison of before and after training scenarios indicates that the three important sectors received a reduced share of graduates than they contributed. This is due to

the fact that some of the graduates have either changed sectors (such as employment in international organisations) or stayed abroad as immigrants.

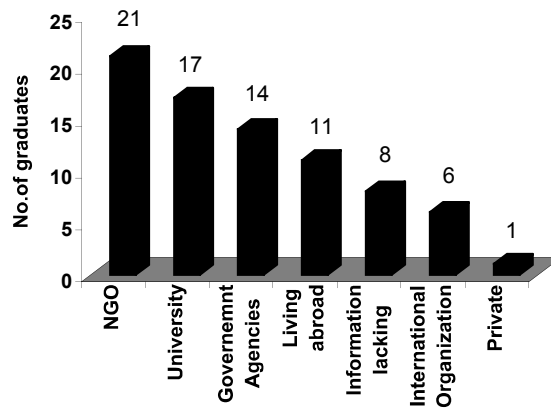


Figure 3. Current employment profile of Ethiopian NLH graduates

Most Ethiopian graduates (61%) are currently based in Addis Ababa working at the headquarters of their respective employers while the remaining are located in the regional towns. The latter group constitutes predominantly university staff but also in some cases NGO employees. Regardless of where the institutions are based, the majority has reported frequent travel to and working in rural areas.

Most graduates - especially those trained in the MNRSA programme - have had remarkable career records. The training of candidates with a broader and interdisciplinary outlook has been one of the reasons for the impressive employment and professional records of most of the MNRSA graduates. The results of the questionnaire survey indicates that 20% of the graduates are in top management positions within their organisations; programme and project coordinators account for another 20%; while senior experts/officers and researchers represent, respectively, 31% and 29% of the respondents. A substantial proportion (16%) of graduates has settled abroad mainly as refugees and immigrants, but also as experts working in international organisations.

Gender is a dimension that calls for special attention. Women were underrepresented in the MSc programmes and not represented at all in the PhD programmes with the exception of few recent enrolments - a reflection of male dominance in the formal sector of the Ethiopian/Eritrean society and the social barriers that reduce women's access to education. Evidently, this is a major shortcoming considering the critical role women play in agriculture and rural development in Ethiopia and Eritrea. Therefore, the challenge is to recognise the need for gender sensitised recruitment, possibly through a special quota system - an approach currently considered and practiced to a certain extent by NLH in attempt to improve representation by women.

5.2. THE RELEVANCE OF TRAINING: GRADUATES' AND EMPLOYERS' ASSESSMENT

The data for the following analysis is largely from Ethiopian graduates and employers. There were only two respondents from Eritrea.

5.2.1. General effect of training

Generally, the relevance of the training programmes offered at NLH is positively assessed both by the students and their employers. In the Ethiopian case, although there are some postgraduate courses dealing with different aspects of natural resource management (NRM), there is a clear gap in addressing the need for integrated and holistic training schemes in a country with enormous NRM problems. The MNRSA and DRE (Development Resource Economics) training has definitely and partly filled this gap. PhD programmes on the other hand have contributed towards upgrading institutional capacities in research and training in post-secondary institutions.

One particular feature of the training programmes is the strong tendency to incorporate new perspectives such as sustainability, environmental management, gender, participatory approaches and the role of local knowledge owned by rural people. These are indeed emerging topics that are becoming increasingly important in national policy dialogues.

The training was useful not only to Ethiopian institutions but also to NLH where it opened excellent opportunities for upgrading Norwegian competence and adding new dimensions to the existing knowledge particularly in the field of tropical agriculture and natural resource management.

5.2.2. Relevance of Training and Knowledge

The quality of training can partly be assessed by an individual graduate (or employer) in terms of the relevance or usefulness of the training to either the professional interest or job requirement of the trainee or to the priorities of employers. In this regard, both graduates and their employers (NGOs and government agencies alike) consider NLH training programmes as highly relevant. While all respondents believe that the training programme is of high relevance to the country in general, three-quarters of the respondents perceived their training as highly relevant to their job requirements while the remaining considered it as moderately relevant. The results in part reflect the positive contribution of the training programmes to addressing NRM and development issues. They also indicate that graduates are primarily placed where they can apply the knowledge and skills they acquired during and after their training.

The principal reasons mentioned by respondents as to why they considered the training programmes as relevant are the emphasis given to degradation of natural resources and the need to manage these resources in a sustainable way; the significance of agriculture to the national economy; the focus on poverty, food security, and interdisciplinarity; and the pressing need for advanced knowledge in different fields of agriculture. (See Table 1)

One can also assess the relevance of training by comparing the goals set by the training institutions and whether trained individuals have continued or maintained their career in the field they are trained in.

Table 1. Percentage of graduates from NLH working within their field of training

Competence	MSc	PhD
NRM	86	40
Food security	81	60
Rural/community development	71	60
Training	53	100
Research	47	100
Agricultural innovations and extension	43	20
Gender focused projects	38	0

Trainees of the MSc programmes (majority MNRSA graduates) have maintained their multidisciplinary orientation with a focus mainly on NRM, rural/community development and food security. These are in accordance with the ambitions of the training programmes that are primarily aimed at producing natural resource managers and development agents. PhD programmes on the other hand have not been dealing with gender issues directly; they have mostly been targeted at training researchers in technical fields.

Training also has an implication for personal benefits such as salary, status, advancement opportunities and its significance for transferable skills, such as managerial/research capability. Changes in occupational level 'before' and 'now' are dramatic. Substantial moves at the occupational level occurred for the majority (96%) of the respondents. According to the respondents, the status of most of the graduates, their position within the organisations to apply their knowledge and skills, and their research or managerial capacity have been upgraded as a result of the training they received at NLH. It is interesting to note that these three parameters are complementary.

Furthermore, some of the graduates of the MSc programmes have managed to pursue further studies at PhD level either at NLH or other universities elsewhere. Accordingly, 7 Ethiopians who obtained their MSc at NLH have successfully completed their PhD while three are underway with their studies. Besides, 70% the respondents indicated that they aspire to continue further studies within their area of competence. It can, therefore, be safely argued that the training at NLH has provided a good foundation for professional/scientific development.

5.2.3. Application of learning to employment

The response regarding the applicability of the training to practical issues and local contexts that trainees have to cope with in their work showed a definite consistent pattern. Graduates unanimously stressed that the training received at NLH has helped them in coping with practical issues at the local level. High satisfaction with the academic aspects of the training programme can also be easily deduced from the pattern of response. One would expect doctoral candidates to be more theoretical and research oriented. However, in the Ethiopian case, it is interesting to note that even the PhD holders have given high ratings (100%) for practical applications.

For most of the graduates their current employment has either fulfilled their career goals or has laid a definite prospect in that direction. Despite their very different work situations the majority of the respondents has experienced increased satisfaction with their work after training.

Nevertheless, respondents identified some deficiencies of the MNRSA programme. Some graduates expressed the need for including more analytical tools such as Geographical Information Systems (GIS) while others expressed the need for a more thematic focus in the MNRSA course. Moreover, some employers would like to see emphasis on courses dealing with project management (planning, financial management, reporting etc) since most of their trained staff has to deal quite often with projects. Transferable skills such as language competence, report writing, use of computers and IT, and communication skills were identified as areas that the NLH graduates are lacking to the best satisfaction of their employers.

5.2.4. Productivity and contribution to national development

A number of Ethiopian graduates have expressed that the difficult bureaucratic bottlenecks, lack of clear policy framework and inadequate mechanisms to coordinate several agencies working in NRM and development, did not enable them to fully or optimally exploit their knowledge and skills. This is claimed as partly and sometimes significantly undermining the productivity of graduates (predominantly government employees).

The Ethiopian employers who were interviewed indicated that there are five general parameters that characterize NLH graduates. These are professionalism; ability to work independently (initiative); competence and knowledge in the area of specialisation; interdisciplinary thinking; and team spirit.

The majority of graduates interviewed responded that they are involved in policymaking processes at least at one level (Figure 5) and influence at multiple levels is not uncommon. Influence in policy making processes is often more crucial than the real act of performance; and graduates from NLH have not failed in this respect although one can not measure to what extent the influence has resulted in operational rules. In the current Ethiopian political setting the national and the regional levels are the two most important levels with regard to policymaking. Greater policy influence is exercised by NLH graduates at these two levels and this is an encouraging trend.

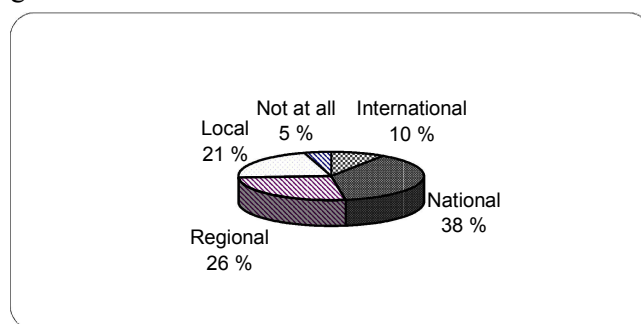


Figure 5. Level of influence on policy making

A substantial proportion (72%) of the respondents identified training as one of the major activities in their work. Moreover, PhD graduates to a greater extent have been instrumental as either initiators or leaders of new graduate and postgraduate degree programmes. This, indeed, has undeniably added to the fulfilment of a development agent's role in the cadre of change.

Acceptance and adoption of new learning paradigms is essential in development work to permit the incorporation of indigenous knowledge and more holistic and interdisciplinary

approaches to problem solving. All graduates, MSc and PhD alike, believe that the training at NLH has opened their eyes to the world of interdisciplinary thinking and addressing practical problems by employing such thinking. In fact, the focus on an interdisciplinary outlook is identified by many MNRSA graduates as a unique trademark of the training.

The outreach issue, working with grassroots, engaging in field activities and consultation with local people are emerging requirements for effective application of knowledge especially by development practitioners and natural resource managers trying to reach vulnerable audiences (the poor, the disabled, the displaced, etc). Responses regarding the level of engagement in grassroot consultation and field activities (usually in rural areas) shows that most graduates have achieved their task of introducing people oriented approaches in their work. At least 48% of the graduates interviewed very often have contact at the grassroot level while the remaining 52% have a moderate liaison with beneficiaries.

5.3. CONCLUDING REMARKS

This study tried to address the issue of impact of training in a more general way. The conclusions drawn from this study are tentative but indicative. A more rigorous impact assessment can lead to stronger conclusions and recommendations.

A number of the findings need particular attention. First, respondents trained at both MSc and PhD level believe that their training has equipped them with proper knowledge to deal with local contexts. In addition, the majority felt that their managerial and research capacity is upgraded. Many have positively responded to the interdisciplinary aspects of the training. These are certainly essential capabilities that change agents need to possess. It can, therefore, be concluded that the training programmes offered at NLH were indeed relevant. It is, however, beyond the scope of this study to look at the more detailed impact questions regarding the relationship between the work of the graduates and the actual training they received.

Second, graduates emerged with a strong sense of satisfaction reflected both in their work and in their professional lives. This has, in part, influenced the positive attitude towards the relevance of the training programmes. The demand for graduates with specialisation in the fields of development, particularly natural resource management, is considerable.

FROM:

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CHAPTER 6. COLLABORATION BETWEEN NLH AND MAKERERE: OLD PARTNERS WITH NEW IDEAS

Ivar Jørgensen⁸, Stein R. Moe⁹ and Gry Synnevig¹⁰

Collaboration between Makerere University (MAK) in Uganda and NLH has lasted for over thirty years, unfortunately divided in two parts by a break of over 15 years during the reign of Idi Amin and the following unrest. Several staff from NLH took part in establishing the education programmes at Makerere in the early 1970's. Numerous candidates from Makerere have obtained their post graduate degrees at NLH, and have established lasting relations through their supervisors and colleagues in Norway. Some of the students trained in the first batches taught by the Norwegian professors in the early seventies are now established in leading positions at MAK. The NORAD supported programmes have a special status at Makerere, although several other donors and university partners are supporting the University. This has partly to do with the long history and personal relationships. It also has to do with the flexibility of the donor, among other things a willingness to fund buildings and infrastructure. Most donors are reluctant to fund infrastructure, although there is hardly any support for which one is more easily remembered.

Looking back at this collaboration, several questions are important in order to draw lessons for future collaboration. Many questions regarding the current partnership are important to discuss in order to design an effective and relevant programme for the future, if indeed continued partnership is wanted by the parties and fundable by the donors. In what ways has the collaboration with NLH contributed to the development of MAK, and have the topics and approach of the work been relevant to the development reality of Uganda? Have the candidates of the education programmes been able to meet the challenges they have met in the reality of working life?

The education programmes established in the early phases were of fairly traditional nature, and would not pass though the contemporary scrutiny regarding interdisciplinarity, poverty orientation, orientation towards self-employment and private sector development, sensitivity towards environmental issues, gender and the importance of civil society. Nevertheless, they were regarded relevant according to the standards of their time. The technical and scientific knowledge necessary to run public training and management institutions in forestry and agriculture was in short supply, and a cadre of experts to run these institutions was seen as first priority.

During the years the market for candidates to fill positions in public institutions has been more or less saturated, and public sector reforms have resulted in retrenchment schemes. The curricula in the education programmes have not changed at the same pace, resulting in a situation where there was some degree of mismatch between the education programmes and the job market. More efforts into developing curricula for self-employment and for a variety of employers including NGOs etc, would have contributed to making the programmes more relevant. However, the NLH link did not contribute to such a strategic approach.

⁸ Director of Programmes and Operations, Centre for International Environment and Development Studies (Noragric), Agricultural University of Norway (NLH).

⁹ Associate Professor, Centre for International Environment and Development Studies (Noragric), Agricultural University of Norway (NLH).

¹⁰ Director of Education, Centre for International Environment and Development Studies (Noragric), Agricultural University of Norway (NLH).

The collaboration programmes have been dominated by technical knowledge and natural sciences, but with more limited cross-fertilisation between the disciplines. In this respect NLH has exported its weaknesses and limitations together with many of its qualities. The collaboration has not included strategic assessment of education and research needs, an analytical fork to prepare for changes in society and its implications for universities. Many joint projects between scientists have been successful within its field, but overall strategic leadership has not benefited much from the MAK-NLH co-operation. This strategic support has not been supplied until the NORAD supported programme at MAK was expanded with new elements within institutional development and planning. Technical assistance in this field has been given by independent consultants outside the NLH-MAK agreement. This change has responded to a need for diversification, and has been one of the driving forces behind and expansion at MAK into new education programmes e.g. in business management.

In recent years there has been a development at MAK towards taking part in fieldwork and practical skills development for the students. Forestry students, as an example, are taken to the Nyabyeya Forestry College to gain more contact with practical forestry. Possibly this has been influenced by NLH, where a similar approach has been prevailing for a long time.

The present agreement between NLH and MAK has been too vague and lacked sufficient economic backing to ensure an effective dialogue and establishment of strong research programmes. The programme document has also been weak on the collaborative activities. In the later years, therefore, the level of cooperation has been limited, although the list of joint activities in 2002 counted 16 joint activities, including ongoing PhD and MSc studies. Most of the activities were fairly small and scattered. The funding came from a number of different sources¹¹, which has proved to be of great value to maintain activities through different phases of the various projects.

The new development in the last two years - which points to a deeper and more active partnership and a movement towards interdisciplinary programmes and activities relevant to the contemporary development agenda – is the establishment of joint education activities under the MSc programmes in Development Studies and the MNRSA¹² programme. This opens for a future partnership of a different nature than the classic “technical assistance” programmes. The programmes are examples of broad, interdisciplinary flexible, interactive and general research and educational programmes. All trends show that more focus and effort are needed to initiate and facilitate these kinds of programmes than today.

The new model of collaboration is based on mutual knowledge sharing and learning on an equal basis, and the promotion of ownership and active participation at the participating institutions.

The objectives of the educational programme are:

- To promote collaborating institutions as regional centres for teaching and training of natural resource management and to improve South-South collaboration;
- To improve the capacity in using interdisciplinary, holistic approaches to planning and management of natural resources and sustainable agriculture;

¹¹ NORAD, NUFU, SIU, EU, World Bank, Student Loans, IFPRI, plus NLH and MAK regular funds

¹² MNRSA: Master of Natural Resource Management and Sustainable Agriculture

- To increase the relevance of the programme by jointly developing course curricula for addressing key issues related to the sustainable management of natural resources and rural development in the region;
- To enable students to apply the interdisciplinary approach and techniques learned through the new curricula in their field research under real-life conditions;
- To link students' research to on-going research projects and to establish a feedback mechanism for improving both the research and teaching components of the programme;
- To get the teaching out of the classroom to improve students' practical skills.

New curricula were developed through participatory exercises where different stakeholders shared knowledge and expectations. The purpose was to increase the relevance of the educational content to be more in line with the needs of the society. Business, governments specialists, NGOs and faculties, stakeholders that will make use of the candidates, were brought into the process of defining what kind of education is needed and to enrich the educational process. The process also contributed to new partnerships, bridging the gap between the university and the outside world. To be more specific, new courses were developed in rural community development, advanced rural development, project management and field research methods. Practical cases and projects to highlight theoretical issues were identified, and field exercises to apply knowledge and skills were planned. All courses were given as an integrated package where one course made use of the other. Students were from the above-mentioned MSc programmes at Noragric, including students from several African countries and Norwegian students. The new courses will also be offered for regular students at Makerere University.

Success factors are shared visions and ideas, clear agreements, equal participation and clearly defined roles, responsibilities and relations. All contributions from Makerere and Noragric were clearly written and agreed upon in TORs elaborated for the different participants in the programme.

The new model of collaboration was tried out first in 2002, and no external evaluation has been done thus far. Internal evaluations show that the new model has contributed to:

- Building of competence and confidence among staff to implement broad, general, interdisciplinary courses in rural development and related topics based on the Uganda experience;
- New courses are internalised in regular study programmes at Makerere;
- South-South collaboration enhanced through contacts between students from different institutions in Africa and Makerere University;
- Change from a sectoral education (forestry, agriculture etc) to a more problem based education where the main objective is to understand the problem and contribute to solutions, with different competence and disciplines working together;
- Regular students have benefitted from cross cultural exchange in an African context;
- African and Norwegian students are learning by doing in a relevant context. "International education in a Southern focus".
- Students have the possibility to get community based experience by practical field exercises in and with the rural communities;
- Enrichment of the library with new books, journals, publications as well as computers related to the new study programme.

In conclusion, Makerere University has developed from a small college depending heavily on external scientific staff, to a modern African university largely self-supplied with qualified staff. The academic environment at Makerere as well as many of its alumni have contributed to national policy processes, and played an important role in developing domestically based ownership to various development processes. In this long-term development, the collaboration with NLH has been one element that has contributed distinctly, particularly in staff development. The positive development at Makerere has also greatly benefited from the relatively stable political environment the last decade. Makerere has effectively supplied its country with technical expertise, although the orientation towards a multidisciplinary, problem-solving mode was introduced later than it ideally should. Education of candidates with a profile suitable for public sector jobs continued beyond the point where public sector could not anymore absorb all those candidates. Recent changes and new courses has dramatically changed and expanded the volume and variety of education programmes offered at Makerere.

The strong personal relations built through Ugandan students studying in Norway and Norwegian teachers working in Uganda, has contributed to the trust necessary to support a long term partnership. The multiple links between MAK and NLH has provided the basis for a continuous development and improvement of the modes of cooperation.

Some learning points for future collaboration:

- Recognize the value of personal relationships and long term involvement
- Include strategic assessment of education and research needs
- Educate people for a diversified labour market, and for self-employment
- Include interdisciplinary and problem-solving approaches in the education
- Improve contractual arrangements between the partners to ensure effective participation from both sides
- Promote multiple funding sources for the collaboration
- Develop the partnerships for mutual benefit

CHAPTER 7. THE ROLE OF NORDIC AGRICULTURAL RESEARCH IN A GLOBAL PERSPECTIVE

*Stein W. Bie*¹³

7.1. INTRODUCTION

During the time of modern agricultural science the Nordic countries have never been great tropical colonial powers. When – during the 1950s and 60s – most tropical countries gained their independence from the major European powers, they also inherited the traditions of agricultural research and education from these countries. It was a mixed bag, with little or no knowledge investment left behind in the developing countries by the Portuguese, a little more by the Belgians and the French, and quite a lot by the British. Only the British left behind universities of high international standard, with credible postgraduate training facilities: in the late 1960s a PhD from Makerere University in Uganda or University of the West Indies in Trinidad still carried high international prestige in the rural sciences. They represented if anything a better bit of colonialism, and had attracted good scientists from a global pool who devoted their skills and time to development agriculture. They did it, however, largely within the original research and educational agenda of the former masters. Nordic agricultural scientists had mostly been educated in a different physical and educational climate, and had had little field experience in the tropics and subtropics. The early incursions of Nordic development aid into development of the primary rural industries in the tropical and subtropical world were therefore based on extension of general biological scientific principles and the sociology of the growth of modern Nordic agriculture. As Nordics we entered the field not with the ballast of colonial times but the experience of small countries whose agriculture had done well under relatively adverse natural conditions. In brief: we were innocent but inexperienced, and we had a largely Nordic social-democratic political agenda.

7.2. A SAD STORY OF DWINDLING AGRICULTURAL INVESTMENTS

However, in development investment terms agriculture has – with a few notable exceptions – had a sad history. In the early days of Nordic development assistance (in the late 1960s), the support to the primary rural industries could reach 30% of bilateral aid, and The World Bank also invested heavily in rural development. In 2001 Norway had dropped to 3%, about the same as The World Bank. Denmark has always been the Nordic exception, still around 11%; Sweden and Finland are in-between. More importantly, with the significant exception of China, India and Brazil and possibly Indonesia (and those together are admittedly half of humankind) most developing countries did not perceive agriculture as an engine for national economic growth.

The development paradigm persisting in major donor circles and in the international lending institutions is that industrialization and infrastructure would create best return on investment. The World Bank, in particular, has been and is full of economists whose basic thesis is that poor rural people must move to the cities to get jobs and avoid the poverty trap. Now, poor countries are of course in need of everything, and it is not for me to argue that tarmac roads, good ports, telecommunication incl. mobile ‘phones, and electrification are not valuable in a development setting. Most things are valuable. And most of those other things have received

¹³ Associate Professor, Centre for International Environment and Development Studies (Noragric), Agricultural University of Norway (NLH).

increased attention from national investors and international donors and lenders. It is therefore a paradox that this development paradigm has left $\frac{3}{4}$ billion people food insecure, 1 billion below USD1 per day and over 2 billion on less than USD2 per day. The Millennium Development Goals of halving food insecurity and world poverty by Year 2015 – to which the Nordic governments have also subscribed - look increasingly unlikely to be realized. With $\frac{3}{4}$ of the world's poor living in the countryside and $\frac{3}{4}$ of them being truly poor we are entitled to question the effectiveness of the prevailing political and economic development models. In fact, had it not been for the massive successes in China global food insecurity would be much worse. Unlike other countries the Chinese have understood that investments in agriculture are among those yielding the highest return, on par with roads and public health, and even better than education. Until we have tackled rural poverty in its own rights, misery will prevail for around 1.5 billion people.

7.3. THE PUBLIC-PRIVATE PARTNERSHIP

In developing countries, on all continents, agricultural research has until recently been dominated by the public sector. It has been assumed that the ministries of agriculture, forestry, fisheries and similar are responsible for the research component of agricultural development. Development assistance, also from Nordic governments, has mainly targeted public sector institutions in the selected areas, including the publicly administered universities. Because of the sector interests of the individual Nordic countries (somewhat simplistically: Finland: forests, Sweden: crops, Norway: animals and fish, Denmark: veterinary science) many efforts have strengthened scientific specialties but not interdisciplinarity. Other donors have often behaved similarly. The pride in building up a good livestock centre, a fine aquaculture research group, an efficient seed production system, a good vet service is understandable and laudable. We all want good science. Small, poor farmers, however, normally live in an integrated world, where their risk aversion makes them spread their activities over a wide field. If visited at all, they get confused by the goat adviser coming one day, the sorghum adviser another, the tilapia breeder, the soil conservation expert etc etc – all proud to make separate visits. But poor peoples' everyday is not compartmentalized. The day includes the irrigation possibilities, the malaria mosquitoes, the road to school, the market for earning the school fees, the roads for donkeys to travel, the promise of eco-tourism, the no-go areas of the national park, the tree felling license – all components of perfectly normal integrated rural life that our form of government has distributed between different ministries that we individually support. But we know jolly well that they don't talk to each other, that they are rivals for national budget allocations, and that their research branches barely talk to their own extension people. And we are getting to know that many of them play power games at village, district, province and national level and that many of their representatives are plainly corrupt, and that our development assistance for decades has if not created at least fostered these kinds of hindrances.

For poor farmers in many countries, not the least in Africa, central authorities and their tentacles down to village level, have become enemies, not helpers. By strengthening the arms of central authorities we increasingly made life more difficult for the really poor and the downtrodden, not by design but by massive default in the understanding what peoples' needs are and how they need to act to ensure a slow escape from the vicious circle of poverty. I am full of admiration for what our governments did on rural poverty over a hundred years, and I admire the way that they supported through critical periods the cooperatives that farmers built. Yet so many of the cooperatives that Nordic enthusiasts built in developing countries failed in seas of embezzlement and malpractice. They may have failed because we exported a

shell but not the content, and developing country social scientists may have been a mile away. But there is no inherent reason why public institutions should not be good, and they do matter for the poor. China, India and Brazil are clear examples of relatively well functioning large systems with highly different political colours, and Vietnam, Benin and Uganda are smaller countries that have booked successes. The Nordic countries should continue to support modern, efficient public institutions for rural development.

A well-accepted paradigm – also for development - is that public institutions should not do what the private can do, and that private entrepreneurs often do things better than the public sector. However, with a few exceptions the switch from public to private has yielded much misery for the poor. The explanation is wonderfully simple: the private sector needs to sell at a decent profit goods and services to buyers that have sufficient funds to buy. It is self-evident that poor people do not have significant purchasing power and are therefore absolutely unattractive customers for the private sector. The private sector is pretty good for richer farmers, and the successes of Nordic production and trading companies to sell dairying equipment, fertilizers and improved seed to better-off farmers in the tropical and subtropical world proves just that. The failure of the private sector to serve the really poor is truly bad news, because the dismantling of public services – often at the insistence of structural adjustment deals – was supposed to be compensated for by a vigorous private sector. If this thesis worked for the poor in other sectors, it certainly did not do so in agriculture. Neither did the trickle-down effect.

The important role played by the Nordics in international lending institutions did not take the form of opposition to structural adjustment waves, and in this sense the Nordics must share the blame for the massive negative effects structural adjustment has had for many rural communities. Indeed, the success of a small co-operative or irrigation project helping a few hundred or a few thousand people may attract big headlines in annual reports of bilateral aid agencies, but systemic and deepening rural poverty for millions of people resulting from crude structural adjustment is normally invisible. The more radical Nordic NGOs have been much better in understanding and documenting the downsides to structural adjustment and the hollowness of trickle-down than the specialized public agencies.

7.4. A NORDIC STRATEGY

If we are concerned with reducing the number of poor below 2 billion people, if we wish less than 750 million people to be food insecure, then we have to rethink much of the way Nordic development assistance is carried out. The Nordic countries cannot save the world single-handed, but we are trendsetters in development assistance, and if we change our assistance priorities, it will be noticed internationally. What we should make available to the developing world is a determined effort:

- To change the political climate around our development assistance to give much greater priority to the rural sciences
- To strengthen the ability of developing country institutions to deal with their own scientific challenges, rather than to insist we do the research and training in our own Nordic universities and research institutions.

To do this we require a rethink of our own national agricultural research and training priority settings in our Nordic countries. Universities and research institutions should not assume that tropical and sub-tropical agriculture are add-ons to a regular Nordic science programme, and

therefore must be financed by new and additional money from development assistance. If the word *University* has any universal meaning, it must be that tropical and sub-tropical challenges are equally valid challenges for a Nordic university and should constitute parts of its normal activity. It will strengthen – not weaken – the standings of Nordic universities and colleges dealing with agriculture and rural sciences when they can show that they are dealing with universal challenges, not only those above 55 or 60 degrees North. We must reach out to developing country institutions and assist them in building their capacities, in innovative partnerships between the public and the private sectors. Joint research and teaching ventures strengthen their abilities to serve their own nations. And they make for excellent networks.

7.5. CONCLUSION

At a time when agriculture is under fire in our own countries, with dwindling public support for intensive production systems and heavy subsidies, when attracting students to agriculture and other rural sciences in our own universities remains an uphill struggle, maybe we as agricultural scientists should say to ourselves: May it be true that it is in the end our agricultural science that may hold the key to greater world peace and stability? Could it be that our knowledge of soil conservation, of drainage and animal breeding, of improved crop varieties, of better human nutrition, of organizing local markets and tending to natural forests, of gender issues in rural societies and post-harvest storage offers greater promise to the truly poor people than mobile phones, computers, 4-lane highways, electrification and modern weapons? Could it be that we are letting a historic chance slip, just because we are humble Nordic agronomists, veterinarians and fish breeders? I hope I have outlined where we as Nordics may most likely have an impact, and if we do, that impact may be much greater than any agronomist may have ever dreamt of.

FROM:

Edited version of paper delivered by the author at the Nordic Association of Agricultural Scientists 22nd Congress, Turku, Finland, 1-4 July 2003.

CHAPTER 8. SUMMARY

Joanna Boddens-Hosang¹⁴ and Gry Synnevåg¹⁵

During the 30-odd years of Noragric/NLH's institutional collaboration with the African agricultural universities reviewed in this report, the changes within the framework of the collaboration have differed for each of the partnerships. The older partnerships, such as those with Makerere and Sokoine universities, were established during a time when education programmes were of a traditional nature, with a relatively one-way flow of capacity building from North to South. Upon graduation, students from these African universities were almost assured of jobs in the public sector after leaving the university.

However, the political, social and economic changes on the African continent also led to a need for different skills and know-how to meet the new demands from society. In addition, positions in the public domain became scarce, bright young graduates in some cases left the country to find jobs elsewhere and self-employment has increasingly become a necessity. Universities were faced with the consequences of these changes for their graduates and an increased scrutiny of the curricula followed. The results were mixed. The universities who were able to meet the new challenges have shifted their role and taken on the responsibility of adapting their curricula to better educate students, the potential "leaders of tomorrow's world".

Has Noragric/NLH facilitated in making higher education with our African partners pertinent to graduates in order to meet their society's needs? Has the collaboration indeed been relevant in the past, and is it today? The response to these questions varies in each chapter. In the case of Sokoine University, for example, the changes of focus in the partnership from capacity building to cooperation for mutual interest, joint research that helps towards reducing poverty, and joint decision-making turned out to be essential for allowing the partnership to remain relevant and grow. This strong institution-to-institution collaboration, backed by government commitment, has also been a strong factor in the partnership with Awassa College in Ethiopia. Although difficult to pin-point exact Norwegian impact on the partnership, the author notes visible progress over the course of the years, where the quality of education has increased, teachers have received relevant experience relating to local contexts, which has led to better graduates. Indeed, the profile of the Ethiopian and Eritrean graduates in Chapter 5 has shown that none of the graduates are unemployed and that those interviewed classified their training as highly relevant.

While the partnership with Makerere University seems to have some flaws – among others, weak on collaborative activities, insufficient contribution from NLH in developing curricula for self-employment – the recent development of moving towards regionalising the interdisciplinary education activities under the MSc programmes is seen as a positive step. Regarding Bunda College (Malawi), the author notes that NLH's possibility to influence the attainability of higher education has been rather restricted, to a large extent due to a lack of sufficient funds. Some areas for improvement are the need for more practical skills, outreach and quality management.

¹⁴ Information Officer and SEMCIT project coordinator for Noragric, Centre for International Environment and Development Studies (Noragric), Agricultural University of Norway (NLH).

¹⁵ Director of Education, Centre for International Environment and Development Studies (Noragric), Agricultural University of Norway (NLH).

In conclusion, whilst Noragric/NLH's partnerships in general can be seen as having been mutually supportive, in some cases adapting to the changes needed in higher education, there is still room for improvement. The increased need for graduates to fulfil employers' needs in broader areas such as communication, management skills and business administration, as well as entrepreneurial skills, will require a learning process that is demand-driven, practical and problem-solution oriented. The shift from purely one-sided scientific knowledge transfer to integrating practical skills into the curricula and conducting relevant, applied research will become increasingly important in the future in order for graduates to be better equipped to meet the challenges of tomorrow.

ACRONYMS

APRU	Agricultural Policy Research Unit, Bunda College of Agriculture, Malawi
BCA	Bunda College of Agriculture, Malawi
CGIAR	Consultative Group on International Agricultural Research
DRE	Development Resource Economics (MSc programme, Department of Economics and Social Sciences, NLH)
ICT	Information, communication and technology
MAK	Makerere University, Uganda
MNRSA	Management of Natural Resources and Sustainable Agriculture (MSc programme, Noragric)
NARI	Norwegian Agricultural Research International
NFR	Norwegian Research Council
NGO	Non-governmental organisation
NINA	Norwegian Institute for Nature Research
NLH	Agricultural University of Norway
NOK	Norwegian kroner
NORAD	Norwegian Agency for Development Cooperation
NRM	Natural Resource Management
NUFU	Norwegian Universities' Committee for Development Research and Education
NVH	Norwegian College of Veterinary Medicine
SACCAR	Southern Africa Centre for Cooperation of Agricultural Research and Training
SADC	Southern African Development Centre
SSE	Sahel, Sudan, Ethiopia Programme
SUA	Sokoine University of Agriculture (Tanzania)
TARP	Tanzania Agricultural Research Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization