Sida Evaluation 07/03

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Final Evaluation of The African Network for Agriculture, Agroforestry and Natural Resources Education (ANAFE) and Zambian Agroforestry Project (ZAP)

Melinda Fones-Sundell
Dr. Zewge Teklehaimanot

Department for Natural Resources and the Environment

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Authors: Melinda Fones-Sundell, Dr. Zewge Teklehaimanot.

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SWEDISH INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
Address: SE-105 25 Stockholm, Sweden. Office: Valhallavägen 199, Stockholm
Telephone: +46 (0)8-698 50 00. Telefax: +46 (0)8-20 88 64
E-mail: sida@sida.se. Homepage: http://www.sida.se

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Summary

Sida has financed the fourth and final phase of the program "Mobilizing Agroforestry Capacity for Development" consisting of two separate but thematically related activities: ANAFE (The African Network for Agriculture, Agroforestry and Natural Resources Education previously called African Network for Agroforestry Education) and ZAP (Zambian Agroforestry Project).

ANAFE, was launched in April 1993. It is coordinated from the headquarters of ICRAF in Nairobi, Kenya. ANAFE is organized into four sub-regional networks known as Regional Agroforestry Training and Education Teams (RAFTs)[1]. Since 1991, ANAFE has enjoyed four phases of support from Sida. The main objective of Phase 4's Sida support to ANAFE was to mobilise the build up of agroforestry capacity for development in African universities and colleges. The final evaluation of Phase 4 was conducted by a two member team during the months of June and July 2006. To enable the widest possible coverage of institutions, the field work was divided between the Team Leader and the Regional Consultant; with the former reviewing ANAFE institutions (including ZAP) in the sub regions of Eastern and Central Africa (ECA) and Southern Africa and the latter reviewing ANAFE member and partner institutions (including FARA) in the sub-regions of Sahel and African Humid Tropics (AHT).

The Team evaluated project performance against the general Sida evaluation criteria of effectiveness, impact, relevance, sustainability and efficiency. The Regional Consultant visited five ANAFE member and two ANAFE partner institutions in three countries: Mali and Burkina Faso representing the Sahel sub-region, and Ghana, representing the AHT sub-region. The Team Leader visited seven ANAFE members and five ANAFE partner institutions in four countries: Kenya, representing Eastern Africa, and Tanzania, Malawi and Zambia, representing Southern Africa. The visit to Zambia was also important to cover activities in the semi-autonomous ZAP program.

The Team studied an extensive number of documents related to the project, reviewed teaching manuscripts and extension manuals produced by ANAFE, made field observations of demonstration plots, nurseries and farmer training centers established by ANAFE, and interviewed and held discussions with at least 100 individuals at the institutions visited.

ANAFE as a network has achieved a great deal. It has met its five stated objectives of Phase 4. Agroforestry is now being taught in all ANAFE member institutions. Some of the activities of ANAFE (especially in Southern Africa) are already having impact on staff members and students of ANAFE member and partner institutions and the farming community. To strengthen grassroots ownership of the network so that the network activities are sustained, ANAFE has assisted the establishment of national agroforestry training teams (NAFTs)[2] composed of members drawn from various stakeholder institutions including NGOs, universities, colleges, schools and research and extension organizations. From the interviews and discussions with staff of ANAFE member institutions, it was clear that there was a lot of enthusiasm amongst the staff to sustain the network.

These positive and sustainable impacts, therefore, are the measure of the organizational functionality of the network at continental, regional and national levels. In spite of this observably high level of functionality of the organizational setup, however, the actual uptake rate of new or improved agroforestry innovations by farmers is very slow, particularly in the Sahel and AHT, perhaps because of the lack of proper institutional and policy environment, enabling the much hoped for "scaling up" to occur. These rates of uptake are especially observable in the ZAP program, which deals with scaling up of

[1] Later renamed Regional Agricultural Forums for Training (RAFTs)
[2] Later renamed National Agricltural Forums for Training (NAFTs)

agroforestry innovations in Zambia, and has been attached to the ANAFE program funding for administrative reasons.

In the opinion of the Team, without a conducive institutional environment and adequate government policies focused on supporting smallholder agriculture, teaching agroforestry in universities and colleges will not serve to bring about the improvements in agricultural productivity that are so needed.
The Team recommends, among other things, that agroforestry should be formulated as the seventh priority BASIC program component of ANAFE and that Sida consider supporting this component.

The Team further recommends that influencing policy should be one of major objectives of this new agroforestry program component. The growing close collaboration of ANAFE with FARA gives it a potential for a much stronger lobbying power for agroforestry that should be put to use, as it also brings education institutions closer to the agricultural research networks in Africa.

The Team also recommends that the impressive innovations developed in Agroforestry research and promoted by ANAFE and ICRAF should be more widely disseminated.

1. Introduction

1.1 History of ANAFE

Following a series of ICRAF supported agroforestry education workshops, African colleges and universities agreed in 1991 to establish a network to facilitate exchange of ideas and share experiences concerning the teaching of agroforestry. The African Network for Agriculture, Agroforestry and Natural Resources Education, ANAFE, was launched at a meeting held at ICRAF headquarters, Kenya in April 1993. At this meeting, it was also agreed that ICRAF would be the host of ANAFE. 17 universities and 12 colleges attended the meeting as founding members of ANAFE. ANAFE now (2006) has 127 member universities and colleges in 34 African countries. (For a complete list see Appendix 10.) The primary goal of ANAFE, which is supported by the Swedish International Development Cooperation Agency, Sida and coordinated from ICRAF, is to promote and support a multidisciplinary approach in the teaching of agriculture and natural resource management, with special focus on agroforestry.

1.2 Organization of ANAFE

ANAFE membership consists of colleges and universities teaching any aspect of land use and environment. Members hold General meetings once every four years in the form of a symposium, ending up with a business meeting on ANAFE. At such meetings, members elect the Chair and Vice-Chair of the network Board. The coordinator in appointed on a competitive basis through ICRAF. In its new chrter, ANAFE has indicated that the coordinator would be appointed by ANAFE Board. ANAFE is organized into four sub-regional networks known as Regional Agroforestry Training and Education Teams (RAFTs). Each RAFT is composed of all the institutions that are members of ANAFE in the sub-region. They elect a RAFT committee (5 persons), which plans and coordinates implementation of ANAFE activities in the sub-region. ICRAF's regional coordinators serve as ex-officio committee members, providing support to the RAFT committees and connecting them to ICRAF's collaborative research products. The Chair of each RAFT is an automatic member of the ANAFE Board. The Coordinator is the seventh member of the board and also its ex-officio secretary. The four sub-regional RAFTs are:
1) RAFT – Eastern and Central Africa,
2) RAFT – African Humid Tropics (AHT),
3) RAFT – Sahel, and
4) RAFT – Southern Africa.

For each RAFT, there is a senior education fellow, appointed from one of the member institutions and seconded to ICRAF/ANAFE to coordinate RAFT activities. Elections at the RAFT level take place every two years and are conducted through secret ballot. RAFT committees meet twice every year and report to the Board, which also meets twice a year. The slim leadership structure and democratic processes provide ample opportunities and power for members to play strong roles in their network.

1.3 The Project

Since 1991, ANAFE has enjoyed four phases of support from Sida. This report presents the results of an evaluation of Phase 4 of Sida support to ANAFE. As the decision to phase out support to ANAFE, was already taken at the beginning of the 4th phase in 2003 this is, then, the final evaluation.

ANAFE support goes under the name of "Mobilizing Agroforestry Capacity for Development". Phase 4 was planned for three years, starting from 1st January 2003 and ending on 31st December 2005, and a cost-free extension (Unspent funds budgeted for the original three year period were carried over into the extension period.) was approved until September 2006.

The Project builds on a wealth of experiences accumulated by ANAFE from the earlier three phases of Sida support. The main objective of the support is to mobilise the build up of Agroforestry capacity for development in African universities and colleges. To achieve this several approaches were used for strengthening Agroforestry skills; linking colleges and universities with schools and local communities; and developing ways to sustain network activities where outputs and benefits are emphasised. As the Project is supporting a network of national colleges and universities in 34 African countries, the actual implementation is done by these institutions. The Project has six objectives and several activities under each objective. The objectives are:

1. Enhance and mobilize teaching capacity of educators and educational institutions in Agroforestry and INRM.
2. Establish effective links among research, education and development partners and systems and use them to ensure a good flow of Agroforestry and INRM knowledge to farmers and development workers.
3. Strengthen action research by providing opportunities for young scientists to undertake thesis research with farmers on relevant Agroforestry /INRM topics.
4. Link basic education teaching and learning to local community practices by incorporating Agroforestry and INRM examples into teaching programmes for selected primary and secondary schools.
5. Consolidate scientific and technological robustness of Agroforestry technologies developed in the Zambezi basin through intensification of on-farm testing of innovations with farmers[3].
6. Develop ways and means of ensuring that the positive processes and results emanating from this project are sustained.

While no specific objectives have been developed for reaching gender goals, these are incorporated into all activities, particularly those involving young scientists where focused efforts have been made to ensure a gender balance. Likewise, while activities to develop agroforestry curriculum and information exchange between academic institutions rarely involve direct actions to deal with HIV/AIDS, mention of this is made in training materials and in field activities, particularly in ZAP, which involve direct contact with farmers.

[3] Objective 5 refers to a organizationally associated but separate project known as ZAP – the Zambian AgroForestry Project. This project was started with SAREC support in the late 1980's. SAREC terminated its research grant to this programme some years before it was incorporated into the ANAFE support as part of an effort to pilot the application of several promising technologies with on-farm testing.

2. The Evaluation

2.1 Background to the Evaluation

Sida contracted two individual consultants to conduct this final evaluation, each with separate terms of reference. (see Appendices 1 and 2) To maximize regional coverage, each was assigned to two of the four sub-regions to carry out field work individually. The evaluation of ANAFE in the sub-regions of Sahel and African Humid Tropics (AHT) was conducted during the month of June 2006, and the evaluation of ANAFE and ZAP in the sub-regions of Eastern and Central Africa (ECA) and Southern Africa in July 2006.

The Team met in Stockholm during the first week of August to produce a draft for the ANAFE Board meeting in Nairobi, 16–18 August 2006.

2.2 The Terms of Reference

In addition to assessing the Project performance against the general Sida evaluation criteria (effectiveness, impact, relevance, sustainability and efficiency), the Team were expected to specifically study and analyze the approaches used in the implementation of all the Project activities, the research fellowships in relation to the advancement of agroforestry capacity as a whole, and the effectiveness of links with schools and farming communities.

The TOR were presented to staff members of each institution visited in Sahel and AHT regions as an introduction of the Regional Consultant and elaboration of the tasks involved in the evaluation mission. Participating institutions in all the RAFTs had been briefed by the ANAFE Coordinator at ICRAF Headquarters.

2.3 Evaluation Strategy

The basis for the evaluation exercise was the Project implementation plan, and subsequent annual plans that were developed by members of ANAFE. The implementation plan provided a logical framework with stated objectives, activities, expected outputs and verifiable indictors against which the project was evaluated. From these, the Team developed the following methodological approach to the evaluation:

1) Content analysis of documents – to verify and analyze project outputs such as teaching manuscripts, extension manuals and student thesis;
2) Field site observations – to verify and analyze project outputs such as field demonstration sites, farmers' training sites; and
3) Semi-structured interviews to assess overall project performance against the expected outputs, objective by objective, by going through the activities that have been undertaken.

For the semi-structured interviews the Team formulated, in advance, a series of general questions (Appendix 3) to ensure a uniform approach during interviews and discussions and to allow for focused, conversational, two-way communication. The Team members began their interviews with these general questions. The possible relationship between these questions and the general evaluation criteria such as effectiveness, impact, efficiency, sustainability and relevance became the basis for more specific questions which arose as the interviews and discussions progressed.

This methodological approach allowed the Team to draw conclusions on the achievement reached and these in turn provided the basis for making recommendations for the future.

2.4 The Team

The Team Leader was Ms. Melinda Cuellar of Orgut Consulting AB in Stockholm and the Regional Consultant was Dr. Zewge Teklehaimanot of University of Wales, Bangor, United Kingdom employed directly by Sida. Due to financial and time limitations it was decided to divide up the field work between the two Team members, with Ms. Cuellar visiting selected institutions in Eastern and Central Africa (ECA) and Southern Africa (SA) and Dr. Teklehaimanot covering the Sahel and African Humid Tropics (AHT) institutions. Thus all of the four ANAFE sub-regions were covered.

The first visit to ICRAF headquarters was made by the Team Leader in April 2006. The fieldwork for Sahel and AHT was carried out between 7 and 18 June, and the ECA and SA regions were visited between 17 and 28 July. The final report was consolidated jointly by the Team leader and the Regional Consultant in Stockholm, Sweden during the first week of August. The draft report was circulated to the ANAFE Board and ICRAF management and presented on August 17th August, with a revised final version sent to Sida in November 2007.

2.5 The Fieldwork (AHT and Sahel)

The Regional Consultant visited five ANAFE member and two ANAFE partner institutions in the three countries: (1) member institutions included IPR-Mali, CFPF-Mali, ENEF-Burkina Faso, IDR-Burkina Faso and University of Ghana-Legon; (2) partner institutions included PAGEEM-Mali and FARA-Ghana. The Consultant studied an extensive number of documents related to the project, reviewed teaching manuscripts and extension manuals produced by ANAFE and student thesis, made field observations of demonstration plots and farmers learning resource centers established by ANAFE, and interviewed and held discussions with a number of individuals at the institutions visited. The field itinerary followed by the Regional Consultant is enclosed as Appendix 4. In Appendix 6, the teaching manuscripts and extensional manuals reviewed by the Consultant and the results of the analysis are given. Appendix 7 provides list of documents consulted by the Regional Consultant. The list of institutions visited and the results of the interviews and discussions are enclosed as Appendix 8.

2.6 The Fieldwork (ECA and SA)

Interviews at ICRAF headquarters in Nairobi were carried out by the Team Leader who also had the special responsibility of reviewing the ZAP project in Zambia, which is financed under ANAFE but is not, strictly speaking, a networking activity.

The Team Leader visited seven ANAFE member and five ANAFE partner institutions in three countries: Kenya, Malawi and Zambia. The member institutions included: Jomo Kenyatta University of Agriculture & Technology, Kenyatta University, Egerton University and Baraka Agricultural College in Kenya; (ECA), and Bunda College of Agriculture and Chancellor College in Malawi. In addition, the ANAFE contact person at the Forestry Training Institute (FTI) Olmotonyi in Arusha, Tanzania, came to ICRAF in Nairobi and was interviewed at length. The Team Leader has visited Olmotonyi on previous occasions. The visit to Zambia enabled information collection for the jointly funded but separate program on farmer adoption of agroforestry technologies: ZAP.

2.7 Structure of the Report

The Team consulted the guidelines provided in Sida Evaluation Report – a Standard Format in preparing this report. The structure of this report emerged from linking the guidelines with the TOR.

3. Assessing Progress and Effectiveness

This section provides a summary of the assessment of Project performance in relation to what ANAFE has committed itself to undertake in Phase 4 of Sida support as specified by the Logical Framework. The progress made in achieving the outputs of each objective of the Project was assessed based on interviews and discussions held with staff members and students of each ANAFE member institution visited and reviews of documents by the Team members. The detailed information on each institution is given in Appendix 8.

Information on outputs of Project objectives taking place in institutions that were not visited by the Consultant was provided by Dr. Claude Adandedjan, Senior Education Fellow, West Africa and Madame Marie Louise Avana, AHT RAFT chairperson, who came over from Cameroon to meet with the Regional Consultant at the University of Ghana. Similarly, Mrs. Ufoo Lema traveled from Olmothoni College of Forestry in Moshi, Tanzania to the ICRAF Headquarters in Nairobi to be interviewed by the Team Leader.

The summary of the results of this assessment is presented below, objective by objective:

Objective 1:
Enhance and mobilize teaching capacity of educators and educational institutions in agroforestry and INRM
Four activities were designed to achieve this objective as shown in Appendix 10. The overall project objective has successfully been achieved.

The Regional Consultant reviewed six teaching manuals produced by ANAFE in the two sub-regions. Only two manuals failed to be produced. All the manuals are relevant to the West African region. The quality of the manuals is also very high although some need minor improvements with regard to content, illustrations and references before they are produced for wider distribution (see Appendix 6). Most of the manuals reviewed were in French. The Consultant was informed by some of the institutions visited in Mali and Burkina Faso that they regularly receive packages of available publications from ANAFE to strengthen their libraries. However, most of them are in English. They said that they would like to request ANAFE's support for the translation of these documents into French. The Consultant strongly feels that the approach used by ANAFE of producing new manuals in French, as is done under this objective, is much cheaper than translating books written in English into French. Thus, lecturers should be encouraged to continue producing manuals in French. Regarding the two manuals that failed to be produced, the AHT RAFT chairperson informed the Consultant that the draft of one of the manuals was received and was returned to the author for revision but there has not been any output so far. The author of the second manual never produced any draft. Of course, not all lecturers are good writers. From interviews and discussions with staff members of universities and colleges, the Consultant was able to establish that university promotion systems do not value teaching manuals in the same way as scientific papers in peer reviewed journals. Some also mentioned that the incentive provided by ANAFE to support manual production is inadequate. In the opinion of the Consultant, this is an area where ANAFE should make further effort to identify and develop a better approach of encouraging lecturers to write manuals. It is also important that lecturers who understand the subject and who are also motivated to write are carefully selected.

The Project target of exchange of staff and students between institutions has been met in all of the sub-regions. This approach was an excellent means by which networking can effectively be consolidated. From interviews and discussions with staff and students of institutions visited, the Team found that this was the most valued and appreciated activity of the Project, especially in AHT and Sahel where intra-university contacts have been less than in the English speaking areas of ECA and Southern

Africa. They mentioned that they now know each other and they said that it was an effective means of exchanging information and sharing experiences.

Collegial and professional exchange strengthens the long term quality of agroforestry teaching in other ways. Examples were found in Kenya where University professors visited and strengthened curricula in diploma training institutions, whose star pupils then went on to become teachers in that same or similar institutions, or coordinators of Farmer Training Centres, always maintaining the contact with the university and getting a continuous flow of support and innovations to their daily work.

The need to provide training of lecturers in pedagogy and adult learning approaches arose from a weakness identified by previous evaluators of ANAFE in 2002. Since some of the lecturers, in one way or another, will be involved in running training courses for farmers, development agents and policy makers, providing training in pedagogic skills to 59 lecturers is one of the greatest achievement made by ANAFE and is well in excess of the project target. The Team interviewed some of the lecturers who received the training and all of them reported that they have benefited from the courses and particularly appreciated the resource persons on the courses. They reported that their style of teaching has now improved. The Team also received copies of a book on this topic, written by one of the lecturers (Ms Kay Muir-Leresche) and published by ANAFE, with the title *"Improving Approaches to Effective Teaching and Learning in Agroforestry"*.

Databases on education institutions with information on departments, faculty with Agroforestry experience, research activities and information on future training needs have been compiled. According to Drs Victoria Ngumi, Claude adandedjan and Sebastian Chakeredza, ANAFE's Senior Education Fellows who coordinated the task of monitoring the INRM capacity of institutions, the activity involved sending questionnaires to all institutions. Not all of them responded and the ones who did, took longer time to respond than expected. Using the information provided, databases have now been built for 47 universities and colleges in the two regions West African RAFTs and 37 colleges and universities in the East and Southern African RAFTs. These have now been synthesized and by the end of the project period a continental database will emerge. This is an excellent achievement by itself. However, helping these institutions to strategize for better delivery of INRM training and education still remains to be done.

The Team also noted that ANAFE has produced a guide on Agroforestry curriculum development and reviews. The guide takes the educator through an intensive participatory and reflective approach to make rational choices in the selection of subjects for Agroforestry programmes. Rather than presenting lists of subjects, the guide is centred on the decision making processes used by farmers and the flow of Agroforestry technologies into agriculture to fulfill livelihood and environmental needs. The approach is novel and well appreciated.

Objective 2:
Establish effective links among research, education, development partners and systems, and use to ensure flow of AF and INRM knowledge to farmers and development workers

Three activities are undertaken in order to meet this objective. Overall the achievement has exceeded the Project targets.

The approaches used in implementing this objective have also been very effective in linking research and educational networks with extension and farmers and facilitating flow of knowledge to farmers.

The Regional Consultant visited the Sahel RAFT farmers' resource center at IPR, Mali and it was observed that the center has three components and all are fully operational and participatory involving local farmers and primary school students. The farmers who have been involved in the establishment of the field school were interviewed and they mentioned that their views and interests were well taken by

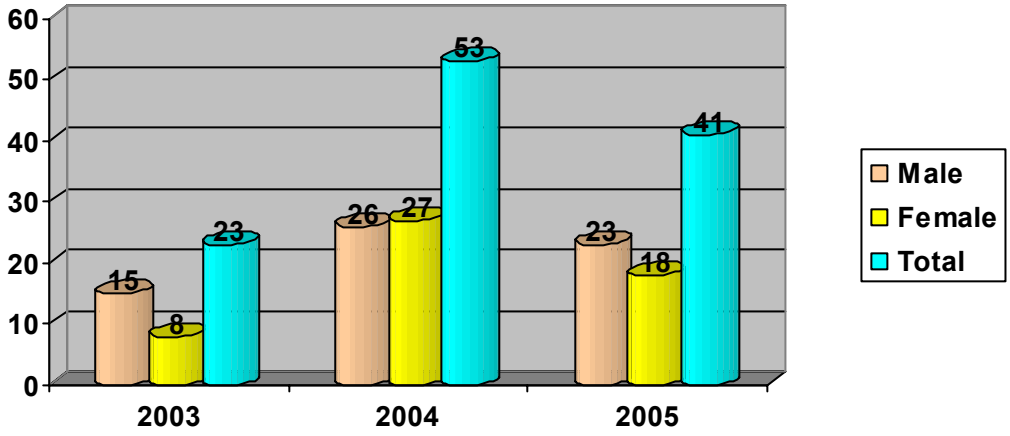
the lecturers as the technologies and tree species being tested at the center are their choice. The primary school students interviewed mentioned that they see the school nursery as essential in giving them hands-on experience in tree nursery practices.

The Evaluation Team interviewed several farmers who received training in agroforestry and INRM. They mentioned that they have acquired several skills from the training course such as establishment of food and fodder banks and grafting of fruit trees and some of them reported that they are applying these skills on their farms.

The Regional Consultant also reviewed seven extension manuals produced with the support of ANAFE. In the opinion of the Consultant, the manuals are relevant, well written in a good style but some of them need minor improvements by way of providing more illustrations before they are produced for wider distribution (see Appendix 6).

Objective 3:
Strengthen action research by providing opportunities for young scientists to undertake thesis research with farmers on relevant AF/INRM topics

ANAFE supported 117 fellowships between 2003 and 2005. In 2006 about 25 more will be supported. The number exceeds by far the targeted 110 under the project. The gain is partly due to policy change by ANAFE Board where the target students were those that were sponsored by national governments and had tuition fees paid but no research support provided. This strategic change addressed a real need, and was endorsed by Sida. Under the new dispensation, ANAFE did not have to pay for tuition except in very special and justified circumstances. An important element in the grant conditions was to provide equal opportunity to female students. The figure below presents the actual numbers of students supported by gender. The overall gender coverage is 45.3% females. According to the coordinator, the gender balance will improve further in 2006.



In the opinion of the Team, the approach used in this activity is beneficial to students as they are brought close to farmers and exposed to actual conditions on farmers' fields. At national level, this will help to build the innovative capacity of promising national scientists in agroforestry and INRM.
The Team was informed by all institutions visited that they have benefited very much from ANAFE support in this regard. They mentioned that the fellowship is a strong incentive, which has resulted in a rising interest for agroforestry field research among students and is becoming highly competitive. It has also enhanced the profile of their degree programs in the universities. This in spite of the fact that scholarships only finance research expenses and are not used to defray tuition costs or living expenses. In some cases the scholarship is not adequate for all of the research costs and funds must be found elsewhere. Keeping this in mind, the quantity and quality of the research produced is even more impressive.

The Team interviewed several of the beneficiary students and the Regional Consultant reviewed two theses (see below) and found that the fellowships were cost effective and that all the areas of research conducted by the students are farm based, relevant and would contribute greatly to the understanding and improvement of agroforestry technologies.

1) Contribution à l'étude socio-économique de l'utilisation de *Ptérocarpus lucens* et de *Gliricidia sepium* dans l'alimentation des petits ruminants à Ségou by Aliou Falley Coumere

2) La filiere gomme arabique au Burkina Faso: contraintes socio-economiques et contribution aux revenus des acteurs ruraux de la province du Soum by Abdoulaye DAO.

Objective 4:
Link basic education teaching and learning to local community practices by incorporating AF and INRM examples into teaching programs for selected primary and secondary schools

Four activities are involved in this objective. Overall the achievements have exceeded the Project targets.

The Team visited several ANAFE member institutions responsible for this activity, including the coordinator of the Farmers of the Future project within ICRAF headquarters, which provides materials and scientific backstopping to this activity. The Team also made special field visits to several ANAFE collaborating partner institutions and five primary schools and interviewed school teachers and directors, who have received training in agroforestry and INRM. They reported that they acquired a range of skills in agroforestry from the training courses, such as establishment of food and fodder banks and techniques of grafting. All of them mentioned that they have been able to apply these skills to establish similar banks in their schools for demonstration to students. These have helped them by adding practical to the class lessons they give to students and students enjoy the practical very much. The Team was able to verify this at the five schools visited. In one of the schools, students and their teachers have established and managed a food and a fodder bank which are currently being exploited by members of the school and the neighboring farming community. In several other schools, nurseries had been established and managed by the school teachers and students for the production of seedlings, which are being used by members of the school and the neighboring farming community to establish food and fodder banks. Individual students are also managing home nurseries in some cases and generating an important source of income for the family.

In the opinion of the Team, this is an excellent achievement by ANAFE and this activity needs to be expanded to cover as many schools as possible in order to disseminate agroforestry technologies in rural areas. This approach can be a very effective means by which students can pass information and know-how to their parent farmers. Many of them may also end up as farmers. Thus, giving primary school students education in agroforestry using this approach can prepare them to take on farming in the future in a more productive and sustainable way.

One of the problems mentioned by all institutions visited was the lack of government policy on agroforestry in all the countries visited, which, in their opinion, is impeding the adoption of new or improved agroforestry innovations by farming communities. Although policy briefing is an ongoing activity, especially in Southern Africa, it is the opinion of the Team that influencing policy is an area where ANAFE needs to make more effort. The integration of agroforestry into basic education must be a primary education policy in all African countries.

The Regional Consultant also reviewed one practical guide on AF/INRM developed for school teachers and found that it was relevant, well written in a clear style although it needs minor improvements before it is produced for wider distribution (Appendix 6).

Objective 5:
Consolidate scientific and technological robustness of Agroforestry technologies developed in Zambezi basin through intensification of on-farm testing of innovations with farmers.

Objective 5, while included in the overall ANAFE logical framework, is really the objective of a separate program, funded under the ANAFE grant for administrative simplicity, but building upon research support given to field testing and further refinement of agroforestry innovations at the Msekera Agricultural Research Station near Chipata in Zambia`s Eastern Province since the mid 1980`s.

It was observed during the field visits that consolidations seems to be a time-consuming process, with the development of *Sesbania sesban* and various intercropping and improved fallow systems being on the research menu year in and year out. Recently, more emphasis is being placed on the domestication of Indigenous Fruit Trees, although most of the impetus for this seems to come from member institutions in Malawi.

One of the several strengths of the ZAP programme is its strong level of interaction with farmers. While the Msekera research station has well-tended demonstration plots and organizes an annual field day, the on-farm activities are many and seem to occupy staff time considerably more than on station demonstration plots, which is in line with programme objectives. (Demonstration plots are also implemented at 5 different Farmer Training Centres in the Province)

Another admirable feature of the programme is its integration into the regular extension service. This is achieved by various staff arrangements with seconding and multiple roles, by being housed physically together with regular extension staff and by participating in on-farm trials together. A visit to the Provincial Agricultural Administration revealed that the close connections with the regular extension service are not only visible at the Research Station but firmly part of the overall agricultural development strategy implemented at provincial level.

Sida has funded ZAP operational costs such as inputs (seeds, fertilizers, farmer training sessions and laboratory chemicals) and casual labour, not the international scientific research staff which, as of 2006, has been moved to Malawi and continues to be supported under the core funding umbrella of ICRAF. During recent years funds from CIDA, BMZ, IBRD and USAID have been available for scaling up and research on integrating trees and crops in farming systems.

Objective 6:
Develop ways and means of ensuring that the positive processes and results from this project are sustained

To strengthen grassroots ownership of the network so that the network activities are sustained, ANAFE has assisted the establishment of 23 national agroforestry training teams (NAFTs) in the four sub-regions. Each NAFT is composed of members drawn from various stakeholder institutions including NGOs, universities, colleges, schools and research and extension organizations. The major task of NAFT is to mobilize resources so that the training/capacity building activities of ANAFE are sustained once the Sida financed project is completed. ANAFE has been mentoring NAFTs and RAFTs to develop project proposals to secure funding from external sources.

There have been three success stories in the Sahel sub-region with funding from IDRC, USAID and IFAD. Concerning the two sub-regional RAFTs, two proposals have so far been developed and these have been submitted to NEPAD and AFDB for funding. In the ECA sub region two Ford Foundation grants have been made in Kenya and Tanzania.

ANAFE has also been trying to link with regional, continental and global partners in an effort to sustain the network. A major success has been achieved in this regard by forging a new strategic link with FARA that led to the development of an initiative for Building Africa's Scientific and Institutional Capacity for Agriculture and Natural Resources (BASIC). BASIC has now been internalized and has

become one of the five programs of FARA. The objective of BASIC is to strengthen the capacity of African universities and to make African agriculture increasingly knowledge-based and rooted in sustainable natural resource management. Six priority BASIC program components have already been formulated:

1) Improving curricula,

2) Institutional innovation,

3) Managing risk and uncertainties,

4) Biotechnology,

5) Agribusiness and

6) Information management.

According to the staff members of the FARA secretariat, there is room for more components to be developed and added. The implementation mechanism of BASIC is based on ANAFE's successful model but extended to promote collaboration with the Universities in the North and CGIAR centers. Therefore, ANAFE board and ANAFE RAFTs now form a central mechanism for BASIC program implementation. FARA is currently soliciting funding for BASIC. The European Union (EU) and African Development Bank (AFDB) have already been approached and both have shown interest. In the opinion of the Team, ANAFE has made good progress in this effort and the future looks bright.

ANAFE has held regular Board and RAFT Committee meetings every year throughout the project period. This has helped to keep members informed, participative and interested in the network. Through delegations from the Board, ANAFE has also participated at SEANAFE Board meetings and shared experiences. Together, the two networks have impacted on the global community by carrying out a survey of forestry education and publishing results that have re-invigorated the debate of forestry education at global scale. The survey was funded by FAO and ANAFE as part of its efforts to improve quality of instruction. Following the report, several meetings have been convened by FAO and at a meeting held in April 2006 it was decided to establish an International Partnership on Forestry Education (IPFE). The meeting elected the coordinator of ANAFE as vice-Chair. The Chair is Dr Hosny ElLakany, a former ADG (Forestry at FAO currently teaching at the University of British Columbia. ANAFE has been tasked to organize an international workshop on improvement of forestry education in Nairobi in May 2005. This is viewed as a good international recognition and output from the project.

The coordination office has also provided support and guidance to RAFTs, NAFTs and authors of educational materials, including facilitation of reviews and production in different forms (monographs, CDs and compendia) as well as circulation to all members for testing and use. All annual reports on the project are collated and organized by the coordination office. Spported by the financial system at ICRAF, the coordination office also monitors use of funds by RAFTS, NAFTs and partner universities and colleges. This is a challenging task especially because the different accounting systems and the fiscal year for national institutions is July to June while at ICRAF it is January to December.

4. Assessing Relevance

Relevance can be assessed from a number of viewpoints. Below the Team looks at three which appear to be important for ANAFE:

1) relevance to Sida priorities,

2) relevance to African Development priorities; and

3) Institutional relevance in the CGIAR system.

4.1 Relevance to Sida Priorities

Reduction of poverty, protection of the environment and the promotion of social equity, democracy, and human rights are the principal objectives and priorities of Swedish Development Cooperation policy. Three of ANAFE's objectives can contribute towards meeting some of the above objectives of Sida policy as these are designed to help rural communities increase the productivity of their land and protect the environment:

1) Establishing effective links among research, education, development partners and systems, and use to ensure flow of AF and INRM knowledge to farmers and development workers,

2) Strengthening action research by providing opportunities for young scientists to undertake thesis research with farmers on relevant AF/INRM topics, and

3) åLinking basic education teaching and learning to local community practices by incorporating AF and INRM examples into teaching programs for selected primary and secondary schools.

4.2 Relevance to African Development Priorities

Importantly, the ANAFE network promotes capacity building in a subject which functions as a link between agricultural productivity and environmental conservation on the ground. Agroforestry techniques and technologies are proven effective in addressing food security issues at the same time as they address long term environmental considerations.

The technical manuals produced by ANAFE and the thesis research that have been undertaken by University students are also highly relevant to the region and the farming community and they can also contribute greatly to the understanding and improvement of agroforestry technologies in the sub-regions. This, in turn, can make a valuable contribution to food security, rural incomes and the environmental sustainability of farming.

The Regional Consultant observed that the two most common agroforestry technologies that are being promoted by ANAFE in Western Africa are baobab food bank and fodder banks of *Ptercarpus* and *Gliricida.* These are particularly relevant to the Sahel region where leaves of *Pterocarpus* are traditionally fed to animals by pruning the trees. Due to heavy pruning or lopping, the trees are now disappearing from farmlands and what are left in forests are also being depleted. Leaves of baobab are also heavily pruned for human consumption as vegetable and standing trees are aging and there is no regeneration. The fodder and food banks are, therefore, the noblest innovations that ICRAF has developed and these are now proving to be very popular among farmers.

In Eastern and Southern Africa the most popular technologies observed are *Gliricida* intercropping with maize and fodder and fuelwood plantations of *Leuceana.* In addition, quite a bit of work has been done with a variety of issues important for the commercialization of indigenous fruits including tree domestication, and fruit processing and value added.

Developing AgroForestry and Natural Resource Management capacity can be viewed as highly relevant in the African development perspective. The same can be said for building capacity to convey this knowledge as far down in the educational hierarchy as possible. What is notable about ANAFE is that in spite of the fact that it is housed at ICRAF and enjoys their technical backstopping support, it is a firmly African initiative with strong ownership in the national institutions.

There is a definite need to scale up the testing and dissemination of agroforestry technologies, and this can only be achieved by linking research networking with the extension services.

Many of the recommendations should be tried on a wider scale, disseminated by the regular government or private sector extension service, before they can achieve the productivity impacts so desperately needed. Piloting these innovations from the research station and/or ICRAF fulfills the scientists need to interact with users and spot second generation problems, but it does not provide the feedback or the impact necessary for large-scale adoption. The implementation of this recommendation falls outside of the scope of ANAFE as it is currently conceived, and would be better formulated as an initiative under NAFT proposals or BASIC.

The exception to this situation lies in Zambia, where agroforestry researchers are integrated with the regular agricultural extension service and work with them to test and disseminate innovations on a larger scale, under the ZAP programme. One of the most promising methodological characteristics of this effort is a format for extension and research workers on Farmer Innovation, a welcome recognition that learning processes are often two way!

4.3 Institutional Relevance within the CGIAR System

ANAFE would be more relevant if it was allowed to *promote* (not implement!) dissemination. The NAFTs as they are currently operating include extension, agricultural departments and they are the implementers. ANAFE could coordinate this if the proper funding was available, although it would probably be channelled through FARA which has the mandate to implement and lobby for changes in government policy.

Much of the scientific backstopping for ANAFE comes from ICRAF financed staff and their research partners. There is a policy directive from management that ICRAF, as the other CGIAR research centres, should not be participating directly in training and the development of training materials, but rather be engaged in scientific research and the publication of findings in scientific journals and books. To put it baldly, research is a core activity at ICRAF, farmer training is not.

However, the curriculum development, staff interchange, scholarship and networking functions of ANAFE fall within what is known as Capacity Building and are considered a core activity:

> *"Capacity building is a key activity to meet the overall goals of the CGIAR. Reflecting the CGIAR's partnership approach to agricultural research, program-associated capacity building, as well as research on institutional strengthening is considered to fall within the 80% budget allocation. Only the more iterative types of course-related training unrelated to research are considered as falling within the additional 20% of budget allocated for other activities".*[4]

This preference for pure research rather than dissemination, however, might prove to be a killing factor in the promotion of agroforestry. There is no other body than ICRAF for promoting innovations, at least as new technological packages, and no other body than ANAFE for linking research and education institutions together to promote agroforestry.

One impediment to the development of practical farmer packages, however, is the observed attitude of some researchers in relation to demonstration activities. A few researchers met were more concerned with the production of journal articles from their work than the wide spread acceptance of innovations by farmers. This is not surprising in the CGIAR system, or at most universities, where performance is rated on the basis of indicators such as publications.

[4] Quote from CGIAR science Council: Final document on science priorities

5. Assessing Impact

The first level of impact of ANAFE activities is on the inclusion of AgroForestry considerations in university level education, where, judging by the content and quality of the curricula examined in the institutions visited, there has been quite a considerable impact over the years. Increases in the number of graduate theses in agroforestry and the production of training materials for university education can be linked directly to the ANAFE programme.

The second level impact of ANAFE activities was assessed by examining how knowledge and skills acquired from training courses have been put to use. Some of the farmers, who have undergone training courses, reported that they have been able to establish food and fodder banks on their farms and apply grafting techniques on their fruit trees since attending the courses. One female farmer mentioned that she particularly benefited from the marketing lessons that she received in the course. Prior to the course, she said that she had never taken the cost of labor into account in her pricing of commodities. But now, she said, her income has improved as the result of the training course. Lecturers who attended pedagogic courses have also reported that their style of teaching has improved since attending the courses. There were also similar impacts on primary school teachers and students who reported that their knowledge of agroforestry has increased since attending the training courses and that they are now applying some of the skills they have acquired from the training courses.

The most appreciable second level benefits of the ANAFE activities, however, can be seen in the ZAP programme in Zambia. This is not surprising given that ZAP has been focused on consolidating technologies for practical use by farmers and is something of a pilot experiment for the on-farm application of the entire agroforestry concept. Its objectives are not strictly networking, and its experiences should become a role model for other regions in the ANAFE system. Before this is done, a detailed study of farmer impact should be carried out to identify successes and lessons learned applicable to the other regions. (Outreach in other geographical areas is at an initial stage and seems not to have yielded measurable results.)

The impact of ANAFE on the wider issue of agricultural productivity and food security is yet to come. The main objective of ANAFE was to build up the capacity with which to develop and refine technological packages and this is well on its way to being achieved. The real measure of success, however, will be in the ability of ANAFE, ICRAF and/or FARA to integrate agroforestry concerns into government policies and investment priorities. Only then can the potential for large scale improvements in agricultural productivity and food security that agroforestry promise for the small scale farmer, be realized.

6. Assessing Efficiency

One way to measure efficiency is to look at the actual expenditures in relation to the amount budgeted for the objective. In the case of ANAFE, expenditures for 2003 were generally way below budget as activities were effectively frozen during a bridging period January–June 2003 while the final shape of the cooperation was being decided between ICRAF and Sida. This then led to a significant upswing in budget utilization percentages in 2004. Some of the budget allocation not used during the three year period is currently being used in the phasing out of the programme support during 2006.

While the ToR does not include carrying out a detailed financial analysis/audit of ANAFE and ZAP, the general review of financial reporting is used here to discuss both effectiveness and efficiency.

The budget figures used are from the planning budget, actual allocations may vary during the year with decisions taken by the financing authority, but the general trends discussed below are valid.

6.1 Budget Utilization by Objective

In general terms it can be said that the different objectives are financed fairly evenly, with the most funding being allocated to financing thesis research (objective 3) and the least being allocated to outreach programmes at primary and secondary school level. This is in keeping with the overall priorities of the network which emphasize strengthening teaching and research capacity at tertiary level.

The budgets are divided into 4 regional budgets plus activity financing for the Coordination Unit located at ICRAF Nairobi. ICRAF funds four months working time on the part of the Coordinator from its own funds. Administrative staff time, including personnel and logistics, is financed by a 29% overhead on the activities budget, excluding capital investments. (For reference, the example of a detailed activity budget (for 2006) is presented in Appendix 11).

Objective 1:
Enhance and Mobilize teaching capacity of educators and educational institutions in agro forestry and INRM

Activities under this objective were budgeted to $251,020 (20% of the total activities budget[5]) over the 2003–2005 period. 64% of this allocation was spent as of December 31 2005.

Objective 2:
Establish effective links among research, education, development partners and systems, and use to ensure flow of AF and INRM knowledge to farmers and development workers

Activities under this objective were budgeted to $ 205,380 (16% of the total activities budget) over the 2003–2005 period, of which $126,647 or 62% was actually spent.

Objective 3:
Strengthen Action Research by providing opportunities for young scientists to undertake thesis research with farmers on relevant AF/INRM topics

Activities under this objective were budgeted at $ $330,000 (26% of the total activities budget) over the 2003–2005 period. $239,868, or 73%, was actually spent.

Objective 4:
Link basic education teaching and learning to local community practices by incorporating AF and INRM examples into teaching programmes for selected primary and secondary schools.

Activities under this objective were budgeted at $99,830 over the period 2003–2005, or 8% of total activities budget. $18,347 or 18% of this was actually spent.

There is a "Farmers of the Future" initiative at ICRAF, with separate financing, which contributes training materials and backstopping to the ANAFE outreach efforts.

Objective 5:
Consolidate scientific and technical robustness of Agroforestry technologies developed in Zambezi basin through intensification of on-farm testing of innovations with farmers.

Activities under this objective, the ZAP project, were budgeted at $270,950, or 21% of the total budget for the period 2003–2005. $270,949, or 100% of this was actually disbursed to ZAP, however, dollar based financial reporting from ZAP is not up to date and it is difficult to tell precisely how much has actually been spent. However, it can be estimated that at least 80% and probably closer to 90% has actually been spent.

[5] Total activities budget = USD 1,285,579

Objective 6:
Develop ways and means of ensuring that the positive processes and results emanating from this project are sustained.

Activities under this objective were budgeted at $128,400 for the period 2003–2005, or 21% of the total activities budget. $85,077, or 66% of this was actually spent.

6.2 General Efficiency Measurements

In general terms it can be said that roughly 60% of the budget allocated was actually spent during the period 2003–2005. (Some of this was carried over into 2006 as the startup in 2003 was slowed by unclear bridging arrangements and various delays.) In view of the fact that many of the goals established were met, this is a rough indicator of an acceptable level of efficiency and, perhaps, a need for more coordination resources to enable a greater utilization of disbursed funds and even higher activity performance indicators.

6.3 Complementary Funding

ICRAF funds a number of activities related to or directly supporting ANAFE which do not come from the 29% overhead or from Sida allocated funds to ANAFE. Examples include:

Four months salary for Network Coordinator

Salary of Administrative Assistant responsible for logistics, editing of documents and communications

Farmers of the Future (separate funding but indirectly supporting ANAFE activities, see Objective 4 above)

Financing of Senior Education Fellows in each country who function as ANAFE coordinators in situ (seconded and jointly supported by the national university and ICRAF)

The direct financial contribution, including operations costs which are covered by the 29% overhead, are shown together in Table 6.1 below. (The Activity Budget for 2006 is included as Appendix 11)

Table 6.1: ICRAF Direct Financial Contribution to ANAFE Programme and ZAP

		2003	2004	2005	Total
		US$	US$	US$	US$
Staff cost	Programme Coordinator	45,171	51,296	51,824	148,291
	Programme Admin. Asisitant	13,068	14,196	15,138	42,402
	Senior Research Fellows – Regional Coordination				-
	Southern Africa	9,267	11,716	24,996	45,979
	Eastren Africa		4,050	8,282	12,332
	Sahel and AHT		3,300	39,900	43,200
	Zambia Agroforestry Project – ZAP	120,228	145,326	176,823	442,377
		187,734	**229,884**	**316,963**	**734,581**
Operations	Office Space	2,616	2,616	2,616	7,848
	Network and internet access	2,287	2,287	2,287	6,861
	Communications	1,048	1,153	1,311	3,512
	Travel	280	4,905	4,056	9,242
		6,231	10,962	10,270	27,463
		193,965	**240,846**	**327,233**	**762,044**

In addition, there is a contribution in terms of staff time, allowances, thesis research and transport which are allocated to ANAFE activities from the regular budgets of the member and partner institutions.

The overall conclusion is that Sida is getting a high rate of return on its investment, with cooperating institutions showing a strong willingness to match and complement Sida funds in this area. This is especially true of the ZAP programme where all scientific researchers and the bulk of the research activities are funded by other donors and/or government.

7. Assessing Sustainability

Networking is viewed as an extracurricular activity at many of the academic institutions even though they are aware of and highly appreciative of the benefits. There is seldom any source of regular funding for this kind of activity within a university. Teaching activities are funded and viewed as the core business. Research is often subject to individual interest and usually financed from special or outside funds.

Thus, any non-teaching activity at a university may be rather precarious in terms of sustainability, and ANAFE is no exception to this.

When asked if it is realistic to expect that once the Sida financed project was completed adequate national resources will be committed by government for meaningful follow-up, all members of all the institutions visited replied by saying that they would not expect any regular government funding for agroforestry research or ANAFE activities. There are possibilities at several institutions, however, for reallocating other funds to sustain ANAFE activities, at least in the short run.

ANAFE is already exploring how to guarantee its own sustainability by registering as an independent entity in Kenya. The ICRAF management has participated in these discussions and is in agreement with this move.

ZAP has a clearer exit strategy, in that adaptive research, on-farm research, and scaling up or dissemination of innovation, are activities which are part of the regular government agricultural extension service. In spite of the fact that extension services are chronically understaffed and underfunded, there is some hope for continuation in the case of Zambia. What is diminished in this context is the regional aspect of the cooperation, although part of the adaptive and on-farm research has been subsumed by regular ICRAF activities based in Malawi.

Although agroforestry within the academic world is recognized as being as important as the traditional mainstream land use disciplines such as agriculture and forestry, this has not been translated into government policies on agroforestry.

Until such time, representatives from member and partner institutions said they do not expect any commitment from the government for agroforestry or ANAFE activities. They mentioned that, whatever the institutional shape that the new network takes, they still have to depend on external source of funding to sustain ANAFE activities.

ANAFE has been active in soliciting funding from various sources. The most significant has been the link with FARA in an effort to sustain the network. The link with FARA has led to the development of an initiative for Building Africa's Scientific and Institutional Capacity for Agriculture and Natural Resources (BASIC) for which AFDB and EU have promised to provide funding.

8. Conclusions and Recommendations

The strengths and successes of the ANAFE network are summarized briefly below. Two basic recommendations for future activities can be made; one that Agroforestry concerns need to be more effectively integrated into government policy and the other that the impressive innovations developed in Agroforestry research and promoted by ANAFE and ICRAF should be more widely disseminated.

8.1 Overall Conclusions

ANAFE as a network has achieved a great deal. It has met its five stated objectives of Phase 4 of Sida supported project. Agroforestry is now being taught in all ANAFE member institutions. Some of the activities of ANAFE are already having impact on staff members and students of member institutions and the farming community. To strengthen grassroots ownership of the network so that the network activities are sustained, ANAFE has assisted the establishment of national agroforestry training teams (NAFTs) composed of members drawn from various stakeholder institutions including NGOs, universities, colleges, schools and research and extension organizations. This is a significant achievement made by ANAFE.

From the interviews and discussions with staff of member institutions, it was clear that there was a lot of enthusiasm amongst the members to sustain the ANAFE network. The uptake rate of new or improved agroforestry innovations by farmers is, with the exception of Zambia, very slow due to the aforementioned lack of a conducive institutional and policy environment for agroforestry. In the absence of linkages with institutions that serve smallholder agriculture, or the build-up of such institutions, and an enabling government policy, teaching agroforestry in universities and colleges will continue to have a limited impact on farmer behaviour.

The activities carried out under the auspices of the ZAP programme in Zambia (Objective 5 of the 6 included in the ANAFE Logical Framework matrix) have contributed to the development of a successful model for disseminating agroforestry techniques to small farmers. The buildup of this model has been a slow process, due to the central business of conducting adaptive research and the pilot nature of the outreach activities. Still, ZAP has shown an effective degree of integration with the government research station and the extension service which have led to an impressive adoption of technologies in the ZAP sphere of influence. The Team recommends below that this model be the basis for conducting similar activities in other regions.

8.2 Input into Policy Processes

ANAFE was initially established because of the realization of African universities and colleges in the 1980s that there were policy and institutional barriers to the establishment of agroforestry education. Unfortunately, many of these policy and institutional barriers still remain.

Despite the importance of agroforestry in Burkina Faso, for example, and the fact that government ministries address agroforestry in forums and meetings; there is as of yet no government policy on agroforestry. Although there are three ministries in Burkina related to agriculture and the environment, there are no specific jobs for agroforesters in any of them. The significant demands for trained agroforesters arise from the NGO sector. This situation prevails in many of the countries participating in the ANAFE network.

A necessary precondition for the widespread adoption of agroforestry technologies is that the government recognizes agroforestry and promotes agroforestry activities guided by a clear policy to do so.

Until this happens, it is doubtful whether agroforestry activities, including networking, will be financed by governments and agroforestry will remain a donor dependent subject matter area.

8.2.1 Focus on Agro Forestry or "Natural Resources Management"?

The mandate of ANAFE has now expanded to embrace all aspects of agriculture and natural resource management and as a result the name ANAFE now stands for African Network for Agriculture, Agroforestry and Natural Resources Education. This broader scope for an "agroforestry" network has had the paradoxical effect of making agroforestry seem like a more narrow issue than it actually is.

Agroforestry is actually an umbrella concept spanning over considerations included in agriculture, forestry and natural resources management; not an identifiable segment of any of these disciplines. Thus, the so-called "broadening" of AF is in reality a contradictory concept. AF encompasses a holistic approach to land use, and is not confined to the narrow idea of planting trees on farmers' fields. It rightly be seen as land management for improving soil fertility, providing construction materials, and generating fuel, food and incomes without artificially excluding trees, as mainstream agriculture often does.

ANAFE with its new and "broader" definition has, however, been recognized by African Union and forms part of NEPAD initiatives. This is a positive development on the whole, as strong networking is also required in the traditional mainstream land use sectors such as agriculture and forestry in order to reinvigorate tertiary agricultural education. Care should be taken, however to ensure continued support to the concept of Agroforestry to prevent activities losing their necessary focus on promoting agroforestry innovations in small-holder agriculture.

The fact on the ground is that the majority of African farmers are still smallholders and that they contribute largely to food security in their respective countries. What smallholders do to sustain production is agroforestry. However, no African government recognizes this. The improvement of production in smallholder agriculture requires new or improved agroforestry technologies. The adoption of these technologies or innovations requires committed governments as well as a system of public sector organizations with the capacity to support and transform small-scale agriculture.

Institutions that serve agriculture are historically better suited to meet the needs of large-scale or commercial agriculture. Most government institutions in Agriculture and Forestry do not claim responsibility for Agroforestry and do not consider it their mandate. In West Africa, for example, Forestry departments are responsible for trees, also on farm, but for the conservation of those trees and farmers are often prohibited from cutting them or using them in a way conducive to improved farming. The Forestry Departments see their role as one of conserving tree species and of overseeing plantation forestry and watershed management. Impediments to farmer use of trees are fewer in Eastern and Southern Africa, but the role of the Forestry Departments are basically the same.

Even in the academic world, agroforestry tends to "fall between the cracks" as foresters are not usually comfortable with farming and agriculturalists are often poorly informed about trees. In the university institutions visited agroforestry activities were coordinated by departments of Animal Sciences, Botany, Biology, Chemistry, Environmental Sciences, and Horticulture. Location was often the result of a personal interest on the part of the Staff.

In the absence of strong institutions and a clear government policy, the adoption and scaling up of new or improved agroforestry innovations with potential to improve smallholder productivity will continue to be hampered.

The risk of losing the agroforestry focus is real. There is no mention of agroforestry, for example, in the BASIC program which is intended to consolidate the gains made by ANAFE.

The Team, therefore, recommends that agroforestry be formulated as the seventh priority BASIC program component and that Sida consider some form of support to this component. The Team also recommends that influencing policy should be one of major objectives of the new agroforestry program component. ANAFE in collaboration with ICRAF may include other agroforestry capacity building objectives as required.

8.2.2 Need for Policy Briefs

As discussed above, government policy on integrating agroforestry into agricultural sector policy and extension agendas is urgently needed. This need has been recognized in all regions, however in Southern Africa action has already been taken by ANAFE and ICRAF researchers who have devoted significant efforts to writing policy briefs where they provide decision-makers with the arguments for including such activities as Tree domestication of indigenous fruit species and the use of fertilizer trees in regular agricultural sector activities.

There is a need to enhance activities in the field of policy briefings at all levels so that the government recognizes agroforestry and promotes agroforesty through a firm policy. Until this happens, Government commitment and/or funding to any ANAFE activities is unlikely. Current policies do not recognize Agroforestry as a land use practice, nor do government structures recognize agro forestry as a profession, and as a result there are few agroforesters positioned to carry the discussion in government structures.

Creating these Policy Briefs and interacting with decision makers is an ideal area for ANAFE and ICRAF to work. In the opinion of the Team, ANAFE and ICRAF should assist smallholders to persuade policy makers not just to listen but to change how things are done. This could be achieved through:

1) building a strong basis of evidence for farmers' use of new or improved agroforestry technologies for enhanced and sustainable production, (lessons to be learned from the ZAP experience and similar approaches replicated in other countries)
2) widening both farmers' and policy makers' picture of how agroforestry fits into the national food system, (documenting the contribution of agroforestry to food production)
3) communicating effectively with a wide range of groups such as women's and church groups, local partners such as NARS and Extension Organizations, international NGOs, media such as TV and radio and members of parliament.

8.2.3 Collaborating with FARA

Strengthening the collaboration and synergy with FARA opens up the possibility for ANAFE to achieve a much stronger lobbying power for agroforestry, which can support policy change, an already important activity at FARA. ANAFE should put this power to use through groups which have ties both with decision-makers and the farmers themselves.

The contact network and ability to attract funding associated with FARA may also be of great importance to the survival of ANAFE. In addition, FARA is well positioned to promote the development of a broad strategy for integrating sustainable agriculture with agroforestry research and keep agroforestry firmly on the food security agenda.

8.3 Scaling up and Outreach

These are two distinct, but interrelated areas. By scaling up we refer to the widespread dissemination of proven technological innovations by the extension service to farmers and by outreach, the promotion of agroforestry training activities in primary and secondary schools and Farmer Training Centres.

8.3.1 Scaling Up

For scaling up there are basically two recommendations:

1) use the ZAP as a model and

2) maintain the strong links between ANAFE and ICRAF.

In Southern Africa particularly there is much discussion of the need for "scaling up", i.e. the need to disseminate findings on a large scale to farmers through the regular extension service. ZAP has begun the work of integrating the results of tested innovations with the regular government research and extension network, but only on a pilot basis and always retaining the focus on further refining innovation and screening for new varieties at the research station. This approach could be duplicated with similar efforts in each of the other three ANAFE regions.

A simpler approach building on ZAP, would be more appropriate for the Southern African region, given that retaining a heavy research input is far too slow and costly for meeting the almost desperate needs for widespread productivity increases in areas where there are tested and viable innovations, such as the Zambezi basin. The introduction of innovations can be made sustainable by training farmers in seed collection and nursery management.

ANAFEs primary role in scaling up is to push government structures to develop the enabling policy frameworks and consequent investment/incentive plans. Direct implementation of large-scale dissemination of technological innovations could be done by member institutions in the NAFTs. This would allow ANAFE coordination at the same time as field level implementation is done by those who are normally responsible.

ANAFE and ICRAF should monitor developments and be on hand to provide backstopping or advice on problems arising in the practical implementation. It should be mentioned in this context that it is vital to maintain a strong link between ANAFE and ICRAF to ensure the highest possible scientific inputs into this process.

ANAFE also has a contribution to make in the design of extension and training materials, where ANAFE members have been active in terms of training materials for university, technical training and training of trainers. Many of those working with these issues have had some interaction with farmer training centres and also have suggestions for how to reach farmers directly. The initiative should be with the ANAFE network to approach extension training institutions with suggestions.

It should also be noted that, while there are a number of innovations that are proven and ready for large scale dissemination, especially in the Zambezi basin, there is always a need for further research and innovation. Some promising areas for the future include the integration of livestock production systems into agroforestry, balancing nutritional considerations in the selection of crops/trees and screening fast-growing species which can be used for bio-fuel.

8.3.2 Outreach

ANAFE was begun as a network to link and strengthen university level education. It still has the bulk of its activities at this level. Those who hope for change, however, realize that the earlier on in life one reach people with certain messages, the more likely it is that these are internalized and affect behavior and decision-making. "Farmers of the Future" is one of the approaches developed by ICRAF for reaching primary and secondary level pupils with agroforestry messages and activities.

One of the most promising initiatives in this respect, now being tested in the ANAFE regions, is the promotion of nursery management and tree planting in local schools. Teachers are trained by the local research station or farmer training center in the concepts of agroforestry and then form a club or group at the school which plants and cares for trees and seedlings on the school property and, oftentimes, at

their homestead. Some primary school students in Kenya had as many as 200 seedlings in their home nursery and were earning a small income from these activities.

The primary school has the advantage of being an omnipresent institution and not coming and going with project funding. It is found even in the remotest rural areas and is easily accessible to the community at large. The agroforestry concept, packaged in broader terms as sustainable agricultural productivity increases and/or natural resource management, should be offered to Ministries of Education and should be one of the objectives under the agroforestry component of BASIC.

Another much discussed initiative is that of promoting the use of agroforestry or natural resource information in the regular text books used in schools. While it was decided that putting in specific course modules dealing with agroforestry was not appropriate, particularly at the primary level, agroforestry examples were integrated into regular textbooks.

Outreach is also conducted in terms of training farmers, either at farmer training centres or in their own fields. Care should be taken to distinguish the involvement of research staff in on-farm trials (which is of great benefit to researchers but of limited impact in the farming community) and the indirect inputs that ANAFE can make into the large-scale training of farmers in agroforestry techniques.

Acknowledgements

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Special thanks are given to Dr Claude Adandedjan, Madame Marie Louise Avana and Mrs. Ufoo Lema who provided information on member institutions not visited by the Regional Consultant or the Team Leader. Field visits were both efficient and enjoyable thanks to the efforts of Dr. Victoria Ngumi in the ECA region, Dr. Sebastian Chakeredza in the Southern Africa Region and Gillian Kabwe at the Chikweti Research Station in Chipata, Zambia.

Appendix 1 Terms of Reference – Team Leader

1. Background to ANAFE and ZAP

The African Network for Agriculture, Agroforestry and Natural Resources Education (ANAFE), coordinated from ICRAF HQ, is an instrument for African colleges and universities to improve capacity for teaching and applying Agroforestry innovations. Launched in April 1993, the network has enjoyed four phases of support from the Swedish International Development Cooperation Agency, (Sida).

Phase 1:
July 1991 to June 1994 – Formative phase, including recruitment of members, a coordinator and launching of the network. The network also established its vision and instruments for its management, and modus operandi. Budget expenditure totalled SEK 10,800,000.

Phase 2:
July 1994 to June 1997 – Operational phase, getting networkers to implement activities which included inter-alia, curriculum development, staff exchanges, development of teaching materials, literature and equipment support. Budget expenditure totalled SEK 11,428,000.

July 1997 to December 1998 – A bridging period during which Sida changed the fiscal year. ANAFE continued with activities initiated in phase 2. During this period, ANAFE was also evaluated. The results were very positive. The donor agreed to support phase 3 and to initiate a new network for Southeast Asia, SEANAFE. Budget expenditure totalled SEK 4,741,500.

Phase 3:
January 1999 to December 2002 – Regionalization and Consolidation of ANAFE. To the extent practical, training responsibilities were devolved to colleges and universities in four selected regions. Regional Agroforestry Training and Education Groups (RAFTs) were established to lead ANAFE activities in the regions. Focal institutions were established to serve as centres for training and education in Agroforestry. Agroforestry demonstration plots were established at several institutions to serve as outdoors teaching facilities. Payment of coordinator was taken over by ICRAF. The budget for this phase was SEK 19,824,496.

In 2002, ANAFE was evaluated, and based on its good performance; the evaluation team recommended a final three-year phase of support from Sida.

Phase 4:
January 2003 to December 2005, later extended to September 2006 – The cardinal objective of this phase is to mobilize the built up Agroforestry capacity for development. In this phase, strengthening Agroforestry skills; linking colleges and universities with schools and local communities; and developing ways to sustain network activities, outputs and benefits were emphasized. During this phase, a hitherto separate project, Zambia Agroforestry Project also supported by Sida, was scaled down but some of its activities were incorporated into this phase of ANAFE and are identified under objective 5. The total budget for the phase is SEK 16,500,000.

The objectives of phase 4, Mobilizing Agroforestry Capacity for Development are:

6. Enhance and mobilize teaching capacity of educators and educational institutions in Agroforestry and INRM.

7. Establish effective links among research, education and development partners and systems and use them to ensure a good flow of Agroforestry and INRM knowledge to farmers and development workers.

8. Strengthen action research by providing opportunities for young scientists to undertake thesis research with farmers on relevant Agroforestry/INRM topics.

9. Link basic education teaching and learning to local community practices by incorporating Agroforestry and INRM examples into teaching programmes for selected primary and secondary schools.

10. Consolidate scientific and technological robustness of Agroforestry technologies developed in the Zambezi basin through intensification of on-farm testing of innovations with farmers.

11. Develop ways and means of ensuring that the positive processes and results emanating from this project are sustained.

Annex 1 shows the detailed activities as well as outputs under each objective.

2. Purpose of the Evaluation

The agreement between Sida and ICRAF is ending in September 2006. To study how the project has performed and to draw conclusions in order to learn for the future an evaluation will be carried out. This evaluation is focused on Phase 4 of Sida support to ANAFE and includes support to ZAP. The purpose of the evaluation is to study the overall project accomplishments and also evaluate network functionality, effectiveness and future potential at sub-regional and regional levels and make recommendations to ANAFE, ICRAF and Sida.

3. The Assignment

In relation to the objectives mentioned above and expected outputs the evaluation shall:

1. Provide a brief, all-round description of the project to give general information and background to the analysis.

2. Assess effectiveness by studying to what extent the project has achieved its objectives or will do so in the near future.

3. Assess impact.

4. Assess relevance – Is the intervention consistent with the needs and priorities of its target group and the policies of the Sida and ICRAF?

5. Assess sustainability of results and ownership of the project within participating institutions.

6. Assess efficiency.

The evaluation team shall assess effective implementation of activities identified under each of the six objectives above.

Each activity will be evaluated according to the project implementation plan, and subsequent annual plans that were developed by members of ANAFE and ICRAF/ZAP.

The findings should be presented by each objective rather than by activities.

The criteria under paragraph 2 shall be evaluated by the team. More specific issues to assess *in addition* to these are mentioned below.

The *team leader's* prime responsibilities are to:

- Evaluate the ANAFE organization at continental, regional and national levels and establish the functionality and participatory processes, especially aspects of democracy, gender and determine overall effectiveness and sustainability of the network

- Comment on the management of donor resources, the cost effectiveness of the programme
- Evaluate network linkages with other similar institutions and networks
- Study the current and potential impact of the network on institutions and on agroforestry and on agricultural and natural resources education as a whole

The team leader's secondary responsibilities are to:

- Evaluate the approaches used in the implementation of activities and assess their effectiveness, efficiency, and sustenance of results; with special attention to participatory processes
- Analyze the effectiveness of links with schools and farming communities
- Evaluate the research fellowships in relation to the advancement of Agroforestry capacity as a whole

On the basis of their findings, the evaluation team will provide ANAFE, ICRAF and Sida with

- An overall assessment of the performance in this phase of support, based on effectiveness, impact, relevance, sustainability and efficiency.
- Recommendations on the future strategy and sustenance of the project results.

It is expected that at relevant points, the evaluation team will bring out issues on gender and efforts to mitigate the impact of HIV/AIDS on human resource capacity in agriculture and natural resource sectors.

Based on the team leader's own findings and contributions from the regional consultant(s) the team leader is responsible for consolidating and submitting reports to ICRAF and Sida.

The team leader will participate in choosing the rest of the evaluation team.

4. Methodology

The evaluation shall be carried out through analysis of available project documents and other documents considered necessary by the team. Interviews shall be made with, but is not limited to, representatives of the regional and national networks of ANAFE, the ANAFE coordinator, staff implementing ZAP, relevant development partners such as NGOs and farmer groups.

The evaluation should relate to Sida's evaluation manual 'Looking Back, Moving Forward'.

5. The Evaluation Team

The Evaluation Team shall comprise of a senior international team leader and one to two regional consultants. The consultants will have separate contracts. The *team leader* shall have demonstrable competence in the following areas:

- Capacity building and institutional development
- Demonstrable analytical skills in project evaluation.
- Sida policies
- Familiarity with African regional initiatives, organizations and networking
- Knowledge of ICRAF and the CGIAR system

The following elements will have an added advantage:

- Agroforestry/INRM research and education
- African education systems especially in the natural resources sectors.
- French language competence (at least one team member should have this)

The team members shall not have been involved or linked with the implementation of the project.

6. Implementation

A suggestion of countries, members and other organizations to be visited will be presented by ANAFE/ICRAF. The team is free to modify the proposal as it considers fit, and to make any additional contacts as deemed essential. Maximum duration of the evaluation is nine weeks for the team. The field work shall mainly be carried out within July 2006.

Due to the volume of work and the many institutions and countries involved, only some institutions will be physically visited by the evaluators. It is proposed that at least 10 institutions located in about 5 countries will be visited.

The project document, annual project reports as well as other project information and outputs will be supplied by the project coordinator and the Sida programme officer responsible for the project.

7. Reporting

The main findings and recommendations shall be discussed with personnel responsible within the program before leaving the country and sub-region and their reactions incorporated. The evaluation report shall be written in English not exceeding 30 pages, excluding annexes. Format and outline of the report shall generally follow the guidelines in Sida Evaluation Report – a Standardized Format (see Annex 2). The report shall be written in Microsoft Word for Windows and should be presented in a way that enables publication without further editing. The assignment includes the completion of Sida Evaluations Data Work Sheet (Annex 2). A separate summarized article (according to annex 3) and completed Data Work Sheet shall be submitted to Sida along with the final report.

The team leader shall present the draft report at the 20th meeting of the ANAFE Board to be held the in August 2006.

An electronic draft report shall be submitted to ICRAF and Sida by the 7th of August 2006.
Within two weeks after receiving Sida's and ICRAF's comments on the draft report, a final version shall be submitted to ICRAF and Sida, again electronically and in 5 hard copies. The comments from ICRAF and Sida will be submitted to the evaluation team at the latest the 29th of August 2006.

Subject to decision by Sida, the report will be published and distributed as a publication within the Sida Evaluations series.

Appendix 2 Terms of Reference – Regional Consultant

1. Background to ANAFE and ZAP

The African Network for Agriculture, Agroforestry and Natural Resources Education (ANAFE), coordinated from ICRAF HQ, is an instrument for African colleges and universities to improve capacity for teaching and applying Agroforestry innovations. Launched in April 1993, the network has enjoyed four phases of support from the Swedish International Development Cooperation Agency, (Sida).

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The results were very positive. The donor agreed to support phase 3 and to initiate a new network for Southeast Asia, SEANAFE. Budget expenditure totalled SEK 4,741,500.

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In 2002, ANAFE was evaluated, and based on its good performance; the evaluation team recommended a final three-year phase of support from Sida.

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January 2003 to December 2005, later extended to September 2006 – The cardinal objective of this phase is to mobilize the built up Agroforestry capacity for development. In this phase, strengthening Agroforestry skills; linking colleges and universities with schools and local communities; and developing ways to sustain network activities, outputs and benefits were emphasized. During this phase, a hitherto separate project, Zambia Agroforestry Project also supported by Sida, was scaled down but some of its activities were incorporated into this phase of ANAFE and are identified under objective 5. The total budget for the phase is SEK 16,500,000.

The objectives of phase 4, Mobilizing Agroforestry Capacity for Development are:

12. Enhance and mobilize teaching capacity of educators and educational institutions in Agroforestry and INRM.

13. Establish effective links among research, education and development partners and systems and use them to ensure a good flow of Agroforestry and INRM knowledge to farmers and development workers.

14. Strengthen action research by providing opportunities for young scientists to undertake thesis research with farmers on relevant Agroforestry /INRM topics

15. Link basic education teaching and learning to local community practices by incorporating Agroforestry and INRM examples into teaching programmes for selected primary and secondary schools.

16. Consolidate scientific and technological robustness of Agroforestry technologies developed in the Zambezi basin through intensification of on-farm testing of innovations with farmers

17. Develop ways and means of ensuring that the positive processes and results emanating from this project are sustained

Annex 1 shows the detailed activities as well as outputs under each objective.

2. Purpose of the Evaluation

The agreement between Sida and ICRAF is ending in September 2006. To study how the project has performed and to draw conclusions in order to learn for the future an evaluation will be carried out. This evaluation is focused on Phase 4 of Sida support to ANAFE and includes support to ZAP. The purpose of the evaluation is to study the overall project accomplishments and also evaluate network functionality, effectiveness and future potential at sub-regional and regional levels and make recommendations to ANAFE, ICRAF and Sida.

3. The Assignment

In relation to the objectives mentioned above and expected outputs the evaluation shall:

8. Provide a brief, all-round description of the project to give general information and background to the analysis.

9. Assess effectiveness by studying to what extent the project has achieved its objectives or will do so in the near future.

10. Assess impact.

11. Assess relevance – Is the intervention consistent with the needs and priorities of its target group and the policies of the Sida and ICRAF?

12. Assess sustainability of results and ownership of the project within participating institutions.

13. Assess efficiency.

The evaluation team shall assess effective implementation of activities identified under each of the six objectives above.

The activities will be evaluated according to the project implementation plan, and subsequent annual plans that were developed by members of ANAFE and ICRAF/ZAP.

The findings should be presented by each objective rather than by activities.

The evaluation criteria/expected outputs above shall be assessed by the team. More specific issues to assess in addition to these are mentioned below.

The regional consultant(s) prime responsibility is to:

- Evaluate the approaches used in the implementation of activities and assess their effectiveness, efficiency, and sustenance of results; with special attention to participatory processes

- Study the current and potential impact of the network on institutions and on agroforestry and on agricultural and natural resources education as a whole
- Evaluate the research fellowships in relation to the advancement of Agroforestry capacity as a whole
- Analyze the effectiveness of links with schools and farming communities

The regional consultant(s) second responsibility is to:

- Evaluate the ANAFE organization at continental, regional and national levels and establish the functionality and participatory processes, especially aspects of democracy, gender and determine overall effectiveness and sustainability of the network
- Comment on the management of donor resources, the cost effectiveness of the programme
- Evaluate network linkages with other similar institutions and networks

On the basis of their findings, the evaluation team will provide ANAFE, ICRAF and Sida with

- An overall assessment of the performance in this phase of support, based on effectiveness, impact, relevance, sustainability and efficiency.
- Recommendations on the future strategy and sustenance of the project results.

It is expected that at relevant points, the evaluation team will bring out issues on gender and efforts to mitigate the impact of HIV/AIDS on human resource capacity in agriculture and natural resource sectors.

The assessment of the issues above shall be submitted to the team leader at a date agreed on by the regional consultant and the Team leader. The regional consultant and the team leader shall as far as possible jointly compile the report although the team leader has the overall responsibility.

4. Methodology

The evaluation shall be carried out through analysis of available project documents and other documents considered necessary by the team. Interviews shall be made with, but is not limited to, representatives of the regional and national networks of ANAFE, the ANAFE coordinator, staff implementing ZAP, relevant development partners such as NGOs and farmer groups.

The evaluation should relate to Sida's manual 'Looking Back, Moving Forward.

5. The Evaluation Team

The Evaluation Team shall comprise of a senior international team leader and one to two regional consultants. The consultants will have separate contracts. The *regional consultant(s)* shall have demonstrable competence in the following areas:

- Agroforestry/INRM research and education
- Capacity building and institutional development,
- African education systems especially in the natural resources sectors.
- French language competence (at least one team member should have this)
- Demonstrable analytical skills in project evaluation.
- Familiarity with African regional initiatives, organizations and networking

The following elements will have an added advantage

- Knowledge of ICRAF and the CGIAR system
- Sida policies

The team members shall not have been involved or linked with the implementation of the project.

6. Implementation

A suggestion of countries, members and other organizations to be visited will be presented by ANAFE/ICRAF. The team is free to modify the proposal as it considers fit, and to make any additional contacts as deemed essential. Maximum duration of the evaluation is nine weeks for the team. The field work shall be carried out mainly within July 2006.

Due to the volume of work and the many institutions and countries involved, only some institutions will be physically visited by the evaluators. It is proposed that at least 10 institutions located in about 5 countries will be visited.

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The main findings and recommendations shall be discussed with personnel responsible within the program before leaving the country and sub-region and their reactions incorporated. The evaluation report shall be written in English not exceeding 30 pages, excluding annexes. Format and outline of the report shall generally follow the guidelines in Sida Evaluation Report – a Standardized Format (see Annex 2). The report shall be written in Microsoft Word for Windows and should be presented in a way that enables publication without further editing. The assignment includes the completion of Sida Evaluations Data Work Sheet (Annex 2). A separate summarized article (according to annex 3) and completed Data Work Sheet shall be submitted to Sida along with the final report.

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Subject to decision by Sida, the report will be published and distributed as a publication within the Sida Evaluations series.

Appendix 3
General Questions used for Semi-Structured Interviews

1) For policy makers

To what extent is ANAFE in line with national goals, programmes and priorities in agroforestry and NR and does it take these into account?

Did ANAFE address a genuine national agroforestry and NR development problem?

Did ANAFE provide cost-effective response to the development problem?

Are there plans to commit national resources to sustain the network and the results of ANAFE?

Which areas of ANAFE you suggest need improvement?

2) For RAFT or NAFT members

What are the major outputs of the project?

If there are shortfalls, what were the reasons?

What kind of support did ANAFE provide (technical, administrative, management support) in facilitating successful management of the project?

Did you receive adequate resources (finance, equipment, supplies) and were they delivered on time to execute the project?

Was the establishment of farmers learning resource centers (FLRC) and demonstration plots undertaken jointly with the partners and the local communities, taking into account their views? How does the project reflect these views?

What do you think are the major impacts of ANAFE on each of its target groups?

In which way, and how, did the project impacted on local communities?

What was the relevance of the training course (if you have attended) to your work?

What skills and competency have you developed as a result of the course?

Have you written proposal since attending the course that was the direct result of it or that was significantly influenced by it?

Do you feel that you have been adequately supported by ANAFE in developing the proposal?

What is your commitment to writing proposal now?

Is it realistic to expect project outputs to continue to be used once the Sida financed project was completed?

Is it realistic to expect that once the Sida financed project was completed adequate national resources will be committed by government for meaningful follow-up?

Which areas of ANAFE you suggest need improvement?

3) For College/University lecturers

How does the College/University participate in ANAFE?

What is your role in the College/University?

What is your role in ANAFE?

Did the college/University provide training course in agroforestry prior to the project, and at what level?

What was the relevance of the project to your work and the University programme?

What was the relevance of the exchange visit (if you have participated) to your work?

Which technical manual or document produced by ANAFE is relevant to your work?

What was the relevance of the training course (if you have attended) to your work?

Were there appropriate resources available during the course and exchange visit?

What is your knowledge of agroforestry now?

What skills and competency have you developed as a result of the course and exchange visit?

Have you created any project or written proposal, book or manual since attending the course and/or exchange visit that were the direct result of them or that were significantly influenced by them?

Do you feel that you have been adequately supported by ANAFE in developing the proposal or writing the manuals or other documents?

What is your commitment to writing book, manual, scientific publication, etc. now?

In which way, and how, did the project impacted on the teaching and research programme of the College/University?

Which areas of ANAFE you suggest need improvement?

4) For College/University students

Are you aware of ANAFE and its activities?

What is the subject of your degree course?

What was the relevance of the project to your degree course?

Did you receive thesis research fellowship from ANAFE?

How did you find out about ANAFE's offer of fellowship?

Do you feel that you have been adequately supported by ANAFE in your thesis research?

What was the relevance of the exchange visit (if you have participated) to your degree course?

Which technical manual or document produced by ANAFE is relevant to your degree course?

What was the relevance of ANAFE training course (if you have attended) to your degree course?

Were there appropriate resources available during the course and exchange visit?

What is your knowledge of agroforestry now?

What skills and competency have you developed as a result of the course and/or exchange visit?

Which areas of ANAFE you suggest need improvement?

5) For primary/secondary school teachers

How does the school participate in ANAFE?

What is your role in the school?

What is your role in ANAFE?

Did the school provide training course in agroforestry prior to the project, and at what level?

What was the relevance of the project to your work and the school programme?

What was the relevance of the exchange visit (if you have participated) to your work?

Which technical manual or document produced by ANAFE is relevant to your work?

What was the relevance of the training course (if you have attended) to your work?

Were there appropriate resources available during the course and exchange visit?

What is your knowledge of agroforestry now?

What skills and competency have you developed as a result of the course and exchange visit?

Have you established demonstration plots since attending the course and/or exchange visit that were the direct result of them or that were significantly influenced by them?

Do you feel that you have been adequately supported by ANAFE in establishing the demonstration plots?

What is your commitment to establishing demonstration plots now?

In which way, and how, did the project impacted on the teaching programme of the school?

Which areas of ANAFE you suggest need improvement?

6) For primary/secondary school students.

Are you aware of ANAFE and its activities?

In which grade are you in the school?

What is your preferred subject?

Did you receive lessons in agroforestry?

Did you like it?

What is your knowledge of agroforestry now?

What skills and competency have you developed as a result of the lessons?

In which way, and how, did you participate in the establishment of school nursery, FLRC and demonstration plots?

7) For local community members.

Are you aware of ANAFE and its activities?

In which way, and how, did you participate in the establishment of FLRC and demonstration plots?

Did you attend any training course run by ANAFE?

Did your knowledge of agroforestry improve after the training?

Was the training course held at the farmers learning resource center?

Was the farmers learning resource center an environment where you felt comfortable to learn?

Were there appropriate resources available during the course?

In which ways, and how, did the demonstration plots assist you in learning more about agroforestry?

What skills and competences have you developed as a result of the course?

What skills and competences that you developed during your course have you used since?

Have you planted trees since attending the course that were the direct result of it or that were significantly influenced by it?

Did you buy the seedlings or were they supplied for free?

How many trees or hectares have you planted on your own after the training?

How are you going to share the benefits from trees planted on communal land?

How often do you visit the field demonstration plots established by ANAFE and why?

Do you have needs that were not addressed in the training course or demonstration plots or the project in general.

Appendix 4 Itinerary for Team Leader

Date and time	Activity	Location/comment
17th Jul 08:00–11:00	Arrival settle at Intercontinental Hotel. Pick up at 12:00 to ICRAF	
17th Jul 13:00–17:00	Meet ICRAF senior leadership and project leader, overview on the project.	ICRAF
18th Jul 08:00–13:00 14:00–17:00	Intensive discussions with project staff and scrutiny of key documents	ICRAF
	Visit Kenyatta University. JKUAT to join. Discussions with faculty and students	Kenyatta University
19th Jul	Travel to Njoro, visit one Agric College	Night at Baraka
20th Jul	AM – isit one primary school and a farmers group in; PM – return to Nairobi	Njoro
21st Jul	Report writing and consultation with project leader (as desired)	Intercontinental Hotel or ICRAF
22nd Jul	Leave for Malawi AM – Briefing at Chitedze research station PM – Visit to Bunda College of Agric	Lilongwe/Lilongwe Hotel
23rd Jul	AM – Travel to Chipata PM – Tour of research sites/activities	Chipata, overnight at Chipata Exec. Guest House
24th Jul	Visit farmer groups and policy makers	
25th Jul	AM – Travel to Lilongwe PM – report writing	Lilongwe Hotel
26th Jul	AM – Fly to Blantyre (50 mins); visit Chancellor College	Night at Zomba Govt rest House
27th Jul	AM – Visit one school and a farmers learning resource centre PM – Fly to Lilongwe	

Appendix 5 Itinerary for Regional Consultant

June 7 Travel to Bamako, arrival 03.00 pm

June 8
08.00 am–12.00 pm
Field trip to Centre des Ressources Agroforestrieres du Sahal (CRAF) and visit a school nursery and a farmer field school and interview and discussion with members of Massala Primary School at Koulikoro and community members of Chô village at Katibougou

02.00 pm–06.00 pm
Field trip to Institut Polytechnique Rural (IPR) at Katibougou and interview and discussion with staff and students of IPR/IFRA and visit Agroforestry Demonstration Farm.

June 9
08:00 am–12.00 pm
Field trip to Centre de Formation Practique Forestier (CFPF), Tabacoro and interview and discussion with staff and visit nursery and visit ICRAF-Sahel, Samanko

02.00 pm–05.00 pm
Visit Plan d'Accompagnement de la generalisation de l'Education Environmentale au Mali (PAGEEM), Bamako and interview and discussion with staff and visit Fodder and Food Banks at Point G Primary School and nursery at Tomi A Primary School.

June 10
08.00 am–05.00 pm
Review of documents produced by ANAFE and wrap up discussion with ANAFE Senior Education Fellow

07.50 pm Depart for Burkina Faso

June 11
08.00 am–01.00 pm
Review of documents

02.00 pm Depart for Bobo-Dioulassu

June 12
08.00 am–11.30 pm
Visit Ecole National de Eaux et Forest (ENEF) and interview and discussion with staff

12.00 pm–16.00 pm
Visit Institut du Developpement Rural (IDR) University Polytechnique de Bobo-Dioulassu and interview and discussion with staff and student

June 13
07.30 am Depart for Ouagadougou

14.00 pm–17.00 pm
Visit Universite Polytechnique de Bobo-Dioulassu's Gampela field research station and interview and discussion with staff

June 14
08.00 am–12.00 pm
Review of documents

02.00 pm Depart for Accra

June 15
08.00–17.00
Visit Agri Research Centre, Legon, University of Ghana (UG) and interview and discussion with staff and trainee farmers

June 16
08.00–12.00
Wrap up meeting with AHT RAFT Chairperson and Visit College of Agriculture & Consumer Sciences, University of Ghana and interview and discussion with staff

13.30–16.00
Visit FARA and interview and discussion with staff

June 17
08.00–12.00
Visit Agri Research center AF demonstration plot and nursery and visit Ga East District, Greater Accra Region and interview and discussion with ex-trainee farmers.

14.00–17.00
Review of documents

June 18
12.30 pm Depart for Addis Ababa

Appendix 6 List of Manuals Reviewed

Teaching Manuals

1. Agroforesterie et gestion de la fertilite des sols au Sahel: Manuel didactique a l'intenion des etudiants du cycle superieur by Sidiki G. Dembele & Bocary Kaya, 2005, 50p.
2. Manuel sur les banques fourrageres (BF) en agroforesterie: Guide du formateur by Gora Beye & Salion Ndiaye, 2005, 30p.
3. Manuel de les haies vives au Sahel by N'Ito Niamaly & Bougouna Traore, 2005, 53p.
4. Manuel de cours en agroforesterie: a l'intention des establishements d'enseignement superieur du Sahel by B. Fall et al., 2006, 67p.
5. Manuel d'agroforesterie pour la formation des agents techniques by A. N'Diaye et al., 2006, 25p.
6. Manual of agroforestry practices in AHT by Tsatsu Adogba-Bessa & Matthew Bonji Oyun, 2005, 53p.

Extension Manuals

7. Les banques alimentaires au Sahel: Manuel pratique de vulgarisation by Kardique Coulibaly et al., 2005, 17p.
8. Les banques fourrageres au Sahel: Manuel pratique de vulgarisation by K. Coulibaly et al., 2006, 19p.
9. Manuel d'agroforesterie pour le developpement by Zigani Goudouma and Younoussa Ouedraogo, 2006, 29p.
10. Agroforestry extension manual for Fodder Production in the Humid Tropics by Adeola, A.O.; Bada S.O. and Popoola, L. 2005, 22p.
11. Agroforestry extension manual for Soil Conservation by Adeola, A.O.; Bada S.O. and Popoola, L. 2005, 30p.
12. Les haies vives dans la province de l'ouest Cameroun by Kamga Andre and Dondjang Jean Paul, 2005, 7p.
13. La culture en couloirs a base de Calliandra calothyrsus meissner dans la province de l'ouest Cameroun by Kamga Andre and Dondjang Jean Paul, 2005, 9p.

Manual for Schools

14. L' agroforesterie a l'ecole au Sahel. Guide practique du formaqteur by Moussa Batchily Ba et al., 2006, 86p.

Results of the Review

Document No	Status	Matching of title, objectives and content	Relevance to region and target	Style of presentation	References
1	Final draft	Need to consider including more relevant work in the Sahel e.g. Bayala et al. (2002)	Excellent	Need to add a soil map of the sub-region.	Relevant and very good
2	Final draft (2 parts)	Good	Very good	Need to improve layout of chapters and sub-chapters and more illustrations are also needed	Provide references for Part 2
3	Final draft	Need to consider using more indigenous trees	Very good	Need to provide illustrations	Some references are incomplete
4	Final draft	Very good	Very good	More illustrations needed	Cross-check references in text and list
5	Final draft	Very good	Very good	Very good	Cross-check references in text and list
6	Final draft	Excellent	Excellent	Very good	Relevant and very good
7	Final draft	Very good	Excellent	Some illustrations need improvement	Need to provide references or bibliography
8	Final draft	Very good	Excellent	Some illustrations need improvement	Need to provide references or bibliography
9	Final draft	Excellent	Excellent	Very good	Adequate
10	Final draft	Very good	Very good	Need to provide better and more illustrations	Relevant and very good
11	Final draft	Very good	Very good	Need to provide better and more illustrations	Relevant and very good
12	Final draft	Very good	Very good	Very good	Need to provide references or bibliography
13	Final draft	Very good	Very good	Very good	Need to provide references or bibliography
14	Final draft	Very good	Very good	Need to provide better and more illustrations	Relevant and very good

Appendix 7 List of Documents Consulted

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2. Akinnifesi, F.K. et al 2004. "Fertilizer Trees and Malawi's New Food Security Initiative"
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4. ANAFE 2005. SA-RAFT Policy Brief: The SADC region must harness capacity building networks in Agroforestry, Agriculture and Natural Resources Management for a better future.
5. ANAFE/SEANAFE/FAO 2005. Forestry Education in Sub-Saharan Africa and Southeast Asia: Trends, myths and realities.
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24. Temu, A et al. 2004. Rebuilding Africa's Capacity for Agricultural Development: The Role of Tertiary Education

25. FARA, 2005. Catalyzing innovation and change in agricultural research for development in Africa: the role of the forum for agricultural research in Africa: 2006–2010 Medium-term plan.

26. FARA and ANAFE, 2005. BASIC Building Africa's scientific and institutional capacity in agriculture and natural resources management.

27. Rudebjer et al., 2005. Developing agroforestry curricula: a practical guide for academic institutions in Africa and Asia.

28. Sida, 2003. Agreement between Sida and ICRAF on support of the project "Mobilizing Agroforestry Capacity for Development" during 2003–2005

29. Zambia ICRAF Agroforestry (ZAP) Project Development, 2006. Summary Project Report to Sida 2003–2005

Appendix 8 List of Institutions Visited and Summary of the Results of the Interviews and Discussion

Institutions visited in Eastern and Southern Africa

1. ICRAF Headquarters, Nairobi, Kenya
2. Jomo Kenyatta University of Agriculture and Technology– Kenya
3. Kenyatta University – Kenya
4. Baraka Agricultural College – Kenya
5. Egerton University, Kenya
6. Mtakatifu Clara Farmers Training Centre – Lare Division, Nakuru District, Kenya
   - 6.1. Ufufuo Agroforestry Self Help Group
   - 6.2. Ndemi Primary School
7. Olmothoni Forestry College, Tanzania
8. Chitedze Agricultural Research Station, Malawi
9. Bunda College of Agriculture, Malawi
10. Chancellor College, Malawi
11. School Leavers Association, Zomba, Malawi
12. Primary Schools, Malawi
    - 12.1. Thondwe School, Zomba
    - 12.2. St. Anthony's School, Zomba
13. Zambia Agroforestry Project, Zambia
    - 13.1. Msekera Research Station
    - 13.2. Provincial Agricultural Office
    - 13.3. Cooperating Organizations
      - 13.3.1. Plan, Chadiza District Food Security Component
    - 13.4. Nurseries
      - 13.4.1. Kagunda Nursery
      - 13.4.2. Group Nursery 1
      - 13.4.3. Group Nursery 2
    - 13.5. Farmers Group
      - 13.5.1. Zemba Farmers Group

1. ICRAF Headquarters, Nairobi, Kenya

Dr. Jan Laarmann, Deputy Director General for Programmes

Dr. August Temu, Theme Leader, Institutional Strengthening, ANAFE Coordinator

Rita Mulenge, Institutional Strengthening Unit

Jan Beniest, Principal Training Scientist, Training Unit Manager

TomVandenbosch, Project Leader/Farmer of the Future

Emily Nwanko, Director Corporate Services

Laksiri Abeysekera, Chief Financial and Operations Officer

Ernest M. Gatouro, Manager, Budget and Corporate Finance

While ICRAF itself is not the focus of the current evaluation, its role as a host institution for ANAFE has been instrumental to the success and impact of the networking activities. Although ANAFE is making considerable progress in establishing itself as an administratively independent entity under A---, it can continue to draw strength from the advantage of being located physically within the ICRAF complex.

The strengths which ANAFE has been able to draw upon span the spectrum from equipment, personnel and budget resources to technical backstopping and collegial support.

It is important to understand that the ICRAF mandate is to carry out research and publish this in scientific journals. It is a member of the CGIAR system, where the primary mandate is not to carry out training, and where much screening and training work is purposely left to national institutions. In view of the institutional weaknesses and scarcity of funds in some countries, particularly in Africa, members of the CGIAR system are often called upon to play a "middle role", i.e. that of a broker between practitioners and scientific personnel.

ICRAF, as a member of the CGIAR system, has a goal of spending 80% of their resources on research and 20% on "other important activities" among which capacity building is included. While there is work being done on extension methodology, repetitive training courses are not the business of the CGIAR centres, it is rather to train trainers and provide resource materials. In this context, graduate students should deliver the results of ICRAF, thus strengthening the teaching capacity.

ANAFE/BASIC

2003 saw a shift in ANAFE, which went from dealing with Agroforestry alone to Integrated Production Systems. This fit well with the drive within ANAFE for an independent forum for rebuilding African capacity for agricultural development spearheaded by African institutions. This is an effort to see beyond ICRAF and create something which is not only a product of ICRAF but concrete evidence of greater African collaboration and advancement in promoting technological change in agriculture, itself a key ingredient in poverty alleviation.

2. Jomo Kenyatta University of Agriculture and Technology– Kenya

Kaibui Mwikamba, Assistant Registrar (Research)

Dr. Catherine Muthuri, Chairperson of Department of Botany

P.K. Njenga, Lecturer, Department of Botany

Dr. Victoria Wambui Ngumi, Principal, Karen Campus/Senior Education Fellow ECARAFT and ICRAF/ANAFE Representative

Dr. Grace N. Njoroge, Senior Lecturer, Botany, Coordinator of ANAFE Agroforestry Demonstration Plot

JKUAT is a relatively new institution (1994) with 6,000 students emphasizing technical and agricultural university level training. It is located close to Nairobi and Kenyatta University, but is administratively separate from KU and much more specialized and limited in the training it offers.

Collaboration with ANAFE began in 2000, principally through a committee formed by Departments of Botany, Veterinary Medicine, Farming and the Division of Research, Production and Extension to supervise the "AgroForestry Project" consisting of demonstration plots and graduate student research projects. There are currently 2 MSc students and 1 PhD student with partial funding from ANAFE, all are in the Department of Botany.

The Demonstration Plot for agroforestry is about 3 acres in size; there are certain problems with maintaining it due to a lack of casual labour for clearing, fencing and weeding, but it is thought to be of major importance for student demonstrations and thesis work.

3. Kenyatta University – Kenya

Prof. Daniel Mugendi, Acting Deputy Vice Chancellor, Finance & Administration
(former Dean of Environmental Sciences)

Dr. James B. Kuugu, Senior Lecturer in Environmental Sciences, Dept. of Environmental Sciences

Dr. Samuel C.J. Otov, Acting Dean, School of Environmental Sciences

This broad based University, which became full-fledged and autonomous in 1985, was created in the early 1960's on the site of military barracks. In the area of teacher training, it is regarded as one of Africa's strongest institutions of tertiary education, reflecting its early history as a teacher training college. There are currently 7 faculties, or schools, within the university. These include schools of:

Education

Pure and Applied Sciences

Evnironmental Studies and Human Sciences

Business

Humanities and Social Sciences

Health Sciences

Graduate School

Kenyatta University offers, in addition to academic training at the undergraduate and graduate level, a number of programmes of opening learning and continuing education.

The Department of Environmental Studies, located in the School of Environmental Studies and Human Sciences, offers both undergraduate and graduate training. A Master of Science in Agroforestry and Rural Development was first offered in 1999, with curriculum development support coming from ANAFE. Partial scholarships for MSc Research have also been awarded as part of a long term cooperation between KU and ICRAF, where ANAFE has been a key facilitator. Even undergraduate students have been attached to researchers at ICRAF for shorter periods, alongside the more traditional access to data and research supervision offered to graduate students. Approximately 15 students have completed this degree since its inception. The cooperation with ICRAF also includes the facilitation of training materials.

In addition to graduate training and research cooperation, ANAFE has facilitated the participation of KU staff in teaching agroforestry in other institutions in Uganda, Ruanda and Ethiopia. ANAFE has also supported demonstration plots and the development of training manuals within KU.

While these activities are similar to those carried out at other institutions supported by ANAFE, KU has been able to draw a relatively high degree of utility from these contacts due to their close physical proximity to ICRAF, which boasts world class scientific resources and research facilities in agroforestry. In this context it is especially important to note that ICRAF as an institution, and as individual staff, have been extremely open and generous with their time and resources to any of those in the ANAFE community requesting support. While KU has been able to draw on these resources at a relatively low cost compared to institutions in other African countries, this sentiment was echoed by all of the universities and training institutions visited.

ANAFE has been instrumental in encouraging a type of networking at KU that has far-reaching consequences. Thanks to this support, KU was able to take the initiative to organize and host an international conference on Agroforestry in 2003 which involved the participation of universities both

within and outside of Africa. Networking has led to joint research proposals and an interchange between teaching staff where it is possible to compare what is being taught in different universities. The methodology which ANAFE has facilitated for curriculum development in agroforestry has been so useful that it is being adapted for use in other fields.

4. Baraka Agricultural College – Kenya

Francis Kaman Njanbe, Deputy Principal

This college is owned by the Catholic Diocese of Nakura and was founded in 1974 as a Farmers Training Centre for small farmers settling in the area after Independence in 1963, The original curriculum of 1–3 week courses and 1 day workshops expanded over a period of 15 years to awarding a Certificate in Sustainable Agriculture and Rural Development after a 3 term (10 month) course of study involving, in addition to residential training in theory and concepts, four months in a community placement with collaborators in Eastern Africa. The field attachment includes learning what the attaching institution does in terms of training and extension but also visits to Community groups and the initiation of a project there.

In 2006 a Diploma education of three years (1.5 theoretical, 1.5 supervised field work) is being introduced with a first class of 45 students. There has been an average of 80–90 students per year in the Certificate course in recent years and, out of a total of 70 staff, about 40 are teaching staff. Four of these are staff seconded by the Ministry of Agriculture.

This college has very clearly benefited from its participation in ANAFE. They cite five areas in which ANAFE collaboration has been important to them:

- Materials: information and references on a wide variety of subjects is easily and inexpensive to access, many materials are pedagogically adequate for training purposes without further adaptation, thus information support is to staff as well as to students and even farmers in community groups.
- Advice: ANAFE facilitates technical backstopping, support in strategic planning and curriculum development and review. Of greatest importance is the fact that ANAFE has enabled the scientists who provide these services to visit them and interact with staff and students.
- Financial Support: ANAFE has provided a grant to the building of a community resource centre, meeting rooms and a demonstration dairy farm. ANAFE has also provided support to working with communities in agricultural extension. Most importantly, ANAFE has provided the technical and financial support to facilitate a community based planning process to determine the future of the college.
- Publicity: ANAFE staff have helped the college to market itself to prospective students and donors by writing and publishing an article about the college.
- Student/Staff support: Three students per year are supported by an ANAFE grant. Staff go for short term training in fodder trees at ICRAF. ICRAF has also connected us with researchers in Switzerland and 1 staff is going for training there. Staff participate in conferences that are brought to our attention by ANAFE.

5. Egerton University, Kenya

Prof. Shaukat A. Abdulrazak, Deputy Vice Chancellor, Research and Extension

Dr. Maurice D. Udoto, Dept. of Agricultural Education and Extension

Dr. Nancy W. Mungai, Depts of Crops, Horticulture & Soils

Mr. James Ombiro Ondieil, Dept of Animal Sciences

Egerton University was founded as an agricultural college in 1939. It became a full fledged university in 1987 and currently trains 12,000 students in 8 Faculties. As of May 2005 the Research and Extension Division hosts an Agro-Forestry Committee, where three of the five members were present during the visit of the Evaluation Team Leader. The Chairman of NAFT Kenya was also present at the meeting, and the discussion revolved around these activities and those of ECA RAFT also.

ANAFE supported activities at Egerton include:

Demonstration Farm: together with the organic model farm at Egerton, demonstrations are being carried out in agro-forestry. Fruit trees intercropped with beans is one example.

Resource Centre: this is being developed with informational materials from ICRAF.

Curriculum Review: ANAFE staff is invited to these seminars

Policy Workshop: AgroForestry curriculum policy at primary, secondary and tertiary levels was held in November 2005. Teachers were the primary participants and identified their principal limitation as access to agroforestry literature and learning materials. This led to an agreement to develop 2 booklets for primary schools and a "theme pack" (CD, poster, sample seeds) for secondary schools. An outline with responsibilities was produced for the tertiary level and perhaps a book will result.

Student Fellowships: Since 1994 there has been research cooperation in Natural Sciences with Mkerere and Moi Universities, and some of the MSc scholarship students are receiving support from ANAFE.

It is also important to note that much of the Agroforestry and Botany staff at Egerton are trained on ICRAF/ANAFE scholarships. They, in turn, provide technical back up to Baraka College where students have access to research information and attachments at ICRAF. One of those students went on to become a teacher at Baraka and then head the Farmers Training Centre St. Clare in Lare. Thus the "ripple" effects of ANAFE seem to be substantial, at least in Kenya.

NAFT Kenya

This Committee, composed of representatives from each Kenyan institution that is a member of ANAFE, should meet twice a year, but so far have only managed to meet once, and then coupled to a larger event. Email communication is frequent and functions very well, even for issues such as funding approval.

ECA RAFT

At the Regional level, Ethiopia and Sudan are not responsive. There are frequent delays in communication, often caused by poorly functioning email. There are also too few women nominated for scholarships. There is a need for a greater outreach and this has been recognized.

The greatest achievement of the network is the open exchange of information. When people discuss together, they can easily identify the next step. Joint proposals are much easier, and partners and collaborators easier to find. 130 institutions are participating and there are regular meetings to discuss Natural Resource Management.

The current theme of the discussions is Natural Resource Management—what next? This is not a popular career choice for students, and we need to focus more on including self-employment and multidisciplinary research to have an impact.

The network also allows us to talk with a loud voice on the continent and we look forward to taking BASIC on board, which we know that we can tackle within the strengths that we have collectively as a group.

6. Mtakatifu Clara Farmers Training Centre – Lare Division, Nakuru District, Kenya

John Mutunga, Director

This farmer training center was initiated in early 1994 by the Catholic Franciscan and the community of Lare Division in Nakuru District to cater for community development needs. Initially it had (and still has) facilities for informal training in carpentry and dressmaking. Recently computer training facilities have been added. In the mid 1990's there was a felt need for demand driven technologies to support agriculture and natural resource productivity in the area. The Catholic Diocese of Nakuru allocated about 5 acres of land for demonstration purposes, following a baseline survey in 1996 by Baraka Agricultural College as part of a process of launching an outreach programme in Lare.

This model farm is extremely well kept and built on the very pedagogical premise of showing all technologies and innovations at scale on a model farm that is a replica of what could easily be a typical farm in the area. It includes a farmhouse surrounded by enclosures for goats, zero grazing cattle, poultry and rabbits; all easily constructed using local materials and tools but with some innovative designs, such as raised, slatted floors for animals to allow for easy manure collection and minimal stall cleaning.

Implementing ANAFE support to the demonstration farm (agroforestry technologies including fertilizer trees and biomass transfer) has fallen behind schedule by 2 or 3 months as the centered had to stop regular operations and function as a refugee centre during a period of Tribal clashes.

The center, with some support from BAC, has facilitated a five year strategic plan together with the community in order to be able to develop proposals for further support from development partners.

6.1. Ufufuo Agroforestry Self Help Group

Simon K. Njoroge – Chairman

C.N. Gatambia – Secretary

Johan Muremi Macharia – Committee Memeber

Formed in 2000, and consisting of 25 members (9 men and 16 women) attends monthly training sessions at the Mtakatifu Clara Training Center, to help in managing their tree seedling nursery and initiate other activities in the community such as water harvesting, indigenous poultry, a merry-go-round goat scheme, a savings cooperative and fish pond management. Tree planting is a high priority activity in this far-flung community comprising several ethnic groups, in order to bring rain and provide fuelwood, as expressed by members themselves.

Besides providing training in management and seed collection, the Training Centre helps members to find outside seed suppliers (as far away as South Africa) and to locate sources for buying polyethylene tubes (needed to pot seedlings in the nursery) cheaply.

As notable as their technical achievements is the community development spirit of the self-help group. They bring groups of schoolchildren to the nursery to learn the importance of trees and feel that they bring the community together. "We know each other through to our houses". This is no small achievement in an area rife with ethnic clashes and land disputes.

6.2. Ndemi Primary School

Kibe Sammy Lemmy, Deputy Head Teacher

David Wainaina Wamahia, Assistant Teacher (in charge of nursery trees)

This primary school, with 500 pupils classes 1–8, is being supported by training from the Mtakatifu Clara Training Center in gathering tree seeds. It pays students for seeds collected and supports a tree planting day at the school, giving away up to 300 seedlings, for planting at the school and to give to parents to take home and plant at their homestead or farm. There is an AgroForestry group at the

school, who tend a nursery and take care of their individual trees. Some students have own nurseries at home, with a production of up to 200 seedlings which they sell on the local market. At the school, sufficient water is a problem in seedling survival, however it was reported that envy was a bigger problem in this respect than the drought as some students will uproot a classmates tree in order not to be admonished for not watering their own trees.

7. Olmothoni Forestry College, Tanzania

Mrs. Ufoo Christopher Lema, Chairperson of Tanzania NAFT and staff member at Olmothoni Forestry College

Olmothoni is a Diploma and Certificate issuing institution with about 200 studuents and 21 teaching staff.

Olmothoni Forestry College has had a lot of contact with ANAFE, currently 100 students at the college have agro-forestry demonstration plots. Communities from all over Tanzania, as well as visitors from Kenya, Sweden and Europe come to the College to see what is being done in terms of innovations in food security for densely populated areas. These demonstration plots, although initiated by ANAFE, are financed and maintained by the government, who also finance training and study visits.

While extension has a variable impact in Tanzania, there are several problems with it which Olmothoni is attempting to address. The government must work on the basis of policies, and even extension workers must participate in spreading a sometimes political message. What is lacking is a non-political organ to maintain professional standards and guidelines. It is important that the relevance and technical quality of extension advice be reviewed in order that food self-sufficiency be attained and begging from the west be reduced. The idea is to create linkages between policy-makers and professional staff, strengthened by a neutral, scientific body such as ANAFE.

Olmothoni students participate in field days to activate farmers in terms of the innovations being tested on the demonstration plots. However, there is a lack of a system to stimulate the valuation of agroforestry products. In addition, the College works closely with Soikoine University (also a member of the NAFT) and would like to begin cooperation with Mweka Wildlife College. Soikoine does a lot of work on semi-arid technologies, agroforestry systems and propagation using mixes of indigenous and exotic species.

Incorporating a Wildlife College such as Mweka would help agro-forestry attain its role as a bridge between conservation/environment and agriculture. Agroforestry in Tanzania is focused on food security while the environmental sector focuses on wild animals. This overlooks the fact that many young people do not see a future in farming and felling of trees is viewed as the only viable source of income in many rural areas. Unfortunately this felling is often illegal and almost never accompanied by replanting measures.

8. Chitedze Agricultural Research Station, Malawi

Dr. Festus Akinnifesi, Country Representative, ICRAF

Dr. Gudeta Sileshi, Pest Management Scientist

Chitedze Research Station is funded by ICRAF to serve five countries: Malawi, Zambia, Mozambique, Tanzania, Zimbabwe. The Regional Office for Southern Africa is in Mozambique.

The Research Station developed out of a "Chinyanja Triangle Focus" on a geographical area shared by Malawi, Zambia and Mozambique with the same Nyanja language, a common culture, cross-border trade, and many of the same problems, challenges and agro-ecological conditions.

Specifically, the problems identified were:

- Hunger: food security continues to be the number one area of intervention

- Cash income
- Environment and sustainable (low input) production systems

Specific technologies include the proven technology for food security "soil fertility replenishment", addressing the perceived problem that food shortage is due to a lack of fertilizer and doing so where an average plot size in .5 ha.

Specific technologies (now being used by approximately 450,000 farmers) which have emerged include:

- Alternate sources of fertilizer: this includes trees as a fertilizer factory and nitrogen fixation by tree legumes (species that are both fallow and fertilizer and the farmer can cultivate at the same time).
- Improved fallow systems: this is a technology for larger farming areas in Zambia and Central Malawi (1 ha or more) involving separate tree plantings years 1 and 2, with intercropping in the first year and harvest in the third year when trees are chopped down and incorporated into a sequential fallow system.
- Fallow crop systems: Fast growing varieties to use when Glycidia seed is scarce, or the wait for maturity is too long..
- Biomass transfer: experiments involving boundary trees (those planted in different place from the crop land) and Dambo (wetland) cultivation of high value horticultural crops fertilized by biomass from upland tree cultivation.

Much work has been done not only on technological innovation, but on the methodology of spreading the results throughout the farming communities. Dissemination options are multi-pronged and include:

- Direct training of farmers: This is done in groups of 30 farmers and several training modules, i.e. nursery establishment, tree planting and seed collection.
- Partner Staff training: Approximately 40 partners within each country are trained from NGOs, CBOs, church groups, and government extension offices. Our input includes seeds (germplasm) and training materials.
- Farmer to Farmer training: We train initial farmers and encourage them to train others (anywhere from 30 to 200). We provide them with residential training and study visits.
- Supporting system initiatives: we build capacity at other institutions that work with Agroforestry and/or support them with extension materials and germplasm. This includes policy intervention work and contact with secondary and primary schools.
- Farmers of the Future: This type of primary school intervention is based on the assumption that the great majority will not continue their education, but return to the land and become farmers. The young students can also teach their parents what they learn in school and one can reach a far larger target group.

To meet both income generation and nutritional goals, great deal of research is also carried out on nuts, fruits and medicinal trees. Indigenous fruit trees have been an important focus of research at the station, with over 75 different edible and marketable varieties being screened. Species prioritization has been carried out and a number of "spearhead" species are being domesticated. We develop domesticated varieties that meet consumer and farmer needs, i.e. short trees, sweeter fruit, early maturing, etc.

One weakness in seeing the commercial value recognized is that feasibility studies for business development are no longer funded. This is an important part of the domestication and screening process, that varieties should have an obvious market potential.

9. Bunda College of Agriculture, Malawi

Prof. Moses Kwapata, Dean of Faculty of Environmental Sciences

Founded in 1966 to teach middle level students to work in agricultural extension and as farm managers, Bunda College of Agriculture is now part of the University of Malawi Federation of Colleges. The mandate changed to degree training over the years; there are currently 800 students, of which about 50 postgraduate at MSc and PhD level.

Bunda College was one of the first institutions in Africa to participate in ANAFE and to support the incorporation of agroforestry into university level education. The college participated in a prototype curriculum where AF was introduced as a core course (3 credit hours) instead of a topic in Farming Systems, as was the case previously. This course is still running, the training materials come from ICRAF and the Faculty has built up a significant depository of books which are shared with all who want access.

The undergraduate program has developed into a MSc in Agroforestry with ANAFE support in terms of curriculum development, syllabus, equipment and computers. ICRAF staff serves as co-supervisors of the MSc theses and supervise them at their field locations. Colleagues from other institutions and locations (Ngugi, Magembe, Chipata, Mafongoya) have supervised students and been external examiners from time to time.

ANAFE/ICRAF and Bunda have jointly organized training courses, for example, Traning of Trainers for regional educators. Five students have benefited from the provision of fellowships at the MSc level, two of those have since been recruited to the staff of Bunda. Another is Deputy Minister of Agriculture and still another is the Regional Manager of the largest agricultural marketing institution in Malawi. At the moment there is one ANAFE fellow in Forestry and Horticulture and one in Agricultural Economics, both doing MScs. There are also small scale grants for individual research topics given to undergraduates.

In addition to the support to the staff receive in terms of research materials, resources and technical backstopping, ANAFE has facilitated an important exchange of staff between institutions in Malawi, Kenya and Zambia to help them with curriculum development. It is very important that ANAFE supports workshops and meetings at the Regional level.

While the move towards BASIC is a positive one, increasing the independence of the network should not force ICRAF out of the picture. ICRAF spends considerable time and own resources on supporting ANAFE and agroforestry activities at the ANAFE institutions, and this should be appreciated.

While there are some activities with farmers, such as on-farm demonstration plots, and outreach to primary schools in "farmers of the Future" type activities; the bulk of agroforestry activities at Bunda are student oriented.

10. Chancellor College, Malawi

Prof. Fabiano Immanuel, Principal

Dr. Sambo, Acting Vice Principal and Dean of Faculty of Science

Dr. John Saka, Head of Chemistry Dept., Chair SA RAFT

Dr. Wilbert Chitaukau, Deputy Head, Biology Department

Chancellor College, part of the University of Malawi, was founded in Blantyre in 1965 and relocated to Zomba in 1973. There are a total of 2,237 students, of which 139 at the postgraduate level, including 29 PhD students. Anywhere from 30–40% of the undergraduates at one time are female, this figure is not higher probably due to the lack of dormitory space on campus.

ICRAF programmes have been useful to graduate students and research projects which, in turn, develop capacity at the college. However the ANAFE network cannot be a project on its own, it becomes an activity within a specific area such as the domestication of indigenous fruits in Zambia, Malawi and Mozambique. There is no need to finance a network per se, only the logistics necessary to facilitate interchange such as trips to conferences or meetings where the exchange may be made.

Activities of the SA RAFT

The most direct analysis of the fulfillment of ANAFE objectives was seen in terms of outputs in the framework of the SA RAFT:

- *Increase Human Resources:* There is capacity building at the graduate level with six scholarships yearly, working on an even distribution between male and female students. The main competitors for scholarships are Zimbabwe, Tanzania and Malawi, from Zambia and Botswana there are less. There is a research grant for 1 Mozambican this year but Mozambique should be encouraged to participate more and we are thinking of ways to involve Angola. MSc grantees often go on to doctoral training and this is important in terms of capacity building.
- *Facilitate Networking at the National Level:* The improved functioning of the NAFT is an important new priority. Zimbabwe, Zambia and Malawi were the first to facilitate planning, more recent attempts have been made in Botswana, Tanzania and Mozambique. The Tanzania NAFT is very dynamic. We need funding for a regional meeting on Training Needs Assessment Tools developed here in Southern Africa for dissemination to the rest of the network.
- *Increase outreach capacity:* One key achievement of the network is to facilitate the NAFTS to propose teacher training strategies. By implementing these strategies it is hoped to increase capacity amongst teachers to concentrate on experiential learning, ie adapting outside models to farmers in situ, and increase the dissemination capacity of technological innovation.
- *Network expansion:* The current setup, with an ICRAF sponsored senior researcher to assist in coordinating the network, works very well. The information sharing is also developing at a good pace, with a website and an electronic newsletter, but more visits are necessary to see field trials and exchange information in a broader sense. Only Tanzania has developed a brochure, but others should follow soon after.
- *Attempts to be autonomous:* The ANAFE network has been considering this issue in its strategic planning for the last five years. It is still a goal to be strived for, even though, paradoxically, now there are so many member institutions and so much is happening that the attempts have been relegated to a lower priority. This needs to be revived.

Origin of the interest in Indigenous Fruits

ICRAF has long been active in this area, and much of the initiative for current research came after a 1985 Regional Workshop, where a well known Nigerian scientist who is a propagation expert, participated. The interest sparked some work on locally known trees from the home area (Kasunga) of one of the Chemistry professors working on the contribution of different foods to human nutrition in the rural areas. The research work was interrupted by the political career of the principal researcher, but the urgency is even greater today as indigenous forests are disappearing and these fruit trees with them. This research should address three areas:

- Propagation of seeds and cuttings
- Sites and status, i.e. mapping of current tree location
- Phenology, ie how the trees develop depending on different environmental conditions

Graduate Students:

David Tembo, MSc Food Chemistry

Davis Mueta, MSc Applied Chemistry

Johannes Muroa, MSc Biology

The meeting with three graduate students who have been awarded ANAFE research grants provided a unique opportunity to ask in-depth questions about how the grants function and the positive and negative experiences with this type of support.

The students were allocated two year grants, of between $2,000 and $2,500 per year. Earlier a small percentage of this was allocated to staff for supervision activities, but this has been discontinued. The grants were used for funding sample collection in the field or reactive chemicals, but the students questioned why some funding could not be made available for tuition or equipment such as computers to use when writing up the thesis.

There were some negative experiences with delays in receiving the funding, but it was not entirely clear whether this was due to ANAFE procedures or communication problems between the students and the source of financing. On the professional level, the interchange with staff at other ANAFE member institutions and at ICRAF was rated as one of the most important side benefits of this type of funding.

There are, of course, perceived areas where information is lacking and the students called for copies of international scientific journals to be made available to each ANAFE member institution. Whether this should be done in hard copy or via an internet connection was debated, with a slight preference for hard copy as internet can be difficult to share among many users. Students also voiced an interest in having access to an agricultural data base similar to that available at Bunda college.

It is here at the graduate student level that much of the research necessary to carry out field testing in crop research is actually carried out. Important progress has been made on understanding local uses of and perceptions as to the marketability of indigenous fruits. Work is being carried out on oilseeds to produce biodiesel, on edible and essential oils, mushroom types and substrata and cassava for use in the industrial production of cassava chips. Given the restricted funding usually available to government research stations, graduate research at the different colleges is an important complement, and thanks to ICRAF research personnel, has so far been carried out in close cooperation with these institutions.

11. School Leavers Association, Zomba, Malawi

Madahtso Wasiai, President

Mr. Banda, Sales and Marketing

7 members

The association was started in 2003 as an initiative by unemployed school leavers to find income generating activities outside of formal employment. In 2005 there were 28 members(20 male, 8 female) and they have a charter for membership and activities. The members are made up of those having secondary school education (Form 4) but who do not have jobs or the opportunity to pursue higher education.

ANAFE has linked with them and trained them in group dynamics, juice and jam marketing and given them seed capital of $1,000 to buy equipment for food processing and the initial raw material inputs.

The Association buys fruits and sugar from the local market and processes them into jams and juices. This generates enough income to cover costs, including the renting of a house, transport, bottles, jars, labels, etc. and pay each member a 500 kwacha allowance per month.

Next steps include obtaining a Malawi Bureau of Standards certification to allow access to better markets and for members to begin cultivating fruit themselves to use in the production. ANAFE was them to open up to other youth groups and participate in education days at school, explaining what it is that they have achieved.

12. Primary Schools, Malawi

12.1. Thondwe School, Zomba

(Day Primary School, 1–8th grade)

Mervis D. Saima, Head Teacher

Johnson L.K. Tholowa, Assitant Deputy

Elias D. Mmambo, Treasurer, Thondwe School Wildlife Club

Mary Roselyn Lindani, Chairperson, Thondwe School Wildlife Club

McEddings Masozo Banda, Thondwe School Wildlife Club

The School has received the attention of ICRAF in terms of Farmers of the Future outreach. There is an experimental maize plot funded as a demonstration, where fertilizer trees are intercropped between rows of maize, and spacing, soil preparation and fertilization are demonstrated for school children and personnel by the local agricultural research station. In addition there has been training on fruit juice making for school pupils, with the production being both sold and used for school snacks.

The School also hosts a Wildlife Club which organizes different educational activities that have to do with environment, including agricultural production.

12.2. St. Anthony's School, Zomba

(Primary Girls Boarding and Day School with 1,200 students)

This school has cooperated extensively with the ICRAF researcher at the local agricultural research station and boasts a substantial orchard with passion fruit and grafted mango, where juices are produced for sale and feeding of boarders. The school also has a maize demonstration plot with agroforestry fertilizer solutions.

13. Zambia Agroforestry Project, Zambia

ZAP was funded originally as a separate programme for testing agroforestry technologies by SAREC/Sida in the 1980s. The SAREC grant for research and initial testing was actually terminated some years before ZAP was incorporated into the ANAFE funding framework where it now resides as Objective 5 in the ANAFE logical framework. The technologies developed at this "hub" for agroforestry research in Southern Africa were so promising, that ANAFE leadership decided it was necessary to be able to access these resources for on-farm testing and dissemination. On-farm testing was incorporated into the research station programme at Msekera (which is joint funded by the GOZ) and graduate students from ZAP were attached to ANAFE.

While the ZAP programme is under the Site Manager for the Msekera Research Station, the international research scientists have been transferred to Chitedze Agricultural Research Station in Malawi. There are no staff costs for ZAP, but instead operational costs for inputs such as seeds, fertilizer and laboratory chemicals, casual labour for experimental sites at five Farmer Training Centres and some minor costs for meetings.

13.1. Msekera Research Station

Gillian Kabwe	Site Manager (Zambia ICRAF, also responsible for on-farm Research and Training)
Rosa Katanga	Scaling up

Josephine Matibini	Soil Fertility
Stanslous Phiri	Scaling-up/on-farm research
Alfred Mkonda	Horticulturist
John Madaliso Ngulube	Crop Science

An important organizational change carried out at Msekera is the restructuring of the Extension Department; it is now called the Agriculture Department and has NGO partnerships to facilitate outreach activities. This is part of a general trend to use outside organizations to reach farmers and reduce the amount of government budget needed to run the research stations.

The Msekera Research Station plays host to 8 different research programmes:

- Agro-Forestry (the major programme and the National Team Leader for Agro-Forestry is based in Msekera)
- Food Legumes
- Farming Systems
- Plant Protection/Quarantine Services
- Seed Control and Certification Institute
- Maize Research Team
- Agro-meteorological Research/Data Station
- Farm Management

The aim of on-station soil fertility activities is to develop different soil/crop technologies under research conditions, later to be moved onto on-farm research. There are currently screening activities carried out on-station at five sites. These include:

- Long term performance evaluation trials with fallows and maize intercropping (since 1992)
- Evaluation of species and management options

On-farm Research is an important area where research station personnel run screening trials together with farmers on their plots. Working with farmer groups is a priority for using Sida money, in the period 1997–2004 worked with 19 groups in 3 districts (Chipata, Katete, Chandinza) of which 20% of the members were women and 16 groups are still active. Activities in this area include:

- *On-farm propagation of fruit trees:* with an emphasis on "rescuing" and domesticating indigenous fruits. About 50 types were prioritized and we have been multiplying superior clones through vegetative propagation. On farm fruit orchards have been established with 95 farmers, 6 primary schools and 2 traditional rulers.
- *Training farmers in vegetative propagation:* the station has been supporting the development of community seed orchards and this is so successful that a declining trend in ICRAF seed distribution can be observed as farmer to farmer seed distribution becomes more important.

In addition on-farm research covers such technologies as rotational woodlots, fodder banks, improved fallows and biomass transfer, the latter being the most popular.

Forming strategic partnerships is an important part of the ZAP approach; using farming organizations for scaling up is a cost effective extension methodology. Farmer research groups are often facilitated by

a collaborating organization and ICRAF supports them with training, technologies, backstopping field visits, etc. This kind of support is given to over 200 farmers groups in 60 villages encompassing roughly 65,000 individual farmers.

ZAP activities are first planned at a Planning and Review meeting held with farmers and extension officers in May. Farmer feedback and innovative adaption can be very different from scientist innovation and Msekera personnel monitor these results using formats development by ZAPs monitoring and evaluation system for distribution throughout the Southern African network.

ZAP activities are approved and coordinated by the Ministry of Agriculture through the forum of the National Planning Meetings on Research and Extension. In addition, ZAP/Msekera personnel participate in Regional Planning Meetings for Adaptive Research and Extension where partners from governments and NGOs are represented.

13.2. Provincial Agricultural Office

Dr. O. Kabinda, DVM, Provincial Agricultural Coordinator

Agroforestry is important to the Province, as all farmers need its benefits. Farmers were able to demonstrate this to the Minister in a recent visit, but the most important of all is that they demonstrate the successful technologies to their neighbors. Our district and on-farm demonstrations reflect the high demand for fertilizer options. We are very much concerned about the rising input prices, at the same time as farmers face declining farm gate prices. The long term solution does not lie with subsidies.

There are currently 23,000 households here receiving some form of subsidized inputs, mostly fertilizer, and it would be cheaper for us to cover a much larger percentage of the farming population with agroforestry soil fertility technologies than distributing bags of fertilizer.

The Provincial Extension Service is severely understaffed, with about 50% of the camps filled, and thus relies heavily on cooperating partners, including ICRAF. The Planning and Review meetings always include 1–2 days to training in specialist areas where there are identified gaps.

The PAC supervises the following functions:

- *Research:* Msekera Station
- *Training:* Farmer Training Centres in each district and demonstration plots
- *Services:* Animal health regulation, vaccinations, marketing infrastructure, input provision and maize buying

The cooperation between the provincial organization and ZAP seems to function smoothly from both perspectives. The existing hierarchy of local, provincial, national and regional planning meetings is appreciated by both and the Ministry representative feels that the research and extension activities carried out under ZAP are in line with government of Zambia priorities.

13.3. Cooperating Organizations

13.3.1. Plan, Chadiza District Food Security Component

Stephen Nainira, Food Security Coordinator

Kapembwa Musenda, Program Unit Manager

This component has worked with ICRAF since 2000 in the scaling-up of agroforestry innovations to achieve food security. Some 784 communities have been targeted.

ICRAF staff has helped train communities and our staff. Plan staff was sent to Zimbabwe by ICRAF to look at examples of what could be done in Zambia.

Children and schools are seen as a good vehicle for dissemination of information and innovative technology. Plan has "Farmers of the Future" type activities with nurseries at schools where each child manages an own tree and brings plants home to plant at the homestead.

Biomass transfer is currently the most popular technology and we are using it as an immediate introduction in communities where we would like to promote technologies that take 2–3 years to achieve optimal yields.

13.1.2. Chipata District Women's Development Association

Anedy Nyirenda, Executive Secretary

Alines Ngau, Administrative Assistant

CDWDA is a rural organization for women operating in 12 areas of Chipata district, research 400 womens groups with over 7,000 individual members. Financing comes from members and donors. CDWDA has been working for over 10 years with ICRAF who has trained 49 of its members in agroforestry. These members are now trainers themselves and contact farmers.

The issue of moving away from fertilizer dependency in maize cultivation is very important to these women and while they received their first tree seeds from ICRAF, they are now collecting own seeds and continuing to plant.

13.2. Nurseries

13.2.1. Kagunda Nursery

Mr. Sam Botha, Farmer/Trainer

Kagunda is an example of a privately owned and run nursery in the lowlands where the farmer spends as much of his time taking care of seedlings (for all of which he knows their latin name and their medicinal/agricultural properties) as he does looking for markets in which to sell seedlings.

Mr. Botha began as a member of a group nursery and saw a potential for expansion on his own lowland plot, next to a small stream and located not too far from a market town. He farms a total of 6 hectares, of which .5 hectare is devoted to nursery production. Most interesting is that over 50% of his income comes from this activity, although he produces vegetables, sugar cane, fruit, honey, fish from a fish pond, cattle, sheep, chickens, rabbits and guinea pigs.

13.2.2. Group Nursery 1

Mr. Banda, Chairperson

This nursery began in 2003, and produces about a dozen different tree seedlings, concentrating on Nim and some local medicinal varieties. There were considerably more varieties available in the private nursery of Mr. Botha and the plot, while about the same size and located advantageously (near a water source and not too far from a market town) was less well kept.

13.2.3. Group Nursery 2

This nursery is supported by Mr. Botha of the Kagunda private nursery, he is the former chairman of the group which now consists of some 23 women and 2 men. Each member earns about 200,000 Kwacha per year and is allocated this land by the traditional authority. In addition to seedlings, they grow sunflowers and work on their own fields.

13.3. Farmers Group

13.3.1. Zemba Farmers Group

26 of a total of 120 members present, 15 men and 11 women (most were absent at a funeral) including group leader, Rex Zacks Banda.

This is an ICRAF Farmer Research Group which carries out on-farm research together with personnel from Msekera research station. They have divided themselves into five different zones for training purposes and carry out experiments with biomass transfer, intercropping, and organic pesticides. Organic growing methods for horticultural crops have allowed them to access hospital markets in the larger surrounding towns.

The farmers are highly vocal about what has been successful and a few notable failures (tobacco leaves used to fertilize garlic), but insist that the scientific personnel do not know everything! They are grateful for the scientific monitoring and advice provided by Msekera, however, and appreciate the fact that a government run research station is a more long term undertaking than an NGO. "Msekera are not like an NGO, they are like our husbands".

List of Institutions Visited in the Sahel and African Humid Tropics

1. Institut Polytechnique Rural (IPR) at Katibougou, Mali
2. Centre de Formation Practique Forestier (CFPF), Tabacoro, Mali
3. Plan d'Accompagnement de la generalisation de l'Education Environmentale au Mali (PAGEEM), Bamako, Mali
4. Ecole National de Eaux et Forest (ENEF), Bobo-Dioulasso, Burkina Faso
5. Institut du Developpement Rural (IDR), Bobo-Dioulasso, Burkina Faso
6. University of Ghana (UG), Legon, Ghana
7. Forum for Agricultural Research in Africa (FARA), Accra, Ghana

1. Institut Polytechnique Rural (IPR), Katibougou, Mali

People met:
At Katibugou
Dr. Sidiki Gabriel Dembele, Sahel RAFT Chair
Dr. Issa Dembele, Chief of Agrosylvopastoralism
Mr. Alfha Cisse, Secretary general
Mr. N'Tio Niamaly, Lecturer
Mme. Dembele Hawa Coulibaly, Lecturer
Mr. Mahamoudou Famanta, Lecturer
Mr. Diomo Cisse, Lecturer
Mr. Abdoulaye Sidibe, Lecturer
Mr. Issouf Dembele, Forestry student
Mr. Djimingar Boull, Forestry student
Mr. Samba Goita, Forestry student
At Massala Primary School
Mr. Bafama Keita, Director of School
Mr. Ousmane Camara, Teacher
Mme. Diabate Sitan Coulibaly, Teacher
Baubacar Traore, Student
Siaka Kanate, Student

At Chô Village

Mr. Moussa Diarra, Village chief

Mr. Kefa Diarra, Commune Counselor

Mr. Niamanto Coulibaly, Farmer

Mme. Djeneba Diallo, Farmer

Mr. Mary Diarra, Farmer

Mme. Nana Coulibaly, Farmer

Mme. Fatoumata Diarra, Farmer

Mr. Diamane Diarra, Farmer

Mr. Karim Diarra, Farmer

IPR was established in 1897. It offers education in rural resource management for approximately 370 students annually and some of the students come from other West African countries. IPR was a founding member of ANAFE and was designated a focal institution of ANAFE in 1996. Agroforestry is a compulsory course for all students of the Institute. The Institute has an Agroforestry Committee, which was constituted in 1998. The committee has an agroforestry demonstration area of 57 ha.

The main activities conducted by IPR with ANAFE's support between 2003 and 2006.

Objective 1. Mobilizing teaching capacity

Two teaching manuals for University level teaching of agroforestry have been produced by members of IPR: (1) Agroforesterie et gestion de la fertilite des sols au Sahel: Manuel didactique a l'intenion des etudiants du cycle superieur, (2) Live hedges. The manuals are now at the final stage of edition. The Consultant reviewed the manuals and concluded that they are well written in a clear style but need minor improvements before they are produced for wider distribution (Appendix 4). According to members of the Institute who were interviewed, the production of such manuals in French will have very significant impact on the teaching of agroforestry because they said most of the textbooks in agroforestry that are currently available in the Institute's library are in English. They mentioned that they wished to see more manuals produced in French. They also suggested that ANAFE could assist in translating the existing English books into French.

Members of the Institute participated in two pedagogy courses organized by ANAFE: one in Bamako in 2004 and another in Bobo in 2005. They mentioned that they have benefited from the courses and particularly appreciated the resource persons on the courses. They also mentioned that they have been able to improve their teaching styles and course contents as a result of the training courses.

IPR also hosted a study tour for members of staff and students from ENEF and IDR, Burkina Faso as staff exchange activity sponsored by ANAFE in 2005. They said that they wished to see this practice continued in order to learn more from each other.

Objective 2. Links with farmers and extension agents

The Institute implemented two training courses in agroforestry for farmers and extension agents, one in 2004 and the second in 2005. There were 17 participants in each course. The course in 2005 was jointly organized with CFPF.

Members of the Institute have also produced two manuals for extension agents, one on baobab and the second on tamarind, both of which are at the final stage of edition. The Consultant reviewed both manuals and the results are reported in Appendix 4.

The Institute has established a regional (SAHEL RAFT) working knowledge center for farmers and extension agents. The center comprises three outstations: (1) a nursery at Massla primary school, (2) farmers' field school at Cho village, and (3) demonstration plots of food and fodder banks at IPR field station at Katibougou. The Consultant visited all the three outstations.

The students and teachers of Massala primary school established the nursery at Massala, located at 10 km from Katibougou, in 2004. It is established on an area of 1500 m2 (50 x 30 m) in the school compound. The objectives of the nursery is to provide practical training for school students on methods of raising seedlings, to serve as a demonstration nursery for neighboring farmers and produce seedlings for Cho village and other members of local communities. The tree species being raised at the nursery included: *Ziziphus mauritiana, Adansonia digitata, Khaya senegalensis and Moringa oleifera.* The choice of the tree species to be raised in the nursery is made by farmers of Cho village. 80% of the seedlings raised are destined to Cho village and the remaining is given free or sold to local communities. The school teachers told the consultant "The most popular species by the local communities is *Ziziphus.* Local farmers make regular visits to the nursery to observe the nursery activities on their own initiative. If the farmers request for few seedlings they are given for free. But if their demand is high, they are made to pay for it and the income is used to contribute to the students' cooperative". All the three teachers that the Consultant met had attended a training course on agroforestry organized by ANAFE. They told the Consultant "We have now become aware of ANAFE and its activities. We give lessons on agroforestry to students as a component of science subject. Our knowledge of agroforestry has now increased and the content of lessons to students has improved as a result of the training course. Tree planting and grafting of plants are some of the skills that we have acquired from the training course. Our delivery of the lessons to the students has also improved because of the nursery, which has been established with the support of ANAFE. The activities of the nursery, however, cannot be sustained without external support as the school has no budget for such an activity, particularly when students go for long school vacations". Two students of grade 6 were also interviewed at the nursery. They told the Consultant "We receive lessons on the use of trees and learn how to raise seedlings. We also participate in tending and watering the seedlings on the daily basis between 3–4 p.m. Pot filling, sowing seeds, providing shade for seedlings, cultivating, watering and planting seedlings are some of the skills that we have been able to acquire from the nursery practice". From the interviews and discussions with the students, the Consultant found that their awareness on the environmental role of trees was also very high.

The farmers' field school is located at 2 km from Cho village and is established on 2 ha of village communal land in collaboration with farmers of Cho village in 2005. The farmers have constituted an agroforestry committee consisting of four male and three female farmers. The Consultant met all the seven farmers and interviewed and held discussion with them. The committee is responsible for the establishment and management of the site. The objectives of the site are to test and demonstrate relevant agroforestry technologies such as food and fodder banks and to preserve threatened indigenous medicinal plants. The farmers identified the plants and technologies of interest to them. All the seven committee members had attended two training courses organized by ANAFE. They told the Consultant "We have now become aware of ANAFE and its objectives. We have acquired several skills from the training courses and we are now applying these skills such as establishing baobab food banks and grafting of fruit trees on our farms". One female member of the committee, who is also a trader, mentioned that she particularly benefited from the marketing lessons she received in the course. Prior to the course, she said that she had never taken the cost of labor into account in her pricing of commodities she sold. But now, she said, her income has improved as the result of the training course. All the farmers interviewed agreed that both training courses were well organized but they said the posters were in French, which were difficult to understand. They suggested that in future they should be produced in local languages. When asked if the activities in farmers' field school would be sustained after ANAFE project completed, they responded by saying that they would continue to manage it with inputs from the municipality, which has already been committed to provide.

Objective 3. Thesis research fellowships

Six students of IPR benefited from the thesis fellowships awarded by ANAFE. The Consultant did not meet any of the beneficiaries but had access to a hardcopy of one thesis, which he briefly reviewed. The title of the thesis was 'Contribution à l'étude socio-économique de l'utilisation de *Ptérocarpus lucens* et de *Gliricidia sepium* dans l'alimentation des petits ruminants à Ségou' by Aliou Falley Coumere. The research has a well defined objective. The methods are also well described. According to the results of the research up to 100 tons of fodder is sold daily in Segou market and the income of individuals involved in the trade ranged between 1 000–1 500 CFA per day or 16 000–24 000 CFA per month per person. The thesis also provides good suggestions for improvement. The Consultant concluded that the thesis was relevant and would contribute greatly to the understanding and improvement of agroforestry technologies in the region.

Three students of IPR were interviewed to find out if they knew about ANAFE and the thesis fellowship award. All the three responded by saying that they knew ANAFE as well as its activities through the agroforestry course they attended. Two of the students, who are BSc level students, reported that they were unaware of the fellowship while the student, who is doing MSc degree, knew about the fellowship very well and he had applied for 2006 grant and he was awaiting for the result. From the discussion with them it became clear that the fellowship was directed toward MSc students only and was not advertised very widely. The lecturers, who supervised the thesis, told the Consultant "The fellowship is a strong incentive, which has resulted in a rising interest for agroforestry field research among students and is becoming highly competitive. It has also enhanced the profile of the Institute's degree program".

Objective 4. Links with primary and secondary schools

The Institute has implemented two training courses in agroforestry and integrated natural resource management to primary school teachers and directors in collaboration with Plan d'Accompagnement pour la generalisation de l'Education Environnementale au Mali (PAGEEM), one in 2004 and the second in 2005 for 20 and 15 participants, respectively. See more detailed report on this later under PAGEEM.

Objective 6. Sustainability of project results

Discussion was held with the chairperson of SAHEL RAFT, who is a member of IPR, and two officials of IPR in this regard. They told the Consultant "ANAFE's program is in conformity with the national and the Institutes' programs of agroforestry and integrated natural resource management. As such the Institute has benefited greatly from ANAFE's program particularly from inter-collaboration between member institutions. We now know what is on offer elsewhere and that others were also able know what this Institute does offer. This has enabled us to exchange materials and visits and share experiences. This is a very important contribution of ANAFE. Therefore, we will maintain our membership of ANAFE even without external support. However, the activities of SAHEL RAFT cannot be sustained without external support. For this reason, members of SAHEL RAFT have developed a project proposal which has been submitted to NEPAD for funding. The Institute has allocated 57 ha for fieldwork in agroforestry, which will be maintained and the teaching of agroforestry will also continue. These are the Institute's commitments".

2. Centre de Formation Practique Forestier (CFPF), Tabacoro, Mali

People met:

Mr. Makan Mangara, Director of Studies

Mr. Binkoro Dougoumale Cisse, Lecturer

Mr. Paul Coulibaly, Lecturer

CFPF is a center for teaching forestry at certificate level and was established in 1960s. It enrolls around 20 students every two years. The forestry course is a two-year program and agroforestry is taught in the first year for 54 hours (2/3 hours per week). The Center has an Agroforestry Committee, which was constituted in 1998. The Center has been ANAFE's member institution since 1998.

The main activities conducted by CFPF with ANAFE's support between 2003 and 2006 are given below by objective:

Objective 1. Mobilizing teaching capacity

CFPR was one of the hosts for a study tour by members of staff and students from ENEF and IDR, Burkina Faso as a staff exchange activity sponsored by ANAFE in 2005. The Center owns 80 ha of classified forest, 5 ha of arboretum and 1 ha of nursery, which were visited during the study tour. The members of staff of the Center interviewed reported that the participants of the study tour were pleased with what they saw at the Center. They said that they would be willing to host similar study tours in future.

Objective 2. Links with farmers and extension agents

The Center collaborated with IPR in the implementation of a training course in agroforestry for farmers and extension agents in 2005. The training course was jointly organized with IPR and was held in the Library Hall of the Center. There were 17 participants in the course. The staff interviewed told the Consultant "It was a very good experience for us to have been able to link up with farmers and extension agents through such a training course. The trainee farmers were very pleased with the outcome. We would be willing to host similar training of farmers in future. For this reason, we are now planning to establish demonstration plots of food and fodder banks". The Consultant observed seedlings being raised in their nursery for this purpose.

Objective 6. Sustainability of project results

The staff interviewed told the Consultant "The Center is a member of SAHEL RAFT as well as a member of Mali NAFT. The exchange of experiences and information with other members of RAFT and NAFT are some of the benefits we get from ANAFE. Therefore, the Center is committed to maintain its memberships at all levels of ANAFE even without external financial support. Through these memberships, we also regularly receive agroforestry publications from ANAFE, which we use for teaching agroforestry. The documents are, however, in English. We, therefore, request ANAFE to assist in providing French versions of all English documents".

3. Plan d'Accompagnement de la generalisation de l'Education Environmentale au Mali (PAGEEM), Bamako, Mali

People met:

Mr. Malick Keita, Director, PAGEEM

Mr. Soumana Niare, Instructor, PAGEEM

Mr. Tiemoko Dembele, Instructor, PAGEEM

Mr. Boubacour Diarra, Director, Tomi A Primary School

Mr. Adbema Traore, Director, Point G Primary School

Mr. Souleymane Cesse, Director, Sangari Primary School

PAGEEM is a program of the Ministry of National Education of Mali launched in 2001. Its objective is to sensitize primary school children in environmental issues. Its secretariat is based in Bamako and has 854 teacher members who look after the environmental program of 8064 primary schools nationwide. PAGEEM has become a partner institution of ANAFE since 2002 in order to promote agroforestry among primary schools.

Objective 4. Links with primary and secondary schools

The main activity conducted by PAGEEM with ANAFE's support between 2003 and 2006 falls under Objective 4.

A total of 35 primary school teachers and directors from 15 primary schools attended the two training courses in agroforestry and integrated natural resource management conducted by IPR in 2004 and 2005. The trainees were recruited by PAGEEM. The Consultant met and interviewed three members of PAGEEM and three directors who participated in the two courses. They told the Consultant "We acquired a range of skills in agroforestry from these courses, such as establishment of food and fodder banks and techniques of grafting. We have been able to apply these skills to establish similar banks in our schools for demonstration to students. These have helped us by adding practical to the class lessons we give to students and students enjoy the practical very much". One of the interviewees also mentioned that he has established a fodder and food bank on his farm. The uptake of the food and fodder bank technology is now fast spreading among schools and it has already reached 70 schools through training of trainers. They mentioned there is a need for more training of trainers to increase the uptake so that the technology reaches all primary schools in the nation. The Consultant visited two of the schools where the uptake of agroforestry technologies has taken place.

(1) Point G primary school, where students and their teachers have established and managed a food bank of baobab and a fodder bank of Gliricidia, which are currently being exploited by members of the school and the neighboring community; and

(2) Tomy A primary school, where a nursery has been established and managed by the school teachers and students for the production of Adansonia, Gliricidia and Ziziphus seedlings, which are used by members of the school and the neighboring community to establish food and fodder banks.

4. Ecole National de Eaux et Forest (ENEF), Bobo-Dioulasso, Burkina Faso

People met:

Mr. Joachun Ouedraogo, Director General, NAFT chairperson

Mr. Younoussa Ouedraogo, Lecturer, AF committee member

ENEF offers six two-year forest degree programs for forest technicians and inspectors. Agroforestry is given as a compulsory course in all the six types of degree programs. Yet, they do not have a lecturer in agroforestry. They use a member of staff of the University of Bobo-Dioulasso to teach the course. The School has constituted an agroforestry committee since 1998.

The activities conducted by ENEF with ANAFE's support between 2003 and 2006 are described as follows.

Objective 1. Mobilizing teaching capacity

Members of staff of the School participated in a study tour to Mali in 2005 organized by ANAFE. They visited IPR, CFPF and ICRAF in Mali. They told the Consultant "The study tour was beneficial because we have been able to know now that agroforestry is a multidisciplinary discipline. Prior to this, we considered agroforestry as a forestry main stream discipline". They also attended two pedagogy courses organized by ANAFE: one in Mali and the second in Burkina Faso in 2004 and 2005, respectively. They mentioned that their teaching skills have been enhanced following these courses. Through the network, the School receives documents, which they said they are using for teaching agroforestry. However, they said the most relevant ones are in English. They suggested that there is a need for more documents and teaching manuals in French.

Objective 2. Links with farmers and extension agents

Members of staff of the School have produced an extension manual entitled "Manuel d'agroforesterie pour le developpement". It is a 29-page document, which is in the final stage of edition. The Consultant reviewed the document and concluded that it is well written in a clear style (Appendix 4). They told the Consultant "Producing such a document involved sacrificing a lot of other commitments. The incentives provided by ANAFE are also not adequate. Only ¼ of what was promised to produce the above manual has so far been received and for this reason people are now reluctant".

Objective 6. Sustainability of project results

The School is a member of SAHEL RAFT and the Director is the chairperson of Burkina Faso NAFT. The Director told the Consultant "Organizing the NAFT meeting was not an easy task. It took one year to establish the Burkina Faso NAFT because of delay in receiving the budget from ANAFE. ANAFE's budget was also very small. Since all the activities of ANAFE are relevant for Burkina Faso, the School will maintain its roles in the network. Despite the importance of agroforestry in Burkina Faso and government ministries address agroforestry in forums and meetings, there is still no government policy on agroforestry. For this reason, we do not expect Government commitment for any ANAFE activities. So, external support is still required. I used the School resources to attend some of the RAFT and NAFT meetings and training courses, but these cannot be sustained. The only activity that will be continued without external support is the teaching of agroforestry. The School is currently being restructured and we hope to launch a degree course specializing in agroforestry. We also plan to offer short courses in agroforestry. There is also a plan to establish 8 ha agroforestry demonstration plot in 2007 incorporating new agroforestry technologies that were observed during the study tour in Mali".

He mentioned that since the SAHEL RAFT chairperson is very busy, this makes communication difficult. So if Sahel RAFT is to continue, he suggested that the Chairperson needs an assistant. There is also a need for a manual on network functioning. He said that he chairs the Burkina Faso NAFT without any guidelines.

5. Institut du Developpement Rural (IDR), Bobo-Dioulasso, Burkina Faso

People met:

Dr. Jean-Baptiste Ilboudo, Director of IDR, Bobo-Dioulasso

Miss Sita Sanou, student, Bobo-Dioulasso

Mr. Henri Ye, Head, Department of Extension Education, Gampela

IDR is one of the six institutions of the Polytechnic University of Bobo-Dioulasso. IDR was established in 1973 as part of the University of Ouagadougou. It was transferred to Bobo when the Polytechnic University of Bobo-Dioulasso was established in 1999. The Institute offers degree programs in five subject areas. Currently, it enrolls 150 students. Agroforestry has been a compulsory course for all degree programs since the Institute became member of ANAFE. Prior to ANAFE, agroforestry was only given to Agronomy and Forestry degree students. The Institute is a SAHEL RAFT and Burkina Faso NAFT member. The Institute has an agroforestry committee with five members and three of them teach the agroforestry course at the Institute as well as at ENEF. The Institute has also one experimental station at Gampalla located 30 km from Ouagadougou. It was established on 450 ha in 1980 as part of Ouagadougou University. It is now called Department of Extension Education of IDR since 2004. There are four members of staff who run the station and the Consultant visited the station and met with the Head of the Department.

The activities conducted by IDR with ANAFE's support between 2003 and 2006 are described as follows.

Objective 1. Mobilizing teaching capacity

Five students for the Institute participated in a study tour to Mali in 2005 organized by ANAFE. They visited IPR, CFPF and ICRAF in Mali. The Consultant met one of the students who participated in the study tour. She mentioned that she learnt several aspects of agroforestry during the study. The study tour enhanced her vision of agroforestry. In particular, she said the study tour provided her with first exposure to fodder bank technology. This inspired her to do a fodder tree research for Burkina Faso. Staff members of the Institute also attended two pedagogy courses organized by ANAFE: one in Mali and the second in Burkina Faso in 2004 and 2005, respectively. The Director of IDR told the Consultant "He is now applying the pedagogic techniques in his lectures. The financial resources such as per diem provided by ANAFE during these courses were, however, inadequate. Through the network, we receive agroforestry books and documents, which we are using for teaching agroforestry. However, the most relevant ones are in English. I therefore suggest that more documents and teaching manuals must be produced in French".

Objective 3. Thesis research fellowships

Five students of IDR benefited from the thesis fellowships awarded by ANAFE. The Director mentioned that the fellowship is widely advertised and all students apply for it. But the decision to grant the fellowships is made in Bamako and there is a tendency to give more chances to women. Many applications fail perhaps because there is a lack of guidelines or criteria for application. The Consultant had access to a thesis at IDR which he reviewed. The title of the thesis was 'La filiere gomme arabique au Burkina Faso: contraintes socio-economiques et contribution aux revenus des acteurs ruraux de la province du Soum' by Abdoulaye DAO. The research has well defined objectives, and the methodology is described adequately. According to the results of the research, production of gum Arabic declined due to liberalization of the market. The price was CFA 300 in 2000 but declined to CFA 250 in 2004. 29% of the population in the province of Soum is involved in the production of gum Arabic and this constitutes 23% of their income. The thesis also provides good suggestions for improvement.

The Consultant met one of the beneficiary students who also attended the study tour to Mali as described above (Objective 1). The title of her thesis was "Potentialités fourragères et Evaluation Economique de deux espèces de fourrage ligneux: *Piliostigma reticulatum* et *Piliostigma tonninghiri"* or "The forage potentials and economic evaluation of two fodder trees". This research was inspired by the study tour to Mali she attended as she mentioned above. She mentioned that the fellowship was adequate to cover the field expenses but the Institute met all the laboratory expenses. She said that she was extremely grateful to ANAFE. She is now doing MSc course in animal nutrition and she hopes to apply to ANAFE for another fellowship to carry out a research on fodder trees as a continuation of her earlier research in which she has identified gaps.

Objective 6. Sustainability of project results

The Institute is a member of SAHEL RAFT and Burkina Faso NAFT. The Director of IDR and the Head of the Department of Extension Education at Gampalla told the Consultant "Since farming in Burkina Faso is agroforestry, ANAFE project results will continue to be implemented and the Institute is committed to maintain its membership and roles in the network. Despite the importance of agroforestry in Burkina Faso and government ministries address agroforestry in forums and meetings, there is no government policy on agroforestry so far. Although there are three ministries in Burkina related to agriculture and the environment, there are no specific jobs for agroforesters in any of them. But there are big demands from the NGO sector. Thus, there is a need to enhance activities in the field of policy briefings at all levels so that the government recognizes agroforestry and promotes agroforesty through a firm policy. Until this happens, we do not expect Government commitment for any ANAFE activities. So, external support is still required. There is no problem because we now know that there are several sources of external funding to which we can apply".

6. University of Ghana (UG), Legon, Ghana

People met:

Miss Marie Louise Avana, AHT RAFT chairperson, Cameroon

Dr. Tsatsu Adogla-Bessa, Head, Legon Research Center, Ghana NAFT secretary

Mr. Christopher Tuddka, Assistant Instructor, Legon Research Center

Mr. Felix Owusu, Instructor, Legon Research Center

Mr. David Animah, Instructor, Legon Research Center

Dr. Samuel G.K. Adiku, Acting Dean of the School of Agriculture

Dr. Benjamin K. Ahunu, Provost, School of Agriculture

Dr. E.E. Ackah-Nyamike Jnr, lecturer, School of Agriculture

Dr. Christiana Amoatey, lecturer, School of Agriculture

Dr. Mark K. Abekoe, lecturer, School of Agriculture

Rev (Dr.) S. Asumenga Brempong, Lecturer, School of Agriculture

Mr. Stephan saba, ex-trainee farmer, Ga East Village

Mr. Abudu Ibrahim, ex-trainee farmer, Ga East Village

University of Ghana is a vast institution involved in teaching and research in all fields of social, biological and physical sciences. It is ANAFE member institution. The department concerned with ANAFE is the College of Agriculture. Under the College, the School of Agriculture and the Institute of Agricultural Research are directly responsible for ANAFE activities. Under the School of Agriculture, there are seven departments and agroforestry has been given as a compulsory course for all students in the seven departments since 1998. The Institute of Agricultural Research has four research stations and one of them is the Legon Research Center, which was visited by the Consultant. The head of the Legon Research Center is the one who teaches agroforestry at the School of Agriculture and he is also the secretary of the Ghana NAFT. The Center runs regular training courses for farmers on a range of subject areas including agroforestry. The Consultant met, interviewed and discussed ANAFE activities with the head and staff members of the Research Center. The consultant also visited the School of Agriculture and held discussions with staff members of the School.

The activities conducted by the University of Ghana with ANAFE's support between 2003 and 2006 are described as follows.

Objective 1. Mobilizing teaching capacity

The head of the Legon Research Center has produced a University level teaching manual with the support of ANAFE. It is a 52-page manual with the title "Manual of agroforestry practices in AHT". The Consultant reviewed the manual and concluded that it is well written with relevant literature and excellent style of presentation (Appendix 4). The major expertise of the head of the Center is in livestock but he has developed keen interest in agroforestry and the reason why he now teaches agroforestry and has also been involved in ANAFE activities. He said he uses books obtained through ANAFE to prepare his lectures. But he said, as a lecturer in agroforestry, he was able to recognize that there is a need for more teaching manuals. He said that he is willing to contribute to writing more manuals if requested. Members of the University including the head of the Center have also attended a pedagogy course organized by ANAFE. According to the head, the course was useful, participatory and the discussions were interactive. He said, as he is already involved in teaching adults, he found the course beneficial.

Objective 2. Links with farmers and extension agents

The University implemented one training course on agroforestry to farmers sponsored by ANAFE. 20 farmers from all over Ghana attended the training course in 2005. The Consultant interviewed two members of staff of the Center who were involved as facilitators at the training course. They told the Consultant "The courses involved teaching farmers about a range of agroforestry technologies supported by field practical at the Center's agroforestry demonstration plots. The farmers were trained in methods of vegetative propagation of trees and establishment of food and fodder banks and live-fences. The farmers were, in particular, interested in the extension manual provided at the training. Other farmer trainees, who were at the Center at the same time undertaking other training courses even get-crashed into the training hall to get hold of the manual. But due to shortage of copies, we were unable to distribute to everyone". The Consultant visited the Center's demonstration plots and observed non-mist propagators, alley farming with trees and live-fences being used by current trainee farmers at the Center. The Consultant also traveled to Ga East village and interviewed two ex-trainee farmers on the ANAFE sponsored course. They mentioned that their knowledge of agroforestry was increased and they were able to acquire skills from the training course such as grafting of fruit trees. They said that they could not apply the skills as they do not own land. Their main occupation is to cultivate vegetable crops such as pepper and okra on rented land from neighboring landlords.

Objective 6. Sustainability of project results

Members of staff interviewed told the Consultant "Since ANAFE is designed to help small-holder farmers, the activities will be sustained. The University is committed to maintain its membership and role in the network. The teaching of agroforestry as a compulsory course will continue at the School. We were even planning to launch MSc course in agroforestry in 1999 but due to lack of support, it did not materialize. We want to initiate this again and seek support from external funding sources. Although there is a general realization by government that agroforestry is important, there has been no agroforestry policy on agroforestry in the country so far. There is, however, an agroforestry policy being drafted by the Ministry of Land Forestry and Mines. Until such time, we do not expect financial support from government to ANAFE activities. Therefore, external support is still essential in order to sustain ANAFE project results. For this reason, we as member of AHT RAFT have participated in the development a project proposal which has been submitted to AFDB for funding".

7. Forum for Agricultural Research in Africa (FARA), Accra, Ghana

People met:

Dr. Monty Jones, Executive secretary

Dr. Gloria Essilfie, Consultant

Dr. Sidi Sanyang, Scientific Resource Person

FARA is the implementing arm of the African Union NEPAD's (The New Partnership for Africa's Development) CAADP (Comprehensive African Agriculture Development Program) Pillar 4 "Agricultural research technology dissemination and adoption". It represents national agricultural research institutions, NGOs, and farmers in 53 African countries and four sub-regional agricultural research organizations (SRO), namely CORAF, AARINENA, ASARECA and SADC/FANR.
The mission of FARA is to enhance and add value to the effectiveness and efficiency of agricultural research systems in Africa that will contribute to agricultural development, economic growth and sustainable use of natural resources. Its vision is for African agriculture to become vibrant and competitive in the international market, growing at the rate of at least 6% per annum by the year 2020.
The secretariat of FARA is based in Accra, Ghana. The Consultant visited the secretariat office and met and held discussion with the executive secretary and two members of staff of the secretariat.

In September 2004, FARA and ANAFE cosponsored and convened a workshop, which was hosted by the African Union to develop a new initiative for Building Africa's Scientific and Institutional Capacity for Agriculture and Natural Resources (BASIC). This new concept was, therefore, developed at this workshop. BASIC has now been internalized and has become one of the five programs of FARA. The objective of BASIC is to strengthen the capacity of African universities to build the capacity that Africa requires for endogenously-driven innovation systems that will make African agriculture increasingly knowledge-based and rooted in sustainable natural resource management. Six priority BASIC program components have already been formulated: 1) Improving curricula, 2) Institutional innovation, 3) Managing risk and uncertainties, 4) Biotechnology, 5) Agribusiness and 6) Information management. According to the staff members of the FARA secretariat, there is room for more components to be developed and added. The implementation mechanism of BASIC is based on ANAFE's successful model but extended to promote collaboration with the Universities in the North and CGIAR centers. Therefore, ANAFE board and ANAFE RAFTs now form a central mechanism for BASIC program implementation and will be involved in the following process. African universities initiate ideas and topics for development as BASIC components and the process of selecting priority topics will be managed by ANAFE through its RAFTs. The candidate program components will then be submitted to the BASIC Implementation Committee through ANAFE board. FARA is currently soliciting funding for BASIC. They mentioned that the European Union (EU) and African Development Bank (ADB) have already been approached and both have shown interest. They welcomed the support from any other funding organizations, which are willing to extend their assistance to BASIC program, including Sida.

Appendix 9 List of ANAFE Member Institutions

SAHEL

Burkina Faso

1. Université de Ougadougo
UFR/Sciences de la Vie et de la Terre
Oagadaougou

2. Ecole Nationale des Eaux et Forets
Dinderesso (ENEF)
Bobo-Dioulasso

3. Institut Panafricain pour le Developpement
Ougadougou

4. Universite Polytechnique de Bobo Dioulasso
IDR
Bobo-Dioulasso

The Gambia

5. School of Agriculture
Gambia College
Brikama

Mali

6. Institut Polytechnique Rural de Formation et de Recherche Appliquée
(IPR/IFRA)
Koulikoro

7. Centre de Formation Pratique Forestier de Tabakoro (CFPF)
Bamako

Niger

8. Université Abdou Moumouni de Niamey
Faculté dÁgronomie
Niamey

9. Institut Pratique de Developpement Rural (IPDR)
Kollo

10. Centre Régional AGRHYMET
Niamey

Senegal

11. Ecole Nationale Superieure D´Agriculture (ENSA)
Thies

12. Universite Cheick Anta Diop (UCAD)

Department de Biologie Vegetale

Faculte des Sciences et Techniques

Dakar

13. Ecole Nationale des Cadres Ruraux (ENCR)

Bambey

14. Centre Nationale de Formation des Techniciens des Eaux, Forets, Chasses et Parcs Nationeaux (CNFTEFCPN)

Ziguinchor

15. Centre Forestier de Recyclage á Thies

Thies

Eastern and Central Africa

Burundi

16. Universite du Burundi

Faculte des Sciences Agronomiques

Bujumbura

Democratic Republic of Congo

17. Universite Catholique de Bukavu

Doyen de la Faculte des Sciences Agronomiques a Bukavu

Sucrerie de Kiluba

18. Université de Kinshasa

Faculty of Agronomy

Kinshasa

Egypt

19. Institute of Efficient Production

Zagazig University, Zagazig

Eritrea

20. College of Agriculture and Aquatic Sciences

University of Asmara, Asmara

Etiopía

21. Alemaya University

College of Agriculture, Department of Forestry

Dire Dawa

22. Addis Ababa University

Addis Ababa

23. Wondo Genet College of Forestry
Shashemane

24. Jimma University
College of Agriculture
Jimma

25. Mekelle University College
Mekelle

26. Awassa College of Agriculture
Awassa

Kenya

27. University of Nairobi
Department of Plant Science and Crop Protection
Nairobi

28. Egerton University
Faculty of Agriculture/Division of Research & Extension
Njoro

29. Moi University
Department of Forestry
Eldoret

30. Jomo Kenyatta University of Agriculture & Technology
Nairobi

31. Kenyatta University
Department of Environmental Foundation
Nairobi

32. University of Eastern Africa, Baraton
Faculty of Science & Technology, Department of Agriculture
Eldoret

33. Maseno University
Kisumu

34. Kenya Forestry College
Londiani

35. Embu Agricultural Staff Training college
Embu

36. Bukura Agricultural College
Bukura

37. Baraka Agricultural College
Molo

Rwanda

38. Universitè Nationale du Rwanda
Soil and Environmental Management
Butare

39. Institut Superieur d´Agriculture et d´Elevage de Busogo (ISAE-Busogo)
Kigali

Sudan

40. Alfashir University
Deaprtment of Forestry, Faculty of Natural Resources
Sudan

41. Sudan University
College of Forestry and Range Science
Khartoum

42. University of Khartoum
Faculty of Forestry
Shambat, Khartoum North

43. University of Juba
College of Natural Resources & Environmental Studies
Khartoum

44. University of Gezira
Faculty of Agricultural Sciences, Department of Environmental Sciences & Natural Resources
Wad Medani

45. University of Sennar
Khartoum

46. Ahfad University for Women
Omdurman

47. University of Kordofan
Faculty of natural Resources & Environmental Studies
El Obeid

48. Forestry Training Center-Kagelu
c/o CRS/SSARP Southern Sudan

Uganda

49. Makere University
Faculty of Forestry & Nature Conservation
Kampala

50. Nyabyeya Forestry College
Masindi

51. Bukalasa Agricultural College
Wobulenzi

52. Arapai College of Agriculture
Soroti

53. Gulu University of Agriculture & Environmental Sciences
Kampala

HULWA

Benin

54. Université d´Abomey Calavi
Faculté d'Agronomiques (UAC-FSA)
Cotonou

Cameroon

55. Université de Dschang
Faculte d'Agronomique et des Sciences Agricoles
Dschang

56. Université Des Montagnes (Udm)
Bangangte

57. Regional College of Agriculture
Bambili

58. Université of Yanounde 1
Faculty of Science, Department de Biologie et Physiologie vegetables
Yaounde

59. Université de Ngaoundere
Ngaoundere

60. Ecole des Eaux et Forets de Mbalmayo
Mbalmayo

Congo

61. Institut Chretien Polytechnique et Professionnel des Arts et Metiers (ICPPAN)
Brazaville

Cote d'Ivoire

62. Ecole Nationale Superieure d´Agronomie (ENSA)
Yamoussoukro

Democratic Republic of Congo

63. Institut Facultaire des Sciences Agronomiques de Yangambi (IFA-Yangambi)
Kisangani

64. Institut Superieur de Developpement Rural de Bukavu (ISDR)
Bukavu

Ghana

65. University of Cape Coast
School of Agriculture
Cape Coast

66. Kwame Nkurumah University of Kumasi
Kumasi

67. University of Ghana at Legon
Faculty of Agriculture
Legon

68. School of Forestry, Sunyani
Sunyani

69. United Nations University (UNU)
Institute of Natural Resources in Africa
Accra

70. University College of Education of Winneba
Mampong-Ashanti

Liberia

71. Liberia Forestry Research Institute
Monrovia

Nigeria

72. Ahmadu Bello University
Zaria

73. Anambra State College of Agriculture,
Igbarian, Abagana

74. Borno College of Agriculture
Maiduguriç

75. Federal University of Technology, Akure
Dept. of Wood Technology and Forestry
Akure

76. University of Agriculture, Abeokuta
Abeokuta

77. Ladoke Akintola Univesity of Technology
Ogbomso, Oyo State

78. Univesity of Nigeria, Nsukka
Nsukka

79. University of Ibadan
Department of Forest Resources Management
Ibadan, Oyo State

80. Univesity of Agriculture Makurdi
College of Forestry and Fisheries
Makurdi

81. University of Maiduguri
Department of Forestry & Wildlife
Maiduguri

Sierra Leone

82. Njala University College
Faculty of Agriculture
Freetown

Togo

83. Universiste de Lomé
Ecole Supérieure d'Agronomie
Lomé

Southern Africa

Botswana

84. Botswana College of Agriculture
Gaborone

Lesotho

85. National University of Lesotho
Roma

86. Lesotho Agricultural College
Maseru

Madagascar

87. Ecole Supérieur des Sciences Agronomiques (ESSA)
Campus Université Antanarivo
Antanarivo

88. Centre d´Experimentation et de Diffussion en gestion paysanne des Tanety
Centre FAFIALA, Antanarivo

Malawi

89. Bunda College of Agriculture
Lilongwe

90. Natural Resources College
Lilongwe

91. Malawi College of Forestry & Wildlife
Dedza

92. Chancellor College
Faculty of Science
Zomba

Mauritius

93. University of Mauritius
Faculty of Agriculture
P.O. Reduit

Mozambique

94. Universidade Eduardo Mondlane
Maputo

95. Catholic University of Mozambique
Faculty of Agriculture
Cuamba

96. Instituto Agrario de Chimoio
Chimoio

Namibia

97. Ogongo Agricultural College
Oshakati

98. University of Namibia
Department of Food Science & Technology
Faculty of Agriculture & Natures Resources
Windhoek

South Africa

99. Stellenbosch University
Department of Forestry Science
Matieland

100. University of Fort Hare
Faculty of Agriculture, Extension & Rural Development
Alice

101. Fort Cox College of Agriculture & Forestry
King Williams Town

102. University of Kwazulu-Natal
School of Agricultural Sciences & Agribusiness
Scottsville

103. Technikon SA
Florida

104. University of Zululand
Department of Agriculture
Kwadlangezwa

105. University of Pretoria
Department of Plant Production & Soil Science
Pretoria

Swaziland

106. University of Swaziland
Faculty of Agriculture, Luyengo

Tanzania

107. Soikoine University of Agriculture
Faculty of Forestry, Morogoro

108. Agricutural Training Uyole
Mbeya

109. Ministry of Agriculture Training Institute, Mlingano
Tanga

110. Forestry Training Institute (FTI) Olmotonyi
Arusha

111. Ministry of Agriculture Training Institute(MATI), Tengeru
Arusha

112. MATI Ukiriguru
Mwanza

113. MATI Tumbi
Tumbi Training Institute
Tabora

Zambia

114. University of Zambia
School of Agricultural Sciences
Lusaka

115. Zambia Forestry College
Mwekera, Kitwe

116. Natural Resources Development College
Department of Crop Science
Lusaka

117. Copperbelt University
School of Natural Resources
Kitwe

118. Zambia College of Agriculture
Ministry of Agriculture, Food & Fisheries
Monze

Zimbabwe

119. University of Zimbabwe
Faculty of Agriculture
Mount Pleasant, Harare

120. Zimbabwe Forestry College
Mutare

121. Chibero College of Agriculture
Norton

122. Africa University
Faculty of Agriculture
Mutare

123. Zimbabwe Open University
Mount Pleasant, Harare

124. Mlezu Agricultural College
Kwekwe

125. Kushinga Phikelela National Farmer Training Centre
Morondera

126. Bindura University of Science & Education
Department of Agriculture
Bindura

127. Rio Tinto Agricultural Institute
Kadoma

128. Midlands State University
Department of Agronomy, Faculty of Natural Resources & Agriculture
Gweru

Appendix 10 Logical Framework for Mobilizing Agroforestry Capacity for Development

Objective	Activities	Outputs	Verifiable indicators
1 Enhance & mobilize teaching capacity of educators and educational institutions in agroforestry and INRM.	• Monitor INRM capacity and help institutions to strategize for better delivery of INRM training and education • Synthesize research findings and farmers' knowledge into educational materials and producing technical guides on curricula • Train educators in effective pedagogic and adult learning approaches	• Databases on educational and training capacity at partner institutions • At least 12 manuscripts enhanced and produced as teaching materials • At least 20field demonstration sites developed • One technical manual on the development of curricula produced in multi media formats and shared • At least 20 curricula improved with INRM content • Two courses per year training 20 educators in pedagogies • 2 Training manuals in adult learning produced and circulated	Databases on Training and education institutions at country and regional levels A strategic document and buying in Manuscripts available Sites available for learning Manual available and used New and improved curricula in use Course reports and trainees Manual available and put to use
2 Establish effective links among research, education, development partners & systems, and use to ensure flow of AF and INRM knowledge to farmers and development workers.	• Assess and monitor training needs at different levels • Develop training partnerships with researchers and NGOs • Organize 6 training courses for farmers and extension workers • Produce and share manuals, extension materials • Incorporate HIV/AIDS messages in training events to mitigate the effects of diseases (HIV/AIDS) on capacity	• A prioritized list of training needs • Training strategies by country and region; 3 knowledge centers established • Working mechanisms for educators to collaborate with others in effective training partnerships • 400 farmers trained and better at farming • Improved farming practice and quality extension advice • HIV/AIDS awareness among trainers	Reports on training needs Credible strategies and buying in Database of training courses and trained persons Number of training events organized in a collaborative manner Training records Reports on sixteen training events completed in 4 years and farmers Links with HIV/AIDS efforts
	• Form training teams at country and regional levels on INRM topics • Establish interactive field training sites for colleges and farmers • Produce and share training materials	• Twenty working national /INRM training networks • Twelve field training sites developed and operational at twelve institutions, and connected to farmers • At least 5 CDs, 5 manuals and 4 website products on relevant topics	Existence of regional training teams Databases on demonstration sites and reports on their effectiveness Tested copies of training materials, CDs, manuals websites

Objective	Activities	Outputs	Verifiable indicators
3 Strengthen action research by providing opportunities for young scientists to undertake thesis research with farmers on relevant agroforestry /INRM topics	• Provide scientific reinforcement through thesis research support • Support postgraduate programmes at universities • Support post-doctoral and senior fellowships for educators	• 20 MSc/PhD and 26 DEA students graduating per year. • Quality theses contribute to understanding of AF/INRM and farmers' problems • 22 Improved postgraduate programmes at universities • At least 5 students from advanced universities on thesis research complete field work each year • At least 2 educators and 2 postdoctoral students per year enrich their experienced through attachment to ICRAF and peer colleges or universities	Theses, scientific reports and dissertations in the various degree programmes Extracts from theses available in training materials Increasing interest and enrollment for improved programmes Links with advanced institutions Postdoctoral/fellowship reports
4 Link basic education teaching and learning to local community practices by incorporating agroforestry and INRM examples into teaching programmes for selected primary and secondary schools.	• Assist policy makers at all levels to develop INRM programmes for schools • Mentor school teachers on INRM • Assist school systems to develop teaching materials	• Policy briefs • Workshop reports, plans and programmes • Training events reports • Materials shared • Writing workshops, production, and dissemination	Number of briefs produced Number of policy makers attending w/s Number of INRM programmes running in schools Number of students exposed to INRM education Number of training events and trainees Number of TM distributed Number of workshops (reports) and trainees Number of training material copies distributed
5 Consolidate scientific and technological robustness of agroforestry technologies developed in Zambezi basin through intensification of on-farm testing of innovations with farmers	• Form strategic partnerships with farmer organizations • Intensify nurseries and on-farm propagation and management of fruit trees and other technologies • Monitor pests and diseases and develop management options • Develop marketing links for agroforestry products	• At least 20 village communities implementing agroforestry connected to project • At least 20 tree nurseries developed jointly with farmers • Scientific and technological options for managing pests and diseases • Market chains for various products	Number of farmer-link activities and farming communities connected Number of tree nurseries managed by farmers A manual on how to handle pests and diseases Number of products finding local and regional markets

Objective	Activities	Outputs	Verifiable indicators
6 Develop ways and means of ensuring that the positive processes and results emanating from this project are sustained	• Support establishment of national training teams (NAFTs) • Serve as brokerage for project funding for regional and country teams • Connect ANAFE with other regional and global initiatives	• National agroforestry training teams established in each of 12 countries • At least 4 new projects (one in each region) will be developed and funded Sustainable network managing processes institutionalized ANAFE will have effective links with regional and global partners	NAFTs in place in each of the 20 countries New resources available to run ANAFE activities ANAFE will increasingly be a self-sustaining network ANAFE will secure global recognition
Project Coordination (Not an objective, but a mechanism to ensure the project is successful)	• Peer review of teaching materials and technical backstopping • Forums for educators, researchers and development workers • Supply of publications to institutions • Monitoring, evaluation, synthesis and reporting (Technical and financial)	• Global inputs available to enhance project performance • Biennial newsletters produced and circulated • A good synthesis (proceedings) on the quality and relevance of agricultural training • An action plan to enhance quality and relevance • 10 monographs on INRM topics published and circulated • Partners have good access to current knowledge • At least four new regional projects funded • Project technical and financial reports	• Reports on information exchanges • Number of teaching materials reviewed and produced • Published proceedings • Published action plans for regions and NAFTs • Mechanisms in place for future monitoring of agricultural education • National and regional networks in place • Resources available in regions and countries • Copies of newsletters and reports

Appendix 11 Example of an Activity Budget

Annual Work Plan for 2006

Objective 1: Enhance and mobilize teaching capacity of educators and educational institutions in Agroforestry and INRM

	Outputs and Budgets by Regions					
Activity and Methods	**AHT**	**ECA**	**Sahel**	**Southern Africa**	**Coordination Unit**	**Comments/Totals**
1.1 Development, production and distribution of teaching manuals. Synthesize research findings and farmers' knowledge into educational materials	Finalize produce and circulate teaching manuals on marcotting and tree domestication	Finalize the survey and report on CLEANER-Africa; Develop a policy brief on FLRC based on the *Mtakatifu Clara* experience	Synthesis of lessons of experience on the Chô and Masala Farmers' Learning Resource Centre	Finalize and produce book on Agroforestry technologies in Southern Africa	Support regions to produce the final documents as explained in left columns; and put on website. Publish materials on Health and agroforestry	This activity will bring to a logical conclusion a large number of manuscripts written by African educators
Budget US $	3,200	2,800	5,000	3,400	7,900	22,300
1.4 Monitor INRM capacity and help institutions to strategize for better delivery of INRM training and education	Produce needs assessment report and strategy for AHT	Complete booklet and policy brief on HIV/AIDS and agric education.	Finalise compilation and publish databases on educational and training capacity in the region	Publish databases on educational and training capacity in the region Institutions; Follow up on the adoption of HIV/AIDS curriculum	Technical and logistical support to regions on training needs assessments and HIV/AIDS curriculum; A Synthesis of the results	Changes in curricula are sometimes incremental, and it takes time to register major changes.
Budget US $	5,100	4,800	6,720	5,700	4,880	27,200
Sub totals for Objective 1	**8,300**	**7,600**	**11,720**	**9,100**	**12,780**	**49,500**

Objective 2: Establish effective links among research, education, development partners and systems, and use to ensure flow of AF and INRM knowledge to farmers and development workers

	Outputs and Budgets by Regions					
Activity and Methods	**AHT**	**ECA**	**Sahel**	**Southern Africa**	**Coordination Unit**	**Totals/Comments**
2.1 Support to establish 4 knowledge management centres Carry out surveys, set criteria and plan and implement	Synthesis by University of Dschang Cameroon 'Experiences in teaching Agroforestry	Synthesis by Baraka Agricultural College on training farmers in Agroforestry.	Synthesis of Massala School and Katibougou village experiences (in French)	Synthesis on the challenges of adding value to Agroforestry tree products. The experience at Makoka, Malawi	Develop a model on the development of Farmer Learning Centres	
Budget US$	4,500	4,100	7,200	8,000	7,500	31,300
2.3 Organize one training course for farmers and extension workers. Hands-on training for farmers, field days to visit and be visited by farmers		Training course for 20 extension staff and farmers at Bukura Agric college		A farmers' field day at Makoka by Malawi forestry College, Dedza		
Budget US$	0	2,800	0	1,500	0	4,300
Sub-Totals for objective 2	**4,500**	**6,900**	**7,200**	**9,500**	**7,500**	**35,600**

Objective 3. Strengthen action research by providing opportunities for young scientists to undertake thesis research with farmers on relevant Agroforestry/INRM topics

Activity and Methods	**AHT**	**ECA**	**Sahel**	**Southern Africa**	**Coordination Unit**	**Totals/Comments**
Provide scientific reinforcement through thesis research support Support postgraduate programmes at universities; Award competitive thesis research fellowships to graduate students;	12 graduate students (of whom about 50% female) will benefit from ANAFE research fellowships	6 graduate students (of whom about 50% female) will benefit from ANAFE research fellowships	10 graduate students (of whom about 50% female) will benefit from ANAFE research fellowships	6 post graduate students (of whom about 50% female) will benefit from ANAFE research fellowships	To guide the review of graduate studies, plus a synthesis on the experiences on this objective	Mechanisms set in 2004 to achieve gender balance to be implemented
	Review and improve programme content and delivery: A synthesis on the review of 20 curricula will be published					
Budget US$	22,000	24,000	18,000	24,000	7,694	96694
Subtotals for objective 3	**22,000**	**24,000**	**18,000**	**24,000**	**7,694**	**95,694**

Objective 4. Link basic education teaching and learning to local community practices by incorporating agroforestry and INRM examples into teaching programmes for selected primary and secondary schools. (US $ 29,000)

	Outputs and Budgets by Regions					
Activity and Methods	**AHT**	**ECA**	**Sahel**	**Southern Africa**	**Coordination Unit**	**Totals/Comments**
4.1 Assist policy makers at all levels to appreciate the value of INRM programmes for schools; Train and mentor school teachers on AF and INRM; Workshops for Teacher Training Schools	Train 12 school teachers at 4 schools near Belo on methods to introduce Agroforestry into teaching and learning methods and materials	Debub and Makele universities (Ethiopia) to host one forum each for 10 local policy makers on INRM in schools on the basis of experiences from other countries	Briefing policy makers in Senegal. ENSA Thiés to host a policy makers forum on basis of experiences in Mali	Olmotonyi Forestry College to hold two policy briefing meetings in Arusha and Shinyanga on basis of experiences with schools in Shinyanga and Western Kenya	Provide support in the development of policy briefs and training materials for teachers	Many policy makers become aware of the potential of schools to improve NRM.
Budget US$	5,000	9,000	8,000	7,000	5,000	34,000
4.3 Monitoring and reporting Systematic assessment of results to draw out useful lessons		Compilation of regional experiences	Compilation of regional experiences	Compilation of regional experiences	Writing a monograph on 'Working with schools'	
Budget US$		1,800	1,500	2,780	6,000	12,080
Subtotals for objective 4	**5,000**	**10,800**	**9,500**	**9,780**	**11,000**	**46,080**

Objective 5. Consolidate scientific and technological robustness of Agroforestry technologies developed in Zambezi basin through intensification of on-farm testing of innovations with farmers

	Activities, methods and budget by Region		
Activity and Methods	**Zambia (Southern Africa)**	**Coordination Unit**	**Comments/Totals**
5.1 Scientific fortification of technologies 5.5 Develop marketing links for Agroforestry products	Producing a monograph summarizing the key Agroforestry technologies, suitable for the Zambezi basin and experiences of disseminating them to farmers. ($ 3,500) Presenting two seminars to policy makers in Zambia. Local level ($ 2,000) Country level ($ 3,000)		
Subtotals for objective 5	**8,500**		**8,500**

Objective 6. Develop ways and means of ensuring that the positive processes and results emanating from this project are sustained						
	Activities and outputs by Regions					
Activity and Methods	**AHT**	**ECA**	**Sahel**	**Southern Africa**	**Coordination Unit**	**Totals/Comments**
6.2 Serve as brokerage for project funding for regional and country teams	Develop at least one project proposal for funding	Develop at least one project proposal for funding	Develop at least one project proposal for funding	Develop at least one project proposal for funding	Further development of BASIC programme	Improved funding of ANAFE activities
Training on writing winning proposals and helping to market them to investors;	All the already formed NAFTs will be consolidated and assisted to develop funding proposals. Sustainable network managing processes will be institutionalized in the RAFTs					
Support to RAFTs to market new proposals						
Budget US$	4,500	4,500	3,500	4,500	4,000	21,000

Activity and Methods	**Coordination Unit**	**Totals/Comments**
6.3 Link activities with FARA, ASARECA, CORAF, FANR, GANAFE, SEANAFE and IPFE	Effective links with regional and global partners	Productive collaboration, with positive results
Budget	2,500	2,500	2,500	2,500	2,400	12,400
Subtotals for objective 6	**7,000**	**7,000**	**6,000**	**7,000**	**6,400**	**33,400**
Overall Project Coordination						
	A well managed regional network					

Activity and Methods	**AHT**	**ECA**	**Sahel**	**Southern Africa**	**Coordination Unit**	**Totals/Comments**
7.3 Forums for educators, researchers and development workers	ANAFE Board meetings. Producing monographs, Biennial newsletters					
Steering Committee meetings						
Budget US$	20,000					20,00

Activity and Methods	AHT	ECA	Sahel	Southern Africa	Coordination Unit	Totals/Comments
7.4 Monitoring, evaluation, synthesis and reporting (Technical and financial)	• Good accountability for all resources • Quality management of and reporting on the network • Continuous monitoring of NAFTs and RAFTs • Write RAFT and continental reports annually and for the three years to ICRAF and donor					
Total	8,600					8,600
Subtotals for Coordination	**28,600**					**28,600**
Other project activities						
Activity and method				**Coordination Unit**		
8.1 Professional review of teaching and extension materials Use of experts/consultants				Quality materials produced and shared		
Budget US$				45,000		45,000
Total operational costs (all objectives)						**342,334**
Capital Expenditure {Equipment to support farmer learning centres ($ 29,200) and to replace two old computers for Senior Education fellows ($ 6,437)}						35,637
8.3 External Project evaluation						71,500
ICRAF Overheads (29% of all but capital)				Quality financial and administrative support and Regular consultations on project performance		99,276
Grand Total Budget for 2006 US$						**548,747**

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SWEDISH INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
SE-105 25 Stockholm, Sweden
Tel: +46 (0)8-698 50 00. Fax: +46 (0)8-20 88 64
E-mail: sida@sida.se. Homepage: http://www.sida.se