

Poverty Reduction Strategies and Relevant Participatory Learning Processes in Agricultural Higher Education

Case studies from Ethiopia, Malawi, Tanzania and Uganda

Edited by
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LIST OF ACRONYMS

ADLI	Agricultural-Development-Led-Industrialisation
AIMs	Malawi Agricultural Input Markets Development Project
ASDS	Agricultural Sector Development Strategy
BCA	Bunda College of Agriculture
CGIAR	Consultative Group for International Agricultural Research
COPE	Community Oriented Practical Education
CSP	Corporate Strategic Plan
DAE	Department of Agricultural Extension
DARS	Department of Agricultural Research Services
EARTH	Earth University Costa Rica
ESDP	Education Sector Development Program
ESIP	Education Sector Investment Plan (Uganda)
FFNC	Faculty of Forestry and Nature Conservation
FOCAL	Future Opportunities and Challenges in Agricultural Learning
GDP	Gross Domestic Product
HIPC	Heavily Indebted Poor Countries
IFAD	International Fund for Agricultural Development
IFDC	An International Centre for Soil Fertility and Agricultural Development
IMF	International Monetary Fund
JSA	Joint Staff Assessment
MAFS	Ministry of Agriculture and Food Security
MAIFS	Ministry of Agriculture, Irrigation and Food Security (Malawi)
MAPS	Marketing and Agro-processing Strategy
MAROP	Malawi Agricultural Research and Outreach Program
MASIP	Malawi Agriculture Sector Investment Plan
MDG	The Millennium Development Goals (United Nations)
MFA	Ministry of Foreign Affairs
MK	Malawian Kwacha
MNREA	Ministry of Natural Resources and Environmental Affairs (Malawi)
MOE	Ministry of Education
MPRSP	Malawi's Poverty Reduction Strategy Paper
MVIWATA	Tanzania's Network of Farmers' Groups
NAADS	National Agricultural Advisory Services
NAADS	National Agricultural Advisory Services Programme
NAES	National Agricultural Education Strategy 2004-2015.
NARO	National Agricultural Research Organisation
NARP	National Agricultural Research Policy
NARS	National Agricultural Research System
NASFAM	National Smallholder Farmers' Association of Malawi
NGO	Non-Governmental Organisations
NLH	Agricultural University of Norway
NOK	Norwegian crowns
NORAD	Norwegian Agency for Development Cooperation
Noragric	Centre for International Environment and Development Studies (Norway)
OVOP	One-Village-One-Product
PAP	Practical Attachment Program
PEAP	Poverty Eradication Action Plan
PEAP	Poverty Eradication Action Plan (2001-2003)

PIF	Policy and Investment Framework
PMA	Plan for Modernisation of Agriculture
PPE	Pro-Poor Expenditures
PRSP	Poverty Reduction Strategy Paper
PSIP	Public Sector Investment Program
SDPRP	Sustainable Development and Poverty Reduction Program
SEMCIT	Sustainability, Education and the Management of Change in the Tropics
SOER	State of the Environment Report 2002.
SUA	Sokoine University of Agriculture
TARPII-SUA	Household Income and Food Security for Smallholder Farmers in Tanzania: Applied Research with Emphasis on Women
TBL	Tanzania Breweries Limited
TCCIA	Tanzania Chamber of Commerce, Industry and Agriculture
TEVET	Technical Education, Vocational and Entrepreneurial Training
TPRSP	Tanzania's Poverty Reduction Strategy Paper
UFNP	The Uganda Food and Nutrition Policy
UFNP	Uganda Food and Nutrition Policy
UNFF	Uganda National Farmers Federation
UPE	Universal Primary Education
UPPAP 2002	Uganda Participatory Poverty Assessment Process
UPSR 2003	Uganda Poverty Status Report, 2003
URT	United Republic of Tanzania
WB	World Bank Group
WEHAB	Water, Energy, Health, Agriculture and Biodiversity

1. EXECUTIVE SUMMARY

Most developing countries have now completed their Poverty Reduction Strategy Papers (PRSP), among them four of Norway's main partner countries, Ethiopia (SDPRP), Malawi (MPRSP), Tanzania (TPRSP) and Uganda (PEAP). In all these papers, agriculture is envisaged to play a vital role in the development process.

Expectations of agricultural growth raise challenges for higher agricultural education. To enable agricultural universities to play a significant role in the reduction of poverty, a careful analysis of the action they have taken and should take in the future relative to their opportunities and constraints, was considered timely.

A study was carried out to find out how the PRSPs are reflected in policies and implementation plans through fund allocations in the ministries of education in Ethiopia, Malawi, Tanzania and Uganda, and how their agricultural universities/faculties are responding to the strategies in terms of their teaching, training and research content.

The second main objective of the study was to support the partner universities in identifying what is needed for the successful transformation of their agricultural faculties and departments in order to meet society's needs and demands.

The study was carried out partly as a desk analysis and partly through fieldwork in the four countries. Emphasis was placed on the demand for skills and knowledge by the private sector including the farmers and their organisations. The study shared views on practical improvements that can be undertaken by universities to strengthen entrepreneurship as means towards economic growth and a fair distribution of wealth.

Because of the short time since the PRSPs were finalised (2-4 years), it is difficult to attribute recent changes in the higher education systems directly to the PRSPs. Recent incentives and plans were therefore also addressed in the study.

The study showed that education is one of the pillars of the PRSPs, whereas agricultural education is not, or barely mentioned in the PRSPs. However, it is dealt with in detail in other documents related to the strategy paper. Since agriculture holds the key to economic growth (FAO), it is suggested that agricultural education at all levels should be an explicit part of the poverty reduction strategies when they are revised. Furthermore, agricultural research and extension should be recognized and reported as poverty reduction efforts in the progress reports undertaken by the relevant ministries.

There is much awareness among the agricultural universities/colleges with regard to their role in the development process, and the UN Millennium Goals are targeted in the universities' strategies. Curricula seem to be revised relatively frequently with the intention of strengthening teaching and learning in entrepreneurship in line with the SEMCIT model. However, while some universities/colleges have started courses in agribusiness, few changes in the teaching and training programmes were otherwise observed. The change toward more demand-driven research, outreach and teaching programmes at the agricultural universities/colleges is going slowly. It is therefore suggested that efforts to prepare agriculture graduates for employment and self-employment in the private sector should be accelerated. Curriculum reviews and modifications, more experiential learning and staff development all need attention. The governments should facilitate the universities/colleges to create special funds to be administered by a credit institution at a low interest rate so that

graduates can be assisted in starting commercial medium-scale farms and other agribusinesses.

The agricultural universities/colleges are not receiving the required resources to play a leading role in the fight against poverty. At Mekelle and Debu Universities (Ethiopia) the physical expansion in terms of student enrolments and infrastructure has been phenomenal. However, staff development and what goes with it for effective utilisation remains an outstanding issue. Financial support to enable the agricultural universities/colleges to carry out demand-driven research, outreach and training would therefore be a meaningful contribution to poverty reduction.

According to the interviewed students, there is too much emphasis on theory and not enough experiential learning at the agricultural universities/colleges, even though some universities offer internship for students in companies and organisations during their studies.

People in the private sector express the opinion that there is insufficient contact/collaboration between the agricultural universities/colleges and the private sector including farmers' organisations. Universities/colleges should consider establishing contact fora with private sector stakeholders and appropriate government agencies to meet regularly and discuss ways that various activities at the university/college can be designed and funded to become more relevant for private sector development.

There is a great need for relevant and affordable teaching and training materials within higher agricultural education in Africa. A fund should therefore be established for development of such materials.

Since the farming conditions often are similar within regions, a small fund for regional activities (exchange of information and staff between programmes) should be a regular component of the budget within each NORAD programme for higher agricultural education.

2. BACKGROUND AND INTRODUCTION

(Thor S. Larsen, Michael G. Angstreich, Joanna A. A. Boddens-Hosang and Frik Sundstøl)

“A university [must be] committed to addressing society’s most pressing needs through relevant research and preparation of students who proactively respond to the social, economic and environmental demands of poor rural people in an increasingly globalised world” (SEMCIT¹ Seminar at Jinja, Uganda, 2002).

2.1. PERSPECTIVES IN TIME AND SPACE

The visionary statement above concisely updates the desires of African educationists starting from 1916 when the first formal learning institution offering agricultural courses was set up at Fort Hare, South Africa.

At the time of independence, education received high priority in African countries. “Africanization” of both curriculum and staff became a fundamental objective for the universities of 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 1960's and 1970's, African countries enjoyed 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, however, unrealistically high and disappointment followed. Most African universities are now in a difficult situation (Domatob, 1998). For many of them, the increase in funding has been much lower than the increase in enrolment. Low salaries among academic staff led to dual employment and limited efforts devoted to teaching and research (Godonoo, 1998). The fact that many donor agencies often prioritise primary education over tertiary education exacerbates this situation. Many African universities are still based on the colonial tradition of supplying government institutions with trained manpower. There has been less focus upon agricultural entrepreneurship and business opportunities to support the private sector ranging from co-operatives to processors and marketers to individual farmers. Employment of a majority of graduates by the state administration for the last 40 years has led to weak links between universities and the private sector. A relatively small part of the university knowledge has, therefore, contributed directly toward economic growth. As a result, the private sector has to a large extent lost the opportunity of technological improvement and rise in productivity. A redirection of universities towards 1): productivity oriented knowledge, 2): close links to the local community, and 3): focus on entrepreneurship and job creation, may improve their role as 'development institutions'.

In 1988, the World Bank advised that Africa required highly trained people and top-quality research for formulating policies and plans as well as carrying out programmes essential to economic growth and development. Preparing people for responsible positions in government, business, education, health, agriculture and other professions was viewed as a central role of

¹Sustainability, Education and the Management of Change in the Tropics (SEMCIT) was a five-year international seminar series ('99-'03) organized by EARTH University, Salzburg Seminar and Noragric (Agricultural University of Norway) in which agricultural educators, business, governmental, institutional and farming leaders share innovative approaches from Africa, Asia and Latin America. Sponsored by NORAD, the Kellogg Foundation and the Royal Norwegian Ministry of Foreign Affairs.

Africa's universities (World Bank 1988). A decade later, little improvement was found when Mantzou, Nilsson, Taylor and Wallace (Wallace, Mantzou, and Taylor, 1996 and Wallace, and Nilsson 1997) examined 40 institutions of higher agricultural education and training in Sub-Saharan Africa. They concluded that their inability to forge effective formal and informal links through teaching, research and extension hampered policies and development for the rural majority. They called for a shift in academic balance from crop production to sustainable and productive rural development, an emphasis on problem solving skills, indigenous participation and knowledge, as well as a market orientation.

Africa fits into a global perspective in an FAO analysis that concluded that a majority of the world's agricultural universities had little contact with, or influence on, the rural societies they were meant to serve (FAO 1997). At independence, many African countries gave universities the role of development institutions. In the 1960s and 70s, higher education could boast of high social rates of return to investment. But since that time, due to various structural and political factors the influence of higher education has deteriorated. At present, little of the work at universities or by their graduates has contributed to the technological advancement of the rural private sector, national productivity or economic growth. There is now recognition of a need for universities to promote scientific creativity, technological innovation, business management and entrepreneurship (Esser, et al. 2003; and Juma, 2003).

2.2. THE WEHAB PROCESS

During the World Summit on Sustainable Development in Johannesburg 2002, a working group on water, energy, health, agriculture and biodiversity (WEHAB, 2002) expressed its views on the importance of agriculture as follows:

«The Millennium Development Goals (MDG) adopted by United Nations in September 2000 provide key targets to address the most pressing development needs. The central role of agriculture within the context of MDGs is well understood: agriculture is important in stimulating sustainable economic growth and rural employment, and it is the cornerstone for food security and poverty reduction».

The same group also developed [A Framework for Action on Agriculture](#) and [A Framework for Action on Biodiversity & Ecosystem Management](#) (WEHAB 2002). According to these frameworks, actions on agriculture and sustainable development included among others:

- Integrating national agriculture and food security policies with the economic, social and environmental goals of sustainable development;
- Ensuring equitable access to agriculture-related services and products, with a particular focus on food security and sustainable-livelihood needs of the poor;
- Transferring and adopting appropriate sustainable agriculture practices and technologies;
- Building institutional and human resource capacities related to agriculture; and
- Mobilizing international financial resources in support of national efforts.

A major weapon in the fight against poverty is education. According to the Norwegian Action Plan for Combating Poverty (Norwegian Ministry of Foreign Affairs 2002), education that focuses on the poor and on women will be given particular attention. According to the Norwegian Minister of Development cooperation, many countries and educational institutions have failed to adapt and respond to the needs and realities of their rural sectors (Frafjord

Johnson 2003). Curricula and teaching methods are often irrelevant. Economic restructuring and financial crises force change and threaten tradition.

The Task Force on Hunger under the United Nations' Millennium Project (<http://www.unmillenniumproject.org/documents/tf2interim%20execsum.pdf>) recommends as one of the overall strategies to achieve the MDG: "Align national policies that restore budgetary priority to agriculture as the engine of economic growth, build rural infrastructure, empower women, and build human capacity in all sectors involved in hunger-reduction actions" (Sanchez and Swaminathan 2004).

2.3. POVERTY REDUCTION STRATEGY PAPERS (PRSP)

At the Annual Meetings of the World Bank Group (WB) and the International Monetary Fund (IMF) in September 1999, it was agreed that nationally-owned participatory poverty reduction strategies (PRSPs) should provide the basis of all WB and IMF concessional lending and for debt relief under the enhanced [Heavily Indebted Poor Countries \(HIPC\) Initiative](#). This approach, building on the principles of the [Comprehensive Development Framework](#), should be reflected in the development of [Poverty Reduction Strategy Papers \(PRSPs\)](#) by country authorities.

The WB and the IMF both have websites on PRSPs. They are:

<http://www.worldbank.org/poverty/strategies/index.htm>

<http://www.imf.org/external/np/prsp/prsp.asp>

The PRSPs are prepared by governments through a participatory process that involve the civil society and development partners. Core PRSP requirements include that they are:

- Country-driven - involving broad-based participation by the civil society and the private sector in all operational steps;
- Result-oriented - focusing on outcomes that would benefit the poor;
- Comprehensive in recognizing the multidimensional nature of poverty;
- Partnership-oriented - involving coordinated participation of development partners (bilateral, multilateral, and nongovernmental);
- Based on a long-term perspective for poverty reduction.

In light of a deeper understanding of poverty and its causes, the PRSP sets out the macroeconomic, structural, and social policies that together comprise a comprehensive strategy for achieving poverty reducing outcomes. Policies should be costed and prioritized as far as possible so that they are not reduced to becoming a "wish list".

For successful PRSP development, it has been crucial to build upon existing strategies and plans wherever possible, both at the sectoral and the national level. Existing national strategies or development plans that were consistent with the guiding principles of the PRSP approach could well be considered to be a PRSP. For example, Uganda's PRSP is its Poverty Eradication Action Plan which pre-dated the PRSP initiative. A number of other countries have based their interim PRSPs largely on existing sectoral and national strategies.

When the World Bank and IMF consider the PRSPs, a [Joint Staff Assessment \(JSA\)](#)

accompanies them to the Boards of Executive Directors. This document is an assessment of whether or not the PRSP constitutes a sound basis for concessional assistance and debt relief. The PRSPs will need to be fully revised every three years and [Annual progress reports](#) are prepared to inform the society and the international community about changes in key poverty indicators and key developments on the policy front. As of 30 April 2004, 28 African countries have prepared Interim PRSPs or final versions of their PRSPs. See also <http://www.worldbank.org/poverty/strategies/boardlist.pdf>

2.4. A POSSIBLE AVENUE FOR AGRICULTURAL HIGHER EDUCATION - THE SEMCIT PROCESS AND ITS FOLLOW-UP IN AFRICA

Because economic, environmental and social issues are inseparable parts of sustainable development, entrepreneurship and social skills are qualities that need to be promoted in higher education and training. Africa's educational institutions must foster creativity, innovation and mutually trusting relationships between universities and rural communities as essential ingredients for success. The educational transformation process from tradition to modernity is a painstaking, long-term and financially demanding challenge. Africa's acute political, economic and health problems make the challenge both immediate and immense (Angstreich 2003, World Bank Task Force on Higher Education and Society. 2000, Court 1999 and Egron-Polak 2003).

The 5-year international seminar series (1999-2003) *Sustainability, Education and the Management of Change in the Tropics* (SEMCIT) focused on the changes needed in higher education in agriculture and natural resources management in the tropics in order to respond better to society's changing needs. The three partner institutions included EARTH University, a private, non-profit, undergraduate agricultural university located in Costa Rica; the Salzburg Seminar, a non-profit international education centre based in the USA and in Salzburg, Austria; and Noragric, the Centre for International Environment and Development Studies at the Agricultural University of Norway. EARTH University was taken as a model and point of departure for the seminar series. At EARTH, young Latin Americans – often from poor, rural areas - are rigidly selected to study at EARTH. The programme and curriculum has a student-centred approach and includes a mixture of academic class work, hands-on practical work on the campus farm and banana plantation, and the implementation of skills in neighbouring villages through community development activities. A strong emphasis is placed on developing entrepreneurial skills, since students are expected to leave EARTH as “agents of change” with the leadership qualities and commitment needed to transform Latin American agriculture and natural resources management.

Session III in the series held at Jinja, Uganda, in May 2002 focused on Africa. Individuals from the academic, private and government sectors and non-profit organisations discussed the status of, and perceived needs for, change in African tertiary agricultural education to meet the challenges of the “real” world. Participants agreed that the transformation process needed in African tertiary education would make agriculture more economically competitive, socially responsible, and environmentally sustainable in an increasingly globalised world economy, and would be able to provide effective contributions to food security and poverty reduction strategies (Final Report Session III, 2002). The Final Report included the so-called Jinja Consensus, which not only recommended the transformation of existing university systems and sharing resources and case studies of good practice, but also the possible establishment of

a new, separate institution to serve as a demonstration of the transformation process and play a leading role in training faculty from other African institutions.

Parallel to the SEMCIT process, representatives of three African universities were exposed to the EARTH model in November 2002 during a NORAD-funded visit to Costa Rica. The universities included Bunda College of Agriculture (Malawi), Sokoine University of Agriculture (Tanzania) and Debub University (Ethiopia). None of the participants had attended the Jinja seminar, although one (Debub) attended the final concluding seminar in Oslo September 2003). During the visit to EARTH, the participants reached similar conclusions to the Jinja gathering. They agreed that African curricula need to be more directed towards value creation by combining scientific knowledge and practical skills. They noted, however, that transformation along these lines had already started at several universities (Esser et al., 2003). The observations in the final report also concluded that an agricultural education may attract young people if (1) it leads to well-paid employment, (2) a post-graduation support mechanism is established for entrepreneurs and (3) if farm and farm related enterprises are supported by enabling policies and services.

Although Phase I of the 5-year SEMCIT seminar series has come to a close, regional follow-up of the Africa Action Plan as presented at the final seminar in Oslo, is definitely planned for During a transitional phase (2004-2005), regional activities will include the dissemination of SEMCIT results, 1-4 regional training activities, and planning for the implementation of Phase II, focusing on the recommendations of the Jinja Consensus.

2.5. PRSPS AND NORWEGIAN DEVELOPMENT COOPERATION

PRSPs are key documents for priorities and actions also under Norwegian development cooperation. Norwegian development assistance shall, whenever possible, be based upon PRSPs. Because a country-owned poverty reduction strategy will enjoy the support of a country's development partners, it will also provide a common framework for the assistance programmes in the country. Bilateral donors see PRSPs as playing a leading role in shaping their development assistance and for improved development assistance coordination.

With the development of the PRSPs, the MFA/ NORAD's annual country programme meetings have become less important. However, before 2003, the contacts over PRSP between the embassies and MFA/NORAD in Oslo were sometimes ad hoc, without set priorities from Norway and without adequate guidance to the embassies. Already in 2002, the MFA recognised the need for systematic dialogues between the embassies and the offices in Oslo, with focus upon topics and programmes, which were of particular importance as seen from Norway, e.g. poverty, economic development, good governance, women's participation in development processes, HIV/AIDS, environmental issues, etc.²

There are now regular dialogues between the Norwegian embassies and MFA/ NORAD on preparations and participation for annual PRSP-meetings between partner country authorities and donors. Sector programmes and budget support have become increasingly important, whilst project support will be reduced in the future. Norway's development priorities are steered through MoUs and agreements. The need for bilateral cooperation and coordination via the PRSPs are recognised.

² Memo to NORAD's Director ref. 2002/2476

2.6. CHALLENGES AND QUESTIONS

Agriculture is recognised to be an engine for economic growth in most African countries. The WEHAB process and Poverty Reduction Strategy Papers (PRSPs) developed by countries in Sub-Saharan Africa can be effective tools towards economic and social development. To be effective, the dynamics between education, research, production and markets must be strengthened. However, the PRSP approach has tensions that were recognized from the beginning. Quality is required, but there is also a need for speed in preparation. There must be country ownership, but the WB, IMF and the bilateral donors are also stakeholders in the processes. Country-owned strategies must be based on broad-based participation and effective analysis, which must be balanced against the need to move forward. The PRSP approach is based on an on-going process and on "learning by doing" as the process evolves.

Some critics claim that the PRSPs only are "*old wine in new bottles*", i.e., not much different from previous national and international development strategies and plans (Sanchez and Cash 2003). Whether correct or not, these statements raise questions, such as:

- Do the PRSP's really introduce something new that will make development assistance and cooperation more effective and targeted?
- Are there tensions between national support and ownership of the PRSPs, and expectations and interventions from donors and multilateral institutions, e.g. the WB and IMF?
- Do the PRSPs recognise important cross-cutting issues for sustainable development, i.e. the interactions between economic, social and economic systems? Example: Higher education in agriculture is a prerequisite for development of the agricultural sector and associated industries, which provide businesses and job opportunities (in particular for rural people), which in turn are important contributors to national economies and peoples' well-being.
- When a PRSP is presented by a government to the WB and the IMF, do the associated Joint Staff Assessment (JSA) provide adequate guidance as to whether or not PRSP constitutes a sound basis for assistance? In light of that process - to which extent are bilateral donors real partners in the dialogues over PRSPs, and to which extent are their arguments and priorities recognised?
- Norway's MFA has recently launched a new Plan of Action "Fighting Poverty Through Agriculture – Norwegian Plan of Action for Agriculture in Norwegian Development Policy"³ (Ministry of Foreign Affairs 2004). Do the PRSPs for the countries in this study address priority areas and proposed actions in this action plan?

2.7. JUSTIFICATION FOR THIS STUDY

Agricultural productivity can be enhanced in many different ways, and higher education, training, research and outreach are important means. Knowledge and competence is required, not only to improve farming technologies, but also for processing and marketing of the

³ Available from Norway's MFA, NORAD and from the Norwegian Embassies.

produce and for implementing good agricultural policies. Institutional capacity building, often via international cooperation, is thus important. The Agricultural University of Norway (NLH) has for many years collaborated with agricultural universities/colleges in Africa. Formalised institutional cooperation between NLH and the following African universities are in force today:

Ethiopia	Debu University, Awassa Mekelle University, Mekelle
Malawi	University of Malawi, Bunda College of Agriculture, Lilongwe
Tanzania	Sokoine University of Agriculture, Morogoro
Uganda	Makerere University, Kampala

In November 2003, Noragric was requested by NORAD to undertake a study on the impact of the PRSPs on the respective country's agricultural policy in general and on higher agricultural education in particular. The leadership of the five universities had earlier been involved in the SEMCIT process. It was therefore of interest to find out whether or not exposure to the SEMCIT process had led to any perceived needs to change the way universities/colleges perform their teaching, research and outreach. The study was carried out in collaboration with partners at the five universities mentioned above. The work was comprised of desk studies and field studies in each of the four countries.

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3. COUNTRY REPORT: THE CASE OF ETHIOPIA

(Aregay Waktola⁴)

THE SUSTAINABLE DEVELOPMENT AND POVERTY REDUCTION PROGRAMME (SDPRP)

3.1. INTRODUCTION: THE NATURAL AND SOCIO-ECONOMIC SETTING

Ethiopia is a mountainous country located in the Tropics between 4 and 14 degrees North and 33 to 48 degrees East. Its rugged terrains consisting of high mountains, steep hills, plateaus, valleys, deep gorges and low lying flood plains present great challenges for development. Sixty percent of the country is semiarid or arid. Mean annual temperatures vary considerably with altitude, ranging from 34.5 degrees Celsius in the lowlands to below 10 degrees in the highlands. Rainfall is also highly variable and has shown erratic behaviour in terms of quantity as well as spatial and temporal distribution especially over the last three decades. The recurrence of droughts and famines, especially, since the 1970s has been catastrophic and brought the country to the attention of the international community.

The country has a population of 67 million (2002) that makes it the third most populous country in Africa. Development wise, Ethiopia is one of the world's least developed agricultural countries. The per capita gross domestic product (GDP) is estimated at about US \$110. The majority of the population (85% rural) lives under absolute poverty. The infant mortality rate is 112 per 1000 live births and yet the average family size is 4.9 persons per household. HIV/AIDS is rampant throughout the country. There are equally, if not more, devastating communicable diseases like malaria, TB and the like, with weak health services delivery system and poor communication. Other poverty-related indicators also confirm the great challenges facing the nation.

Although the location of the country enjoys strategic importance in both political and economic terms, natural and man made crises never permitted its development. Throughout its history, the country has gone from one crisis to another, be it civil wars, droughts, floods etc. and famines that led to mass displacements of the population, repeatedly. The civil strife during the military regime (1974-1991) and the recent Ethio-Eritrea war (1998-2000) are cases in point. Since the 1991, a federal system of government has been installed with a constitution that is founded on the principle of regionalisation, decentralization and empowerment of people. Some signs of economic recovery and democratisation processes are slowly emerging. Issues of poverty reduction, food security and agricultural development are given high priority in economic policies and strategies. The environmental policy of Ethiopia was adopted in 1997. It seeks to ensure that essential ecological processes and life support systems are sustained along with the preservation of biological diversity (EPA, 1997).

3.2. POVERTY AND FOOD INSECURITY

Poverty connotes deprivation of the means of subsistence. The manifestations of poverty, i.e. inadequate distribution of resources, access to basic social services like education and health, food scarcity, low life expectancy, and lack of participation in decision making processes, are

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wide spread in Ethiopia (Braun, 1999; Carney, 1999; World Bank, 1999; Webb et al, 1992, p. 11; Ravnborg, 1996). The participation of people in decision-making has improved since the present government took power. Nevertheless, rural poverty (45%) is still worse than urban poverty (37%). Evidently, the persistence of poverty is linked to natural, social, economic and political factors. This explains why efforts to achieve sustainable development are undermined. Several studies confirm that poverty is the root cause of famine. Hence, a brief discussion on famine is in order.

Famine is indeed a household word in the Ethiopian context. Even the Oxford Advanced Learners Dictionary (1989) makes famine synonymous to Ethiopia, which is very disturbing. Braun et al, (1999) describe famine as a catastrophic disruption of the social, economic, and institutional systems that provide for food production, distribution, and consumption. It is largely a function of the failure of institutions, organizations, and policies, not just the failure of markets and production. Their analysis is based on the premise that central, local, and community governments play key roles in causing famine as well as preventing it, and the absence of effective systems of government can be both a cause and a consequence of famine. As Webb et al. (1992, pp. 133-136) concluded from a study they made in Ethiopia, famine is inseparable from poverty but it is possible to prevent both. The SDPRP is intended to achieve just that, in the final analysis.

An issue that is logically linked to famine is food security. World Bank definition of food security refers to access by all people at all times to sufficient food for an active and healthy life. According to Jansonius (1989, p. 96), the following conditions have to be satisfied for a satisfactory state of food security: (a) a consumption level for all members of the population providing sufficient calories, proteins, and vitamins/minerals; (b) stability of food supply from year to year and within the year, without excessive seasonal fluctuations; and (c) the provision to individuals of entitlement to adequate food intake from subsistence production (self-provisioning) or via the market or the social welfare system (relief activities) or from a combination of these considerations. The mere presence of food in the market does not entitle a person to consume it. The Ethiopian experience supports this judgment. A person must have the economic capability to ensure food security to his/her household. Otherwise, the alternative is to starve (Sen, 1981; Derez and Sen, 1989)).

There has always been acute scarcity of food, starvation and hunger wherever and whenever famine strikes in Ethiopia. The effects spill over in other parts of the country and remain unabated even when the rainfall conditions become normal. According to the SDPRP and other sources, on the average more than 4 million people face food shortage in any one year needing relief assistance even at times of good rainy seasons and good harvest opportunities. The affected households rely on food aid from the government, donors and NGOs. There are hundreds of international and national NGOs operating in the country with the aim of ensuring food security to the poor. Accordingly, priority to agricultural and rural development strategies is certainly a sound step to improving the conditions of food security in the country. The government has developed a Food Security Strategy that is designed to address both the supply and demand side of the food equation (SDPRP, 2002). There is now what is called "Coalition for Food Security in Ethiopia" established to promote a new partnership among government, development partners (donors, UN, NGOs, etc.), civil society, and the private sector. This is a very encouraging development. The goal of the Coalition is to reduce food insecurity faced by vulnerable households drastically.

3.3. THE AGRICULTURAL SITUATION; LIMITATIONS AND POTENTIAL

Ethiopia enjoys enormous ecological diversity. Accordingly, there are a variety of agro-ecological zones that differ in rainfall patterns, soil types, altitude and other physical features. Similarly, the farming systems found in these different agro-ecological zones show significant variation. The diversity in plant genetic resources is even more striking. On account of this, the country is accredited to be either the primary or secondary centre of diversity for some 38 cultivated crops. Various sources including SDPRP (2002) indicate that Ethiopia is the sole or most important centre of diversity for arabica coffee, tef, enset, and anchote. There are also very important gene pools of barley, wheat, sorghum, niger seed, Ethiopian rape, finger millet, field pea, chick pea, perennial cotton, safflower, castor oil bean and sesame. The sad side of the story is that there is continuous genetic erosion on account of environmental degradation and human activities. Livestock is another key resource of the country. The livestock of Ethiopia is the largest in Africa and the ninth in the world. Again, a succession of droughts over the past 30 years has led to catastrophic livestock losses as well as to the deterioration of natural resources both in the highlands and in the rangelands found in the eastern, north-eastern (Afar) and southern parts of the country.

Also, there are vast surface and ground water resources. Over fourteen major river basins with their numerous tributaries present great possibilities for irrigation and power generation. The potentials for other sources of water such as check dams, stream development etc. are also great. Groundwater is another source but the potential is not very well ascertained. Water harvesting through small check dams and catchments ponds is a strong possibility as judged by the government (SDPRP, 2002). All in all, according to several estimates, not more than 4% of the potential irrigable land has been developed. Nearly twenty years ago, a study by IFAD confirmed that small-scale irrigation was feasible throughout Ethiopia (IFAD, 1985, p. 10). The potential for the development of fisheries remains unexploited.

To sum up, although, the country is endowed with considerable land area, ecological diversity, a large volume of water resources, and large animal and human population, these resources are not properly managed and used. Neither the traditional technologies nor the modernizing government policies have proved to be supportive to take full advantage of the resources. The productivity remains low and vulnerable to the vagaries of nature. The economic system has been oscillating from liberal (during the monarchy) to command economy (during the military regime) and since 1991 back to free market economy under the present government (SDPRP, 2002).

The Ethio-Eritrean conflict, the collapse of coffee prices/external shock/globalisation and the erratic behaviour of the rains as well as corruption at various levels of government in recent years have dampened the prospects of free market economy. Agriculture continues to show poor performance. It is vulnerable to climatic shocks. Raising the productivity of the farmers, tenure security, provision of agricultural inputs is considered very crucial for a rapid growth in agriculture. The land policy remains to be a contentious issue. But other measures under consideration include the diversification, specialization and commercialisation of smallholder subsistence agriculture. In conjunction with this, the government is promoting agro-based manufacturing industries and expansion of rural infrastructure especially roads to expand economic opportunities for the small-scale farmers. Rural-centred strategies that make extensive use of labour and intensive use of land are to be employed in the agricultural sector. The high priority accorded by the SDPRP to commercial agriculture, increased productivity of smallholder agriculture and functioning markets are expected to boost agricultural

production. Improved agricultural performance, implementation of sector programmes, strengthened environment for private sector investment will create conducive basis for the growth of industry and trade. The consultation process covered all levels – local, regional and national (SDPRP, 2002).

Obviously, the cheapest input available for Ethiopian agriculture remains to be human resources. The agricultural education system thus far has not brought about significant impact on agricultural productivity. It is true that the colleges have produced a large number of scientists of higher calibre but could not effect significant agricultural change because of factors external to them. Many have been consumed by the brain drain and are actively contributing elsewhere at international and national institutions in North America, Europe and Africa. There are vast opportunities for raising the application of modern knowledge and technologies to improve the situation and make Ethiopia a food self-sufficient country. The emphasis given to agricultural research, water harvesting, and small-scale irrigation in the SDPRP would entail a redirection of agricultural education at all levels in terms of the curricula and mode of delivery, among other things.

3.4. AGRICULTURAL EDUCATION IN THE CONTEXT OF THE SDPRP

The SDPRP provides extensive review of the priority areas that the programme is focusing on. The priorities are: agriculture, food security, education, health, water (including irrigation) roads and measures to strengthen agricultural marketing (crops, livestock), road and access to finance through micro-finance institutions. The key role that the private sector can play in agricultural production, agricultural marketing, and processing of agricultural products is articulated very well. Surprisingly, there is no direct reference made to highlight the importance of agricultural education. A joint staff (World Bank and IMF) assessment of the SDPRP dated August 27, 2002 was silent on the subject but reflected on the strength of the strategy as follows: (i) a strong country ownership and a broad-based participatory process; (ii) a sound diagnosis of the poverty situation; (iii) an appropriate emphasis of the importance of rural and agrarian development in the lives of the poor, with a recognition of the importance of private sector development to increase non-farm income and generate growth; (iv) a welcome stress on investing in human capacity, as demonstrated by the reorientation of expenditures from military outlays toward social spending. Nevertheless, the assessment warns that the strategy remains a work in progress, and it needs elaboration in a number of areas. An important area that deserves critical attention is the challenge imposed on agricultural education. In this respect, it is instructive to examine the stipulated areas of action in agriculture and rural development and discern the opportunities and challenges exerted on higher agricultural education institutions. They are:

- Design and introduce to the farmer menu-based agricultural extension packages that take into account agro-ecological diversity, opportunities for specialization, and likely market demand. This is in stark contrast to the former blanket extension system that was top down and imposing. This needed the orientation of agricultural education at the junior colleges;
- Conduct extensive technical and vocational training in agriculture for development agents so as to provide effective extension services. The trainees are selected so that they can go back and work in a rural Kebele setting with provisions of housing and incentives;

- Strengthen agricultural research to generate appropriate technologies to underpin productivity improvement and sustainability. New research centres and stations are opened in hitherto unknown and marginalized areas. Research decentralized to address regional problems constraining productivity;
- Conduct extensive vocational training in agriculture for farmers with some level of primary education to create critical mass of smallholder commercial farmers through time; to effect this establish operational farmer training centres at peasant associations (local) level and assign 3-4 development agents;
- Improve agricultural marketing system through
 - Support to expansion of autonomous service cooperatives;
 - Study and when found feasible introduce warehouse receipt scheme and commodity exchange;
 - Developing and introducing crop quality standards;
 - Improving the supply of market information;
 - Strengthening private sector in agricultural marketing especially supporting its market-based interface with service cooperatives; its participation in commodity exchange;
- Support to micro-finance institutions to improve rural financial services;
- Strengthen livestock development through forage development; improved breed; veterinary services and livestock marketing with the view to improve livelihoods, diversify income, insure food security, and strengthen export;
- Support the expansion of service cooperatives, which are critical for providing input/output marketing services, rural financial services and off-farm employment and income through setting up small agro-processing enterprises;
- Support to water harvesting and expansion of small-scale irrigation to mitigate impact of rainfall variability/shortage/absence;
- Improve rural land management to ensure tenure security; encourage out-grower scheme between the smallholder farmer and the private sector especially in the case of high value crops; facilitate by working out appropriate legal and procedural frame work for the private sector who wish to rent land from farmers (SDPRP, 2002, pp. 61-62).

Obviously, the implications for higher agricultural education are far reaching. The agricultural colleges and universities can tap on the resources stipulated for building the capacity needed to enhance the development of agriculture and rural development in addition to what is projected for their expansion. The cost estimate for capacity/institution building within the agricultural sector alone during the three-year (2002/03 – 2004/05) period of the SDPRP is Birr 2882.7 million out of the total cost of Birr 9928.8 million projected for the agricultural sector. One can of course wonder about the feasibility of this ambitious plan.

Generally, agricultural universities in developing countries are under pressing demands by governments and donors to transform the traditional disciplinary system and install a new demand driven multidisciplinary approach taking into account the complex requirements of agriculture and rural development as well as the realities of the present time in the face of globalisation. Especially, agricultural colleges and universities in Africa need to reorient themselves to produce employable graduates with entrepreneurial skills and abilities (Etzkowitz, 2003, 2000). For this purpose, they must be accorded increased independence and autonomy. Moreover, they also must be linked to and have constant interaction among themselves and external academic institutions, industry, government organizations, NGOs, and local communities. South-South and North-South partnerships offer great opportunities

for the development of agricultural education in Africa. The Ethiopian institutions have made good use of such opportunities in the past and continue to be reflected in their strategic plans and actions.

Similarly, the resources of the national and international agricultural research organizations (CGIAR) must be exploited beneficially. For example, students at universities in Ethiopia, Kenya, Tanzania and Uganda have opportunities to study for a year at a Swedish university through the SIDA-funded BIOEARN programme as part of their programme on biotechnology (BIOEARN website; World Bank, 2000).

Currently, debates are going on with respect to the development and application of biotechnology in countries like Ethiopia. It is acknowledged that biotechnology can contribute to food security. But the uncertain effects and the consequent erosion of genetic resources are burning issues at the heart of the debate. The Ethiopian institutions are nowhere in this field (Berg, 2003). Globalisation is a related unavoidable threat to African countries, albeit its possible contribution to institutions of higher learning through new knowledge, and educational technologies among other things. Understanding the implications of globalization in its proper context is imperative in training undergraduate and postgraduate students. In view of all such developments around the world, there is a great deal of transformation required of agricultural education institutions. Such transformation process take time but the demands of programmes like SDPRP do not give time. This dilemma should be resolved somehow. There is ongoing debate at the international level to help ease the situation. Obviously, there are some advantages that higher education institutions can tap to enhance the quality of education.

For entrepreneurial universities to succeed, they must be supported by an appropriate policy and institutional environment. This is echoed by others as well. For example, Looy et al. argue that agricultural universities will need to be granted ownership of intellectual property to get returns on their inventions as well as supportive government policies and resources (Looy *et al*, 2003). Furthermore, universities need rapid and cheap access to the vast sources of information in education, science and technology if the quality of their programmes is to be relevant to their respective contexts (Maguire, 2000).

In Ethiopia, the agricultural colleges and universities suffer from a number of shortcomings. They are too small in size to face the ambitious demands of the SDPRP. On top of this, their major deficiency remains to be the excessive academic character of the education despite genuine efforts and intensions to supplement classroom instructions with field activities and other forms of practical training. The other related deficiencies are: a) insufficiency of and incentives for qualified staff; 2) inadequate library (books, information technology etc) and laboratory facilities; 3) weak link between teaching, research and extension; and poor communication facilities, among other things. The government recognizes these shortcomings and attempts are under way to make appropriate investments as projected in SDPRP.

Thus, SDPRP targets for tertiary education are to expand the undergraduate intake capacity of all higher education institutions in the country including agricultural education to reach 30,000 per annum and the postgraduate intake to reach 6,000 by the end of 2004/05, thereby to raise the overall higher education enrolment to 152,000. Massive construction of infrastructure, curriculum review and staff development activities and the like are in progress drawing from the total estimated cost of Birr 3459.0 million included in the SDPRP for the three-year period. The activities stipulated in the action plan are:

- Open new degree and diploma programmes in relevant fields deemed necessary for the economic development;
- Upgrade two colleges to university level;
- Expand the postgraduate training capacity of Addis Ababa and Alemaya universities through provision of Ph.D. and M.Sc. level programmes in different disciplines;
- M.Sc. programmes in selected disciplines will be opened in Debu, Mekelle, and Jimma universities, and in Arba Minch Water Technology Institute and Gonder College of Medical Sciences;
- Construct necessary additional infrastructure - classrooms, laboratories, computer centres, workshops, etc.;
- Train 500 academic staff in pedagogy and teaching material preparation through in-service programmes;
- Recruit and employ expatriate teaching staff as necessary in order to alleviate the existing shortage of teachers in higher education institutions;
- Prepare student and staff profiles on their skill, attitude and knowledge;
- Introduce Community Oriented Practical Education (COPE) Scheme with the aim of integrating teaching, learning and research in universities with communities;
- Establish a Higher Education Strategy Institute and a Higher Education Quality Assurance Agency to guide the overall reform movement of higher education and to set and maintain standards within the public and private higher education institutions, respectively;
- Train about 200 managers of higher education locally and abroad;
- Develop and implement financial management system for improving the efficiency of the higher education institutions as well as the implementation mechanism for cost sharing/cost recovery scheme. (SDPRP pp. 96-97).

Many of the above items relate to agricultural education. A field study was conducted to explore how the agricultural colleges are responding to the influence of the SDPRP and how the stakeholders are viewing the same. The following section presents the findings from fieldwork.

3.5. FINDINGS OF THE FIELD STUDY - ETHIOPIA

3.5.1. The government's policy and action plans regarding higher agricultural education

It must be noted at the outset that attributing the recent changes in the higher education system in Ethiopia to the SDPRP is not easy. Since 1994, the government has been introducing educational reforms and sectoral strategic development programmes aimed at achieving accelerated economic growth and poverty reduction in the framework of the Agriculture Led Industrialisation (ADLI) economic policy. The National Capacity Building Program was launched in 1998 and was in the process of refinement when the World Bank/IMF PRSP initiative came into the picture in 2001. Capacity building was viewed as a systematic combination of human resources, working systems, and institutions that would enable a country to achieve its development objectives. The programme had put emphasis on human resource development, improving working systems and institutional set up. It set the direction for higher education as a source of high level professionals and leaders capable of transforming public and private development institutions Yizengaw (2003).

The attention given to higher education was congruent with the conclusion of the task force on higher education and society that was convened by the World Bank and UNESCO in 2000. The conclusion was, “higher education is no longer a luxury; it is essential for survival”. This led to a major policy shift in favour of higher agricultural education and gave it recognition as a critical prerequisite for sustainable development and poverty reduction in Ethiopia. Suffice to examine the rationale reflected in the Education Sector Development Program II Main Document (ESDP-II, 2002/03-2004/05), as well as the Program Action Plan (PAP) to ascertain the strength of the government’s commitment. ESDP-II was ultimately incorporated into the SDPRP and became the constituent part when the latter was formulated in 2000-2002. (SDPRP, July 2002; ESDP-II, 2002).

During the fieldwork, enormous physical expansion was observed at both Debu University and Mekelle University. The institutions were expanding their programmes in terms of student enrolments, new BSc and MSc degree programmes as well as expansion of existing programmes. Diploma programmes were by and large phased out from the university systems and taken over by regional government institutions. To accommodate the expansion of programmes, the Ministry was implementing massive capital investment projects including building of classrooms, libraries, laboratories, computer centres, dormitories, and the like. Provisions of equipment and facilities were coming in even before the completion of the buildings. Recruitment and employment of expatriate staff was being aggressively pursued. This would continue until adequate Ethiopian staff becomes available from postgraduate programmes offered at Addis Ababa and Alemaya universities. The Awassa College of Agriculture in Debu University as well as the Faculty of Dryland Agriculture and Natural Resources of Mekelle University were less reliant on expatriate staff thanks to the aggressive staff development programmes they had previously pursued through external support provided by NORAD and other donors.

To effect administrative changes, a new Higher Education Act (Higher Education Proclamation No. 351/2003) is promulgated. The Proclamation provides higher education institutions legal status for internal autonomy and accountability, among other things. It imposes cost sharing responsibility on students, stipulates joint appointment and working for other institutions, the private sector, NGOs and individuals. However, corresponding financial management systems for improving efficiency were yet to be developed. The authorities of the colleges were of the opinion that real autonomy could come only when the financial systems are decentralized.

By the same Act, the government has also established two autonomous organs known as Education Relevance and Quality Assurance Agency, and Higher Education Strategy Centre, both accountable to Ministry of Education (MOE). The objective of the first agency is stated as “to supervise the relevance and quality of higher education offered by any institution”. The second agency has the objective of formulating vision and strategy in order to make higher education compatible with the country’s manpower needs as well as with appropriate policies and with due consideration to global situations, and advise the government on such matters. Both agencies were in their respective formative stages at the time of the field study.

Furthermore, the Act provides for the establishment of income generating enterprise and income fund. Incomes of the enterprise are to be used for covering costs necessary to realize the objectives of the institution. The following sources of the Income Fund are identified: 1) contribution made by the enterprise; 2) budget allocated to research from the institution’s

budget; 3) unutilised finance of the Fund during the fiscal year; 4) donations; and 5) other incomes. These are subject to approval of the boards of the institutions.

The Ministry of Education has assumed the task of encouraging government organs, non-profit making associations, business associations, students and workers of the institutions, and any other appropriate person to work jointly on matters concerning education, training, research, practical work, initiation and dissemination of technology.

A strong case is built in the ESDP-II for a viable link between higher education and the private sector. The profile of graduates will have to be improved through entrepreneurship/practical training in order to make them marketable to the private sector. In short, the programme stipulates provision of good quality education to large numbers, equitably but with diminishing dependence on public resources in the long run. Hence, the performances of the colleges must be judged in light of these expectations but unfortunately because of the limited time of SDPRP (only one and half years since the policy prescriptions and action plans became operational) it was not, obviously, possible to discern the impact of the Program in more concrete terms. According to information secured from the Ministry of Finance and Economic Development (MoFED), negotiation was underway with World Bank to extend SDPRP for a further five year after the end of the current phase (2002/03-2004/05).

3.5.2 To what extent are Mekelle and Debu Universities fulfilling the goals in the education policy related to the SDPRP?

The colleges were responding in the following manner:

- The strategic plans of the colleges were revisited in the context of SDPRP. It is to be remembered that the PRSP process was in the horizon when the universities were preparing their respective strategic plans. Certain key elements like entrepreneurship are elaborated in the revised documents of Debu and Mekelle universities respectively;
- Curriculum review and change. Civic education and entrepreneurship training are included in the curriculum as common courses. Depending on the discipline and faculty 2-4 months of Community Oriented Practical Education (COPE) and Practical Attachment Program (PAP) in the case of MU has become part of the curriculum but the colleges remain uncertain about the budget because this is done mainly with support from NGOs, the industry and the private sector. The duration of education for a bachelor degree has changed from 4 to 3 years based on government insistence and policy. New programmes are introduced and some old ones are expanded or reformulated to comply with the evolving policies. Examples of new programmes introduced include: cooperative organization and management, veterinary science, agricultural resource economics and management, natural resource economics and management, hotel management, food science and technology, horticulture, soil and water management;
- Both Awassa and Mekelle have initiated graduate studies in limited fields. In Awassa, they have Animal Nutrition (7 students), Dairy Science (13 students), Agronomy (10 students), Horticulture (14 students), and Soil Science (8 students). There are 10 other approved programmes in the pipeline. Hopefully, they would be started during the next academic year. In Mekelle, M.Sc. in Tropical Land Resource Management has become operational with the enrolment of 13 students. The Faculty is prepared to start two more programmes during the coming (2004/05) academic year;

- Total enrolment of regular students has already doubled in all the agricultural colleges. There were, on the average, a total of 1500 agricultural students (Year I-Year IV) in each of the colleges. The sources of students are, largely, the newly established preparatory schools. Unlike previous times, students take the Ethiopian School-Leaving Examination in grade 10 and those who qualify for higher education enter these two-year preparatory schools, and if they succeed, they can join higher education institutions after passing placement examinations. In view of this, the freshman year in the colleges has been phased out assuming that the preparatory schools would adequately prepare students to qualify them for admission to professional fields of their choice. This was the rationale used by the government for changing the duration of BSc level agricultural education from 4 years to 3 years. The implications are yet to be seen, although some alarming indications have already surfaced, according to staff members interviewed for this study. Mid-term results of the first batch of students admitted in 2003/04 year were described as very poor. Final examination results were not available at the time of the study;
- Staff members have started participating in short-term training in pedagogy and teaching-material preparation. The plan is for such staff to get certification in 5 years. Eventually, certification will be a requirement of all academic staff. The staff seemed to like the idea. Similarly, training of higher education managers had began as organized by the Ministry of Education. They take few participants from each higher education institutions every year during summer breaks. MU gives bi-annual training to top management staff, deans, officers and department heads management training on specialized topics in and out side of the country. Experience sharing visits are also made to several universities in the south.

3.5.3. The relevance of the teaching, research and outreach programmes

It is too early to judge the relevance of the teaching, research and outreach programmes in the context of SDPRP. What is certain is that the directives of the Ministry of Education are strictly followed. Students are made to sign cost sharing agreement. When asked about this, those students who were interviewed said that the cost sharing idea was not persuasively presented to students. The idea of cost sharing was introduced, debated widely among students, staff and the community in 1998 and was ready to be introduced but the war with Eritrea started and was postponed. Of course, the students who participated in the debate have all graduated. The interviewees also questioned the quality of education they were receiving. In their opinion, quantity was being emphasized than quality of education. When asked what students were doing to influence the relevance and quality of education, the Mekelle students reported that there were constructive initiatives. Students with the assistance of the staff have established clubs in order to direct student behaviours and responsibility towards community action and extracurricular activities. The following student clubs were in existence: (a) Fight Against Poverty and Starvation through Animal Production; (b) Horticultural Club; and (c) Environmental Club. d) Civic Education Club

From all indications, it was obvious that agricultural education had become a less preferred area of study because of limited job opportunities and other factors. The official explanation to this is that graduates are not ready to go to the rural area where their expertise is required. There are a lot of advertised and solicited vacancies at Woreda and Kebele levels for graduates of agriculture but most decline to serve in rural communities. This requires a complete reorientation of the curricula and staff training. Interviewees reported that teacher education was unusually attracting more students these days. This was attributed, mainly, to the exemption, by policy, of such students from cost sharing agreement and the certainty of

employment. They thought a similar arrangement for students of agriculture might change the situation.

From views expressed by those academic staff interviewed, it appeared that students coming from the preparatory secondary schools were not joining the colleges with adequate academic preparations. The college authorities were indeed fearful of much higher attrition rate. Other transitional factors were also mentioned for academic failures. In this connection, one issue that was mentioned was overlapping academic years because of the changes. The situation was not allowing breathing time for the teaching staff. Conventional teaching methods continue.

On the issue of quality of education, in one of the interviews made in Awassa, interesting reflection was made on the inputs, processes and outputs that can determine the degree of quality assurance. In Awassa, as in other colleges, the input side, which includes quality of staff (including incentives), staff-student ratio, teaching aids, laboratory equipment and supplies, as well as library capacities and technologies, is as challenging today as before. Similarly, the teaching-learning process, the mode of examinations, and evaluation of staff by students, etc. have not yet changed despite the commitment to adopt the change agenda. The ultimate indicator is feedback from employers and the graduates themselves. All the experiences show that there are lots of room for improvement, especially in these days of haste to effect expansion of numbers of students, programmes, and infrastructure.

There is no quarrel over the need for practical education and entrepreneurship training or demand-driven research and outreach programmes or community services in the fight against poverty. But the policy declarations and the reality on the ground do not match. For instance, there is no budget allocated for the implementation of the community-based practical education programme, which is boldly featured in the curricula. In this connection, no significant change was observed with respect to the involvement of the private sector. The established institutional culture and limited resources are stiff stumbling blocks for the desired measure of success towards implementing the change agenda.

3.5.4. The commitment of Mekelle and Debub Universities to their role in the development process

There is no question that the leadership in the colleges of agriculture understand and are committed to the SDPRP and more specifically to ESDP-II. But the awareness and appreciation of the teaching staff concerning the action plans packaged in SDPRP document looked blurred. This is not to say that some members of the staff have not been exposed to the process at some stage in the formulation of the programme. The point is they were unfamiliar with the SDPRP document to internalise the implications for their respective roles and responsibilities. Events have taken over too fast and quick leaving no time for reflection and considered action.

The institutions were overburdened with ambitious policy prescriptions and action plans on one hand and meagre or uncertain level of resources on the other. These, in addition to the unreeling bureaucratic entanglements, were obviously frustrating the visions of the leadership. SDPRP calls for strategic thinking, especially at the point of action. But, the thinking is done well above the hierarchy and traditional management is let to prevail, business as usual. Despite such state of affairs, there was no visible resistance to the colossal change overwhelming the institutions. The staff members continued to loyally perform their tasks under extreme pressure of time and resources. In the last couple of years, they had had no

inter-semester breaks because of overlapping academic years. The staff was indeed very much concerned and reflected genuine senses of responsibility with respect to the prevailing level of poverty in the country. Students were similarly affected by thoughts of poverty.

The notions of entrepreneurship and experiential learning have spread throughout the educational system. But the conditions for their application were dreadfully lacking. It is known that entrepreneurship training requires productive enterprises (of the public and/or private sector/communities) accessible to students within or in the vicinity of the colleges. Unfortunately, the private sector, towards which agricultural education is being geared, is barely emerging. Innovative institutional enterprises are not initiated. Yet, the focus on entrepreneurship is kept alive, at least conceptually, in course descriptions and outlines as well as pronouncements over the mass media. In practical terms, there seems to be very little going in that direction at this time.

3.5.5. The universities' vision and action plans for a revitalized institution

Academic leaders from Debu and from Mekelle who participated in the EARTH- Salzburg seminar series on Sustainability, Education and the Management of Change in the Tropics (SEMCIT) found that the approach of the EARTH University in Costa Rica was innovative and ideal to emulate. The change agenda adopted at the conclusion of the seminar is sound and should serve as the guiding principles for the development of agricultural education. But, the challenges facing agricultural education in Ethiopia have to be addressed. The drawbacks of the conventional curriculum and methods are very well known but they persist because of limitations of educational resources including staff qualification, motivation and attitudes. As agricultural education is publicly funded, the government understandably imposes that students should earn the BSc degree in 3 years, and also expect large numbers to be trained by each of the colleges of agriculture. Placement of first year students is made by the Ministry of Education in consultation with HEIs.

The revised strategic plans of Awassa and Mekelle prescribe visions and missions aimed at transforming agricultural education. To illustrate, the mission of Debu University reads, "Promote DU activities in terms of knowledge and technology creation and transfer, skill development, effective entrepreneurship and inculcate responsible attitude for the betterment of the society". In spite of the prevailing challenges, efforts are underway towards producing graduates who possess technical knowledge as well as entrepreneurial and leadership qualities.

3.5.6. The need for domestic and external resources to strengthen the universities in their efforts to serve target groups

Quantitative changes are taking place with or without the wishes of the institutions. The changes are taking place faster than anticipated, evidently, under the influence of SDPRP. Qualitative changes take time and require heavy investments. The available domestic resources (budget, internal revenue etc.) are small and are bound to grow at a much faster pace than the needs. The private sector is remotely ready to contribute. The measures taken by the institutions to tap from the resources of the communities and NGOs are very scanty. Local sources of fund for research and development also remain the same, although there is increasing interest by organizations such as the EARO and ESTC to collaborate with the colleges of agriculture. But they demand creative outputs from the university staff. On top of this situation, government funding is bound to decline as reflected in policies, as mentioned in previous sections. The Higher Education Act entitles the colleges to generate internal revenue in order to supplement their respective recurrent budgets.

What remains to complement public and private funding to ensure the transformation of higher agricultural education in Ethiopia is continuation/expansion of external support through grants, university-to-university partnership and networking. There is always no assurance for the continuity of donor support. They fluctuate depending upon political and economic developments.

Norway has issues with Ethiopia with respect to questions of democracy, justice and human rights as well as the stalemate prevailing over the resolution of the Ethio-Eritrean conflict. Fortunately, Norway supports several earmarked projects within the poverty reduction strategy, such as capacity building through the collaboration between NLH and the Ethiopian institutions. The SDPRP is receiving support also from other donors, like SIDA, USAID, World Bank, EU, etc.

3.6. CONCLUSION

The education component of SDPRP and ESDP-II are the same with respect to the goals and action plans. The Millennium Goals are on target in both cases. ESDP-II is very well integrated with the SDRP. Needless to mention that the SDPRP is a derivative of the World Bank's PRSP while ESDP II represents the government's long-term capacity building strategy. Both programs are pushed from above. Nevertheless, the participation of the leaders of the educational institutions or their representatives cannot be discounted.

The change agenda drawn from the SEMCIT series of seminars have not been widely diffused yet. Preparation was underway in Awassa for a seminar on the lessons of SEMCIT. SEMCIT ideas are defused into MU in several forms. The SP of MU is drawn in that spirit and experiences incorporated. The PAP is an aspect of that. Students on their initiative are serving community of farmers and giving Civic Education to high school students. A business centre to train student entrepreneurs is in the making thru the Faculty of Business and Economics to include students of agriculture. These actions are consistent with the intensions of SDPRP and eventually are bound to leave a mark at least in Awassa and Mekelle if not in the Ethiopian higher agricultural education system in general.

What can be certainly said at this stage, in view of SDPRP or ESDP-II, is that higher education in general has been accorded high priority since 2002 unlike in the 1990's. The faces of the Colleges/Universities in Awassa and Mekelle are changing. The physical expansions both in terms of student enrolments and infrastructure are phenomenal. But their respective ramifications on quality of education should be addressed and monitored in the course of implementing the programmes and thereafter. The agencies established for quality assurance and strategic thinking, respectively are well taken. However, staff development and what goes with it for effective utilization remains to be an outstanding issue. The needs of the colleges in this respect are enormous. They need external assistance to supplement their budgets and other sources of domestic funding. Both colleges are skillful in capitalizing on and using external sources with multiplier effect. The partnership with NLH/Noragric supported by NORAD, is a case in point. It is important that the government considers incentive mechanisms for the staff to enhance their effectiveness. Such measures can also ensure to minimize wastage of trained staff and the efficient use of other resources.

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3.8. LIST OF PERSONS MET

Ministry of Education

Dr. Teshome Yizengaw, Vice Minister for Higher Education
Mr. Alemayehu Worku, Senior Expert, Planning Department.

Ministry of Finance and Economic Development

Mr. Getachew Adem, Head Welfare Monitoring Unit and National PRSP Secretariat

Royal Norwegian Embassy

Mr. Øyvind Orbeck Sorheim, Second Secretary, Development Cooperation
Mr. Ashenafi Gizaw Beyea, Programme Officer, Development Cooperation

Debu University

Professor Zinabu Gebremariam. President
Dr. Admasu Tsegaye, Vice President for Business and Administration.
Dr. Fekadu Beyene, Academic Programme Officer
Dr. Girma Abebe, Research and Publications Coordinator
Dr. Sheleme Beyene, Registrar
Dr. Ferdu Azerefegn, Dean, College of Agriculture
Dr. Tegene Legesse, Dean, Graduate Programmes Coordinating Office.
Dr. Etana Debela, Head, Vet. Medicine
Dr. Hussein Mohammed, Head, PPDF
Dr. Bezuayhu Tesfaye, Head Horticulture Department
Dr. Kebede Abegaz, Head, FSPT
Mr. Berhanu Nega, Head, Cooperatives Department
Mr. Kebede Ergano, Head, Agricultural Resource Economics and Management
Mr. Tesfaye Wattomo, Rural Development and Family Science.
Student Girma Fana, PPDF III
Student Nega Mekonnen, APRM IV
Student Muhyadin Mohammed, APRM IV
Student Teshome Nega, PPDF III

Southern Nations, Nationalities and Peoples Regional Government

Mr. Bediru Dedibo, Head, Cooperative Development Bureau
Mr. Daniel Alemayehu, Head, Cooperative Promotion Department

Mr. Meseret Turuye, Manager, Sidama Cooperative Union.

Mekelle University

Dr. Mitiku Haile, President

Dr. Kindeya Gebrehiwot, RPO

Dr. Makonnen Yohannes, Registrar

Dr. Nata, Assistant Registrar

Mr. Nigusu, Head of Administration and Finance

Dr. Fasil Kebede, Dean, Faculty of Agriculture and Natural Resources

Mr. Zaid Negash, Dean, Faculty of Business and Economics

Mr. Aregawi Gebremichael, Vice Dean, Faculty of Business and Economics.

Mr. Getahun, Dean, Law School

Dr. Kefelegn Kebede, Head, Animal, Range & Wildlife Sciences Department

Mr. Diress Tsegaye, Research Coordinator, Faculty of Agriculture and Natural Sciences

Dr. G. Veerakumaran, Head, Department of Cooperatives

Students; six senior students were interviewed; unfortunately the list of the names is lost.

Tigray Regional Government

Berhanu Hailu, Head, Environmental Protection, Land Administration and Use.

Mr. Jemal Mohamud, Head, Tigray Cooperative Promotion Office

Alemaya University

Dr. Eshetu, Senior staff member.

Ambo College of Agriculture

Dr. Eyilachew Zewdie, Dean

Jima Agricultural College

Mr. Mohammed Afmed, Head, Continuing Education Department

Ethiopian Agricultural Research Organization

Dr. Kidane Giorgis, Director of Dryland Agricultural Research

Addis Ababa University

Dr. Yeraswork Admasse, Head, Department of Sociology and Social Administration

Private Sector

Mr. Haile Meskel Abebe, Deputy Secretary General for Trade information, Addis Ababa Chamber of Commerce.

Ms. Haregewoin Cherinet, Manager/Expert in gender matters for Health, Education and Food Security.

Mr. Tadesse Belay Abraham, Managing Director, Awassa Green Wood Pvt. Ltd. (Producers and suppliers of horticultural and cereal crops, seedlings, seeds and landscape designers).

Mr. Dagnatchew Yilma, Owner, Microlink I. T. College. Addis Ababa, Ethiopia

4. COUNTRY REPORT: THE CASE OF MALAWI

(Frik Sundstøl⁵ and Emmanuel Kaunda⁶)

THE MALAWI POVERTY REDUCTION STRATEGY PAPER (MPRSP)

4.1. INTRODUCTION

The total area of Malawi is 118,480 sq km including 24,400 sq km of water. It is bordering Mozambique (1,569 km), Tanzania (475 km) and Zambia (837 km). The terrain varies from narrow elongated plateau with rolling plains, rounded hills and some mountains. Arable land is 19.93 %, permanent crops 1.33% and other 78.74% (1998 est.). Lowest point, 37 m above sea level, is at the junction of the Shire River and international boundary with Mozambique, and the highest point is Sapitwa (Mount Mlanje) 3,002 m. The total population of Malawi is 11,651 million and is growing at a rate of 2.2 % per year. Forty-seven per cent of which are under the age of 14.

Malawi is endowed with a diversified natural resource base. It has forest resources covering about 28 % of the land area, abundant water resources and a remarkably diverse flora and fauna, of which the uniquely rich and diverse fish resources stand out.

However, environmental degradation is rampant and a major national concern. For example, forest resources have declined from 47% of area in 1975 to an estimated 28 % of the total land area by the year 2000. The major forms of environmental degradation include soil erosion, deforestation, water resources degradation, fisheries depletion and loss of biodiversity. The rich biodiversity in Malawi is already under increasing pressure from continued growth in population and poverty. Disturbances and destruction of ecosystems and landscapes and the associated loss of habitats have led to declining biodiversity throughout the country. The climate in Malawi is sub-tropical with one rainy season (November to May) and one dry season (May to November). Apart from the arable land, the vegetation and the lakes, Malawi has the following natural resources: limestone, hydropower, unexploited deposits of uranium, coal, and bauxite.

Landlocked Malawi ranks among the world's least developed countries. The economy is predominately agricultural, with about 90% of the population living in rural areas. Agriculture accounted for nearly 40% of GDP and 88% of export revenues in 2001. The economy depends on substantial inflows of economic assistance from the IMF, the World Bank, and individual donor nations. In late 2000, Malawi was approved for relief under the Heavily Indebted Poor Countries (HIPC) programme. In November 2002 the World Bank approved a \$50 million drought recovery package, which is being used for famine relief. The government faces strong challenges, e.g., to fully develop a market economy, to improve educational facilities, to face up to environmental problems, to deal with the rapidly growing problem of HIV/AIDS, and to satisfy foreign donors that fiscal discipline is being tightened. The performance of the tobacco sector is key to short-term growth as tobacco accounts for over 50% of exports (CIA 2003).

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4.2. POVERTY AND FOOD INSECURITY IN MALAWI

The magnitude of poverty in Malawi is widespread, deep and severe and calls for an immediate action in development of the agricultural as well as other sectors as documented by the following socio-economic indicators (Government of Malawi 2000):

• Number of people who are poor (7.5 million)	65 %
• People living in extreme poverty	28.7 %
• Proportion of the poor who are females	52 %
• Households headed by females	25 %
• Adult literacy	58 %
• Female literacy	44 %
• Life expectancy in 2003 (compared to 43 years in 1996)	38 years
• Infant mortality rate per 1000 live births	105
• Maternal mortality rate, deaths per 100,000 live births in 2000 (compared to 620 in 1990)	1120
• Subsistence agriculture as source of income for the rural poor	63.7 %
• Food insecurity is a norm of life for the households	60 %
• Children under the age of five that are stunted (half of these are severely malnourished)	49 %
• Yearly rate of deforestation for a forest cover of 38%	3.5 %
• High environmental degradation	
• HIV/AIDS epidemic is spreading at a faster rate, affecting about of the population, resulting in death of economically active age groups, increased number of orphans currently estimated to 700,000 (2002)	15 %

Food insecurity is lack of access to food at all times by all household members for a healthy life. Individuals that are unable to produce and or purchase food in case of scarcity are considered food insecure. In Malawi food insecurity has been associated with lack of maize production since it is a major staple food for most Malawians. The production of maize has been declining over the years leading to an increased rate of chronic household food shortages and malnutrition. Studies have shown that the food deficit months have increased from 3 to 6 months at household level. At national level, the food deficit levels have increased from 300,000 metric tons in 2001 to 600,000 metric tons in 2002.

Malnutrition continues to be a widespread problem in Malawi in both children and adults despite the many efforts by the government and its partners to curb it. According to Malawi Demographic and Health Survey (National Statistic Office, 2000), one in every two children is stunted (chronic malnutrition) and one in twenty is wasted (acute malnutrition). Among adults, prevalence of underweight is 8.8 % among women of childbearing age and 11.8% are overweight or obese. Under-nutrition has also been reported among older people. High prevalence of malnutrition is associated with high infant and child morbidity and mortality as well as reduced productivity among adults.

4.3. AGRICULTURAL SITUATION; LIMITATIONS AND POTENTIAL

Since time immemorial, the economy of Malawi has been agro-based. Agriculture contributes about 40% to Malawi's GDP and employs more than 85% of the total labour force. The sector accounts for 90% of the country's export earnings (Ministry of Finance and Economic Planning 2002a).

Agriculture, forestry and fisheries make up the backbone of Malawi's economy. The degree of industrialization is low and the domestic market for industrialized products is little. In relative terms, Malawi is considered a high-cost country. The possibilities for Malawi to compete on the world market with products that are not based on local goods are rather slim. There are two sub sectors within the agricultural sector, the estate sub sector and the smallholder sub sector. The estate sub sector focuses on the export market. The chief estate crops are tobacco, tea, coffee and sugar. The smallholder sub sector is on the other hand, predominantly subsistence-based, growing food crops such as maize, cassava, beans, groundnut, millet and rice, just to mention a few. Livestock constitutes a relatively small sub sector within Malawi agriculture; contributing around 7 % to total GDP and below 20 % of total agricultural production. In general livestock populations have been declining over the years. Small ruminants and various types of poultry particularly scavenging chickens, make a vital contribution to household food security.

Driven by tobacco and tea exports, the country enjoyed a high economic growth rate up until 1979. Within the first 15 years of independence, GDP growth averaged 6% per annum. Between 1979 and 1982 Malawi's economy went into recession. As a result economic growth started declining. To get the economy back on track, government sought assistance in the form of structural adjustment that focused on:

- Improved smallholder agriculture sector productivity;
- Improved management of public resources;
- Relaxed private and public sector wage control;
- Further liberalization of the foreign exchange;
- An overhaul of the monetary and tax systems and;
- Introduction of improved incentives for foreign and local investors.

The problem of poverty in relation to agricultural production can be placed into two categories: those that directly relate to low productivity of agriculture, and those that impinge on the performance of the only tertiary institution in Agriculture and Environmental Sciences, Bunda College.

Low agricultural productivity is believed to contribute to poverty in the country and therefore, the main development objective of the government in the Malawi Poverty Reduction Strategy Paper (MPRSP) is to alleviate poverty among the majority of the people through improvements in the agricultural sector. This was fully endorsed by the Joint IDA-IMF (2002).

The Malawi government has identified, in order of priority, the following key issues that need immediate attention to improve agricultural productivity:

Access to inputs. The majority of stakeholders have cited input supply (fertilizer, seed, feed) and the availability of animal breeder stock (livestock in quality and quantity) and land as

major constraints to livestock and crop productivity. The key issues, which relate to supply are: availability, distance to supply points, timelines of supply and affordability.

Market information and infrastructure. Marketing of agricultural produce is a big problem as characterized by poor market infrastructure, inefficient marketing system, lack of market information, low price of agricultural products while the cost of inputs has remained very high because of controlled by few key players and limited competition.

Irrigation infrastructure and water management. Malawi is over-dependent on rain-fed agriculture and one way of increasing agricultural productivity is to promote irrigated agriculture. Malawi has a great irrigation potential that needs to be exploited. About 200 000 hectares are irrigable but only 26000 hectares have been exploited. Currently, irrigation resources are under-utilised or unutilised; participation of the private sector in irrigated agriculture is low and there is lack of personnel trained in irrigation.

Access to finance and credit for inputs and capital investment. Agricultural financing is very limited leading to lack of access to credit for capital and other farm operations. The main problems are collateral, access to short term credit, low profitability of agricultural enterprises and unfavourable macroeconomic environment. Many rural areas do not have microfinance institutions. Credit provision is one of the major determinants on the ability of farmers to increase crop and livestock productivity and diversify agriculture. Interest on loans is in general high, more than 40 % per annum.

Technology development and dissemination. The fertility of the soil is, in general, poor and the crop production is based primarily on maize in monoculture. A diversification of the production is required. Malawi has to develop its own technology or adapt foreign technologies that can assist farmers to increase their production. The existing technologies might be either not appropriate or have not been transferred to end-users meaning that they are still on the shelves. The technology development system has not responded to consumer and market needs. Therefore subsistence farmers use little or none of the technologies derived from research.

Agro-processing for value adding. Very little agro-processing is taking place in the country. As a result, a substantial proportion of the produce is wasted due to lack of or poor processing techniques. There is a need to develop products that will benefit farmers by adding value to the locally produced foods. There is need for research in these areas so that farmers could benefit from their produce since these products would be highly competitive on the export market. This will also ensure the expansion of the industrial sector of the economy, which will in turn provide employment outside agriculture.

Livestock productivity and development. Lack of high-quality forage is severely limiting the growth and production of ruminant animals in Malawi. More systematic use of crop residues and other roughages as feed could boost the livestock (ruminant) production, and the potential for feed conservation should be exploited. Good management practices are very important in livestock production, especially in dairy production. Recently, Bunda College has been involved in promising experiments with milk production on dairy goats.

Lack of access to and inadequate numbers of local and improved breeds has been highlighted as a critical issue in Malawi's livestock industry. The government has therefore been encouraged in its development policy to increase numbers and productivity (quality) of the

national herds and flocks through utilization of adapted breeds, including imported ones, depending on farmer management level, production system or agro-ecological zone, while avoiding indiscriminate breeding with exotic breeds.

Linkages, coordination and networking among stakeholders. Productivity in agriculture can be enhanced if linkages and coordination were improved. The stakeholders involved are farmers, extension agents, researchers, consumers, policy makers, traders, trainers, the private sector and the donor community. Strengthening coordination will involve developing institutional arrangements that bring together all stakeholders at the national level. Strategies and policies should be developed for the coordination of common programmes and activities to be undertaken by the various ministries. Thus the programmes will be cost effective and will avoid duplication.

Development of institutional structures and capacity building including farmers' associations and cooperatives. The effective implementation of the proposed policies and strategies depends on the capacity of the Ministry of Agriculture, Irrigation and Food Security, NGOs, private sector, bilateral agricultural organizations and parastatals. The current situation is that a) the farmers do not have an effective voice, b) the roles of government and the private sector may lead to duplication of efforts, confusion and wastage of resources and c) the decision-making mechanisms are ineffective, which result in poor development and implementation of policies. There is therefore, need to restructure or reorganize some institutions in order to improve service delivery and in some cases even to establish new institutions (see MPRSP).

In the 2003 Joint Staff Assessment (Joint IDA-IMF 2003), the support to agriculture was substantially below what was proposed in the MPRSP. In general the implementation of the MPRSP was unsatisfactory, which led to the suspension of external budgetary assistance to Malawi.

4.4. AGRICULTURAL EDUCATION ACCORDING TO THE PRSP AND IN LIGHT OF THE SEMCIT INITIATIVE

According to the Malawi Poverty Reduction Strategy Paper (Ministry of Finance and Economic Planning 2002a), human capital is the key to poverty reduction. The major economic sectors of agriculture and industry demand an educated, skilled and healthy workforce to take on the new challenges and aspirations of the sectors. The national illiteracy rate stands at 42 percent (Government of Malawi 2000) due to problems of access to and quality of education. There is also lack of skills development due to inappropriate education curricula at all levels and low access and intake into technical, entrepreneurial and vocational training institutions. The Strategy Paper also emphasizes that education yields broad social and economic benefits. Not only is education positively associated with agricultural productivity, higher incomes, lower fertility rates and improved nutrition and health, it is also a prerequisite for attaining these outcomes.

Access to primary school education has increased considerably in Malawi over the last ten years, promoted by the World Bank and others (Kaarhus 2004). Access to higher education however is low, with less than 4000 places available. Enrolment is limited due to inadequate school places, boarding facilities and financial resources.

The quality of higher education has been undermined by poor linkages to industry in the

curriculum and frequent closures of colleges due to the high burden on Government resources. In light of the positive link between education and poverty reduction, there is a clear need in Malawi to increase access to and improve the quality of education at all levels. To achieve this, there are five main objectives applicable at each level: (1) improve quality and relevance of education; (2) increase access and equity in education, focusing on girls, orphans and children with special needs; (3) strengthen management and finance; (4) respond to HIV/AIDS pandemic; (5) strengthen co-ordination across all players in the education sector, both public and private.

The Government of Malawi wants that the pupils, both at basic education level and at secondary education level, be offered a curriculum that equips them with knowledge of life skills, such as technical, entrepreneurial and agricultural skills. This is very much in line with the ideas behind the Earth University in Costa Rica and the SEMCIT model.

Regarding higher education, the MPRS will transform the system to respond to new realities and opportunities within the context of poverty reduction. The sector will increase the participation rate both for men and women to meet the demand for highly trained graduates in different fields, taking into account labour market and poverty reduction needs. The education sector will strive to advance high-level capacity through the expansion of post-graduate training to support scientific and technological improvement and social development.

In order to improve quality and relevance of higher education, the Government intends to establish adequate research centres that would be addressing emergent development issues, providing grants to graduate students so that they participate in teaching undergraduate courses and as research assistants.

The Government also wants to increase the motivation of teaching and research staff by reviewing salary packages and encouraging privately funded research. The private sector will also be encouraged to participate in the definition of subjects, curricula and research and to give visiting lectures and classes so as to improve the relevance of higher education.

A main point in the Poverty Reduction Strategy Paper of Malawi (Ministry of Finance and Economic Planning 2002a) is to reduce the reliance of higher education on Government subventions. This is meant obtained through (1) reducing costs of provision of higher education and (2) generate alternative sources of resources. To reduce costs, non-core services such as catering and boarding will be commercialised and contracted out. Further, administrative staffing level will be reduced and administration decentralised to constituent colleges of the University of Malawi. As a result, the role of the central University of Malawi Office will be reviewed so that staffing and costs are substantially reduced.

To generate alternative resources, the University will introduce cost recovery for non core services, such as boarding, and will increase cost sharing for tuition, both in the context of strengthened scholarship and loan schemes. Institutions will create business development units to generate resources by charging for the use of existing facilities and for collaborative programmes outside school sessions.

In the 2003 Joint Staff Assessment (Joint IDA-IMF 2003), the amounts allocated for technical education, vocational and entrepreneurial training (TEVET) was substantially below those proposed in the MPRS, and, furthermore, the amounts actually executed for teaching and learning materials were well below budgeted levels.

Malawi was also criticized because higher education continues to depend on government subventions as a result of failure to reduce costs of provision of higher education and generating alternative sources of revenues.

4.5. PROGRESS AND ACHIEVEMENTS IN FOLLOWING UP MPRSP IN AGRICULTURAL EDUCATION

According to the International Monetary Fund (2003) Malawi has accumulated a domestic debt to an unsustainable level, which render implementation of the PRSP difficult. For selected expenditures of Pillar 1: Sustainable Pro-Poor Growth, the framework for the strategy (Financial year 2002/2003) was 3,587 million MWK whereas the budget that passed the parliament was 1,206 million Malawian Kwacha (MK). Of this, 516 millions were spent the first six months of the financial year. Under this pillar the main source of pro-poor growth is agriculture. For improvement of agriculture through improved research and extension services the framework was 664 million MK. The approved budget was 238 million of which 100 million MK (42 %) was spent the first six months. The allocation in the MPRS included both agricultural research and extension while the budget identifies extension as the only protected pro-poor activity. We have been informed that all graduates from Bunda College of Agriculture in 2003 were employed by Ministry of Agriculture, Irrigation and Food Security to fill vacant positions in the extension service. This shows that there is a great need for higher education in agriculture, even if it is not expressed explicitly in the PRSP.

Regarding education (Pillar 2), the framework in the strategy was 8,710 million MK for improvement of quality and access to education. The budget amounted to 4,953 million MK of which 2,857 million (57.7 %) was dispersed the first six months (July-December 2002). Main expenses have been: Teaching and learning materials, teachers' training, construction of teachers' housing, teachers' salaries and construction of schools for primary and secondary education.

The MPRS allocated MK 468 million to TEVET activities. Under the 2002/2003 budget MK 158 million has been allocated to these activities. From July to December 2002, MK 52.9 million has been funded, representing 33.5 % of the total budget. Targeted colleges were: Salima Technical College; Lilongwe Technical College; Namitete Technical College; Nasawa Technical College; Soche Technical College; Mzuzu Technical College and Livingstonia Technical College.

In spite of the fact that the MPRS recognises that basic education, secondary and higher education are necessary for sustainable national development, higher education is not mentioned in the IMF Country Report of October 2003 (International Monetary Fund 2003).

4.6. GOVERNMENT POLICY AND ACTION PLANS REGARDING HIGHER AGRICULTURAL EDUCATION AND RESEARCH, IN VIEW OF THE MPRSP

In order to be able to provide up-to-date teaching and training, tertiary learning institutions should have a relevant research portfolio. This is particularly important in applied subjects such as agriculture, engineering, medicine etc. Since agriculture is said to be the engine for economic growth in Africa, it is fundamental that institutions such as Bunda College of Agriculture have a strong and active research programme. It is also necessary because of all

the problems in Malawian agriculture waiting for a solution, and for the outreach programmes. It is our impression that in general the research carried out at BCA is rather limited, although some departments are more active than others.

The other source for agricultural research is the experimental stations (NARIs) under the Ministry of Agriculture, Irrigation and Food Security (MAIFS), and Ministry of Natural Resources and Environmental Affairs (MNREA).

In Malawi Agriculture Sector Investment Plan (MASIP), the Malawi Government identifies that science and technology are required in order to increase agricultural productivity (Government of Malawi 2002). MASIP has been developed in the light of MPRSP and has its own secretariat. According to Jenkins and Tsoka (2003), there are some indications that the PRSP Thematic Working Group on agriculture suffered, to some degree, from the ongoing rivalry between MASIP and the planning division within the MAIFS itself.

In the education sector the development of the Policy and Investment Framework (PIF) has benefited from the PRSP process, and that there was now a momentum for the creation of joint funding mechanisms (Jenkins and Tsoka 2003).

4.7. THE CONTRIBUTIONS OF BUNDA COLLEGE OF AGRICULTURE (BCA) TO FULFILLING THE GOALS IN THE EDUCATION POLICY RELATED TO THE MPRSP

According to the management of the Bunda College of Agriculture, the college was involved in the development of the Malawi Poverty Reduction Strategy Paper. Through this work the college had the opportunity to influence the strategy. Participation in the work also influenced their thinking, especially regarding the focus on poverty reduction in the education programmes.

The budgetary situation for Bunda College has not improved because of the MPRSP, and in relative terms (taking the inflation into account) there has rather been a decrease over the recent years. The college gets about 50 % of what they are asking for. The situation is the same as for the other colleges under University of Malawi.

The MPRSP has led to concrete action regarding teaching programmes at the College. More courses to stimulate self-employment have been introduced. In 2001 a BSc programme in irrigation engineering was started, and in August 2003, a BSc programme in agribusiness started. This has become a very popular programme and will be developed further to a full MSc programme. Entrepreneurship is offered as a special theme in the agribusiness programme. It is envisaged that this will contribute to a development that makes the graduates job-creators, rather than job-seekers when they have completed their education. It is also expected that this with time will contribute to poverty reduction both in the rural and the urban areas.

Regarding research, BCA is trying to carry out more demand-driven or on-farm research, and consider the MAROP programme, which is based on participatory on-farm research, to be the best proof of the intentions of BCA in this respect.

No practical training (experience) is required for admission to Bunda College of Agriculture. During their studies, the students have to go through two periods, each for three weeks, of practical training. During these periods the students are exposed to the working environment in various institutions or industries. Examples of relevant training options are agricultural research stations, City Assembly, the tobacco industry etc.

The quality of tertiary education is a major concern of Bunda College. Therefore all efforts are made to make sure that the College opens and close in accordance with the academic calendar. Furthermore, to ensure high quality the College has improved its curriculum and recruited high quality staff and students. The college (staff and students) goes to secondary school to inform about its programmes. This has given a good response. Bunda is also using external examiners from neighbouring countries, South Africa and even Europe to ensure that the teaching is of high standard.

4.8. THE RELEVANCE OF TEACHING, RESEARCH AND OUTREACH AT BCA

4.8.1. Views of the Ministry of Agriculture, Irrigation and Food Security

From different sources we were informed that, in spite of the fact that almost all the graduates from Bunda College in 2003 were absorbed by MAIFS, there is still a great number of vacant positions in the agricultural extension service.

The **Department of Agricultural Extension (DAE)** has the view that the PRSP has indeed influenced the activities within the Agricultural Extension Department particularly through the Pro-Poor Expenditures (PPE) programme where substantial amount of money has been allocated to the extension programme. However, the Department has noted that the funds could have been more efficiently utilized if the coordination within the ministry and with other ministries was improved.

The department also noted that formal collaboration between MoAIFS and Bunda College could be made better than it is at present. In particular, the possibility of attaching students to the MoAIFS to gain experience was deemed useful. Similarly, a deliberate support to BCA with the PPE Programme was seen as a possibility in view of high attrition rate of staff due to HIV/AIDS within MoAIFS. As a way forward, it was agreed that BCA should invite the key people from MoAIFS to discuss formal collaboration.

Research under MAIFS in Malawi is administered under **Department of Agricultural Research Services (DARS)**. Discussions with the Director and some of his staff revealed that money allocated for agricultural research was only a small fraction (about 5 %) of the total budget for agricultural research and extension. Of the approved budget for Pro-Poor Expenses 2003/2004 to agriculture, extension was granted 440 mill. MK, food security 67 mill. and research 49 mill. MK. As per February 2004 the three activity areas had received 295, 39 and 19 mill. MK respectively.

Not only was the amount allocated for research small but the proportion actually received was also smaller than for the other fractions of the budget. This skewed allocation for research compared to extension is remarkable, particularly in view of the fact that research is supposed to be the source for information on which extension is based.

About half of the funds received are used for operational cost of activities and the other is overhead to cover “fixed costs” such as electricity etc. There has been a slight increase in the government subventions to agricultural research, but this is because of an increase in number of research centres. In real terms there has been no increase.

4.8.2. Views of the Ministry of Education, Science and Technology

The Malawi Poverty Reduction Strategy Paper states that education is the centre piece for the poverty reduction strategy. In particular, basic education is accorded highest priority in the MPRSP (Ministry of Finance and Economic Planning 2002).

Up to recently there had not been any section for higher education in the ministry. A small section, staffed with two people, was established in 2003. The people we met emphasized that the Vision 2020 is central in the discussion of the MPRSP. According to this Vision, every project or activity must be related to the MPRSP. In the past there has been a wide gap between the Ministry of Education, Science and Technology and University of Malawi. This is now being tightened.

According to the Policy & Investment Framework (PIF) for the Education Sector (Ministry of Education, Sports & Culture, 2000) the Government acknowledges the significance of a solid higher education system in enhancing the development of Malawi by preparing individual Malawians for positions of responsibility in business, the professions and in Government. National higher education institutions will continue to play a key role in the production of new scientific and technical knowledge and through their research and teaching programmes and in promoting the transfer, adaptation and dissemination of knowledge, which has been generated in different parts of the World. Future provision and expansion of tertiary education will rely on both government and non-state initiatives. The number of students receiving tertiary education will increase three-fold by 2012. This will be achieved by optimising use of the available physical and human resources. This will call for intensified use of facilities during nights, weekends and holidays as well as joint time tabling across faculties. Additional measures include distance education programmes and modern information technology teaching strategies. The number of female students will increase from the current 28% to 50% over the same period. A large proportion of these students will be encouraged to enrol in non-traditional fields of study. Cost sharing measures will be implemented and non-academic services shall be privatised and the administration of public universities shall be decentralized. The private sector will be actively encouraged to invest in tertiary education.

The MPRS identifies three core issues for higher education: increase in access and equity, improved quality and relevance and reduction of dependency on subventions.

The strategy does not define tertiary education as pro-poor, and it therefore has no protected pro-poor expenditure. Much as this is the case, the strategy requires that tertiary education reduce its dependency on subvention. However, no protected funding has been set aside to enable a clear transition from dependency to self-sustenance.

On improving access to tertiary education by disadvantaged groups and the disabled, the tertiary sub-sector has experienced funding shortfalls, which have meant that it has not kept pace with the current demands for social mobilization and making the buildings at tertiary institutions disability friendly. There are cases whereby some disabled students qualify and get admitted into the system, but drop out due to lack of necessary supportive infrastructure.

These cases feedback into the communities these students come from, giving a negative outlook on tertiary education if not the whole education system.

Relevance of higher education to the needs of the market is an issue, which requires periodic review per changes in demand trends on the market. Tertiary education does not operate in a vacuum, hence the need for periodic collaborative curriculum reviews across the education sector that include the Ministry of Education, Science and Technology and the Department of Human Resources. Any curriculum review done in isolation adds no value to the system of education.

Currently there is a clear need to have a science and technology education which finds a balance between the training of technical and professional human resources and the imparting of life – long skills that support sustainable livelihoods through technical, vocational and entrepreneurial and education training programmes. However, policies on such issues remain shelf bound if government does not seriously soul search on whether to support tertiary education or not (in terms of tertiary financing).

On request, the representatives of the ministry that we spoke to meant that the private sector is strong enough to fund a substantial part of the tertiary education in Malawi, and they confirmed that tertiary institutions should be less dependent of Government funding.

The question of how Bunda College can increase the number of students to 720 as planned, was discussed. It was agreed that the increase in number of students must be followed up by improved infrastructure, teaching capacity etc, but no plan for funding was suggested. (Public Sector Investment Program (PSIP)). It was mentioned, however, that University of Malawi could present a Development Programme to the Ministry of Education, Science and Technology. Then the ministry would present the document to donors among many other proposals coming in every year.

It was also mentioned that some universities have considered using double shift to utilize the facilities better and thus overcome the constraints regarding infrastructure.

Regarding the new “open universities” a task force has been appointed to discuss accreditation of these.

4.8.3. Views of the Ministry of Finance

In February 2004 we met with the director of the Monitoring and Evaluation Division. The ministry was then finalizing a revision of the MPRSP, which was expected to be ready by end of March 2004. The director indicated that the revised version probably would pay more attention to the agricultural sector. Particular areas that are supposed to be strengthened are:

- Extension service
- Small-scale irrigation
- Organizing communities to associations

It is envisaged that the extension people will have a particular responsibility in initiating community organisation.

A publication that came out last year, A Growth Strategy for Malawi, June 2003, talks about the agricultural sector, for example linkages between various crops. See also Joint IDA-IMF

(2003) and Economic Report 2003 (Government of Malawi 2003). The so-called “Pro-Poor Policy” is not a special programme. The money that has been saved because of dept relief should primarily go to activities that are addressing poverty – no matter of sector. In this year’s review of the MPRSP, there will be more emphasis on tertiary education.

The European Union is working for a closer link between universities in the South and universities in the EU. Exchange of professors is one of the components in this concept. At Makerere University they have opened the classrooms in the evenings for people outside the university and the professors give lectures for businessmen, civil service etc. and some of them even take degrees. The policy is that undergraduate education should be paid by the government whereas postgraduate training should be supported to a greater extent from external sources.

4.8.4. Views of the students at BCA

When questioning the students as to whether or not the curricula were relevant and adequate for higher education in agriculture in view of the PRSP, the students said that the curriculum at Bunda College was very relevant, because they interacted with the farmers during their studies. There was a two-way dialogue that benefited both parties. Regarding the update of the curriculum, the students talk to and learn from older students. During their holidays they work in the fields and they find the combination of class teaching and fieldwork a good combination. They participate in projects and have to write reports from these projects. We study what the farmers need to know, they said.

According to the students there was no problems with quality management at Bunda College. The exams show the maturity of the students, and there are no anomaly practices. At Bunda College there are students also from Zwaziland, Zimbabwe, Zambia and Uganda. The opinion of these students is that life is tough in Malawi, and more demanding than in their home countries. Students from Bunda also go abroad to do their MSc and PhD, showing that their background is good. Bunda College uses external examiners, but not in all courses.

Lack of money is the major constraints in the learning process at the University of Malawi as a whole. Often the student projects have to be dropped because of lack of funds. Most students at Bunda are enrolled based on merits, but some qualified students cannot join the College because of lack of funds. A cost sharing system has been introduced at Bunda College. This means that the students pay a tuition fee of 25 000 MK per year through loans from Ministry of Education, Science and Technology. These loans are not paid consistently. This affects the students psychologically and sometimes they sit in for up to one week.

The students feel they have to do a lot of theory and they have to take notes. There are few copies of the textbooks in the library, especially for the first-year students where there are more than 100. There is shortage of computers (only 22). These are used for ICT courses and hardly available for students who shall type their project reports.

The students have also done something themselves to influence the relevance and quality of their education. They have for example formed clubs of various kinds. One example is the Agronomy Club, which borrow a large piece of land from the college to grow various crops. This is both to learn crop production and to earn some money. The fields are also used by teachers for demonstration of good practices. Another club is SRYD, which promotes rabbit and small ruminant production as well as production of leguminous plants such as bean and groundnut. A Human Rights Club organizes courses and workshops and inform students and

others about human rights issues. (The Principal of Bunda College is the chairman of the Human Right Commission of Malawi). The students are engaged in other activities such as anti-corruption work. They also invite experienced people to come to Bunda to give seminars and they organize field trips to farmers, to Ministries etc. During their holidays, they go to potential employers to ask for vacation training to show “how good they are”.

According to the students, the most important in order to contribute to poverty reduction in Malawi is to ensure that the policies are implemented. The farmers know very little about their rights, hence it is difficult to implement their policies. At Bunda College there is a good environment for female students, but programmes for enlightening the women about their rights is very much needed. Regarding HIV/AIDS, there are courses on the impact on the economy. Within the Family Science Option there are special courses on HIV/AIDS. There is also a special Bunda Aids Awareness Programme where they bring secondary school students to BCA for information and “mobilisation”.

4.8.5. Views of the National Smallholder Farmers’ Association of Malawi (NASFAM)

NASFAM is a nationwide organization for about 100 000 small-scale farmers. So far the members are only crop producers, but the Chief Executive Officer says that they also want to have livestock farmers as members in the future. (In the south of the country livestock keepers have started to organize themselves).

About 60 % of the NASFAM are graduates from Bunda College. According to the Chief Executive Officer they are good on production, but they know very little about marketing, organization, democracy, management and governance. On these areas NASFAM must train them on-the-job, and that takes 2-3 years. After that, they may disappear to an NGO, which can pay much better than NASFAM can.

Regarding teaching and training, NASFAM thinks that Bunda could learn a lot from them, and they would be happy to discuss curriculum with Bunda College. Regarding research, the opinion of NASFAM is that too much of the research that Bunda is doing is not farm related, only for advancement of the researchers and lecturers. It is also a question of research priorities. Bunda has worked on bean cultivation for 30 years, but nothing has been done on sugar bean for example, which is much more in demand in the region. There is a lot to be done on rhizobium inoculation of legumes. This could perhaps be done in collaboration with seed companies. A groundnut cultivar called CG7 has been introduced by ICRISAT, which is very high yielding, but this is not popular due to high oil content, hence bad for the confectionery industry. Markets prefer the old cultivar (Chalimbana).

On a question about what major changes are needed to reduce poverty in Malawi, NASFAM replies: “We believe that the NASFAM approach is the right one, but the government should do more to curb corruption. There is a lot of money coming into this country, which would make a huge impact on poverty if appropriately used, but somehow it disappears. The inflation rate has been reduced from 30 % in 2000 to 9.9 % in 2003, but with an interest rate of 43 % you cannot make money if you borrow. To increase the growth rate one must invest more in production than in consumption”.

4.8.6. Views of two representatives from private sector

Representatives from two private companies were interviewed regarding the relevance of teaching, research and outreach at BCA. These companies were CROPSERVE and Mataya.

4.8.6.1 CROPSERVE

CROPSERVE is a small company selling chemicals to commercial and small-scale farmers. Main product is pesticides and fertilizers (by tender). Fertilizers are now sold in bags of 25, 10, 5, 2 and 1 kg.

There is no formal cooperation between Bunda College of Agriculture and the private sector in Malawi. There should have been more, and that could have benefited both parties, according to the private sector representative. His company never goes to Bunda College for advice, but Bunda staff once contacted his company to discuss curriculum for courses for extension staff.

Asking what the needs are in private companies for competence from Bunda College, CROPSERVE answered: “The Bunda graduates are good academically, but bad on practical issues. If you ask them to set up a marketing plan or irrigation scheme, they are hopeless. I suggest that Bunda expose the students to private sector for 2-3 months two times during their studies to learn practical skills. They must also develop a commercial attitude”.

Regarding poverty reduction, the representative for CROPSERVE said: “I see Malawi as a subsistence farming country. From subsistence farming to commercial small-scale farming is a very big step. The farmers want to produce everything, but in commercial farming that is difficult. Earlier the farmers were guaranteed that they could sell their products through ADMARC. Today this is not the case. The price of maize is state controlled. Last year the government lowered the price of maize from 20 to 10 MK per kilogram just before the cropping season. Over night the maize farmers became more or less ruined. Prices of products must be guaranteed”.

“The “one-village-one-product” (OVOP) concept (from Japan) is wrong. The amount of maize from one village can be as little as 10 bags. It should rather have been “one-district-one-product” if the benefit of specialization shall be achieved. One village in Malawi is not the same as one village in Japan. We have tried this in Mlanga District where the farmers specialized in pineapples. That project failed, for unknown reasons”.

How can the college and the private sector interact to fulfil the intentions of the PRSP?

“First of all there must be more interaction. We can provide a lot of information about what is going on out there. A round-table discussion could be organized where the two sides could inform each other about what they are doing and discuss how they could be complementary to each other. One could invite f. ex. ADMARC or World Vision to present a paper at the Bunda Open Day, or one could invite people from Ministry of Finance to come to such a gathering and talk about the MPRSP and how it is going to be implemented.

Private companies could also be invited to set up stands where they could present themselves, their products and to establish links. It could also be called Bunda Agricultural Show instead of Open Day or Field Day, and the companies should be asked to pay a fee for their participation. The success will depend on the number of people coming. It is therefore necessary to prepare it thoroughly”.

4.8.6.2. Malawi Agricultural Input Markets Development Project (AIMs)

(Related to IFDC - An International Centre for Soil Fertility and Agricultural Development)

The representative of AIMs is a former director of Agricultural Policy Research Unit at Bunda College. He has also for a short period been Planning Director in the Ministry of

Agriculture, Irrigation and Food Security. He confirmed what the representative of CROPSERVE said, that there was no formalized cooperation between Bunda College and the private sector. There are very few Malawian private enterprises. Most of them are owned or managed by foreigners (Asians) employing locals. The Malawian enterprises are very young, they have not been exposed to responsibilities and most of them lack resources. Partnerships between foreign and local companies are desirable. Malawian farmers should also to a greater extent go commercial, i.e. they should grow for own consumption and sell the surplus.

The output from the agriculture could increase tremendously with more use of irrigation. For some years the government has tried to promote the use of treadle pumps to lift water. A lot of dams were built in the 1950-1960, but many of them have now silted up. There is a lot of potential in Malawian agriculture, but farmers should know what to do to get the highest return for their input. Regarding OVOP, IFDC was a bit sceptical. Some villages produce very little. It should rather be One District – One Product or Commodity Zones to make it meaningful and cost-effective. Specialisation was once tried for pineapple production in Mwanza District. This failed because of lack of quality control, proper market opportunities and good management.

According to AIMs, the people should produce crops they could eat and sell. Research and extension should be demand-driven. There should be a balance between research and extension (and training). If agricultural research and extension in Malawi were closed down today, nobody would miss it in five years, he said. A Department of Agribusiness should be established at Bunda College as soon as possible, and the Implementation of the Bunda Strategic Plan should be carried out to make Bunda College known. Private companies and others should be invited to participate in the “Agricultural Show” at Bunda.

4.9. THE COMMITMENT OF BUNDA COLLEGE OF AGRICULTURE TO ITS ROLE IN THE DEVELOPMENT PROCESS

According to the recent Bunda College Development Programme the development objective (or goal) of the programme is: *“Performance of BCA in relevant and efficient learning, teaching, research and outreach for the agricultural and natural resources sector improved to enable the College to play a significant role in the development of the country”*.

In order to achieve this goal, the immediate objectives of the development programme are:

- Contribute to human resource development relevant to agriculture and natural resources and economic growth;
- Promote food security and income generation of small-scale farmers;
- Facilitate more participation of women in the economic, agricultural and natural resources development of the country;
- Promote regional cooperation in research, academic development and exchange of experiences for mutual benefit; contribute to mitigation of the impacts of HIV/AIDS, and
- Attract other sources of funding for its development programme.

In the light of the dominating role of agriculture in the economy of Malawi, Bunda College of Agriculture sees its responsibility as the leading higher education institutions in the field.

4.10. VISIONS AND PLANS FOR CHANGE AT BUNDA COLLEGE OF AGRICULTURE

Bunda College wishes to make the teaching relevant and up to date so that the graduates become attractive on the job market. In addition, Bunda wants to educate young people in such a way that they are able to create their own jobs. This will require changes in academic programmes and improvements in teaching facilities and outreach capacity. Here the “Earth Model”, which has been tried out successfully at Earth University in Costa Rica, serves as a good example. Representatives of the College Management have visited Earth University to study the model and have participated in the SEMCIT programme including the seminar in Oslo in September 2003.

The initiative taken by the crop science students at Bunda to form an Agronomy Club is another promising development. The objectives of the club are:

- To empower the members of the club the art and science of agronomy;
- To improve households food security in the country through facilitating the adoption of agricultural technologies by the stakeholders;
- To practice agronomic skills through production of crops.

To some extent the activities of the club resembles those practiced by the Earth University. There are great expectations to the planned research, training and outreach programme for on-farm and on-station research (MAROP), which will be carried out in collaboration between Bunda College, Ministry of Agriculture, Irrigation and Food Security and Ministry of Natural Resources and Environmental Affairs.

4.11. THE NEED FOR RESOURCES TO STRENGTHEN BCA IN ITS EFFORTS TO SERVE TARGET GROUPS

From 1966, when Bunda College was established, USAID and the British ODA were the main agencies supporting the college (Kaarhus 2004). Later, BCA had a considerable amount of support from various organizations for teaching and research facilities. GTZ (Germany) for many years supported a regional MSc programme in animal science for the SADC countries. The Rockefeller Foundation supported Bunda in the development of MSc programmes in agronomy and soil fertility, agroforestry and social sciences. Japan (JICA) has supported the establishment of Department of Aquaculture and Iceland (ICIDA) has supported that department in competence building. In the recent years NORAD has given valuable support to Bunda College, particularly for infrastructures, but also for the development of the college structure (Strategic Plan, Research Masterplan etc.) and some teaching assistance and staff exchange. The college believes that these investments in competence building ultimately will benefit the agricultural sector, including the small-scale farmers.

Bunda College is now entering into a new phase where there will be more interaction between the college, the extension service, research institutions and the farmers through research and outreach. It is therefore unfortunate that the Government, in times with so many challenges in the agricultural sector, seems to reduce the subventions to the college, instead of increasing them.

The financial resources required at Bunda College for necessary investments, maintenance and the daily activities in teaching and research is almost unlimited, let alone the need for

development and strengthening of the training programmes. The college is in the process of finalizing an overall development plan, including a special programme for applied research and outreach (MAROP). The estimated cost of the whole programme is NOK 177,796,059 and the MAROP alone NOK 50,234,500.

Currently, the college receives money from the ministry on a monthly basis and the amounts received are not in accordance with the agreed annual budget. From a management point of view, this is very unsatisfactory and obviously, it makes planning for the future very difficult. While the MPRSP identifies three core issues: increase in access and equity, improved quality and relevance and reduction of dependency on subventions, the strategy does not define tertiary education including Bunda College as pro-poor, and it therefore has no protected pro-poor expenditure. Much as this is the case, the strategy requires that tertiary education reduce its dependency on subvention. However, no protected funding has been set aside to enable a clear transition from dependency to self-sustenance.

4.12. CONCLUSIONS AND RECOMMENDATIONS

Lead tertiary institutions such Bunda College have partially done well in implementing the goals and planned activities of the MPRSP despite the constraints and challenges highlighted above. Considerable progress has been made in some strategic areas at Bunda, such as increasing female student participation where the enrolment of female students has increased from less than 10 to about 30 % within one to two years of marketing Bunda programmes in secondary schools by Bunda staff.

The college has a well-qualified and motivated staff, but the age distribution is somewhat skewed with relatively few lecturers and professors below 50 years. In a medium to long-term perspective, this is unfortunate and strong measures will have to be taken to correct this. In addition, salary packages and research opportunities must be more attractive in order to be able to recruit the best candidates that eventually have to be sent for post-graduate training. The lack of regular and adequate funding seems to have a negative impact on the activities at BCA. This leads to less incentive and strategic medium to long-term planning is clearly hampered. At the same time, the potential for external funding of university activities by the local industry seems to be overestimated.

There is too little contact between the college and the society, especially the industry, the farmers, the farmers' organisations, the markets etc. There is a need to bring Bunda College into the mainstream of problem solving, e.g. through research and outreach for development of the country. The current proposed MAROP project that is submitted to NORAD for funding essentially tries to address this problem. Notwithstanding, compared with rural advisory service, agricultural research is largely ignored by the government. This again, will have a negative effect on knowledge creation and competence building.

BCA is positive to regional cooperation and has established working relationship with other universities in the region and with NLH through NORAD support. BCA is also positive to the SEMCIT Model and has initiated courses in agro-business and entrepreneurship, but there seems to be a need to upgrade the competence of the staff in these subjects.

Given adequate funding and a suitable policy environment, BCA should be able not only to meet the requirements of MPRSP but also, in the long term, to generate income for itself.

It may be concluded that whereas the university seems satisfied with its changes in the curriculum towards entrepreneurship, the representatives from the industry have little respect for the ability of graduates to perform. Why this difference in perception? Even if the intentions of the college are good, the lack of contact with the rural community may lead to a “protected” environment at Bunda, which is not sufficiently open to the world outside the campus and the academic circles. In the recent years it has become more common to have external members of the universities’ governing bodies. This could be one way of strengthening the link between the university and the society.

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Silungwe, Jones, Managing Director, CROPSERVE

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4. COUNTRY REPORT: THE CASE OF TANZANIA

(Fred H. Johnsen⁷ and Willbard S. Abeli⁸)

THE TANZANIA POVERTY REDUCTION STRATEGY PAPER (TPRSP)

5.1. INTRODUCTION

The United Republic of Tanzania is an East African country bordering Kenya and Uganda in the North; Rwanda, Burundi and the Democratic Republic of Congo in the West; Zambia, Malawi and Mozambique in the south; and the Indian Ocean in the East. The mainland covers about 881,000 km² while Zanzibar covers about 2,000 km² and lakes occupy another 62,000 km². The population is estimated to be about 33 million people made up of over 120 ethnic tribes. The political capital is Dodoma, while Dar es Salaam remains the commercial capital. Other major towns and cities include Arusha, Moshi, Tanga, Mwanza, Morogoro, Mbeya, Iringa, Tabora and Shinyanga. The country is divided into 26 administrative regions, which are subdivided into a total of 130 administrative districts (URT 2004a).

Most of Tanzania has a tropical climate where the temperature never falls below 20 °C, but more temperate climates can be found in the Northeastern and Southern highlands. The hottest period is from November to February, and the coldest period from May to August. The Southern, South Western, Central and Western parts of the country with typical Miombo woodlands type of vegetation have a unimodal rainfall pattern with rains from December to April. A bimodal rainfall pattern can be found in the Northern and Eastern parts of Tanzania, with long rains from March to May and short rains from October to December (URT 2004a).

Agriculture is the largest economic sector, employing about two thirds of the workforce and accounting for 48% of the GDP. Most manufacturing industries are concentrated in Dar es Salaam while a few can be found in Mwanza, Arusha, Tanga and Morogoro. The industrial growth is mainly in consumer goods such as food products, edible oils, detergents, soft drinks and beer. Tourism grew rapidly during the 1990s and is considered to have a considerable potential. The most booming sector, however, is mining with an average annual growth at 16.2% during the years 1997-2001, though mining still contributed only about 2.5% of GDP in 2001 (EIU 2003).

Tanzania has been engaged in structural adjustments since 1986. The real growth rate in GDP averaged 4.2% in the years 1996-2000, rose up to 6.2% in year 2002, but sliding back to 5.7% in 2003 (URT 2004b). The GDP per capita was however as low as USD 268 in year 2000, which is well below the absolute poverty line at one dollar per day. The growth in GDP per capita remains slow due to a rapidly growing population. For the Tanzanian economy to achieve good rates of growth during the next few years, it is considered necessary that the performance of the agricultural sector improves at a rate of 5% per year (EIU 2003).

5.2. POVERTY AND FOOD INSECURITY IN TANZANIA

Tanzania's Poverty Reduction Strategy Paper (TPRSP) estimates that one half of all Tanzanians are basically poor, and approximately one third live in abject poverty. In order to

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get a more detailed picture, poverty is defined to include *income* and *non income* development attributes (URT 2000). The elements of *non income* poverty considered in PRSP are education, survival, nutrition, clean and safe drinking water, social well-being, and vulnerability to unpredictable events.

According to TPRS the incidences of poverty appeared to decline during the years 1983-1993, but increased during 1993-1998. The following characteristics of *income* poverty in Tanzania are listed (URT 2000):

- Poverty is largely a rural phenomenon;
- The poor are concentrated in subsistence agriculture;
- Urban poverty is also widespread;
- The youth, the old, and large households are more likely to be poor;
- Although female-headed households are not necessarily poorer than male-headed households, women are generally perceived to be poorer than men.

Based on the 2nd Poverty Reduction Strategy Progress report for 2000/2001, 18.7% of the Tanzanian population lives below the food poverty line, i.e. their income is too low to cover their basic food needs. This is a slight improvement from the situation ten years earlier, when 21.6% experienced food poverty. The target is to reduce this rate to 16% by 2003 and to 9.3% by 2010 (URT 2000). Basic needs poverty is defined as not being able to cover other basic needs as clothing, housing, water and health in addition to food. According to the same data sets, 35.7% of Tanzanians experienced basic needs poverty in 2000/2001, which is a slight improvement from 38.6% ten years earlier (URT 2003). It is expected that in 2003, 30% of the population would still be below the basic needs poverty line, while the target for year 2010 is 17.8% (URT 2000).

Higher percentage of poor in the rural areas compared to urban areas is also confirmed by statistical evidence. According to 2000/2001 household surveys, 20.4% of the rural population suffered from food poverty against 7.5% in Dar es Salaam and 13.2% in other urban areas. Incidences of basic needs poverty was as high as 38.7% in rural areas compared to 17.6% in Dar es Salaam and 25.8% in other urban areas (URT 2003).

The same Household Budget Survey conducted in 2000/01 shows that 28.6% of adult Tanzanians cannot read and write with illiteracy rates being 20.4% for adult men and 36.0% for adult women. Again, Dar es Salaam is better off than other urban areas and urban areas are better off than rural areas. Net enrolment rate in primary schools increased impressively from 58.8% in year 2000 to 85% in 2002 and 90% in 2003, an improvement that is largely attributable to the abolishment of school fees (URT 2003, URT 2004b).

Infant mortality and malnutrition among children remains a severe problem in Tanzania, and no substantial improvements were recorded during the 1990s. According to baseline data from 1997, infant mortality rate was 99 per 1000 live births while under-five mortality was 158 per 1000 live births (URT 2000). In 2003, infant mortality rate was reported to have improved to 85 per 1000 live births, while under-five mortality was estimated to be 125 per 1000 live births (URT 2004b). Among the children, 29% suffer from underweight (low weight for age) while 44% are stunting (low height for age) and 5% are wasting (low weight for height) (URT 2003). A particularly worrying indicator is life expectancy at birth. Estimated life expectancy increased from 45 years in 1970 to 52 years in 1990, but has since

been reduced to 48 years. This drop is mainly due to HIV/AIDS and other communicable diseases (URT 2000).

TPRSP also discusses a few other indicators of non-income poverty. About 53% of the population use unprotected water sources, and outbreaks of cholera and other waterborne diseases affect mostly low-income neighbourhoods. It is also observed that effectiveness of the instruments of law and order, and the judiciary appears to have eroded while traditional systems that used to take care of vulnerable groups appear to have broken down (URT 2000). It is no wonder that the Government is now introducing a range of legal, regulatory and administrative reforms in order to address these problems and hopefully improve the quality of public service delivery (URT 2003).

5.3. AGRICULTURAL SITUATION; LIMITATIONS AND POTENTIAL

Agriculture is the backbone of the Tanzanian economy. Apart from accounting for about half of the income and three quarter of merchandise export, agriculture is also source of employment to about 80% of the population. Tanzanian agriculture is dominated by smallholder farmers with typical farm sizes ranging from 0.9 to 3.0 ha (URT 2004a).

The agricultural sector maintained a growth rate around 3% during the 1990s, which is only slightly more than the annual population growth rate. The agricultural growth rate has been considered as unsatisfactory because it has not been enough to bring a significant number of rural poor above the poverty line. For rural poverty reduction to become a reality, an agricultural sector growth rate of at least 5% is considered necessary (URT 2001). Although this was achieved in 2001 and 2002 it could not be sustained in 2003 when the growth rate dropped to 3.3% due to poor rains in large parts of the country (URT 2004b).

Tanzania has been through a period of market liberalization for most agricultural products. This process has been successful in narrowing the margins between producer prices and consumer prices. For maize, which is the most important food crop, the farmers' share of consumer price increased from 67% in the early 1990s to 88% in the late 1990s. But the real producer prices for food crops dropped during the same period (URT 2001). Considering these two observations together, it appears that consumers have benefited from market liberalization in terms of lower food prices. On the side of farmers, unfortunately they have not benefited much from this liberalization. Instead, production costs of some major export crops like coffee, tobacco, cotton and cashew nuts have increased during the 1990s resulting to some farmers abandoning these crops.

One important limitation to agricultural growth is the low use of technology. About 70% of the crop area is cultivated by hand hoe while 20% is cultivated by ox plough and 10% by tractor (URT 2004a). Input use is also low. Only 27% of the farmers buy fertilizer and 19% buy pesticides (URT 2001). As a result, productivity per unit of labor and land is low. Removal of subsidies to agricultural inputs has worsened the situation since it has increased further the number of smallholder farmers who cannot afford these inputs.

Besides technology, there are also other institutional limitations to agricultural growth. For example, there are many actors within the public sector who are not well coordinated, and who lack capacity in terms of staff, funding and facilities for carrying out their mandated activities. The private sector whose role is very much emphasized in Agricultural Sector

Development Strategy (ASDS) is still weak and its capacity to provide agricultural services like timely availability of farm inputs and credit services is inadequate. Furthermore, unlike other sectors, agriculture does not attract much private investment because rates of return are low (URT 2001).

The total area under agriculture in Tanzania is still small. Statistics show that out of 44 million ha of land that is classified as suitable for agriculture, only 10.1 million ha or 24% is under cultivation. This means that there is considerable potential to increase the agricultural area in Tanzania. Also, mainly due to tsetse fly infestation, only 50% of the area suitable for livestock production is currently being used for that purpose (URT 2001).

Tanzania has a substantial irrigation potential that is not yet explored. Statistics show that out of one million hectares of land classified as suitable for irrigation, only about 20% are so far under irrigation (URT 2001). Irrigation is seen as a key to developing agricultural production in order to improve food security, increase farmers' productivity and income, and also to produce higher valued crops such as fruits and vegetables (URT 2004a).

Another important potential lies in expanded market opportunities. Domestic food markets are expected to continue growing, much due to liberalized economy, the expanding tourism and mining industry. Some of the neighbouring countries to Tanzania have a more or less permanent food deficit and are therefore potential markets for Tanzanian food products. Also, the access to global markets are expected to improve as a result of Tanzania's membership in regional trade organization and as a signatory to international trade protocols (URT 2001).

5.4. AGRICULTURAL EDUCATION ACCORDING TO PRSP AND IN LIGHT OF THE SEMCIT INITIATIVE

TPRSP emphasizes sustained macroeconomic stability, rural sector development and export growth, and private sector development as key measures to reduce income poverty. Within rural sector development and export growth, there are several items related to agriculture, like encouraging farmers to organize themselves in groups or cooperatives, encouraging the private sector to provide agricultural inputs and credit and encouraging communities to develop irrigated farming. Among the areas identified for specific government support are training of primary societies and cooperatives on organizational and financial management, providing demand-driven agricultural research and extension, supporting labour-intensive agro-processing, putting the Land Act of 1999 into effect, and rationalizing physical controls that constrain crop movements (URT 2000).

The measures to reduce non-income poverty are grouped into five sections; these are education, health, social well being, vulnerability, and environment. The education section focuses on increasing enrolment rates in primary and secondary schools, improving performance in Standard VII examinations and expanding adult education programmes. A key measure is the abolishment of school fees. The measures to be taken within the health sector include health package delivery, strengthening of secondary and tertiary health services, personnel training, education and awareness raising on nutrition and on HIV/AIDS, and improving access to clean and safe water. Within social well-being, the focus is on courts and personal security. Vulnerable groups will be addressed by food-for-work programmes and other initiatives under Tanzania Social Action Fund, and food insecurity will be addressed by supporting irrigation schemes, developing drought resistant crops, and improving the access

for food deficit areas to food supplies in surplus regions. Under environment, the only action stipulated in TPRSP is to incorporate environmental quality indicators into the poverty monitoring system (URT 2000).

Unfortunately TPRSP does not mention agricultural education as one of the sectors contributing to poverty reduction. The leadership at SUA seems to adopt the ideas of SEMCIT with the main objective to promote changes in higher agricultural learning institutions, and with the aim of producing graduates with knowledge, skills and values to transform agriculture and advance sustainable development in the rural areas.

In the past, most universities in the tropics had their focus on supplying the government institutions with trained manpower, and the graduates were assured of employment in government institutions. This trend led to lack of emphasis on entrepreneurship and business skills of graduates as well as weak links between universities and the private sector. The SEMCIT process encourages a redirection of universities towards production-oriented knowledge, close links to the local community, and focus on entrepreneurship and economy.

5.5. PROGRESS AND ACHIEVEMENTS IN FOLLOWING UP PRSP IN AGRICULTURAL EDUCATION

The progress reports on the implementation of TPRSP includes six priority sectors, these are primary education, rural roads, water, legal and judicial system, health and agriculture. In addition, there is reporting on eight crosscutting issues, these are the rural development strategy, environment, HIV/AIDS, gender, good governance, employment, local government reforms, and human capital development (URT 2003).

Within agriculture, progress is reported under the private agribusiness sector support, crop sub-sector, livestock sub-sector and cooperatives and marketing sub-sector. The measures taken under private business sector support mainly focus on capacity building. Under the crop sub-sector, focus has been in seven areas. These are supporting research and extension services, reducing crop losses due to pests, supporting small scale irrigation schemes, developing credit facilities, supporting agro-processing, strengthening the legal framework in relation to agriculture, and promoting agricultural mechanization. Within the livestock sub-sector, measures have been directed towards improving animal breeds, education and information, undertaking land demarcation, improving animal feeds and controlling diseases. Under the cooperatives and marketing sub-sector, activities focus mainly to policy issues and institutional improvements.

Since agricultural education is not mentioned in TPRSP, there is also no specific reporting on progress and achievements in agricultural education in relation to TPRSP. As mentioned above, one of the areas reported on is research and extension service in the crop sub-sector, which at least must be closely linked with agricultural education. According to 2001/2002 and 2002/2003 progress reports, the measures undertaken in this area include extension and development of various crop approaches including participatory methodologies, training of farmers and extension officers on soil and water conservation, revision of curricula for agricultural institutes to undertake refresher courses, preparation of extension reference manuals, and adoption of new varieties of maize and rice by the Ministry of Agriculture and Food Security. Others include establishment of research trust funds in all seven agro-ecological zones, enrollment of more new students in training institutes, and production of

reference manuals, pamphlets and books on a variety of agriculturally related topics (URT 2003, URT 2004b).

Under the livestock sub-sector, it is reported that pamphlets on modern beef production methods, dairy production services and disease control methods were disseminated to farmers. Also, a good number of livestock keepers were trained on modern livestock keeping (URT 2003, URT 2004b).

It is worth noting that reports on progress on agricultural extension and research includes only the activities undertaken by the three ministries, namely Ministry of Agriculture and Food Security, Ministry of Water and Livestock Development and Ministry of Cooperatives and Marketing. Since Ministry of Science, Technology and Higher Education has not been assigned a specific role in TPRSP, research and extension activities at Sokoine University of Agriculture are not reported in the Poverty Reduction Strategy Progress Reports.

5.6. GOVERNMENT POLICY AND ACTION PLANS REGARDING HIGHER AGRICULTURAL EDUCATION IN VIEW OF THE TPRSP

Tanzania does not have a policy document specifically for higher agricultural education. Higher agricultural education is however considered as part of higher education at large, which is organized under the Ministry of Science, Technology and Higher Education. The guiding policy document is the National Higher Education Policy of 1999.

The National Higher Education Policy states that since agriculture will continue to be the backbone of the economy, agriculturally related disciplines and technology shall be given priority. Furthermore, the policy stresses that curricula have to be reviewed regularly in order to respond to the ever-changing demands of the people, industry and the surrounding environment in general. It is also emphasized that the education sector should be given priority in the allocation of resources by the Government. The policy recommends the Government to invest into education at a rate of 20% of annual governmental expenditure (5% of GNP) and into research and development at a rate of 1% of GNP (URT 1999).

To obtain views from Government side, the Vice President's office, which is responsible for poverty eradication was visited. The office has four departments, and one of them is the Poverty Eradication Department. The other three departments deal with Environment, NGOs issues and Union matters. The Poverty Eradication Department was launched in 1996, and has the overall responsibility for overseeing the implementation of TPRSP.

Through discussions, the official from Poverty Eradication Department expressed that though higher education and in particular agricultural education is not mentioned in the TPRSP, higher agricultural education is supposed to play a role in poverty reduction. The agricultural sector being the backbone of Tanzania's economy, and productivity being low, there is a need to increase agricultural production. Institutions of higher agricultural learning are therefore expected to contribute to poverty reduction by improving the agricultural growth rate through education, research and monitoring. The Poverty Eradication Department official was of the opinion that since PRSP was currently undergoing review, this was the opportunity to ensure that higher education features out in the document. The first draft of the revised TPRSP is expected to come out by June 2004 while the final copy is expected to be out by December 2004. It is hoped therefore that higher agricultural education will be considered and given the impetus and resources it deserves in the revised PRSP document.

5.7. THE CONTRIBUTIONS OF SOKOINE UNIVERSITY OF AGRICULTURE (SUA) TO FULFILLING THE GOALS IN THE EDUCATION POLICY RELATED TO THE TPRS

SUA is the only institution of higher learning specialized on agricultural disciplines in Tanzania. It was established in 1984 from the former Faculty of Agriculture, Forestry and Veterinary Science of the University of Dar es Salaam. SUA is situated 3 km from Morogoro town, which is about 200 km west of Dar es Salaam. The University has four faculties namely the Faculty of Agriculture, Faculty of Forestry and Nature Conservation, Faculty of Veterinary Medicine and Faculty of Science. SUA offers courses leading to BSc in agriculture general, agronomy, home economics and human nutrition, horticulture, animal science, food science and technology, agricultural engineering, agricultural education and extension, agricultural economics and agribusiness, forestry, wildlife management, veterinary medicine, and environmental sciences and management. SUA also offers postgraduate training leading to MSc and PhD degrees in a range of disciplines (SUA 2003).

Since higher education is not included in TPRS, no specific contributions are requested from Universities in order to fulfil the goals within the strategy. SUA has however been conducting itself in such a manner that it contributes to poverty reduction even without reference to the PRSP.

SUA Research policy encourages demand driven and farmer oriented type of research projects aimed at improving the socio-economic welfare of the rural poor. Most of the research projects undertaken by SUA researchers are applied, on farm and rural based. The best example is probably the NORAD-funded poverty oriented applied research programme that is managed by SUA and implemented in collaboration with Ministry of Agriculture and Food Security and with technical inputs from NLH. The programme is known as '*Household Income and Food Security for Smallholder Farmers in Tanzania: Applied Research with Emphasis on Women (TARPII-SUA)*'. The programme has a total of 34 projects and emphasizes on-farm research targeting smallholder farmers. According to a mid-term impact assessment, half of the projects had already shown a convincing impact in terms of at least one of the three main themes for the impact study, which are improved food availability, increased household income, and reduced workload for women (TARPII-SUA 2003).

5.8. THE RELEVANCE OF TEACHING, RESEARCH AND OUTREACH AT SUA

In order to collect views on the relevance of SUA in terms of their teaching, research and outreach activities, various stakeholders were contacted, visited, and interviewed. The stakeholders contacted and interviewed include the on going SUA students, Government officials, farmer organizations, private commercial sector and SUA Management.

5.8.1. Views from the students at SUA

Four student leaders, each representing one faculty, were interviewed as a group on their views regarding the relevance and quality of the education and degree programmes offered at SUA.

Overall, the students felt that there was too much teaching on the theory part with very little time set aside for field practicals, excursions and laboratory work. They suspected that this

was due to time and financial constraints. They also felt that there were a number of subjects taught separately by individual departments, which could be harmonized and taught by one department. By integrating some of the courses this would not only reduce the unnecessary overlap of courses but would reduce the total number of courses offered at SUA. In depth coverage of subjects and too much references were also cited as contributing to heavy workload to students.

The students expressed that there were great difficulties in finding jobs after they had finished their BSc degrees. Their perception was that they were trained to be job seekers and not to be job creators. They felt that some newly introduced degree programmes at SUA seem not to be sufficiently known among potential employers. One suggestion that came up was to have internships where graduates could work together with experienced people for one year in order to gain experience that could make them more competitive in the labour market. It was also suggested that since it is difficult for SUA graduates to raise enough capital to establish medium-scale commercial farms and most SUA graduates do not have enough collateral to get loans, the Government should provide soft loans to these students so that they can employ themselves. They suggested further that SUA could be entrusted to supervise and monitor these loans to ensure that funds are used for agricultural farming or agribusiness only.

When asked to give their opinions about the assessment they do on staff, students admitted that they are normally asked to fill in evaluation forms as a part of the quality control management system. Unfortunately, the general feeling of the students was that there is a great variation within the university on the way these evaluation forms are administered and the extent to which they are taken seriously by both the management and the teachers. They claimed that they haven't seen much improvement on the deficiencies that they have been pointing out.

The students admitted that they are normally involved in improving the curriculum and also on curriculum development. They are also invited to participate and present papers to workshops organized by the University administration on matters concerning curriculum development and examination regulations. As an example they cited the workshop, which was originally scheduled to be held in January 2004 to review the Semester system, but by mid March 2004 there was still no clear indication of when the workshop would actually take place.

5.8.2 Views from the Ministry of Agriculture and Food Security (MAFS)

MAFS is one out of four key ministries for the agricultural sector. The others are Ministry of Water and Livestock Development, Ministry of Cooperatives and Marketing, and Ministry of Regional Administration and Local Governments. The official contacted in the Ministry of Agriculture and Food Security acknowledged that SUA staff has been playing key roles in the development of the Agricultural sector policies and Sector Development Strategy and Programmes. The general impression he gave was that SUA graduates have the required relevant skills for working in MAFS, though many practical aspects have to be learnt on job.

Although he admitted that the Government does not employ SUA graduates to the extent that it used to do, recently a good number of graduates were employed by the Directorate of Research and Development under MAFS. MAFS is planning to establish a loaning facility that can assist people who want to establish themselves as entrepreneurs in agriculture. SUA graduates are the main targets of this facility and possibilities of degree certificates being used as collaterals were discussed. From the discussions, it was noted that SUA graduates are not

employed as local extension workers at village level but rather people with certificate or diploma level education occupy these positions. SUA graduates are currently employed at District levels where they are expected to participate in formulation and implementation of District Agricultural Development Strategies and Programmes.

5.8.3. Views from Tanzania Chamber of Commerce, Industry and Agriculture (TCCIA)

TCCIA is a Non Governmental Organization (NGO) promoting both industrial and agricultural business activities in Tanzania. It has more than 5,000 members, ranging from small to large-scale business people. TCCIA organizes training courses for its members on a variety of topics related to business management, entrepreneurship, accounting etc. and is also involved in lobbying for the interests of the commercial sector. Farmers can join TCCIA as farmer groups / cooperatives or as individual members. Farmers joining as individual members are by Tanzanian standards large-scale commercial farmers.

TCCIA employs some few SUA graduates. According to the TCCIA officials met, SUA graduates seem to be equipped with good skills for the work that they are doing. TCCIA officials thought, that in order to contribute to poverty reduction, TCCIA and SUA need to assist farmers so that they produce high quality agricultural products that will meet the quality standards that are demanded on the export markets. Emphasis should be on public/private partnership and on new export crops rather than traditional cash crops whose world prices are falling.

5.8.4 Views from MVIWATA

MVIWATA is a national network of farmers' groups in Tanzania having about 50,000 members, either as individual members or associated with MVIWATA through farmers groups. It was founded in 1993 and registered as an NGO in 1995 with great support from SUA. All their members are smallholder farmers, thus making it the most representative organization for smallholder farmers in Tanzania.

MVIWATA which has few employed SUA graduates normally gets in touch with SUA graduates at district level e.g. as extension officers. The representatives of the organization interviewed revealed that the organization receives SUA students for field practicals and facilitates them to stay in villages for a few days. Their impression about SUA graduates working in government especially at district level was that they were well trained to assist farmers, but poorly equipped in terms of extension materials, transport and other facilities that are needed to impart knowledge to the farmers. They thought that if extension staff could be provided with the necessary facilities they would have more impact on rural development

These MVIWATA representatives (majority were members of the Steering Committee) also pointed out that SUA seemed to be more practically oriented than other institutions e.g. University of Dar-es-Salaam. Lastly they praised SUA for having assisted a lot in the establishment and development of MVIWATA.

5.8.5 Views from Tanzania Breweries

Tanzania Breweries is amongst the few companies in the commercial sector that has employed a considerable number of SUA graduates in recent years. Most of them are graduates in food science who are employed as trainees for a two years period. Successful trainees are later employed as brewers. Officials in Tanzania Breweries indicated also that they needed people with agronomy/extension background in order to secure sufficient

production of barley of good quality. About half of the hops needed by the company is produced within Tanzania, most of it from barley produced by contract farmers.

Tanzania Breweries officials contacted found that graduates from SUA have the right training for becoming brewers, because they have knowledge on the engineering aspects and on food science. As a result of this advantage, SUA trainees in the brewery are seen superior to graduates from the University of Dar es Salaam. Also since Tanzania Breweries (TBL) receives a number of SUA students for field practicals, they use this opportunity to identify potential employees. The need for SUA to establish strong links with the private sector in order to impart practical skills was stressed. The following areas were cited as examples where SUA could cooperate with TBL in order to strengthen SUA's teaching and research capacity and also improve the quality of its graduates; conduction and marking of brewing course, research on packaging technology, research on breeding of different varieties of barley and use of TBL staff as part time lecturers.

5.9. THE COMMITMENT OF SOKOINE UNIVERSITY OF AGRICULTURE TO ITS ROLE IN THE DEVELOPMENT PROCESS

The commitment of SUA to its role in the development process is expressed in its vision and corporate strategic plan. The University's vision is 'to be a centre of academic excellence in agricultural related fields with emphasis in imparting skills, entrepreneurship, research, integration of basic and applied knowledge in an environmentally friendly manner for the benefit of all people' (SUA 1997:xi). Among the broad principles following the vision it is also expressed that SUA 'will strive to provide solutions that could improve the Nation's food supply and safety, to enhance the environment and the socio-economic status of the people' (SUA 1997:xii). In order to get a more detailed view of recent developments at SUA to enhance its role in the development process, it is useful to distinguish between the various activity areas.

5.9.1. Teaching

SUA's main objective in teaching, according to its strategic plan, is to 'improve the quality of academic programmes, educate students to become lifelong learners, productive citizens and leaders in society'. Moreover, it is expressed in one of the strategies that students should be trained to develop 'global perspectives and social responsibilities' Another strategy is to broaden the pool from which the students are selected by encouraging disadvantaged groups to join the University (SUA 1997:1). According to the Vice Chancellor of SUA, the following changes have been implemented within SUA's teaching in recent years in order to enhance its role in the development process:

- The semester system has been adopted since 2001, prompting reviewing and recasting of the curricula.
- Diversity of degree programmes offered has increased through introduction of six new degree programmes at BSc level (Wildlife management, Agricultural education and extension, Agricultural economics and agribusiness, Environmental science and management, Aquaculture, and Biotechnology and laboratory sciences) and four new degree programmes at MSc level (Tropical animal production, Preventive veterinary medicine, Irrigation engineering and management, and Land use planning and management).
- Student population increased from 1000 in 1996/97 to 2476 in 2002/2003, and the

proportion of female students rose from 15% to 28% during the same period.

- Postgraduate regulations and fees have been revised to attract more such students.
- A Student Records Office has been established and processing of examination results has been computerized.
- Matriculation examination has been introduced for undergraduate admissions.

5.9.2. Research

According to SUA's strategy, research 'should be linked to development and in particular focus on specific problems including environmental concern and conservation of natural resources as well as providing scientific breakthroughs'. According to SUA's Vice Chancellor, the main change over the recent past has been the forging and strengthening of University researcher-extension-farmer linkages to facilitate (a) a speedy transfer of appropriate technologies to farmers and (b) an acquaintance of researchers to farm realities and needs. Recent developments at SUA include:

- A review of the SUA Research Policy, Guidelines and Priority Areas to meet client demands.
- The mainstreaming of SUA into the National Agricultural Research System (NARS).
- Involving farmers in the planning, execution and evaluation of research projects.
- Establishing teams of scientists, extension experts and farmers for multidisciplinary research.
- Including impact assessment in every research project.
- Producing and disseminating simple literature on effective technologies.
- Conducting biennial workshops where research results are discussed with stakeholders.
- Institutionalization of the SUA Intellectual Property Rights Policy.
- Establishing over 40 collaborative links with academic institutions inside and outside Tanzania.

5.9.3. Extension

Commitment to development is particularly strongly expressed in the chapter on 'Extension and Outreach' in the SUA strategy. The objective is to 'Provide leadership and strengthen rural sector development for poverty alleviation'. One of the strategies under this objective is to 'Focus on the needs of the people by involving them to make informed choices and decisions' (SUA 1997:8). According to the Vice Chancellor, the integration of extension in the research process, in which scientists, extension experts and farmers participate together, is a fundamental change that has taken place at SUA since implementation of the strategic plan started in 1998. Other developments include:

- Establishment of the SUA Center for Sustainable Rural Development;
- Establishment of the Pest Management Center;
- Upgrading of the Center for Practical Forestry Training at Olmotonyi;
- Facilitation of the SUA Television Station to broadcast extension, HIV-AIDS and other education programmes to Morogoro town residents;
- Participation in the annual Farmers' Day (Nane Nane) Agricultural Shows;
- Sponsoring farmers' newsletters to promote dialogue and disseminate technologies.

5.9.4. Other activities

Apart from teaching, research and extension, SUA has a number of other activity areas, mainly related to administration as well as internal and external service provision. Within these activity areas, the most important recent developments are:

- Computerizing the library's operations to improve its role as a source of agricultural information;
- Establishment of a consultancy unit (SUACONSULT) to coordinate consultancy activities;
- Formulation of an Investment Policy for mobilization and diversification of sources of funds;
- Making the service sector cost-effective by leasing some service units and outsourcing services.

5.10. VISIONS AND PLANS FOR CHANGE AT SOKOINE UNIVERSITY OF AGRICULTURE

5.10.1. Need for equipping graduates with skills in entrepreneurship and production

The SUA management is clearly aware that a large proportion of their graduates will not find employment in the public sector, and therefore need to be trained to become entrepreneurs as well as to seek employment in the private sector, including both commercial enterprises and NGOs. The SUA strategy emphasizes both demand driven research and demand driven courses. Under teaching, one of the strategies is 'providing students with more practical training' (SUA 1997:2). Entrepreneurship is also an explicit part of the University's vision since 1997. In spite of that, a course in entrepreneurship skills offered to all SUA students is yet to be conducted. Such a course is, however, planned to be held in July or August 2004 as an optional course for students who have already graduated. At a later stage, the plan is to integrate such courses in the curricula of existing degree programmes.

The Vice Chancellor stressed the need to equip students with relevant skills in entrepreneurship and production of commodities and services. He further called for an overhaul of most of the curricula offered at SUA and retraining of academic staff in order to equip them with the necessary knowledge and skills so that they can produce job creators rather than job seekers.

5.10.2. Practical training

Practical experience is not a requirement for admission to SUA. According to the Vice Chancellor, most of the students do not have practical experience prior to joining the University, and many do not have the right attitudes towards manual labor and rural life. The Vice Chancellor pointed out the following three steps that need to be taken in order to improve the situation:

- Demanding practical experience from a farm, a forest or a nature reserve as one of the criteria for admission;
- Review curricula in order to increase the practical content without extending the total duration of the programmes;
- Practical training to be designed to ensure that it imparts entrepreneurial and other skills that have been identified after consultation with stakeholders in relevant industries.

5.10.3 Ensuring the quality of education programmes

As pointed out in section 8.1, students are regularly asked to fill in evaluation forms as part of the quality management system, though the various faculties and departments seem to differ when it comes to the administration of evaluation forms as well as to what extent the responses are taken seriously.

In the past, there was also a modality of receiving reports from external examiners and discussing these reports in departments, faculty boards and the Senate. This system is now being replaced with a peer evaluation system in which external evaluations of all programmes will be done every four to five years. This change was decided about three years ago; consequently no peer evaluation has been conducted yet. It is therefore difficult to assess, at this point in time, whether further changes in the quality management system for the education programmes at SUA will be needed.

5.10.4. Mainstreaming HIV/AIDS in training

At present SUA has an HIV/AIDS programme, offering counselling services and life prolonging drugs. According to the Vice Chancellor, SUA needs to equip its graduates with knowledge and skills that will enable them to lead the fight against HIV/AIDS long after they have left the University. All SUA curricula therefore need to be mainstreamed with relevant HIV/AIDS issues. This need is addressed through the NORAD funded FOCAL programme and through collaboration with African and American universities.

5.10.5. Income generation at SUA

The Vice Chancellor informed that SUA has committed itself through its Income Generation Policy to generate more income, thereby reducing its dependency on the Government and donors. An Income and Business Development Manager has recently been employed to enable SUA generate more income and also cut the University's costs.

5.11. THE NEED FOR RESOURCES TO STRENGTHEN SUA IN ITS EFFORT TO SERVE TARGET GROUPS

SUA plans and implements its activities based on its Corporate Strategic Plan (CSP) (1997-2005). The plan, which is now under review, (2005-2010) ensures that all resources are channeled and used according to the planned work-plans and budgets. About 60% of SUA's resources come from the Government and the rest from the donors. NORAD's funds account to about 50% of the total donor funds through two main programmes; these are TARP-II-SUA project and FOCAL Program.

SUA is currently receiving a substantial support for its activities from FOCAL program (Future Opportunities and Challenges in Agricultural Learning). This program (2002-2006) is to a large extent geared towards strengthening the relevance of the University to farmers. The program aims at supporting review of curricula and development of new courses which are market demanded and introduction of courses in entrepreneurship so that graduates can be employed in the private sector. The program also aims at filling identified gaps and support crosscutting issues like gender balance, HIV/AIDS problems and income generation.

In the view of the Vice Chancellor, however, SUA does not have sufficient funding to serve its target groups well. This opinion is qualified by referring to the funds granted by

Government as compared to the budgets that are approved by the SUA Council and reflect the real needs. Over the past 8 years, Government grants for the recurrent budget has varied between 56% and 78% of the estimated needs. For 2003/2004 the Government funding covered 62% of the budgeted needs. For the development budget the situation looks even worse. Over the past 8 years the Government grants for the development budget has varied between 6% and 52% of the estimated needs, and in year 2003/2004 it stands at only 9%. The current (2003/2004) gap between the actual funding and the needs seems to be in the size of order of 9 billion TAS or 9 million USD.

5.12. CONCLUSIONS AND RECOMMENDATIONS

Sokoine University of Agriculture is committed to contributing to poverty reduction in Tanzania as well as to contributing to private sector development by trying to equip their graduates with relevant education, including entrepreneurship skills. There are however some weaknesses within these items. A major weakness regarding poverty reduction is that SUA has not been given a national role in the implementation of TPRSP. The weaknesses in orientation towards private sector development are reflected by the fact that the course in entrepreneurship is yet to be conducted to all SUA graduates seven years after entrepreneurship became an explicit part of SUA's vision.

It is recommended that:

- Agricultural education at all levels should be an explicit part of TPRSP when it is revised later this year;
- Agricultural research and extension done at SUA should be recognized and reported as poverty reduction efforts in the TPRSP progress reports together with those activities undertaken in the Ministry of Agriculture and Food Security, Ministry of Water and Livestock Development and Ministry of Cooperatives and Marketing;
- Efforts to prepare SUA graduates for employment and self-employment in the private sector should be speeded up through curriculum reviews;
- The Government should facilitate SUA to create a special fund to be administered by a credit institution at a low interest rate so that SUA graduates can be assisted to start commercial medium-scale farms and other agricultural related business;
- SUA should be empowered to develop business incubation schemes as startup packages for graduates choosing to enterprise in agricultural production and agribusiness. Such packages either to be within or outside the University may involve enterprises/franchises operated under the auspices of SUA so that SUA can provide guidance, supervision, monitoring and backstopping support;
- SUA should consider establishing a contact forum with private sector stakeholders who can meet regularly to discuss ways that various activities at SUA can be designed and funded to become more relevant for private sector development.

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- URT 1999. National Higher Education Policy. The United Republic of Tanzania, Ministry of Science, Technology and Higher Education. Government Printer, Dar es Salaam.

5.14. LIST OF PERSONS MET

- Albano, O. Student representative, Faculty of Veterinary Medicine, SUA.
- Angolile, B. Student representative, Faculty of Agriculture, SUA. President of SUASO (Sokoine University of Agriculture's Student Organization).
- Assey, Paschal B. Assistant Director and Coordinator, Poverty Eradication Department, Vice President's Office.
- Ezekiel, E. Student representative, Faculty of Forestry and Nature Conservation, SUA.
- Inyasi, Gilba. Artisan Training Manager, Tanzania Breweries Limited.
- Lwoga, A.B. Vice-Chancellor, Sokoine University of Agriculture (SUA).
- Mabisi, J. Farmer, Kilosa. Member of the MVIWATA Steering committee.
- Machemba, D.C. Chamber Development Officer, Tanzania Chamber of Commerce, Industry and Agriculture.
- Magita, C. Student representative, Faculty of Science, SUA.
- Maina, J. Farmer, Dodoma. Member of the MVIWATA Steering committee.
- Maselina, C. Farmer, Morogoro. Member of the MVIWATA Steering committee.
- Matechi, Tom H. Brewing Manager, Tanzania Breweries Limited.
- Mkaru, L. Farmer, Dodoma. Member of the MVIWATA Steering committee.
- Mushi, C. Farmer, Kilimanjaro. Member of the MVIWATA Steering committee.
- Nganda, L. Farmer, Dodoma. Member of the MVIWATA Steering committee.
- Pazi, Hamisi. Training Manager, Tanzania Breweries Limited.
- Shekilangu, J. Acting coordinator of MVIWATA.
- Sicilima, Nicodemus P. Director, Crop Development Division, Ministry of Agriculture and Food Security.
- Simba, Kalua. Chamber Development Officer, Tanzania Chamber of Commerce, Industry and Agriculture.

6. COUNTRY REPORT: THE CASE OF UGANDA

(Stein R. Moe⁹ and John R. S. Kaboggoza¹⁰)

THE POVERTY ERADICATION ACTION PLAN (PEAP)

6.1. INTRODUCTION

Uganda is a landlocked country between Sudan, Kenya, Tanzania, Rwanda and the Democratic Republic of Congo. Most of the 241 038 km² country is situated on a plateau dropping gently from about 1500 m in the south to about 900 in the north of the country. The majority of the country (75%) is available for agriculture, either as cultivated areas, pastures or both (PMA 2000). The drainage system is dominated by six major lakes, (L. Albert, L. Bisina, L. Edward, L. Gorge, L. Kyoga and L. Victoria) with Lake Victoria as the world's second largest inland freshwater lake.

With its equatorial location Uganda has a relatively constant climate throughout the year. Rainfall is adequate in most parts of Uganda. Annual rainfall is relatively stable and varies from about 750 mm in the Karamoja pastoral northeast dry areas to 1500 mm in high rainfall areas like the shores of Lake Victoria, highlands of Mt. Elgon in the east, the Ruwenzori mountains in the southwest, Masindi in the west and Gulu in the north (PMA 2000). The north has one single wet season between April and October, while the south has two wet periods between April and May and between October and November). The soils in Uganda are mainly lateritic, with good soil physical characteristics. The Ugandan economy is basically agricultural and 80 per cent of the labour force is employed in this sector (NAES 2003). In addition to be the main source of income for the majority of the population, agriculture also accounts for 40 per cent of GDP (2003) and 90 per cent of Uganda's export earnings (NAES 2003). Most of the agriculture is small-scale mixed farming, with more than half the production originating from farmers with less than 1 ha of land. Agricultural production is concentrated on the relatively more fertile high rainfall areas in the south. The main food crops are corn, millet, bean, sorghum, cassava, sweet potato, bananas, beans, peanut and soybean. Cabbage, greens, carrot, onion and tomato are commonly grown as well as a number of varieties of peppers.

By far the most dominating export cash crop is coffee accounting for an export earning of US\$ 85 million in 2001/02 (UPSR 2003). Export coffee earnings are bigger than the combined earnings from the three following export crops; tea, cotton and tobacco (export earning of 78 mill. US\$ in 2001/2) (UPSR 2003).

In recent years the livestock industry has picked up in Uganda, and now more than 20 per cent of the households own livestock. The latest figures show that there are 5.6 mill. cattle, 5.8 mill. goats, 0.9 mill. sheep, 1.4 mill. pigs, 22.7 mill. poultry and 0.12 mill. rabbits (NBSAR 1999). Cattle include both indigenous varieties as well as exotics (mainly Fresians) and crossbreeds are also common.

In contribution to GDP the service sector is similar to agriculture (40.6% in 2001/02). About half of this service output is accounted for by Government, through social service provision.

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The most important private contributor to the service sector is wholesale and retail trade, accounting for 25 per cent of the service output.

Ugandan industrial production is low, accounting for only 18.9 per cent in 2001/02. The greatest contribution is made by manufacturing and construction. Main industries are based on processing agricultural products like coffee, tea, tobacco, sugar, cotton, grains, various dairy products and edible oils.

6.2. POVERTY AND FOOD INSECURITY

The proportion of people living below the poverty line in Uganda has been decreasing in recent years. In 1992, 56 percent of the population did not meet the minimum requirements of poverty, while in year 2000, 35 percent the population lived below the poverty line (UPSR 2003). In the recent years it has increased slightly.

Generally Uganda is rated as having food surplus. However, there are signs of malnutrition, particularly among children. Although acute malnutrition rates among children under five years age have declined from 6 percent to 4 percent between 1995 and 2001, chronic malnutrition have increased from 36 percent to 39 percent in the same period (UPSR 2003). There are marked regional differences in malnutrition, with the rural population generally more affected than the urban. Of the households that are chronically poor or moving into poverty 91 per cent live in rural areas. The Eastern region and Northern Uganda are the areas most heavily affected with chronic malnutrition. About 40 per cent of the deaths of children can be linked to malnutrition (UFNP 2003). Main causes of malnutrition include inadequate food intake, pre-disposing diseases, civil strife (Kony's war in Northern Uganda) ignorance, poverty, taboos, life-styles and the effects of HIV/AIDS (UFNP 2003).

Poverty in rural areas is often linked to heavy reliance on the environment. The rapid economic growth in Uganda over the past years has stressed the natural resource base, exemplified by the loss of agricultural production, loss of forest cover and water pollution (SOER 2003). Thus, the environmental quality on which poor people depend on is declining. Furthermore, armed conflicts and mass displacements hampers access to natural resources in Northern Uganda.

The natural resource degradation is particularly severe in south western and parts of central and eastern Uganda. Areas adjacent to Lake Victoria are suffering from eutrofication and water pollution, while introduced species like the Nile Perch and Nile Tilapia have decimated the indigenous fish populations.

The fact that agriculture employs 80 per cent of the labour force (NAES 2003) underlines the importance and need to focus on this sector to achieve the goals of the PEAP. In response to the development policy objective to eradicate poverty (as detailed in the PEAP 2000), Uganda has recently developed the Uganda Food and Nutrition Policy (UFNP). In line with the PEAP the overall policy goal of UFNP (2003) is: "to ensure food security and adequate nutrition for all the people in Uganda, for their health as well as their social and economic well-being". Furthermore, the overall objective of the policy is "to promote the nutritional status of the people in Uganda through multi-sectoral and coordinated interventions that focus on food security, improved nutrition and increased incomes" (UFNP 2003). In order to achieve the goals in the UFNP a number of strategies involving various forms of training and capacity

building (e.g. establish a national food and nutrition training centre) as well as agricultural research geared to improving nutrition (UFNP 2003)

Uganda has recognized that the most efficient way to transform and modernise the economy and to contribute to poverty reduction is to focus on the agricultural sector. In response to the challenge of developing the sector, Uganda launched the Plan for Modernisation of Agriculture (PMA) in 2000. A central theme in this plan is that the modernisation of the agricultural sector requires participation and co-ordination of various ministries and institutions. In the implementation of PMA key principles are the empowerment and ownership of stakeholders (particularly women), decentralisation and addressing crosscutting issues like natural resource management, HIV/AIDS and malaria control. Operational framework for the implementation of PMA has been designed. These include the National Agricultural Advisory Services (NAADS), the National Agricultural Research System (NARS), the Rural Micro-Finance Outreach Plan and the Marketing and Agro-processing Strategy (MAPS). Although, the organisational set-up has been decided, only NAADS is currently operational.

6.3. AGRICULTURAL SITUATION; LIMITATIONS AND POTENTIAL

Following a positive growth in the 1960s, the Agricultural sector in Uganda experienced negative growth rates (average minus 2% per annum) in the 1970s due to factors like civil strife, economic mismanagement, disintegration of public infrastructure and services, lack of private sector investment, scarcity of foreign exchange for agricultural inputs and the collapse of the emerging commercial agricultural sector (PMA 2000).

More recently the overall real GDP grew by 6.3 per cent in 2001/2003, agricultural GDP real growth was only 5.1 per cent. Recent projections indicate an annual GDP growth rate at 5.9 per cent, which is below the PEAP target at 7 per cent required to meet the Ugandans poverty eradication goals by 2017 (UPSR 2003). The comparatively slower rate of Agricultural growth is particularly alarming in meeting the objectives of poverty eradication. A continued slow growth in this sector is expected to increase income inequality, unless a substantial portion of the workers are able to shift away from agriculture into other modes of production.

Overall inflation rate has been below the PEAP goal of 5 per cent both in 2000/01 (4.5%) and in 2001/02 (-2 %). Earnings from agriculture remained unchanged during the past two years despite the fact that the agricultural output increased. During 2001/02 Uganda experienced a very good agricultural season and the prices on food crops dropped (-21%) accordingly. Thus, the price decrease has probably had adverse effect on the purchasing power of the poor, because prices of other goods and service rose by 5 per cent and 3.5 per cent in 2000/01 and 2001/2, respectively. Furthermore, the decline in commodity prices since 1998/98, particularly in Uganda's largest export commodity coffee, has severely affected export revenues (UPSR 2003).

The constraints and opportunities affecting subsistence farmers and their livelihoods have been grouped into five main categories (PMA 2000):

- 1) Natural environmental aspects that include limited access to land, poor soil fertility, unavailability of water for production, and pests for crops and livestock and wildlife;

- 2) Financial concerns such as limited income, low output prices, high costs of inputs, high taxes and limited access to credit either to finance the acquisition of non-labour inputs or to finance their consumption during the low season;
- 3) Physical infrastructure, such as poor roads, lack of access to markets, lack of electricity and poor housing;
- 4) Human aspects, specifically ignorance, lack of information, few skills and poor health;
- 5) Social capital is generally cited as strong in the areas of co-operation, local leadership, networks and groups and weaker in the aspects of accountability and transparency.

In addition, two recent reports (UPPAP 2002, UDE 2002) have identified the lack of empowerment of women as a key challenge for improved agricultural production. Women often face difficulties in terms of access to, and control over agricultural land. Women face a number of micro-level constraints to increasing cash crop production in that they have little extra time for agricultural cash crop production because of heavy household tasks. Women also have poor incentives to cultivate cash crops, because they do not control the income from the products.

The PMA was launched to address bottlenecks in agricultural production and to address problems in private sector development and sustained economic growth. It is recognised that overall poverty reduction must be based on approaches that link agriculture and other sectors at all levels from farmer to central Government (PMA 2000).

Education is particularly mentioned as a key factor in achieving the goals of PMA (PMA 2000). Farmers in Uganda also viewed lack of education as one of their central causes for poverty (UPPAP 1999) (Table 1).

Table 1 Ranked Causes of Poverty as seen by farmers in rural areas of Uganda (source: UPPAP, 1999).

Factor	% of rural sites
Lack of access to markets	63
Poor health	58
Lack of education and skills	58
Excessive alcohol consumption	54
Ignorance/ lack of information	54
Lack of access to financial services and capital	42
Large families	42
Insurgency (rebels and rustlers)	38
Idleness and laziness	33
Lack of co-operation	17

6.4. AGRICULTURAL EDUCATION ACCORDING TO PEAP, OTHER SOURCES AND IN VIEW OF SEMCIT

Uganda's Poverty Eradication Action Plan (PEAP 2000) rests on four main pillars:

- Creating a framework for rapid economic growth and structural transformation;
- Ensuring good governance and security;
- Directly increasing the ability of the poor to raise their incomes;
- Directly increasing the quality of life of the poor.

The PEAP recognises the central role of agriculture in the alleviation and eradication of poverty, and also the critical importance that basic education play in promoting the attitudinal change necessary to improve this sector. Tertiary education is not addressed in Uganda's PEAP, but in the separate Plan for Modernisation of Agriculture (PMA 2000) as a follow-up policy document together with NAES (2003) and ESIP II (see 3.4.7). Past developments in the education sector have been guided by the Education Sector Investment Plan 1998-2003 (ESIP). Currently a new ESIP II (2004-2015) is under development. The main focus of ESIP has been to achieve Universal Primary Education (UPE), introduced in 1997 (NAES 2003). This strategy has had major success in that from a primary school enrolment of only 2.7 million in 1997, 7.2 millions enrolled in 2002, of which 48% were girls (NAES 2003).

While the ESIP was mainly concerned with primary education, ESIP II is expected to take a broader focus looking into the quality of the agriculture education as well as looking at the whole range from primary to tertiary university education (NAES 2003).

Although tertiary education is barely mentioned in the PEAP, higher education is given attention in the PMA. It recognises that the agricultural education in Uganda is not based on practical experiences, and that the tertiary institutions do not respond well to farmers' needs and participation. Also the PMA does see a lack of multi-disciplinary graduates as a problem. In response to these challenges the PMA therefore launched its vision for tertiary educations: "Agriculture is treated as a business and honourable profession and farmers acquire knowledge and skills that enable them to increase productivity and profits so as to improve their quality of life". A multiple set of strategies are proposed in the PMA to achieve the vision above. It is argued that agriculture should be promoted as a business, and that it should be treated as a branch of applied sciences focusing on experiential learning (PMA 2000). Furthermore agricultural education should be multi-disciplinary and participatory and incorporate the community in a decentralised system where indigenous knowledge is recognised.

For tertiary education the PMA (2000) stresses that agricultural training should be holistic, responsive and relevant to the labour market in agriculture and peripheral sectors, as well as for communities and self-development needs. Agriculture, agro-forestry and fisheries should be promoted as business enterprises and curricula should be developed to contain farming, livestock management, forestry, fisheries and environmental aspects. All specialisations should include marketing, processing, management, livelihood/farming system approaches, participatory methods as well as communication training. The PMA also underlines that graduates from the universities must obtain practical skills and experience in order to be able to engage in agriculture as a profitable business. University graduates must have a good understanding of farmers' constraints and livelihood system to be able to engage farmers and to assist farmers in solving practical problems. Collaboration between Faculties and Departments at the universities is recommended.

Education at higher levels benefits from close ties to research projects. The mandate for agricultural research and technology dissemination has been delegated to the National Agricultural Research Organisation (NARO), a body corporate under the Ministry of Agriculture, Animal Industry and Fisheries (NARP 2003). Thus, Agricultural research and education (under the Ministry of Education and Sports) is the responsibility of two different Ministries. The NARO programmes are implemented through nine institutes that are supported by a common Secretariat at Entebbe. In addition to the nine institutes, central stakeholders like Makerere operate outside NARO's institutional framework that constitutes

the National Agricultural Research System in Uganda. This complicated system, where some of the key players are not streamlined with the central body that is set to co-ordinate agricultural research, does not seem to be optimal in securing funds for poverty relevant research at Makerere, or for the general implementation of PEAP policies in higher education. Although a new National Agricultural Research Policy (NARP 2003) has recently been formulated, the necessary links between research and education are not adequately addressed in this policy document.

Some of the philosophy and ideas behind the Earth University model, like increased focus on practical training, have been incorporated in tertiary education in Uganda, while other key aspects like entrepreneurship are still at the planning phase. In 2002 the challenges for agricultural tertiary education were discussed in Jinja, Uganda. Several key persons in Uganda's tertiary education were present at the Jinja meeting as well as the recent meeting in Oslo 2003. A workshop facilitated by Earth University to enable orientation of some Makerere University lecturers to "facilitators of learning" is planned for August 2004. Thus, one would expect the SEMCIT process to gain further momentum in Uganda in the years to come.

6.5. PROGRESS AND ACHIEVEMENTS IN FOLLOWING UP PEAP IN AGRICULTURAL EDUCATION

Although the PEAP does not deal with tertiary agricultural education, follow-up policy documents like PMA (2000) and NAES (2003) do address the challenges and achievements in agricultural education.

Using the PEAP (2001) and the PMA (2000) as platforms, the Ministry of Education and Sports has recently formulated the National Agricultural Education Strategy 2004-2015 (NAES 2003). The NAES identified a number of challenges facing both the formal and non-formal agricultural education and training:

- Lack of coherent policy for agricultural education and training;
- Insufficient funding for agricultural education and training;
- Ineffective institutional framework for the delivery of agricultural education and training;
- Inappropriate curricula and teaching and learning methodologies in agricultural education and training;
- Negative attitudes towards agriculture in general and agricultural education and training in particular.

Thus, based on this central policy document (NAES 2003), which is to be implemented during the next decade, there are still a number of shortcomings in agricultural education in Uganda. The NAES is addressing the first shortcoming in an attempt to design a coherent policy framework for development and promotion of agricultural education and training. NAES (2003) lists 13 key guiding principles for the national agricultural education policy: 1) Promote farming as a business 2) Ensure professionalism in agriculture 3) Promote progression within and between curricula to achieve a holistic agricultural education and training 4) Learner centred participatory training 5) Promote practical and experiential learning 6) Curtailing the punitive use of agriculture 7) Ensuring that agricultural education and training is applicable to the learner's self-development goals and labour market

requirements. 8) All members of society should have access to agricultural training regardless of social casts, gender or disability. 9) Promote empowerment of stakeholders in curriculum review and skills gap identification. 10) Develop partnerships between public and private sector. 11) Ensure that the agricultural education and training is demand driven. 12) Ensure Government commitment of resources, in order to increase accessibility and make agricultural education affordable to the general public. 13) Ensure that the agricultural education and training is cognisant of the importance of sustainable use of natural resources and conservation.

6.6. FINDINGS OF THE FIELD STUDY - UGANDA

6.6.1. Present operationalisation of the PEAP at Makerere University

While the PEAP was poorly reflected in the former strategy document for Makerere (Makerere 2000), many of the recent policy frameworks outlined in PAM (2001) and NAES (2003) have been incorporated into the revised Strategic Plan for Makerere University (Makerere 2004). The compliance of the strategy for Makerere University with the PEAP (2001) and with the PMA (2000) is particularly stressed in the revised strategy. Also several of the shortcomings listed by NAES (2003) are now addressed in the strategy for Makerere. Among other things interdisciplinary teaching and research are focused in the strategy. All the six main research themes on the Makerere research agenda:

1. Research into education for development;
2. Food nutrition and value addition;
3. Sustainable environmental development;
4. Good governance, equity (including gender) service delivery;
5. Health (infectious and lifestyle related diseases);
6. Natural resource utilisation and conservation);

as well as the cross cutting activities which are selected on the basis of the Poverty Eradication Action Plan (Makerere 2004):

1. Appropriate technology;
2. Economics;
3. Biotechnology;
4. Methodological studies;
5. Staff development.

The recent revised curricula at Makerere show that many of the ideas and topics stressed by NAES are now entering the curricula. Practical training as well as field attachments and internships are all central parts of the BSc curricula at the Faculty of Forestry and Nature Conservation (FFNC). FFNC has also established a Bachelor of Community Forestry degree where the main goal is food security. The Department was established in 1998 to meet the farmers' need for technical advice and extension in forestry and natural resources.

Since 2000/01 the FFNC has strengthened the internships for its students in order to get more practical training and relevant work experience. After their second semester students have internships for 7 weeks every year for the 3 years of their study. At present the FFNC has agreements with 10 NGOs. In addition students are also attached to relevant government institutions like NAADS (National Agricultural Advisory Services).

The FFNC involves stakeholders like Government, farmers' organisations, farmer groups as well as individual farmers in curriculum development. It is a growing realisation within the FFNC that training should be more focused on marketing and marketing skills. A system of practical training has also been put in place.

An internship programme has also been started at the Faculty of Agriculture (FA). The Department of Agricultural Extension Education coordinates the internship programme funded by the Agribusiness (Faculty of Agriculture 2001/2002) and also the Rockefeller/World Bank funded I@ Mak programme. Tremendous benefits have been reported by this internship programme, and the FA is currently exploring opportunities for an integration of internships in all its programmes as a strategy for enhancing relevant practical skills training (Faculty of Agriculture 2001/2002).

Practical training and farming at the research farm (Makerere University Agricultural Research Institute, Kabanyolo) is also increasingly focused. At present the students stay at the farm for 1 year, where they are offered practical training, demand driven short courses. However, limited resources hamper the practical training at the research farm.

Comparing with older versions of curricula it is evident that poverty issues and practical training is increasingly focused both at the FA and at FFNC.

Presently agriculture seems to suffer from the low status in the society. Most accepted students do not have agriculture as their first priority. Instead agriculture and agricultural related subjects have to accept candidates whose primary interest is not with agriculture (commonly students put medicine as first priority). The FA has started a course in agribusiness. A new cross cutting entrepreneurship programme for all Makerere undergraduate students is planned by the Institute of Economics (Makerere 2004).

In general, PEAP has not increased funds and resources to the University. Instead with the increased intake of students the financial situation at Makerere is getting increasingly strained (Kasozi 2003, Musisi and Muwanga 2003).

A highly interesting new initiative is the plan to involve several faculties at Makerere in establishing a new College of Agriculture, Forestry, Fisheries and Environmental Sciences (CAFFES). The college will consist of a School of Agriculture, School of Forestry, School of Fisheries and Aquaculture and School of Environment and Natural Resources. The proposed mission of the new college is:

“to improve the livelihoods of people by efficiently provide quality teaching, research and professional services in the fields of agriculture, forestry and nature conservation, fisheries and environment through integrated instructional approaches, experiential learning, application of information and technology and enhancing capacity and participation of stakeholders in the business of the college”.

Students will be given the opportunity to either specialize into more academically oriented subjects or take more holistic, entrepreneurial and practical training programmes. A central philosophy behind the new college is to adopt a community-oriented learning and training built on participation in order to produce more responsive and efficient programmes that combine modern science and personal innovations, and to link professionals to the realities of rural communities and industry.

6.6.2. Views from the students

From discussions with students of the faculties of Forestry and Nature Conservation and of the Faculty of Agriculture, it is evident that students are indeed aware and concerned with PEAP issues. Although Makerere has made progress in addressing PEAP issues the students feel that the present level is not sufficient. Students see the curricula as being too theoretical and not directly related to central poverty issues. Policy documents like the PEAP are not adequately dealt with in the courses. Many students expressed that they learnt more about PEAP issues from the media than from their classes. Students feel that there is too little practical training and that they should have been involved in extension and outreach work. Often case studies were highly irrelevant using examples from Europe and America instead of Uganda.

Some forestry students felt the focus on conservation was overemphasised at the expense of rural livelihood. The students were positive to the practical training they did have. However, practicals were often cancelled, because of resource limitations (e.g. shortage of fuel or funding for the training etc.). The students also felt that the practicals were not adequately related to poverty. The Department of Community Forestry was emphasised as having good contacts and relations with the NGOs.

Students were very positive to internships. However, although this was supposed to be an offer for all students only a fraction of the students were actually offered internships.

The possibility of student quality control seems to be low. The University system is seen as a top-down system where students are rarely heard. Course evaluations are optional, and in the cases where evaluations were done, the students did not feel that their input was considered. Students are represented on the finance committees, Faculty Boards and to the University Senate and Council through their Student Guild representatives. The students did feel that the curricula had changed in a positive direction during the past few years.

Access to learning material is a problem for the students. Although book-banks exist they are not viewed to function well. Students were particularly concerned with the present strained University economy implying higher school fees as well as increased intake of students. A higher student teacher ratio lowered the quality of their education. The financial strain was also seen as an important obstacle for increased practical training.

A main concern for the students was the fact that they often faced unemployment after graduation. Jobs in the agricultural sector are few and highly competitive. The students would like to see an increased focus on entrepreneurship in order to be able to create their own jobs following graduation.

6.6.3. Government and government institutions

The PMA is focusing on the eradication of poverty in Uganda through a consultative process involving the participation of all relevant stakeholders. One of the PMA's priority areas are agricultural education where agriculture is intended to be included in the curriculum at all levels from primary school to the universities. Central persons in the PMA do not appear to have their focus towards the universities. Rather, focus is towards extension and education at lower levels. At present people implementing the PMA have not been involved in curriculum development at Makerere.

Recently the Ministry of Agriculture, Animal Industry and Fisheries established the National Agricultural Advisory Services (NAADS 2000) as a programme under PMA. The main strategic elements of NAADS are:

- Create options for financing and delivery of advisory and technical services appropriate for the different farmer types;
- Increase overall spending on agricultural extension to more than 2% agricultural GDP in the long term;
- Gradually reduce the share of public financing of farm advisory costs such that. By the end of 25 years of NAADS, it will account for less than 50%;
- Shift from public to private advisory service delivery within the first programme phase of five year;
- Empower subsistence farmers to access private extension services and market information;
- Develop private sector delivery capacity, professional capability and systems.

Based on Makerere reports and strategies it is evident that NAADS have had impact in interacting with the University. NAADS would like Makerere to increase focus on poverty related, decentralised issues. During the short history of NAADS (started in 2001) there have been some internships with students from Makerere. Plans are to use students from Makerere more effectively in information gathering for NAADS. NAADS also commonly employ Makerere scientific staff as consultants. Thus, contact between Makerere and NAADS appear to be good. There are also plans for a more formalised agreement between the two institutions.

6.6.4. Farmers' organisations

The largest farmer organisation in Uganda is the Uganda National Farmers Federation (UNFF). UNFF is an umbrella organisation with 750 000 members from 72 farmer organisations. The organisation provides, among other things, agricultural extension, advisory services and information services. According to UNFF the most important issues in reducing poverty are access to market, sustainable production and quality, access to finances and credits, infrastructure and training.

UNFF stresses the need for more practical training and internships by the Makerere University staff. UNFF see the need for an attitude change at Makerere where graduates increasingly associate with farmers. According to the UNFF there is also a need to strengthen community forestry and agroforestry. UNFF sees the current admission system at Makerere as a problem, because intake is exclusively based on grades and no focus is given to background and major interest as expressed by the choice of courses. Also the post-graduate employment possibilities are a big problem for Makerere students. The contact between the UNFF and Makerere seems to be expanding. UNFF is particularly pleased with the increased focus on marketing aspects at Makerere.

6.7. CONCLUSIONS AND RECOMMENDATIONS

University education is not raised in the PEAP (2001). However, Using the PEAP as a platform the PMA (2000) and particularly the NAES (2003) link poverty issues with the University education. These links will probably be further strengthened in the Second Education Sector Investment Plan (ESIP II), expected in mid 2004. While the first ESIP

successfully dealt with the primary education, the second ESIP is expected to adopt a more holistic view and include education from pre-primary through the university level (NAES 2003).

Recently PEAP issues have been properly incorporated into the newly revised strategy at Makerere (Makerere 2004). It is also evident that that poverty issues are increasingly emerging at the Faculty and Department levels, and the programmes and course curricula are gradually changing focusing more on poverty challenges.

Difficulties with practical training and teaching material and facilities are at least partly resource related. Increased focus on internships and more involvement of students in quality control should be emphasised.

The current system with agricultural research and education split into two different Ministries does not seem optimal for the integration of PEAP in higher education, nor for the optimal use of research funds in the Agricultural sector.

We recommend that:

- The focus on internships with NGOs, farmers and relevant Government organisations be strengthened;
- The internships should be used in strengthening the relationship between Makerere and other stakeholders in agriculture;
- Students should be more involved in course evaluation and quality control. This will not only raise the general quality of the education, but also ensure increased focus on challenges related to poverty;
- Curricula should be continuously revised ensuring adequate practical training and inclusion of poverty challenges;
- The focus on entrepreneurship should be strengthened by launching the cross cutting programme in entrepreneurship emphasised in the revised Makerere strategy, and credits should be made available for students with good business proposals;
- Ways of linking agricultural research funds more closely with higher education should be explored.

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6.9. LIST OF PERSONS MET

- Prof. Mateete Bekunda. Dean of Agriculture
- Dr. Francis Byekwaso, Planning, Monitoring and Evaluation Manager in the NAADS (National Agricultural Advisory Services) secretariat.
- Mr. Archileo N. Kaaya, Senior lecturer at the Department of Food Science.
- Mr. Chebet Maikut, President of the Ugandan National Farmers Federation.
- Mr. Muhammad K. Mayanja: Director of Planning at Makerere.
- Mr. Åge Rønningen. Private consultant for Makerere assisting in planning and implementing the NORAD programme at Makerere.
- Mr. Karl Solberg. Private Consultant and former NORAD representative responsible for the NORAD supported programme to Makerere.
- Prof. E. N. Sabiiti. The Department of Crop Science and Former Dean of Faculty of Agriculture
- Dr. Paul Wagubi. National Agricultural Education Strategy Facilitator at PMA (Plan for Modernisation of Agriculture).
- Students from the Faculty of Agriculture:
- Geoffrey Okot, Samuel Oluka, Walter Odongo, Kassim Waiswa (Student representative of the Finance Committee), Leontna Nayiwa, Betts Namasopo, Herbert Jura)
- Students from the Faculty of Forestry and Nature Conservation:
- Willy Bbale, Owen Sserma, Irene Kambedha, Fred Kalanzi (former Student Chairman), Susan Nanserud, Alfred Tumusiime.

7. COMPARATIVE ANALYSIS OF FINDINGS

(Frik Sundstøl¹¹)

7.1. THE NATURAL AND SOCIO-ECONOMIC SETTING

The four countries involved in the study are all located in the tropical belt of Eastern Africa between 17° South to 14° North (Table 2). All countries except Tanzania are landlocked. The altitude varies from zero to almost 6000 m.a.s.l. (Kilimanjaro), but with the larger part of the land area at a plateau around 1000 m. The area of highlands (2000 – 3000 m) is greatest in Ethiopia. Rainfall varies from being adequate (750 – 1500 mm/year) and stable in Uganda to being erratic in the other three countries.

Table 2 Some natural and socio-economic characteristics of the countries studied

	Ethiopia	Malawi	Tanzania	Uganda
Latitude	4 -14 ° N	10 -17 ° S	2 -12 ° S	2 ° S - 4 ° N
Area incl. Lakes, km ²	1,127,127	118,480	945,087	236,040
Arable land, %	9.9	19.9	4.24	25.34
Population, mill.	66,567	11,651	33,922	25,632
GDP per capita, USD	700	600	600	1,200
Agriculture as % of GDP	52	37	48	43
Population below the poverty line, %	45	54	36	35
Inflation rate, %	4	27	4.8	0.1
HIV/AIDS, adults prevalence rate, %	6.4	15	7.8	5
Life expectancy at birth, years	41	38	44	45

Source: CIA (2004)

The rainfall pattern is bimodal in parts of Uganda and Tanzania, but unimodal elsewhere. Parts of Ethiopia are semiarid and arid. Agriculture is the largest economic sector in all the four countries, accounting for 37 (Malawi) to 52 (Ethiopia) percent of GDP. Average per capita GDP is 1200 USD/yr in Uganda and 600-700 USD/yr in the other three countries (CIA 2004). Recurrence of drought and famines has occurred several times during the last 35 years causing severe setbacks in all countries (only parts of Uganda). Life expectancy at birth varies from 37 years in Malawi to 45 years in Uganda. The low life expectancy in Malawi may be related to the high prevalence of HIV/AIDS (15%), more than twice that of the other three countries (Table 2). According to CIA (2004) the inflation rate varies from zero (Uganda) to 27% (Malawi) pro annum.

7.2. POVERTY AND FOOD INSECURITY

Food insecurity is defined as lack of access to food at all times by all household members for a healthy life, and poverty is the root cause of food insecurity. The percentage of population living under the poverty line varies from around 35% in Uganda and Tanzania to 54% in Malawi.

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In Ethiopia more than 4 million people face food shortage in any one year needing relief assistance even at times of good rainy seasons and good harvest. In Malawi the food deficit months have increased from 3 to 6 at household level and the food deficit varies between 300,000 and 600,000 metric tons of grains per year. According to Tanzania's Poverty Reduction Strategy Paper (TPRSP) half of all Tanzanians are basically poor, and approximately one third live in abject poverty. Uganda is generally rated as having food surplus. However, chronic malnutrition among children increased from 36 percent in 1995 to 39 percent in 2001, and about 40 percent of the deaths of children can be linked to malnutrition. The Western Region and Northern Uganda are the areas most affected by chronic malnutrition.

7.3. THE AGRICULTURAL SITUATION; LIMITATIONS AND POTENTIAL

In all four countries agriculture makes up the backbone of the economy, employing up to 85% of the total labour force and accounting for up to 88% of the export revenues. The agricultural sector is dominated by smallholder farmers with farm sizes ranging from 0.9 –3 ha. Crop production is dominating, but Ethiopia and Tanzania have large livestock populations (Ethiopia the largest in Africa), whereas livestock in Malawi and Uganda is of relatively less importance, but with a potential for expansion. All four countries have a great potential for irrigation, but a small proportion of it is utilized so far. Agriculture continues to show poor performance due to a multitude of reasons. According to UPPAP (1999) in Uganda the main reasons are - lack of access to markets - poor health - lack of education and skills – lack of inputs – lack of appropriate technology - excessive alcohol consumption - ignorance/lack of information - lack of access to finance and capital - large families - insurgency (rebels and rustlers) - idleness and laziness and lack of cooperation. Correction of these deficiencies might enhance the agricultural production to a growth rate well above the 6-7% required to reduce the poverty substantially. Access to inputs such as seeds, fertilizers, feeds etc. are often considered as major remedies to increase the agricultural production on a short term. Likewise is improved technology expected to boost the efficiency. Up to 70-80% of the crop areas is cultivated by handhoe (Malawi, Tanzania).

7.4. AGRICULTURAL EDUCATION

A common feature of the four poverty reduction strategies is that agricultural education is virtually absent. This is surprising in view of the fact that agriculture is a cornerstone in the economy in all the four countries. Education in other sectors and vocational training are however mentioned specifically. In the Malawi PRSP it is mentioned that the pupils/students of primary and secondary education “should be offered a curriculum that equip them with knowledge of life skills, such as technical, entrepreneurial and agricultural skills”.

The importance of agricultural education is, however, highlighted in other documents related to the poverty reduction strategy papers. A joint staff (World Bank and IMF 2002) assessing the SDPRP (Ethiopia) pointed at an important area that deserved critical attention – the challenge imposed on agricultural education.

In Malawi there seems to be a conflict between (1) the desire to increase the participation rate both for men and women to meet the demand for highly trained graduates in the different fields and (2) the desire to reduce the Government subvention to higher education.

In Uganda the Second Education Sector Investment Plan ESIP II (2004-2015) is expected to take a broader focus looking into the quality of the agricultural education. The network of agricultural institutions of higher learning in some developing countries (SEMCIT) decided to address the issue of tertiary agricultural education. SEMCIT was formed to promote changes in higher agricultural learning institutions. The aim is to produce graduates with knowledge, skills and values to transform agriculture and advance sustainable development in the rural areas (see separate chapter). The ideas behind the SEMCIT model have in general been adopted by the universities/colleges, but the effect on the ground is rather limited.

7.5. PROGRESS AND ACHIEVEMENTS

It may be too early to assess the progress made in the follow-up of the poverty reduction strategies. In the reports written so far, there is nothing written directly on agricultural education, whereas in Malawi funding of seven technical colleges were mentioned specifically. Both Malawi and Tanzania report that support has been given to research and extension service. Indirectly this shows that education of researchers and advisors is important. In Uganda a National Agricultural Education Strategy 2004-2015 was formulated in 2003. This Strategy identified a number of challenges facing both the formal and non-formal agricultural education and training (see 3.4.5). Even if conditions vary from country to country it may be advisable that ministries and universities study this Strategy (NAES 2003).

7.6. GOVERNMENT POLICY AND ACTION PLANS

Even if the agricultural education policy is not spelled out clearly in the strategy papers, there are several documents that demonstrate willingness of the governments to focus on education. For some years primary education has been the main area for domestic and external support. Today there is a tendency to give secondary, technical, tertiary and vocational education more attention. The governments want to increase the enrolment of students in universities. In Ethiopia massive physical expansions have taken place in terms of building of classrooms, libraries, laboratories, computer centres, dormitories etc. Curricula in all four countries are revised, new programmes launched and the significance of higher education for poverty reduction is being recognized. To implement the transformation that is needed in the universities for value creation through agriculture, financial and other resources are required. To what extent a change in strategy will lead to changes on the ground, remains to be seen. In Malawi, for instance, the most important of the shortcomings in the budget process, in terms of its potential impact on PRSP implementation, is that patterns of actual expenditure often bear little resemblance to the budget itself (Jenkins and Tsoka 2003).

Successful entrepreneurial initiatives require a conducive environment. To realize the necessary transformations, cooperation between authorities, industries, and the universities is needed. If not, educated entrepreneurs will face so many problems vis-à-vis government agencies that many of them will probably give up. Changes in universities towards “private sector” will have little effect unless a range of conditions in society are also changed such that establishment of industries is practically possible. This has to do with property rights, foreign currency, permits of various kinds, import/export problems, electricity, water, telephone, slow administration and not the least corruption. University curricula may seem of little importance in the midst of all these practical problems facing new entrepreneurs. The

knowledge and experience about these issues resides in the private sector, not in the universities. The solutions are largely in the hands of the government.

It is regrettable that allocation of funds for agricultural research and education seems to be neglected in many countries in Sub-Saharan Africa. It is hoped that this trend will be changed when the poverty reduction strategies are revised. According to Juma and Lee Yee-Cheong (2004) (<http://www.unmillenniumproject.org/documents/tf10interim%20execsum.pdf>), investment in higher education is a strategic input into the development process, and higher education is now increasingly being recognized as a critical aspect.

Under a banner of academic excellence, Makerere's strategy is based on three pillars: demand-driven courses, new management structures and alternative financing sources. As to the latter, more than 70% of students now pay fees whereas none did before, evening classes have been introduced allowing more students to enrol and teaching salaries to be augmented, its bookshop and bakery are run commercially and a consultancy bureau has been established, earning money for staff and university alike. Student enrolment, staff salaries and staff retention have increased significantly. Previously dependent on the government for all of its funding, Makerere now covers about a third of its operational costs itself. (World Bank 2000)

7.7. THE CONTRIBUTIONS OF THE UNIVERSITIES TO FULFILLING THE GOALS OF THE EDUCATION POLICY RELATED TO POVERTY REDUCTION

The universities see their role in the struggle to combat poverty. Some of them were actively involved in the development of the strategy papers and hence went through a learning process that has influenced the thinking and the activities at the university. At Debub University there are five new MSc programmes in agriculture this year and ten new in the pipeline. At Bunda College two new MSc programmes have been developed of which one is agribusiness. At Sokoine University there are already a large number of post-graduate programmes at MSc and PhD level. The majority of the agricultural research at SUA is demand driven and farmer oriented. At Makerere all the main research themes and crosscutting activities are selected on the basis of the Poverty Eradication Action Plan. Also the curricula at Makerere now focus more on poverty and practical training.

7.8. THE RELEVANCE OF TEACHING, RESEARCH AND OUTREACH

The general impression from the interviews with the students is that there is too much theory and too little practical training. The students at Bunda College seemed to be the most satisfied. The intention of the universities is generally good, but what happens on the ground is often quite different.

To make their studies more relevant and applied, students at Mekelle and Bunda had formed clubs such as (1) Fight Against Poverty and Starvation through Animal Production, (2) Horticultural Club, (3) Agronomy Club and (4) Environmental Club. At Makerere, SUA and Bunda, a system of internship was in place in order to make the students more attractive on the job market. In spite of the great need for competence, there were few jobs for the fresh graduates. The demand for job creators is therefore great.

Farmers' organizations usually employ a number of graduates from the agricultural colleges and universities. The views of these organizations are important, both because they are significant employers, and because they represent the end-users of knowledge created and/or disseminated by the tertiary institutions in agriculture. Our team interviewed management of the Uganda National Farmers Federation (UNFF) (750 000 members) and the National Smallholder Farmers' Association of Malawi (NASFAM) (with over 100 000 members). Both organizations emphasized the need for the universities to pay more attention to the practical/applied part of their education. More contact between the universities and the practical life (organizations, industry, farmers etc.) is of paramount importance. Internship for university staff may be one good alternative for strengthening the relationship. According to Tanzania's Network of Farmers' Groups (MVIWATA), with about 50 000 members, the SUA graduates were well trained to assist farmers, but poorly equipped in terms of extension materials, transport and other facilities needed to impart knowledge to the farmers.

Private sector is employing an increasing number of university graduates. The team interviewed a few companies in order to have their views regarding competence of the graduates. Both the Tanzania Chamber of Commerce, Industry and Agriculture (TCCIA) and Tanzania Breweries were in general satisfied with their SUA graduates. They showed sufficient agronomy/extension background to grow good-quality barley needed for the brewing. Most of Tanzania's brewers were recruited from SUA because of their good knowledge of engineering and food science. In Malawi two small companies thought that the Bunda graduates were academically qualified, but lacked practical and commercial skills. Both meant that Bunda College did too little to get themselves involved in solving the crucial problems of today's Malawian agriculture. All companies interviewed wanted more cooperation between the private sector and the university/college.

Also Government Ministries employ a number of graduates from the agricultural universities/colleges, especially the ministries of agricultural and natural resources. Our impression was that they in most cases were satisfied with the performance of the graduates. The majority is employed at district level participating in formulation and implementation of development strategies and programmes. Extension workers at village level are certificate and diploma holders. The tendency is that diploma holders seek admission at university for degree studies. In Uganda there seems to be good contact between Makerere and the National Agricultural Advisory Services (NAADS), which is a programme under Plan for Modernisation of Agriculture (PMA).

With so much money going into agricultural extension service (and so little to research), it would have been of interest to carry out a more thorough investigation of the real impact of agricultural extension compared to on-farm and on-station research in the four countries.

7.9. THE COMMITMENT OF THE UNIVERSITIES/COLLEGES

The universities seem to have a clear understanding of the poverty reduction challenge and they are committed to the development process. Evidence of this is expressed in strategies and development plans. The financial and human resources required to implement the necessary changes are however meagre and vary between the institutions. To change from a traditional "lecture-focused" to a more "problem-oriented" education requires a well-motivated, trained and flexible staff. It is a process that takes time, and more time when money is limiting. Lack of proper funding has caused frustration among the lecturers and researchers at all the

universities in this study. If agriculture really is the engine for economic growth in developing countries, and education is the fuel for this engine, there is a need for increased financial resources to bring about the necessary changes in the education system. It is unrealistic to think that higher education at this stage can be financed to a great extent by the private sector.

7.10. VISIONS AND PLANS FOR CHANGE

Representatives of the management of all five universities have visited Earth University in Costa Rica and/or participated in the SEMCIT seminars. Apparently, this has stimulated interest in a transformation of agricultural education, as illustrated by the mission at Debu University: “Promote activities in terms of knowledge and technology creation and transfer, skill development, effective entrepreneurship and inculcate responsible attitude for the betterment of the society”. Some universities have started courses in entrepreneurship and others are in the process to do so. The universities are also supportive of the various professional clubs established and run by the agricultural students. In Tanzania the Tanzania Agricultural Research Project (TARP II-SUA) has contributed to more applied and demand-driven research and education. There are also great expectations to a similar programme in Malawi, Malawi Agricultural Research and Outreach Programme (MAROP).

7.11. THE NEED FOR RESOURCES

All five universities in this study are in a difficult financial situation because the Government subventions are covering only 50-70% of what is required. Donors and NGOs are supporting the universities to a variable degree. Norwegian support through bilateral agreements is a very significant and valuable contribution to activities at the universities.

Only two universities have quantified their needs for support. SUA estimated that the gap between funding and needs for 2003/2004 financial year is in the order of 9mill. USD, or around 60 mill. NOK. Bunda College is in the process of finalizing its overall development plan. The total amount required to implement the plan is estimated to approximately 177 mill. NOK.

These amounts are small in view of the great impact these institutions may have on the livelihood of millions of poor people through relevant research, teaching and outreach. For a long time there has been a tendency among the Governments in Sub-Saharan Africa to neglect their most important sector, agriculture. Reform of this sector could go a long way to eradicate poverty and eliminate hunger.

The idea of “shared cost”, promoted by the World Bank, and private sector support seem to be the measures that shall solve the financial problems of the universities in Africa. With an enrolment rate of around 1 per 1000 inhabitants (Task Force on Higher Education and Society 2000), it is hard to see the need to reduce the government subventions to this important sector.

7.12. REFERENCES

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8. OVERALL CONCLUSIONS

- Education is an important pillar in the various poverty reduction strategies;
- Although agriculture is the most important sector for reducing poverty in Ethiopia, Malawi, Tanzania and Uganda, agricultural education is barely mentioned in the respective poverty reduction strategies;
- The general opinion in the private sector is that there is too little collaboration between the agricultural universities/colleges and the private sector including farmers' organisations;
- Graduates of the agricultural universities/colleges lack practical and managerial skills in entrepreneurship;
- The institutions are aware of their roles in the development process and of the Millennium Development Goals. There is a clear intention in the universities to strengthen teaching and learning in entrepreneurship in line with the ideas behind the SEMCIT model. The change, however, towards a more demand driven research and teaching programme is going too slowly;
- The agricultural universities/colleges are not receiving the resources required for them to play a meaningful role in the fight against poverty. Physical expansion in terms of student enrolments and infrastructure has far outpaced staff development and staff support;
- Students report too much emphasis on theory and too little on experiential learning in their study programmes;
- There is a great need for relevant, up-to-date and affordable teaching and training materials.

9. OVERALL RECOMMENDATIONS

- Agricultural education at all levels should be an explicit part of the poverty reduction strategies when they are revised;
- Agricultural research and extension should be recognized and reported as poverty reduction efforts in official progress reports;
- Financial support to enable the agricultural universities/colleges to carry out demand-driven research, outreach and training is necessary for poverty reduction;
- Makerere's accomplishments in income generation should be shared with the other tertiary institutions in the study;
- Tertiary institutions should establish contact fora with private sector stakeholders to discuss ways and means by which their activities can be designed and funded to make them more relevant for private sector development;
- External, cross-societal membership in the governing bodies of the universities/colleges should be considered;
- Efforts to prepare agricultural graduates for employment and self-employment in the private sector should be accelerated, e.g. through relevant curricula, staff development, labour and product market surveys etc;
- The governments need to create and enforce policies that facilitate the establishment of agriculture-based companies and industries;
- The governments should help universities/colleges to create special low interest loan funds so that graduates can start commercial medium-scale farms and other agricultural related businesses;

- A fund should be established for development of relevant and affordable teaching and training material within higher agricultural education in tropical Africa;
- A fund for intra-regional exchanges of academic information and staff should be budgeted by NORAD.

ANNEX

Terms of Reference (summary): Poverty reduction strategies and relevant participatory learning processes in agricultural higher education. Case studies from Ethiopia, Malawi, Tanzania and Uganda.

Most developing countries have now completed their Poverty Reduction Strategy Paper (PRSP), among them four of Norway's main partner countries, Ethiopia (SDPRP), Malawi (MPRSP), Tanzania (TPRSP) and Uganda (PEAP). In all these papers, agriculture is envisaged to play a vital role in the future development process.

Expectations of agricultural growth raise challenges for higher education. Although universities in Africa were declared 'engines of development' already at the time of independence, they face a grave crisis today. To enable agricultural universities to play a significant role in the reduction of poverty, a careful analysis of the action they have taken, and should take in the future, relative to their opportunities and constraints is timely.

A study is proposed to find out how the PRSPs are reflected in policies and action plans for their implementation, e. g. through fund allocations in the ministries of education in Ethiopia, Malawi, Tanzania and Uganda, and how their agricultural universities/faculties are responding to the strategies in terms of content of their teaching, training and research.

The study will be carried out partly as a desk analysis and partly through fieldwork in the four countries. Emphasis will be placed on the demand for skills and knowledge by the private sector including the farmers and their organisations. The study should outline shared views on practical improvements that can be undertaken by universities to strengthen entrepreneurship as means towards economic growth and a fair distribution of wealth.

The second main objective of the study is to support the partner universities in identifying what is needed for the successful transformation of their agricultural faculties and departments in order to better meet society's needs, and to make agriculture more economically competitive, socially responsible, and environmentally sustainable in an increasingly globalised world economy, and provide effective contributions to food security and poverty reduction strategies in accordance with the "change agenda" as recommended by university leaders at the final international seminar on Sustainability, Education and the Management of Change in the Tropics (SEMCIT), held in Oslo 2-5 September 2003.

Objectives

The objectives of the proposed study are:

1. To investigate how government policy and action plans regarding the PRSP has influenced and supported Awassa College of Agriculture, Bunda College of Agriculture, Makerere University, Mekelle University College and Sokoine University of Agriculture, and to what extent the universities have responded to the national strategies for poverty reduction in terms of changes in their teaching, training and research programmes.
2. Together with their leadership identify what is needed for the successful transformation of agricultural faculties or universities in accordance with the "change

agenda” as recommended by university leaders at the final international SEMCIT seminar held in Oslo 2-5 September 2003, and taking into account the decisions taken at the Executive Committee meeting as follow-up to the SEMCIT series of seminars.

3. To summarize experiences gained and provide recommendations for future involvement.

Methodology

Through Noragric’s proposed team and the reference group at partner universities, information regarding the implementation of the poverty reduction strategies will be obtained. The team will also liaise with the leadership of the partner universities regarding the recommendations and the final report.

- A desk study will be carried out to review the national poverty reduction strategy papers, the relevant national educational policy taking into consideration the Millennium Development Goals (United Nations).
- Information will be collected through interviews with university staff and students, ministry officials, selected representatives of private sector and other relevant stakeholders.
- Interviews will focus on analyses of problems and opportunities with emphasis on the role of universities in stimulating entrepreneurship and 'value creation' in poor rural communities. Possible mutual support functions between universities, private industries, and other institutions will be addressed (see Interview guide).
- The draft report will be discussed with the university management before submission of the final report.

Expected results

- The relevance of the universities in the fight against poverty focused.
- Information about the extent to which the universities fulfil certain goals in the education policy related to PRPS.
- Improvement of the awareness within the universities about their role in the development process – aspects of poverty reduction strategies taught in the universities.
- Relevant training and entrepreneurial skills highlighted.
- Needs for resources (to new initiatives) justified (vs. Ministry of Finance).
- Priority areas for external support to strengthen the universities in their efforts to serve target groups).
- Experiences from four countries assessed and compared. Assess how Norway can support the implementation priority areas of the SEMCIT-like processes identified by our partner universities according to the objectives articulated by the SEMCIT Executive Committee (see attachment).
- A report to NORAD emphasizing the lessons learned and recommendations for the future.