The Association Liaison Office for University Cooperation in Development Promoting Higher Education Partnerships for Global Development



Institutional Partnerships Program Annual Progress Report<sup>1</sup> Due October 31, 2004



# INTRODUCTION

USAID uses this material to report its development results to Congress. Your contribution of data is critical to Congress's understanding of development and the future funding of such programs. This information forms the basis of ALO's dissemination of partnership results to USAID and other donor organizations and is communicated throughout the higher education community.

Partnership Title: Strengthening Institutional collaboration: Natural Resource Education and Research in Ethiopia

Development Field/Sector: Agriculture, Natural Resource and Environment

Lead U.S. Institution(s): Oregon State University

Host Country(ies): Federal Democratic Republic of Ethiopia

Lead Host Country Partner Institution(s): Debub University, Wondo Genet College of Forestry WGCF), and Ethiopian Agricultural Research Organization (EARO), Forestry Research Center

U.S. Partnership Director(s): Dr. Badege Bishaw and Mrs. Marion McNamara badege.bishaw@oregonstate.edu; marion.mcnamara@orgonstate.edu

Host Country Partnership Director(s): Dr. Abdu Abdelkadir (WGCF) and Dr. Tsedeke Abate (EARO). wgcf@telecom.net.et and dg@earo.org.et

Host Country/Region USAID Mission Contact: Mr. John McMahon, Chief Agriculture and Natural Resource Office

Partnership Web Site (if any): <u>http://www.cof.orst.edu/project/ethiopia/</u>

**Period Covered by this Report: October 1, 2003 – September 30, 2004**. (If the partnership started after October 1, 2003, then please change the preceding date accordingly.)

<sup>&</sup>lt;sup>1</sup> Revised September 30, 2004

# **INSTRUCTIONS**

- As feasible, ensure that both the U.S. and overseas partners are involved in the writing of this report. It is the lead U.S. institution's responsibility to submit this report by the due date to ALO.
- Please include as much information as necessary to fully answer the questions. The boxes below expand.
- Mail or e-mail the completed report to your primary contact at ALO by October 31, 2004.
- Share a copy of this report with the appropriate person(s) at the host country USAID Mission.

# **PARTNERSHIP PROFILE**

In approximately 250 words, please provide an <u>executive summary</u> of your higher education partnership, describing the key development issue(s) it addresses, its overall objectives, primary activities, anticipated and unanticipated development outcomes, successes, and challenges to date. The information you provide will be particularly valuable for us in our dissemination efforts to USAID and the higher education community through print and on-line publications.

Ethiopia is currently faced with severe deforestation and environmental degradation. Degradation of natural resources, such as, vegetation, soils and water, lead to low agricultural productivity resulting in decreasing income and food insecurity. The increase in population, about 2.9% per year, increases the demand for theses natural resources, worsening the environmental degradation and poverty in the country. This project addresses the preparation of trained professionals to better manage existing natural resources and develops sound research to address food insecurity and natural resource issues. To achieve these objectives the partnership has outlined for major activities. These are: 1) natural resource curriculum development; 2) preparation of problem solving, applied research proposals; 3) workshop on communications and scientific writing skills; and 4) workshop on communications, Pedagogy and use of Educational Technology.

To accomplish the above activities, the partnership has established two task forces at Wondo Genet College of Forestry, Debub University (WGCF/DU), and three working groups at the Forestry Research Center in the Ethiopian Agricultural Research Organization (FRC/EARO), respectively. The OSU Principal Investigator has been involved in need assessment survey and development of natural resource curriculum at WGCF/DU. He has been also involved with staff members of FRC/EARO in the preparation of problem solving, applied research proposals in the different agro-ecological zones of the country. In addition, two OSU faculty members have conducted workshops on Communications and Scientific Writing; and Pedagogy and use of Educational Technology to faculty and staff at WGCF and FRC. Through these workshops 49 Ethiopia faculty and staff members have obtained short-term training that help them improve their communications, writing and teaching skills. The partnership has also secured additional funding from the USAID Mission in Ethiopia to run a curriculum workshop that will involve stakeholders and policy makers.

Despite the many achievements the partnership has faced major difficulties in communication. The Ethiopian partner institutions, both WGCF and FRC have serious problems of internet communications. This has delayed communications between the partner institutions and limited exchange of information. We hope this problem will be solved in the near future and improve frequent communication and exchange of information between the partner institutions.

# **QUALITATIVE ANALYSIS**

1.	In <u>one or two sentences</u> , state the overall objective of your higher education partnership and its
	To strengthen the capacity of Ethiopian partner institutions to build human capacity in natural resource management by improving the preparation of professionals, and conduct development oriented research to solve societal problems.
2.	What activities have the partner institutions undertaken during <u>this reporting period</u> to achieve the stated partnership objectives and development outcomes?
	Wondo Genet College of Forestry has established two task forces for curriculum development and resources need assessment. The curriculum task force has prepared a DRAFT Natural Resource curriculum for B.Sc. program (see appendix 1). The resource assessment team is working to identify the needed manpower, laboratories and other resources to implement the natural resources program at WGCF.
	The Forestry Research Center at EARO has also established three working groups to develop problem solving research proposals in the different agro-ecological zones of the country. The project development process will use an integrated and multi-disciplinary approach. The concept notes for collaborative research project has been prepared (see appendix 2)
	College of Forestry, OSU has sent three faculty members; one to assist in curriculum development and proposal preparation. Two faculty members were in Ethiopia in January and June 2004, respectively; and conducted workshops on communications and scientific writing; Pedagogy and Educational Technology. Faculty from OSU have spent two weeks at FRC in Addis Ababa, and two weeks at WGCF providing training to staff and faculty members at the partner institutions. For full report please see appendix 3 and 4. One of the OSU faculty members has also been involved in video documenting the natural resource and agroforestry in southern Ethiopia.
3.	How have these activities strengthened (or will they ultimately strengthen) the capacity of the lead host country higher education institution(s)?
	This partnership is involved in developing natural resource education and research in Ethiopia at Debub University and EARO, respectively. The College of Agriculture is one of the educational programs at Debub University. This project has brought the College of Forestry at Wondo Genet and the College of Agriculture in Awassa to work in close collaboration in natural resource management issues in the region. They have already started exchanging faculty and resources to teach courses in their respective colleges. The project has also conducted a workshop on Communications, Pedagogy and use of Educational Technology to WGCF and FRC faculty and staff. Through this workshop 24 staff from FRC and 25 faculty members from WGCF completed the courses (see appendix 3 and 4). The workshop in communications and scientific writing, and Pedagogy and use of Educational Technology have helped faculty and staff at both institutions to improve their skills in communications, scientific writing, lecturing and seminar delivery.
1	

4.	How have these activities benefited the local host country community?
	Although there is no direct benefit for the host country community at this time, the two workshops delivered at FRC and WGCF on communications and scientific writing, and Pedagogy and use of Educational Technology have improved the skills of faculty and staff at both institutions. This in turn will improve the quality of teaching and delivery of services to the community
	community.
5.	How have these activities benefited (or will they ultimately benefit) the lead U.S. institution(s) and the local U.S. community?
	The U.S. partners have broadened their knowledge of natural resource management in developing countries by working together with the Ethiopian partners. They will be involved in the curriculum development and research planning process. Beside educational and research experiences, this project has created for the U.S. partners to work in different cultural environment and ecoregions of the world. The natural resource and agroforestry video documentation will be used for seminars and teaching classes at OSU.
6.	List other collaborating U.S. and host country institutions (e.g., NGOs, community-based organizations, government agencies, small businesses, other higher education institutions, etc.) and describe their involvement in partnership activities during this reporting period:
	The Ethiopian Tree Fund Foundation (ETFF), a U.S. based NGO is trying to collaborate with the WGCF in tree planting and rural development project. ETFF has developed a proposal on Agroforestry and Watershed management based on community participation. The proposal is submitted to a private sector and NGO's for funding. This project if funded will mobilize the people around the Wondo Genet Watershed, and engage them in sustainable management of natural resources. Involving the private sector in this project will promote one of USAID goals creating private – public partnership.
	The Ministry of Education is interested in this project and is following the progress of the natural resource curriculum development. They will participate in the curriculum review workshop and will provide input to improve the curriculum to fit the Higher Education needs of the country.
	The Natural Resource Department in the Ministry of Agriculture has expressed interest and is willing to participate in this project. They want this project to expand and help them prepare curriculum to provide short-term training to farmers and mid-carrier people and school children.
7.	What have been your partnership's greatest <i>successes</i> during this reporting period? Has your partnership also experienced any <u>unanticipated</u> successes? Yes
	If YES, please fully describe:
	The partnership has secured additional funding from the USAID Mission in Addis Ababa, Ethiopia to run a curriculum review workshop which was not anticipated in the original proposal. Stakeholders from government agencies, NGO's, farmers and donors will attend this workshop and provide inputs to prepare practical oriented problem solving curriculum.

		We have also video taped the natural forests and agroforestry practices in southern regions of Ethiopia. We leveraged additional money from the College of Forestry to support Mr. Mark Reed's stay for additional two weeks and do the video taping. The video tape on forests and agroforestry practices in Ethiopia will be used for teaching and seminars by OSU, WGCF and FRC faculty and staff.
	8.	Has your partnership encountered any <i>challenges</i> during this reporting period? Yes.
		<ul> <li>If YES, please fully describe:</li> <li>1) Lack of communication with our partner institutions particularly with WGCF via e-mail and/ or telephone was very difficult. We know WGCF is trying hard to solve this problem, we hope this will materialize as soon as possible and solve the communication barrier between the two institutions.</li> <li>2) Getting visa to bring host country participants to work on the DRAFT natural resource</li> </ul>
		two of our visitors from WGCF and FRC were late by two months to come to Oregon.
-	9.	Has your partnership informed <i>policy</i> at the institutional, community or national levels in the host country through policy relevant research consultations, analysis, advice and/or direct assistance (e.g., helped increase the enrollment or participation of underserved students, adopted a policy of service to the community etc.)? Not at this time
		If YES, please fully describe:
-	10.	Has your partnership conducted collaborative <i>research</i> during this reporting period to address a development problem in the host country? Yes.
		If YES, please fully describe:
		We are working with the Forestry Research Center at EARO to initiate collaborative projects on integrated natural resource management. This project is in progress developing problem solving and development oriented natural resource research proposals (see appendix 2).
		Wondo Genet College of Forestry in collaboration with Ethiopian Tree Fund Foundation has developed development oriented research proposal to be implemented in the Wondo Genet Watershed and the Southern Nations Regional State.
	11.	Has your partnership adapted <i>curricula</i> or introduced methods of instruction relevant to host- country development needs during this reporting period? Yes.
		If YES, please fully describe: In collaboration with the Wondo Genet College of Forestry, we have initiated a Natural Resources curriculum and started B.Sc. in Natural Resources program at WGCF. The new proposed NR curriculum will have four Departments in its program, namely 1) Department of Nature Conservation and Eco-Tourism, 2) Soil Resource and Watershed Management, 3) Natural Resources Economics and Policy, and 4) Wildlife and Fisheries Management. Course listing for the proposed B.Sc. program in Natural Resources Management has been prepared (see appendix 1). The First DRAFT of the NR curriculum has been reviewed by experts from OSU, WGCF and FRC. Currently the DRAFT document is in preparation to been sent to stakeholders for review.

12.	Has your partnership undertaken activities to prepare individuals for participation in the host country's <i>workforce</i> ? Not at this time.
	If YES, are some of these efforts targeted to underserved or disadvantaged groups? Please fully describe:
13.	Has your partnership been involved in <i>community outreach</i> activities in the host country during this reporting period? Yes.
	If YES, please fully describe: We are working with faculty members at WGCF and ETFF to initiate development oriented community outreach program around Wondo Genet Watershed and in some districts in the Southern Nations Regional State.
	Wondo Genet. By providing farmers an alternative energy sources such as trees on farm, we can take away the pressure from the remaining natural forests around Wondo Genet. This will help conserve the biodiversity and wildlife within the natural forests. Also through this project farmers will be trained on agroforestry technologies to improve food production and to conserve the natural resource such as soils, water and wildlife on sustainable bases.
14.	Has your partnership been involved in building the host country's <i>trade capacity</i> during this reporting period? Not at this time.
	If YES, please fully describe:
15.	How has information about your partnership been disseminated during this reporting period? As appropriate, please provide ALO with samples of the following as attachments to this report:
	• We have developed project website and relevant information and progress report are posted on this website. For further information please visit our website.
	<ul> <li>Video documentation of natural forests and agroforestry practices in southern Ethiopia has been made. This will be soon available for faculty, students and other users.</li> </ul>
16.	Outline your partnership's <i>planned activities</i> for the next six months, paying particular attention to achieving stated objectives:
	1) OSU project Co-directors will travel to Ethiopia to participate on the curriculum review workshop at WGCF and to work with FRC prepare integrated natural resources research project (October/November, 2004).
	2) Conduct Natural Resource curriculum review workshop at WGCF with stakeholders and policy makers in natural resources (November, 2004).
	3) Update the natural resource curriculum based on inputs from stakeholders and policy makers at the workshop (December 2004/January, 2005).
	4) Prepare implementation plan for the Natural Resource Program at WGCF (November -May, 2005)
	<ul> <li>5) Complete proposal for integrated natural resource with FRC/EARO (November –May, 2005)</li> <li>6) Prepare and submit final report to the USAID/ALO (June, 2005).</li> </ul>

# **QUANTITATIVE ANALYSIS**

		This period (October1, 2003 - September 30, 2004)	Since beginning of ALO funding
1.	How many exchanges has the partnership supported for host country participants? four	Faculty: 2 Undergraduate Students: Graduate Students: Administrators: 2 Others:	Faculty: 2 Undergraduate Students: Graduate Students: Administrators: 4 Others:
	Describe the nature and duration of the exchange(s): Ethiopian Project Co-directors Dr. Tesfaye Teshome, Debut EARO were in the U.S. for two weeks: (1) they came to atte from August 10-13, 2004 in Washington D.C., and (2) the p visit OSU for another week immediately after the conference FRC/EARO and Dr. Zebene Asfaw WGCF/DU visited OSU came to OSU to work on the DRAFT natural resource curri- note to develop applied research proposal. They were also p teaching and research facilities of the College of Forestry. T discussed about future collaboration in research and network expertise.	b university and Dr. A end the ALO-USAID project Co-directors w ce. (3) Dr. Alemu Gez J for three weeks in A culum and to prepare provided with the oppo- they also met with fac ked with faculty mem	Aberra Deressa, Annual conference vere also invited to vahegn from August 2004. They research concept ortunity to visit the culty members and abers in their area of
2.	How many exchanges has the partnership supported for U.S. participants? three	Faculty: 2 Undergraduate Students: Graduate Students: Administrators: 1 Others:	Faculty:2 Undergraduate Students: Graduate Students: Administrators: 2 Others:
	<ul> <li>Describe the nature, location, and duration of the exchange(s): <ol> <li>Mrs. Gail Wells, communications consultant and former OSU faculty member spent one month (January –February 2004) in Ethiopia conducting workshop on communications and scientific writing skills development. She trained and consulted 22 faculty and staff members from Forestry Research Center and Wondo Genet College of Forestry (appendix 3).</li> <li>Mr. Mark Reed, Instructional Design and Media Production Specialist spent six weeks (June –July 2004) in Ethiopia conducting workshop on communications, Pedagogy and Educational Technology. He trained and consulted 27 faculty and staff members at the Forestry Research Center and Wondo Genet College of Forestry. Mark was also involved in video taping the natural forests and agroforestry practices in southern Ethiopia (appendix 4)</li> <li>Dr. Badege Bishaw Project Co-director and principal investigator has spent three weeks in Ethiopia visiting and consulting the Ethiopian Forestry Research Center and the Wondo Genet College of Forestry in July 2004. During his stay in Ethiopia, Dr. Bishaw has accomplished the following tasks: 1) Planning meeting with project co-directors at WGCF and EARO, 2) Meeting and consultation with faculty task force on NRM curriculum development, 3) Meeting and consultation with FRC staff on planning and preparing problem solving research proposals, 3) field visit to selected districts in Southern Nations Regional State to select potential research and development sites, and 4) Participate in video documentation indigenous agroforestry practices in the Rift Valley and southern regions of Ethiopia.</li> </ol> </li> </ul>		

		<b>This period</b> ( October1, 2003 - September 30, 2004)	Since beginning of ALO funding
3.	How many internships has the partnership supported? None at this time.	Faculty: Undergraduate Students: Graduate Students: Administrators: Others:	Faculty: Undergraduate Students: Graduate Students Administrators: Others:
	Describe the nature, location, and duration of the internship	(s):	
4.	Approximately how many host country nationals have been trained (formally/informally, short-term/long-term) through partnership activities (e.g., degree programs, certificate programs, seminars, workshops, extension days, etc.)? 49 host country nationals have been trained on communication and scientific writing skills; and in Pedagogy and use of Educational Technology	Females: Males: Total: 49	Females: Males: Total: 49
	<ul> <li>Describe the nature, location, and duration of the training: <ol> <li>Mrs. Gail Wells, communications consultant and former OSU faculty member spent one month (January –February 2004) in Ethiopia conducting workshop on communications and scientific writing skills development workshop. She trained and consulted 22 faculty and sta members from Forestry Research Center and Wondo Genet College of Forestry (appendix 3</li> <li>Mr. Mark Reed, Instructional Design and Media Production Specialist spent six weeks (June –July 2004) in Ethiopia conducted workshop on communications, Pedagogy and Educationa Technology. He trained and consulted 27 faculty and staff members at the Forestry Research Center and Wondo Genet College of versional Design of Forestry. Mark was also involved in video documenting.</li> </ol> </li> </ul>		
5	How mony times has your north anthin		
5.	consulted/collaborated with a host country government entity/organization? None at this time		
	List and describe the nature of these consultations/collabora	tions:	
6.	How many times has your partnership participated in host country government-sponsored panels and/or any other initiatives to inform policy within the host country? None at this time. List and describe the nature of participation in the panels an	d/or initiatives:	

7.	How many new degree programs has your partnership established? one		
	Please indicate the type of degree(s) (e.g., AAs, BAs, MAs, the program(s):	MSs, PhDs), the field	d(s), and describe
	B.Sc. in Natural Resources under the current College of For	restry program at WG	CF.
8.	Has your partnership contributed or leveraged contributions other than cost-share, beyond what was originally proposed, to strengthen the capacity of host country higher education institutions?	Estimated total dollar amount: \$12,300.00	Estimated total dollar amount: \$12,300.00
	Yes, we have been awarded additional funding by the USAID Mission in Addis Ababa, Ethiopia to run Natural Resource curriculum review workshop at WGCF.		
	List separately and estimate dollar amounts	1	1

If you have any additional information or comments about your partnership that you would like to share, please do so here:

Please see appendices

# Appendix 1:

#### April 23 2004

#### To: Dr Badege Bishaw

#### From: Dr. Zebene Asfaw

#### Subject: Report on activities carried out for period of November 2003 to March 2004

The taskforce is still working on the curriculum development for proposed Departments, namely Wildlife and Fisheries Management Soil resources and Watershed Management, Natural Resource Economics and Policy and Nature Conservation and Eco-truism. In order to assist the taskforce in identifying courses and developing descriptions for the above mentioned four B.Sc. programs, four subcommittees were formed. List of courses for the said four departments are indicated below. In some cases, the courses were identified by the sub-committee members and with professionals in respective fields. Course descriptions are already prepared for most courses.

Ms Gail Well has been involved in training the staff Wondo Genet on scientific paper writing from January 20 to 30 2004. Out of 20 registered for the courses 10 were successfully completed the training.

Course list for B.Sc. programs for the proposed Faculty of Natural Resources Management

#### 1. Department of Nature Conservation and Eco- Tourism

No	Course title	Cr.hr.
1.	Nature Reserve & wildlife Management	3
2	Nature conservation policy	3
3.	Biodiversity conservation & management	3
4.	Vegetation ecology	3
5.	Wetland Conservation	2
6.	Agro-ecosystems diversity	2
7.	Natural Resource utilization & management	3
8.	Environmental Engineering and waste management	4
9.	Natural Resources and Environmental Economics I	3
10.	Landscape Ecology & Environmental Amenity	3
11.	Restoration Ecology	2
12.	Natural Resources and Environmental Economics II	3
13.	Arboriculture	3
14.	Environmental Impact Assessment & management	3
15	Marine ecology	3
16	Participatory nature conservation and Management	3
17	Tourism Promotion & Administration	3
18	Tourism and Recreational Area Management	3
19	Surveying and Mapping	3
20	Indigenous knowledge in nature Conservation	3
21	Rangeland ecology	2
22	Tropical natural forest management	2
23	Soil biology	3
24	Microbial resource management	2
	Total	65

# 2. Department of Wildlife and Fisheries Management

No	. Course title	Cr. hr.
1	Comparative Vertebrate Anatomy	3
2	Animal Physiology	3
3	Introduction to Zoology	2
4	Behavioral Ecology	2
5	Population genetics and breeding	3
6	Wildlife disease & parasitology	4
7	Wildlife Population Ecology	2
8	Wildlife Nutrition	3
9	Wildlife Resource Economics	2
10	Introduction to Genetics	2
11	Wildlife Taxonomy	3
12	Wildlife Area Management	4
13	Introduction to Mammals	2
14	Introduction to Ornithology	2
15	Introduction to Herpetology	2
16	Conservation of Wetlands	2
17	Wildlife Law and Policy	3
18	Biodiversity Cons. & mgmt	3
19	Wildlife Protected Area Planning	3
20	Wildlife Farm establishment and management	2
21	Introduction to firearms	2
22	Wildlife Resource Utilization	3
23	Wildlife-Based tourism	3
24	Vegetation Ecology	3
25	Participatory wildlife resources management	3
26	Environmental impact assessment and management	2
30	Ichthyology	2
31	Limnology	3
32	Fisheries biology	3
33	Fish stock assessment and management	2
34	Aquaculture	2
35	Fishery technology	3
		15
	Over Total	83

# 3. Department of Soil resource and watershed management

No	Course title	Cr.hr
1	Introduction to soil sciences	3
2	Soil classification and Tropical soils	2
3	Soil physics	3
4	Soil chemistry	3
5	Soil and water Conservation measures	4
6	Soil erosion assessment and modeling	3
7	Soil plant system	3
8	Major soils of the world and tropical soil management	3
9	Soil biology	3
10	Principles of water conservation and harvesting	3
11	Water harvesting technology	3
12	Irrigation and drainage	3

13	Social and economics aspects pf erosion	3
No	Course title	Cr.hr.
14	Rural Water supply and sanitation	3
15	Water Resource management	3
16	Geohydrology	2
17	Environmental assessment	2
18	Land use planning	3
19	Introduction Watershed Management	4
20	Introduction to environmental Survey	3
21	Soil and water resources survey	3
22	Restoration ecology	3
	Total	65

# 4. Department Natural Resources Economics and policy

No	Course title	Cr.hr
1	Introduction to Ethiopian Economy	2
2	Introduction to Econometrics	3
3	Principles of Accounting	3
4	Natural Resource Management and Project Planning	3
5	Microeconomics I	3
6	Macroeconomics I	3
7	Introduction to History of Economic Though	2
8	Introduction to Marketing	2
9	International Economics	2
10	Introduction to Welfare and Environmental Economics	3
11	The Economics of Renewable Resources	4
12	The Economics of Non-renewable Resources	2
13	Microeconomics II	3
14	Mathematical Programming	2
15	Environmental Valuation and Cost Benefit Analysis	3
16	Development Economics and Policy	3
17	Statistics for Economists	2
18	Mathematics for Economists	2
19	Public Policy Analysis and Decision-making	2
20	Introduction to Public Policy and Law	2
21	Macroeconomics II	3
22	Policy Implementation, Monitoring and Evaluation	2
23	Property Rights and Natural Resource Management	2
24	Planning and Research for Economists	2
	Total	60

#### **Common Course of the Proposed Faculty\***

No.	. Course title	Cr.hr.
1	Intro. to Natural Resources and Demography of Ethiopia	3
2	Soil science	2
3	Sophomore English	
4	Introduction to Statistics	3
5	Introduction to Agriculture	
6	Introduction to Forestry 2	
7	Ecosystem Studies	3
8	Introduction to Civic and Ethical Education	3
9	Introduction to Computer Science and Programming	3
10	Rural Sociology and Development	3
11	Introduction to Climate	2
12	Introduction to Environmental Sciences	2
13	Introduction to Wildlife and Fisheries	3
14	Introduction to Energy Resources Management	2
15	Remote Sensing and GIS	3
16	Extension	2
17	Natural Resource Policy and Legislation	3
18	Environmental Impact Assessment	2
19	Soil and Water Conservation	3
20	Integrated Watershed Management Planning	3
21	Entrepreneurship	3
22	Community Oriented Practical Education (COPE)	12
23	Conflict management	3
	Total	70

\* One course could be specialized course in some cases

### September, 2004

The partnership has developed the first DRAFT natural resource curriculum for the four Departments: 1. Department of Nature Conservation and Eco-Tourism; 2. Department of Wildlife and Fisheries Management, 3. Department of Soil Resource and Watershed Management, and 4. Department Natural Resources Economics and policy. The draft curriculum contains background and justification, graduate profile, list of courses, and course descriptions. The draft curriculum was reviewed by experts from OSU and feedbacks were provided to the WGCF partners. WGCF has incorporated the comments and produced the second draft. Currently, the second draft has been sent to stakeholders in Ethiopia for review and comments. This will lead to the curriculum review workshop at Wondo Genet College of Forestry in November 2004.

# Appendix 2

## **Concept Note for Collaborative Research**

Dr. Alemu Gezahegn Director, forestry Research Ethiopian Agricultural Research Organization

> Dr. Badege Bishaw Director of International Programs College of Forestry Oregon State University

1 Title: The role of integrated forest management approach to arrest environmental degradation, loss of biodiversity and for improving the livelihood of the community

2	Participating institutions	EARO, Oregon State University
	Collaborating institutions	RARI, HLI,

### **3** Executing agency

**EARO/FRC:** Forestry Research Center, which has a national mandate, will be responsible to undertake the research. Currently the center is coordinating research programs on plantation forest, natural forest, woodland, farm forestry, wood utilization and non-timber forest products. The Center undertake it research activity in collaboration with other federal and regional research centers, Higher learning institutions as well as in collaboration with other governmental and non-governmental organizations. The center also works together with a number of international, regional research institutes and networks.

### **Oregon State University:**

OSU is one of only ten American universities to hold the Land Grant, Sea Grant, and Space Grant designation and is a Carnegie Doctoral/Research-Extensive university. The College of Forestry is a top-ranked institution in the field of natural resources. It has educated professionals for over a century, and it is a world-class center for education and research about forests and natural resources. The mission of the COF is to conduct problem-solving and fundamental research on the nature and use of forests and related resources, to effectively share that knowledge with others, to educate and engage the next generation of scholars, practitioners, and users of the world's forest resources. With over 100 faculty, several hundred students, multimillion dollar research and educational programs, and outstanding facilities, it's a magnet for forestry professionals from around the world. We also have close ties to other campus units as well as several partner agencies and organizations in the area. Additional information can be found at the College's website: http://www.cof.orst.edu

### 4 Background

Agriculture is the dominant economic sector in Ethiopia and it supports the livelihood of 85% of the population. Agriculture accounts for 54% of the Gross Domestic Product (GDP), 90% of the export and 90% of the raw material for the local agro-industry (CSA, 2000). Ethiopia's long term economic development strategy is devised as ``Agricultural Development Led Industrialization (ADLI)'' indicating that agriculture continues to lead the economic development of the country (Anonymous

1993). The sector is tremendously diverse in resource and agro-climatic condition and it is hugely dependent on natural resource base that is fragile and need special protection.

Forest is one component of natural resources. In agrarian society of Ethiopia, where smallholder farming community dominates, forestry has played and is playing significant role in supporting the livelihood of the community. The roles of forestry include soil and water conservation and restoration, provision of energy, provision of construction material including farm implements and several none-timber forest products (NTFB). Despite this very little is being done to protect the existing forest resources and expand new forest areas in the country.

Available information indicated that deforestation in Ethiopia is alarming. Reusing (1988) showed that Ethiopia has lost 77% of its forested area between 1955 and 1979. World Bank (2002) report indicated that 8% of the forest in Ethiopia is lost every year. Factors responsible for forest destruction include clearing of forest and woodlands for cultivation, overgrazing, cutting of trees and shrubs for various purposes, notability for fuelwood, charcoal production, and for construction materials. Generally, deforestation rate is spurred by poverty, population growth, poor economic growth and ecological disturbance.

To combat the twin major problems of the country, i.e., food insecurity and poverty it is important to arrest environmental degradation. Therefore, the new rural development policy of Ethiopia recognizes that reversing environmental degradation (deforestation, land degradation and loss of soil fertility) is critical to over all economic development and survival of the country.

To materialize this, developing appropriate restoration, rehabilitation, management and protection techniques that ensure sustainable utilization, minimal environmental degradation i.e. land degradation (erosion, loss of soil fertility) and decline of vegetation cover and biodiversity is essential. Equally important is to determine the role of community on the restoration, rehabilitation and management of forest resources.

## 5 **Outline of Research areas**

For the purpose this collaborative research work four areas of focus were identified, including:

**5.1. Role of non-timber forest product for sustainable forest management and biodiversity** conservation to improve the livelihood of the community and to strengthen community participation in forest management (Chena Forest)

This study will be conducted on the highland forests in Ethiopia mainly around Chena forest, which is found in Keficho Administrative zone, southwestern Ethiopia. Chena forest represents one of the remnant natural forests of Ethiopia. The forest constitute a number of high value timber species including <u>Cordia africana</u>, <u>Aningeria adolfi-frederic</u> and different Olia spp. and several other woody species with less known wood value as well as several non-timber forest products of which <u>Piper capense</u> and <u>Afromium corrorima</u> are to be mentioned. The community also obtains edible wild fruit and uses some plant parts for medicine. This forest is, however, subjected to destruction and vegetation cover is diminishing rapidly. In this study attempt will be made to investigate the root cause of forest destruction, evaluate the role of the forest in supporting the livelihood of the community and the role of the community in managing the forest and come up with alternative suggestions to improve the management and utilization of the resource in the forest area.

- Understand the driving force for forest destruction and device mechanisms to minimize rate of deforestation
- Study the land cover, land use pattern and land use change
- Determine the structure and composition of the forests including woody species and herbaceous species
- Identify the species with high potential for non-timber forest product and evaluate the contribution of non-timber forest products to the livelihood of the community
- Evaluate the current propagation, domestication and management techniques of the species useful for non-timber products and develop or adapt techniques to improve these practices
- Identify areas of intervention to improve the processing, handling and marketing of nontimber forest products
- Evaluate the role of NTFP to increase the income of the community, improve the management and conservation of the biodiversity
- Study wood property and alternate use of less known/utilized woody species
- Develop agroforestry practices as well as woodlot to minimize the pressure on the remaining natural forests and to meet demands for fuelwood, fodder and other wood products
- Study the natural regeneration pattern in the forest and come up with suggestions to improve forest and vegetation regeneration.

# 5.2. Role of tree planting and farm forestry in integrated watershed management (Dire Dam Catchments)

Mismanagement of the natural resources mainly, deforestation, cultivation of steep slopes and overgrazing resulted from over population are the major causes of land and environmental degradation. Decline of vegetation cover consequently lead to occurrence of serious soil and water loss, decline of soil fertility and siltation of water reservoirs. Dire Dam, Which is constructed to overcome the shortage of drinking water in Addis Ababa, is one of the dams prone to siltation. The water catchments around Dire Dam are devoid of vegetation cover and cultivation of steep slopes is still practiced. This catchments could serve as a good model for applying integrated watershed management. Adoption of appropriate land use practices, reforestation of degraded land, and development of farm forestry together with other soil and water conservation techniques is essential. This project therefore, attempts to introduce and adopt an integrated and participatory approach to come up with techniques that help to minimize soil and water loss. To materialize this it is essential to

- Determine land cover and current land use pattern in the catchments. Develop appropriate land use category
- Evaluate the rate of soil and water erosion in the watershed
- Select and adopt appropriate technology that help to minimize soil and water erosion and increase the vegetation cover in the catchments
- Evaluate the role of tree planting, farm forestry and soil conservation to improve agricultural productivity, income generation and minimizing rate of siltation of Dire Dam

# 5.3. Development of farm forestry for sustainable forest management and biodiversity conservation (Wof Washa)

The forest at Wof Washa is one of the remnant forests in northern Ethiopia. It is a home to a number of rare endemic plants and animals. The forest is situated in an area devoid of vegetation

and land is under intensive cultivation. The forest is identified as one pilot forest area by the central government and yet there is no adequate forest management plan for this forest. Beside this, there is no adequate reforestation program to conduct plantation or other forms of forest development practice. Hence minimizing human and animal intervention in the forest is important to decrease the pressure on the forest and loss of biodiversity, minimize land degradation through participation of the community. In this area, it is essential to promote farm forestry, reforestation scheme, introducing and promoting use of none timber forest products. The research activity in this are will focus

- Producing land use and land cover change map
- Evaluate the attitude and role of the community in the management of the forest
- Understanding the species composition and population dynamics of the forest
- Studying the regeneration status in the forest
- Developing participatory forest management practice
- Developing farm forestry practice
- Introducing and promoting use of non-timber forest products that enhance the earnings of the local community
- Evaluation and domestication of multipurpose tree species and production of high value tree and products

# 6 **Objectives**

The main objectives of the collaborative research program include

- To adopt or generate appropriate technology to arrest environmental degradation through sustainable resource management
- To maximize wood and non-wood products that contribute towards income generation and improve the livelihood of the community
- To identify, evaluate the major NTFPs obtained from the forest and promote their production, processing and marketing
- To determine the role of the community in managing the forest and increase their participation in developing sustainable forest management option
- To evaluate and demonstrate the cultural, environmental, economical and social benefit of restoring degraded land and forest
- Promote agroforestry as tool for land and forest restoration and as means of income generation to local community
- Determine the structure and diversity and regeneration condition of different tree species in the forest

# 7 Capacity building

Institution building Research facility Human resource development (Training, long and short term)

# 8 Major Activities

- Conduct socioeconomic survey in the selected study areas
- Undertake a biophysical resource survey around the study area and prepare land cover map
- Set research priority together with stakeholders
- Develop research proposal and working procedure

# 9 Output

Implementation of this project compliments the effort of alleviating poverty, environmental rehabilitation and resource management in the country. The specific benefits of these research activities can be summarized as follows:

- Information on composition and structure of the forest, regeneration pattern, land use as well as land use change pattern of the study areas is made available
- Technology for minimizing resource degradation (Forest/vegetation, soil, water) developed/adopted
- The role of forest product and NTFP to well being of the community is better understood
- Expand income generating activities through promotion of NTFP and other tree planting activities
- Alternate use of less known wood species developed
- Improved forest resource management, utilization and biodiversity conservation introduced/adopted
- Enhance the participation of the community in resource management
- Improve the infrastructure and research capacity

# 10 Beneficiaries

The main beneficiaries of the project will be

- Farmers whose livelihood is heavily depend on natural resources
- Business groups and small scale industries
- Researchers/forest practitioners
- Teaching and outreach institutions
- Institutions involved in environmental and biodiversity conservation
- Policy makers
- **11 Duration of the project** 5 years
- 12 Budget

## Appendix 3:

# Strengthening Institutional Collaboration: Natural Resource Education and Research in Ethiopia Trip report on Objective 2: Workshop on preparation of scientific papers and reports

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# April 6, 2004

On a temporary appointment with Oregon State University, I traveled to Ethiopia in January and February of 2004 to deliver two 10-day workshops in scientific communication. The workshops were part of a grant funded by USAID to establish a partnership between Oregon State University and the Federal Democratic Republic of Ethiopia. The project's overall goal was to develop research and teaching capacity in Ethiopia's natural resource teaching and research institutions. The workshops were directed at fulfilling the project's second objective, which was to strengthen the capacity of the Ethiopian Agricultural Research Organization's (EARO's) Forest Research Center staff by developing their research skills through short-term training, workshops on proposal writing, and preparation of scientific papers and reports.

At the time the project proposal was submitted I was employed at the Oregon State University College of Forestry as Director of Communications and manager of the College's scientific editing and graphic design service. I was asked to prepare to deliver the workshops should the project be funded. By the time it was funded, I had left the University's employ, but the directors of the U.S. partnership, Dr. Badege Bishaw and Ms. Marion McNamara, asked me to deliver the workshops as originally planned.

The first workshop, Jan. 12-23, took place at the Ethiopian Agricultural Research Organization's Forestry Research Center in Addis Ababa. The second, Jan 26-Feb. 6, took place at Wondo Genet College of Forestry. Outlines for each day's lesson are included in Appendix A.

In this report, I will set forth the objectives of the workshop and the methods by which it was taught, describe the learning environment, discuss the capabilities and needs of the participants, and offer an assessment of how the workshop was received. I will close with suggestions for developers and instructors of future workshops of this kind.

# Workshop objectives

Objectives of the workshop, as set forth in Lesson 1, were:

- to introduce students to the principles of scientific communication, including written and oral communication strategies, audience analysis, organizational principles, composition, editing and revising, and preparing a manuscript for publication
- To encourage participants to prepare their own research for publication as a peer-reviewed paper, extension publication, or grant proposal.

## Methods

The workshop was presented in a series of nine lessons. The first lesson introduced the workshop's major topics. Lessons 2 through 8 covered these topics: principles of communication, organizing ideas, composing, other forms of scientific communication (the subject of two lessons), preparing a paper for publication, and presentations and posters. Lesson 9 was a wrap-up and review of lessons. The tenth day was devoted to one-on-one interactions with students, evaluation of assignment portfolios, and presenting of certificates. Lesson outlines are provided in Appendix A.

Each day's class consisted of a 2-1/2 hour lecture/discussion/demonstration session and an hour set aside for on-on-one consultation at the students' request. At the Forestry Research Center the instruction was conducted in the morning and the consultation time was held in the afternoon. At Wondo Genet, because of scheduling difficulties, the instruction was conducted on alternating mornings and afternoons, and the consultation time was offered in the morning on afternoon-class days and in the afternoons on morning-class days.

Participants received in-class and take-home writing assignments. They were asked to furnish one of their own research papers on which to practice the various aspects of scientific writing, with the goal of improving the communication of their own research and moving their papers closer to readiness for publication. In most of the writing assignments, students used their research papers for practice. Some assignments were stand-alone writing assignments, most of them conducted in class.

Participants were asked to form peer-critique groups of two or three for the purpose of coaching one another in their writing skills and their progress toward a publishable paper. They also were asked to keep a diary of their thoughts and impressions about the class, to help them become more reflective and self-aware about their communication skills.

None of the assignments was graded, but I corrected the writing assignments, making suggestions about logical flow, sentence structure, and word choice, the same as I do in my editing work. I encouraged participants to rewrite passages of their papers to corporate my corrections and suggestions, and many of them did, even though I did not require it. I did not review the diaries unless participants asked me to. Those who completed all the assignments received a certificate of completion.

## Learning Environment

At the Forestry Research Center, we met in a small classroom furnished with tables and chairs for participants, an overhead projector, and a well-worn acrylic marking board. For the afternoon conference sessions, I used the office of one of center's administrators, who put it at my disposal for the 2-week period.

At Wondo Genet, we met in a well-equipped classroom that had tables and chairs, an overhead projector, and a setup for computer presentations (which I did not use). I held the conference sessions in the same classroom.

Support capacity was more limited than I had expected. It was difficult to get materials photocopied, and access to the internet was limited at FRC and nonexistent at Wondo Genet. Support staff in both places worked hard to help me get what I needed, and I much appreciated their help.

## Participants' Capabilities and Needs

All participants spoke and wrote English with at least moderate fluency, and a few were very fluent. Their scientific training had exposed them to the conventions of writing a scientific paper in English, but their experience in writing and publishing was highly varied. Participants at the Forestry Research Center, who are actively engaged in research, had more experience with scientific communication generally than did those at Wondo Genet, who are teachers and administrators rather than researchers. Thus the Forestry Research Center participants had research papers already written or conceived that they could use in the workshop, whereas most of the Wondo Genet participants did not.

At both centers, participants had to find time in their busy schedules to attend the workshop. No special time had been set aside, and they were still responsible for field trips and meetings (in the case of the FRC participants), and classes and administrative duties (at Wondo Genet). Moreover, it appears that the workshops had been scheduled during an unusually busy time at both places. Attendance was therefore irregular. At the FRC, 20 researchers initially signed up for the workshop. About 18 attended on the first day, and 12 received certificates of completion. At Wondo Genet, 22 signed up, about 8-10 attended classes, and four received certificates of completion.

## How the Workshop was Received

Participants at both FRC and Wondo Genet offered positive evaluations of the workshop. Evaluations are contained in Appendix B. The large drop-off in attendance, particularly at Wondo Genet, caused me some concern. Many participants there told me that the main problem was that the workshop had been scheduled at a bad time. I think another important factor was the difference in professional priorities between the researchers at FRC and the teachers at Wondo Genet. One of the participants there, a senior lecturer, told me after the workshop was finished that he and his colleagues are so busy keeping up with their classes and administrative duties that they don't have time to think about conducting research, let alone publishing research. He said a workshop on curriculum development would have been more useful. We agreed that the awkward schedule also made things difficult for participants. Nevertheless, this man and the others who stayed with the workshops to the end all said they had learned a lot about scientific writing and were glad they'd had the opportunity to attend.

I expected language and cultural barriers, and there were some, but I believe they were readily overcome from both sides. A couple of participants asked me to speak more slowly because they were having difficulty understanding my English. My American accent caused minor problems for a few, but on the whole we all made ourselves easily understood.

As for cultural differences, I was prepared for a more formal, lecturer-centered classroom atmosphere than prevails in the United States. That is what I found, but it was even more formal than I had expected. The participants were uncomfortable working in groups, especially for the purpose of critiquing one another. They also were unused to the ready give-and-take of classroom discussion that I hoped to encourage. They became more comfortable with it after the first couple of days, and by the end of the session we were all very comfortable with one another. However, the class discussions seldom approached the freewheeling conversations that American students often engage in with their teachers.

Participants had some difficulty at first in understanding the diary assignment. They did not grasp immediately that I wanted not class notes but personal impressions and reflections. When I clarified my intent, most of them wrote in their diaries daily, as assigned.

They appreciated the writing assignments, even though many found them demanding. My written comments in particular helped them both to clarify their scientific explanations and to write smoother and more-idiomatic English.

#### Recommendations

Because support capacity is limited in Ethiopia, instructors should count on bringing all the instructional materials they will need. I was not sure before I left for Ethiopia what the participants' needs would be, so I had developed a flexible workshop plan and taken master copies of many materials with me, hoping to save luggage space by making copies once I was there. This proved to be more difficult than I had anticipated.

I saw immediate improvement in the participants' writing in response to my written comments on their work. This one-on-one editorial coaching could be a very effective and practical way to improve writing skills of both researchers and teachers. Perhaps another project could be developed whereby faculty at FRC and Wondo Genet could submit manuscripts via the internet to the editorial shop at the College of Forestry. A grant to cover the cost of these services would not have to be large to be effective.

Instructors, particularly American instructors, should be aware that classroom decorum in Ethiopia is more formal than they may be used to. They may want to prepare lectures in some detail ahead of time, rather than relying on class conversations to bring up the points they want to convey. In addition, participants appreciate written notes to supplement the spoken lectures.

If possible, future workshops should be scheduled at intervals in the school or work year when participants' normal duties are light. It would also be helpful if administrators at the host institutions offered leave time to their employees to attend the workshops.

#### **Summary**

This scientific writing workshop, although it encountered minor challenges, conveyed much useful and appreciated information to the Ethiopian scientists to whom it was presented. I believe it also strengthened the partnership between Oregon State University and the forestry teaching and research effort in Ethiopia. My hosts all expressed a desire for more such interactions, and they all invited me to come back. The relationship between Ethiopia and OSU has been fruitful so far, and it has potential to confer ongoing benefits on both parties.

Workshops on Communications, Pedagogy, and use of Educational Technology; and Needs Assessment at the Forestry Research Center and Wondo Genet College of Forestry

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August 6, 2004

## Terms of Reference

From June 13 to July 23, I was in Ethiopia as part of our Institutional Partnership Program. My principal responsibilities were to:

- 1. Conduct workshops for research staff at the Forestry Research Center (FRC), Ethiopian Agricultural Research Organization (EARO), in Addis Ababa.
- 2. Conduct workshops for faculty and staff at Wondo Genet College of Forestry (WGCF), Debub University, near Shashemene.
- 3. Assess needs of partner institutions.

Additionally, after completing the above activities, I was to:

- 4. Document, with videotape and digital photos, agroforestry practices in diverse ecoregions of southern Ethiopia.
- 5. Conduct seminars on the topic of ecotourism for faculty and staff of WGCF; and for staff of the Wildlife Conservation Department, Ministry of Natural Resources, in Addis Ababa.

## Workshop Objectives

One month prior to departure, I attempted to contact Dr. Alemu, Director of the FRC, and Dr. Abdu and Dr. Zebene of WGCF, via e-mail, to clarify terms of reference and workshop logistics. However, I received no responses. Based on my understanding of the needs of both institutions, I came prepared to offer short workshops addressing the following objectives:

- 1. Strengthen presentation skills for classroom teaching and delivery of scientific papers.
- 2. Strengthen skills in use of educational technology
  - a. Microsoft Powerpoint, for production of projected visual aids and posters
  - b. Digital photography

Additional objectives for teaching faculty at WGCF:

- 3. Strengthen skills in pedagogy, particularly,
  - a. Development of measurable learning objectives
  - b. Development of course syllabi
  - c. Evaluation of student learning
  - d. Evaluation of teaching using formal and informal feedback from students

### Methods

The workshops consisted of short modules that could be modified to fit available time and resources, since I had no clear concept of how much of either was available at the partner institutions. In particular,

topics covering objective 2 required infrastructures such as computer workstations, digital cameras, and a data projector; based on the report of my colleague Gail Wells, these were not generally available at either institution. As it turned out, infrastructure at WGCF was adequate, while infrastructure at FRC was not. At WGCF, there was a fully equipped audiovisual lab, with digital cameras and data projector; and a computer lab with more than 20 terminals. At FRC, it took 8 days to secure a data projector; computer workstations had to be shared among a large number of staff, and were seldom available on a predictable basis. Infrastructure limitations at FRC severely impacted delivery of planned modules and necessitated frequent schedule changes.

Workshops were broken into 3 days on presentation skills, two days on educational technology (four at FRC), and two days on pedagogy (WGCF only). Based on participant needs, workshops at FRC were scheduled for 2-3 hour blocks once per day, with additional time available for personal instruction or consultation on individual projects. At WGCF, most workshops were offered twice, once in the morning and once in the afternoon, to maximize the number of people able to attend. As it turned out, morning workshops at WGCF were poorly attended.

# Participants

At FRC, a total of 24 people attended at least one workshop, but only 12 people attended two or more and only 6 attended 5 or more. Attendance was sporadic because of the high workload at this time of the year: researchers were busy finishing end-of-year reports and initiating new projects for the current growing season. Because of participants' intense interest in receiving a certificate, I decided to present a certificate to anyone who attended at least 2 sessions. Attendance was highest at the presentation skills sessions. I believe that attendance at educational technology sessions would have been higher; however, these sessions had to be repeatedly postponed due to the lack of a data projector.

At WGCF, a total of 27 people attended at least one workshop; 15 attended at least 4; and 12 attended 5 or more sessions. Overall interest was highest in pedagogy, but attendance at all workshops was high. Four people, representing a committee on improvement of teaching, came from other units of Debub University. Because of their schedule, I held extra workshops to accommodate them. Certificates were presented to the 13 participants from WGCF who had attended at least 4 sessions.

Most participants at both institutions had a keen interest in all subjects presented, except for pedagogy, which understandably was of interest only to those at WGCF. Computer skills at FRC varied widely, and tended to be higher on average at WGCF.

## **Needs Assessment**

- 1. Improved Internet access is the most critical need that I observed during my visit. Currently, Internet access at both institutions is via dialup modem, at a typical speed of around 26kb/sec. at FRC, and 52kb/sec. at WGCF. A single connection is shared by more than 20 staff through local area networks (LANs). This appears to be the only option within Ethiopia at present, judging from the other sites, such as hotels and Internet cafes, that I visited in the capital city of Addis Ababa. Such a slow connection speed takes interminable time to download information from the Internet. As an example, I found it impracticable to use Outlook to access e-mail. Even with a Yahoo account, it sometimes took 5-10 minutes to download a single 3k message, depending on how many users were accessing the connection at one time.
- 2. Improved information technology support is also critical, particularly at FRC. I observed a widespread incidence of computer viruses, and an overall lack of network security. Computers

were shared, and passwords were generally not used, sometimes not even by network administrators. WGCF does contract with a highly experienced IT consultant from the International Livestock Research Institute (ILRI) in Addis Ababa, and many improvements are underway at present.

- 3. Lack of access to computer and communication peripherals (such as digital cameras and multimedia projectors) is hindering the FRC's ability to disseminate the information it develops to colleagues at other institutions, to other government agencies, and to those who most need it, the farmers who comprise over 80% of the Ethiopian economy. The digital cameras used during the current workshop were the first ever used at the Center. EARO has two multimedia projectors, but they are shared among many centers in different locations around the country, and it took over a week for FRC to secure a projector for the workshop.
- 4. Large class size and low entry skills of new students are two of the biggest problems at WGCF. Instructors who attended the workshops on instructional design and pedagogy expressed frustration at trying to implement any improvements in an atmosphere that they perceive is not conducive to learning. For instance, most testing is by pen and paper final exams, because it is the most efficient way to handle large student numbers. The number of practical hands-on skills that can be taught is seen to be limited by the ability to evaluate student competence.
- 5. Currently, the practice of accreditation is very limited in Ethiopia. There is a government ministry of education that oversees all institutions, but peer review by institutions from outside of Ethiopia does not routinely take place.

# **Opportunities for Future Collaborative Activities**

Partners at the two Ethiopian institutions expressed keen interest in expanding their relationship with OSU in many dimensions. Below are a few ideas expressed by those whom I interviewed?

- 1. Scientific collaboration (FRC and WGCF):
  - a. Develop more current forest inventory (most recent data is from 1994 EFAP) as an accessible database. Perhaps we can develop a joint proposal for a remote sensing based inventory, involving Dr. Bill Ripple or others? Ato Mengistie at FRC already has access to free satellite data from MODIS.
  - b. Develop a suitability classification (refinement of agroecological zones) determine which type of forest spp. can grow in which parts of the country.
  - c. Facilitate FRC's contribution to control of malaria apply GIS to identify malarial risk areas and areas amenable to biological control (e.g. neem) by overlaying two datasets.
  - d. Improve watershed management of Blue Nile basin. Use GIS to determine which spp. can grow in which areas, for control of soil erosion.
  - e. Model consequences of siltation in Lake Tana, near Bahir Dar. Deforestation has led to increased runoff and soil erosion, which in turn causes rising water levels, increase of malaria, and an eventual decrease in the lake's water storage capacity. A scientific model of these consequences might help lead to the development of an effective management plan.
  - f. A detailed study of extant Boswellia spp. (frankincense) stands and potential for regeneration, domestication, and efficient utilization.
- 2. Instructional design and pedagogy (WGCF):
  - a. Conduct an accreditation of the institution's forestry curriculum.
  - b. Conduct more in-depth workshops on teaching techniques, evaluation, and other topics.
  - c. Help prepare audiovisual materials that can be used with the existing library and AV and computer labs.
  - d. Share teaching materials and techniques for remote sensing and GIS.

- 3. IT support
  - a. Conduct workshops on web design, network management, computer troubleshooting, and other topics.
  - b. Provide technical consultation on network design and administration, website management, etc.

## **Other Recommendations**

This project has enormous potential. There is tremendous interest from everyone in the two Ethiopian partner institutions. The principal impediments to success are communications bottlenecks and existing workloads. Because of the 10-hour time difference between Oregon and Ethiopia, telephone conversations are impractical. E-mail does not always get answered, so it is difficult to determine if it has even reached the right person. To reiterate a point made by Gail Wells in her final report, it would be good if administrators at partner institutions could provide release time to employees. It is also important to try and schedule activities so that they do not occur during busy times in the Ethiopian institutions' calendars.