SANREM CRSP

1993-94 Annual Report

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EXECUTIVE SUMMARY

The Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program (SANREM CRSP) is working towards a new paradigm for participatory research and development in sustainable agriculture and natural resource management which incorporates community participation, landscape ecology, interdisciplinarity, and gender issues. In this approach, farmers, communities, local people and local institutions play an intimate and crucial role in identifying constraints, developing the research agenda and fully participating in implementation. At each project site, a network of collaborators has been established that includes farmers, communities, local government and non-government institutions, national government and non-government institutions, universities, and international government and non-government institutions, all of whom have been actively involved in each stage of the research process. In many cases, this has "brought to the table" groups who have not collaborated before but who are stakeholders in natural resource management. This model encourages people to analyze, understand, and manage their environment and overall quality of life through collective decision making and action.

The overall program is on schedule. Over the past two years, the diagnostic phase has been completed and the demand driven research plans are being implemented. The SANREM CRSP has expanded its scope to include three core sites (Philippines, Burkina Faso, and Ecuador), smaller activities in Costa Rica and Honduras, a US AID Mission-funded program in Cape Verde, and planning activities in Morocco. The expenditures remain within budget.

Interdisciplinary teams that include agricultural, ecological, and social sciences have been formed to implement the program and address the priority research questions identified through the diagnostic process. Amongst the scientists, this has heightened the understanding of and appreciation for the very different views on natural resource management. Additionally at some sites, we have seen a change in the thinking of the research community such that it now includes a keen awareness of gender issues at the national level that did not exist at the initiation of SANREM.

In the research arena, baseline data sets necessary for understanding sustainable systems have been collected for soils, water, biodiversity, and land use. They have been derived from field surveys, installed monitoring equipment, and geographic information systems (GIS). Research programs underway are answering or addressing constraints that were identified during the diagnostic phase. Collaborative scientific teams in the Philippines have made significant progress in the development of theoretical models for analyzing relationships between economic policies and trends and environmental outcomes associated with upland agriculture. Crop production trends and the inter-relationships between biological, social, and economic attributes associated with production have provided insight into such issues as the reasons for land abandonment (soil fertility decline), land degradation (deforestation), and others which provide further priority questions for research direction.

Training and the establishment of information exchange networks have provided the foundation of and the linkage between research and development in the SANREM CRSP. Training activities have provided an interactive and pragmatic learning experience on substantive issues central to the SANREM CRSP philosophies and technical expertise to over 200 participants in five training sessions in the US. Burkina Faso, and the Philippines. Additionally, over 50 members of farm families have

participated in priming activities which, in addition to practical assistance, have established a foundation for and increased environmental awareness, a better understanding of the systems in which they live, team spirit and community leadership on which the major SANREM activities are being built.

The creation of information networks has vastly improved knowledge about SANREM as well as awareness and understanding of sustainability issues. Community led information drives, electronic conferencing and newsletters, international meetings, cross-site information exchanges in addition to traditional media have provided the necessary forums to expand these networks. The SANREM CRSP played a critical role in laying the groundwork for the evaluation and selection of indicators of sustainability, and their measurement and use by sponsoring an e-mail conference which included over 200 participants from 30 countries. Bringing together the teams from six sites around the world for a cross-site meeting yielded an excellent exchange of SANREM information and experiences. Because the site activities have been staggered in time, the forum allowed the newer SANREM sites very clear insight into the workings of SANREM and how to make the process work more efficiently and effectively for them.

The farmer-participatory, landscape approach is being institutionalized. In both the Philippines and Burkina Faso, high level government officials are experimenting with greater farmer participation and greater inter-institutional collaboration in other national programs. At universities such as EARTH in Costa Rica and Zamorano in Honduras, the landscape/lifescape concepts and farmer participation are being incorporated into the curricula. United States institutions who participate in the SANREM CRSP are also experimenting with demand-driven research agendas, greater farmer participation, more holistic approaches, and increased institutional collaboration. Non-Government Organizations have also expanded their collaboration with research institutions as a result of participation in SANREM.

The year has been a highly successful one; planned targets have been met and exceeded. The SANREM CRSP has set the stage to ensure that the four cornerstones of SANREM — the landscape/lifescape unit of analysis and research, user/community participation, interdisciplinary and intersectoral cooperation — are being followed and understood by SANREM collaborators and participants, from scientists and researchers to farmers and community members. This program has already established strong relationships, trust, and enthusiasm among participants, which is now serving as the foundation for the successful, long-term mutual benefit of all participants.

The following is a summary of accomplishments for the second year of the SANREM CRSP.

Site Activities

During the second year of implementation, SANREM CRSP activities were initiated in Ecuador, Honduras, Costa Rica, Cape Verde and Morocco with activities continued in the two original sites, the Philippines and Burkina Faso.

Philippines

Building on the foundation of last year's Participatory Landscape/Lifescape Appraisal and the Framework Plan, activities in the Philippines proceeded as planned in the second year. An Invitation

to Work was extended and resulted in 27 work plans being submitted. Eventually 13 implementation work plans and three planning grants were implemented. A Memorandum of Understanding was signed with Heifer Project International to handle the subcontracting and communication linkages. A permanent office was established and a site coordinator was hired. A five-month priming program was conducted which stimulated interest by the Philippines community prior to work plan implementation. This activity stimulated the community interest in the SANREM CRSP while serving to provide practical assistance and increase environmental awareness for 35 farm family members throughout the landscape.

Initial project activities involved data gathering by inter-institutional and inter-disciplinary teams working on soil characterization, water quality, land use and market information, biodiversity transects, and weather stations. In-depth soil characterization was done for representative sites across the landscape. Weather stations which were installed, are gathering data on temperature, rainfall, humidity, and wind speed among others, for distribution to the community and for use in land use models. Community water quality monitoring teams were formed to measure biological, chemical, and physical aspects of three streams in the landscape as a result of training by an Auburn led work plan. This has resulted in a clearer understanding of the actions which influence water quality. Teams have made significant progress in the development of theoretical models for analyzing relationships between economic policies, trends, and environmental outcomes associated with upland agriculture. Crop production (especially vegetables) trends and the inter-relationships between biological, social, and economic attributes associated with production are being established showing that fertility decline has led to land abandonment. Green Mindanao, a local NGO in the Philippines, together with the Talaandig tribal group and local researchers have conducted a reconnaissance mission to begin initial indexing of the flora and fauna at the upper watershed.

Several training sessions for community members and work plan holders took place related to ongoing research and SANREM cornerstones. These covered a variety of topics from water quality monitoring to process documentation to sustainable production aspects of potatoes.

Burkina Faso

Following the first year's Reconnaissance Activities and Participatory Landscape/Lifescape Appraisal, the second year of activities began with the drafting of the Framework Plan. This was followed closely by the priming activity, participant training and the installation of two weather stations. Activities in Burkina Faso (as well as other new sites) are benefitting from the pioneering work in the Philippines and therefore are expected to proceed at a faster pace. The Priming Activity in Burkina Faso generated community activities such as tree nurseries and soil management practices as well as providing training in community goal setting. Additionally, ethno-historical weather patterns were gathered in the community at the same time that weather stations were installed to monitor temperature, rainfall, humidity, wind speed, among others which are being used by the community and for crop model development.

Latin America (Ecuador, Honduras, Costa Rica)

Ecuador was named the third project country with a site being selected in the Guallabamba River Watershed. A budget and work calendar has been developed. Preliminary work in Honduras and

Ecuador was launched with a review of the literature on indicators of sustainability for the two countries. A preliminary work plan has been developed for Costa Rica. Efforts at the Costa Rica and Honduras site center on collaboration with EARTH and Zamorano Universities and their linkages to Ecuador.

Cape Verde

US AID Cape Verde invited SANREM to assist the national agricultural research institution (INIDA) in developing a farmer-driven research agenda and to assist in designing and implementing an on-farm research program. The technical assistance provided by SANREM will be in the areas of agricultural research management, research planning, coordination, research staff supervision, on farm research, research-extension linkages, sustainable management of fragile lands and various aspects of training. An institutional appraisal was done and the National Coordinating Committee was formed.

Morocco

SANREM interests in Morocco began with an invitation by the mission. Collaborators and key issues have been defined. Areas of interest have been identified and a preliminary Scope of Work has been developed. A site was selected in the Oued Laou watershed and a preliminary work plan has been developed and presented to US AID. The program is now pending US AID Morocco approval.

Working Groups

The Education Working Group developed and began to implement a work plan to compile information on environmental education, policy, and programs at the site and country level. The aim is to assist researchers and service organizations in including education components in their programs, and to develop education materials based on output from the SANREM CRSP activities.

The Indicators of Sustainability Working Group sponsored an e-mail conference that included over 200 participants from 30 countries. They also laid the foundation for an Indicators of Sustainability Workshop and a subsequent handbook.

The Gender/User Working Group has planned a forum on the integration of participatory development and participatory research in domestic and international programs. The focus of the forum scheduled for April 1995 is participatory research methodologies, including the definition of participation, soliciting and maintaining participation, measures of participation and methods for monitoring/evaluating participation.

The GIS/Modeling Working Group has been responsible for providing GIS leadership and the establishment of GIS databases in the Philippines and Burkina Faso. The Modeling Group has made headway in determining and testing models that are most appropriate for those sites.

Public Outreach and Information Exchange, Training and Education, Participation in Other Activities

Public Outreach and Information Exchange

The newsletter *LAST Update* was mailed January and May to an expanded mailing list of 450 up from the original mailing list of 200. A reader survey was conducted with changes suggested by the readership being incorporated in future issues. Guest editorials from project participants have been added to the contents and have been well received.

The grassroots newsletter *ECOLINKS* is being published in English, French, and Spanish by the Center for PVO/University Collaboration in Development. The mailing list has increased from 200 to 450 in its first year.

The news bulletin *LAST IMPACT* is a new publication, which identifies timely success stories from SANREM projects. The publication highlights a single impact complete with photo from a project.

The SANREM CRSP library was established at the site of the Management Entity in Griffin, Georgia to house materials related to the SANREM program and sustainability issues.

An electronic bulletin board was initiated through INFORUM which carries the *SANREM NEWS* as of January. Bullets are posted at least every two weeks. The *SANREM NEWS* gives up-to-the-minute news on activities at the sites as well as upcoming events.

A training brochure was produced which describes the training capabilities of the SANREM CRSP.

Training and Education

The second SANREM CRSP Training Activity on Innovative Approaches to Sustainability was held in November at Virginia Polytechnic Institute. Other training activities took place in the USA, Burkina Faso, and the Philippines relating to the cornerstones of the SANREM philosophy of participatory research. Additionally, site specific training activities have taken place in association with the Philippines work plans. The SANREM training program has provided participants with tools in innovative research approaches and an interactive and pragmatic learning experience on sustainability issues. We have had over 200 participants in five training sessions. Fifty farm family representatives have participated in training and "project priming" activities. This has established a foundation for standardizing methodologies, team building, strengthening community leadership, and heightening awareness of sustainability issues on which the major project activities are being built.

Networking and Participation in Other Meetings and Activities

The SANREM CRSP regularly participated in CRSP Council activities. Along with such internal meetings increased participation at other meetings, in the second year indicates growing awareness and credibility for the SANREM program. SANREM representatives were invited to make presentations to a variety of groups including the Association for Women in Development, the Committee on Sustainable Agriculture, the International Service for National Agricultural Research,

an international agroforestry conference, the Global Steering Committee of Alternatives to Slash and Burn Agriculture, the International Soil Science Society, and the American Society of Agronomy among others.

Program Management

During the second year of the SANREM CRSP, the Board of Directors, Technical Committee, the Management Entity and the Cross Cutting Issues Working Groups followed the operational procedures set up during the first year, regarding their roles and relationships to each other and the program progress. The Board of Directors and the Technical Committee met jointly two times during the year. The Technical Committee was augmented through membership representation from the Philippines, Burkina Faso, and Ecuador. In January the External Evaluation Panel met for an initial preview of SANREM's goals, organizational structure and activities.

During the year Ecuador was added as the primary site in Latin America with secondary sites in Honduras and Costa Rica. Cape Verde was approved as a site supported by the US AID Cape Verde Mission for an institutional building activity. This activity will focus on integrating farmer-participatory research into the national programs. The total 2-year budget is $1.4 million.

A think tank meeting entitled *Toward Sustainability Revisited* was planned to reenlist the thoughts of the original conceptualizers of the Sustainable Agriculture Program of US AID. A report will be produced which summarizes the proceedings of the meeting.

ACCOMPLISHMENTS AND IMPACTS

Impact is defined by the SANREM CRSP as a change/modification in the awareness, attitude, and/or behavior of the participants that results in enhanced quality of life and/or maintenance or improvement in the quantity/quality of natural resources and/or environmental conditions.

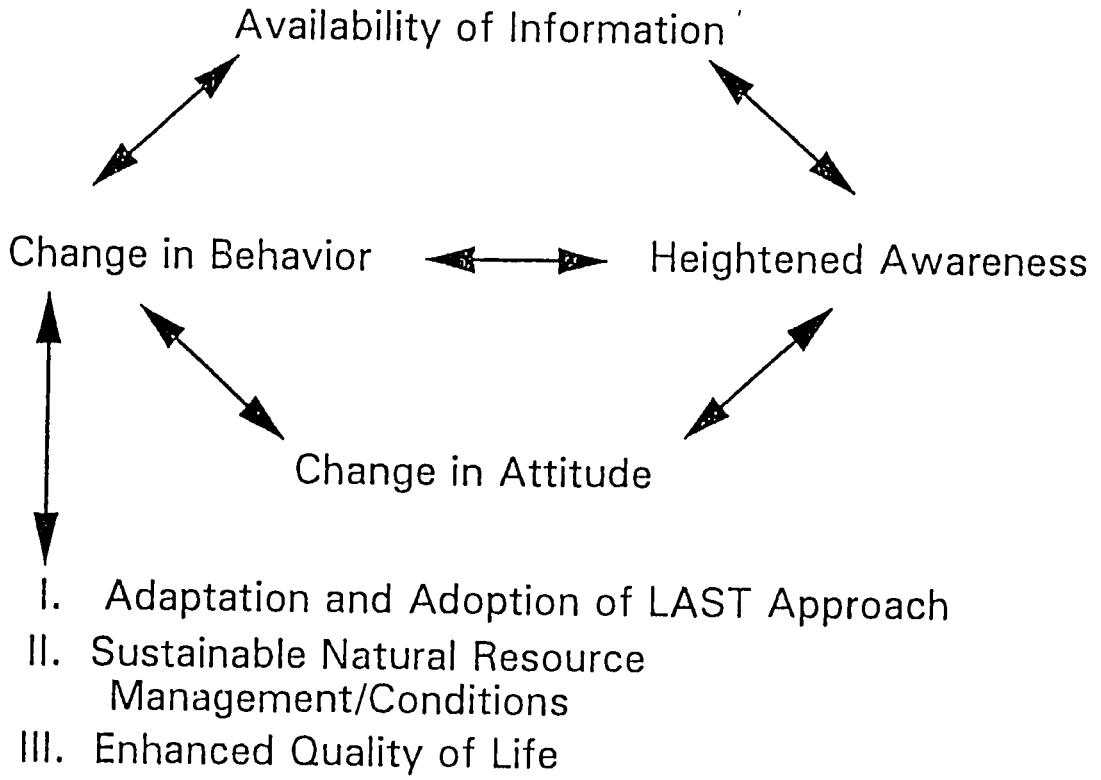
Within the SANREM CRSP, impacts will fall into three broad categories which include the following:

I. Adaptation and adoption of the LAST (Landscape Approach to Sustainability in the Tropics) Approach

II. Sustainable Natural Resource Management and Conditions

III. Enhanced Quality of Life

Given the above definition and the categories of impacts which the SANREM CRSP has identified, a process which includes availability of information, heightened awareness, change in attitude and culminating in a change in behavior is defined as an impact. Thus, to have impact, SANREM CRSP activities, outputs and accomplishments should appropriately influence this process as shown below.



The following table will serve as a guideline as to how SANREM CRSP activities and accomplishments serve to address the components of the impact process and lead to the desired impacts of the program.

Table 1.
The Impact Process of the SANREM CRSP

Impact Process Component	**Category of Impact**		
	I. LAST Approach	**II. Natural Resource Conditions**	**III. Quality of Life**
Availability of Information	---------- Gathered Baseline Data ----------		
	---------- Provided Training ----------		
Heightened Awareness	---------- Identified Indicators ----------		
	---------- Established Monitoring Systems ----------		
Change in Attitude	Strengthened Institutions		
Change in Behavior	Formed New Collaborative Networks		
	Integrated LAST Philosophy and Methodology into Host Country and US Institutions		
	LAST Approach Adopted at New Sites		
IMPACT	**Adoption and Adaptation of LAST Approach**	**Sustainable Natural Resource Management and Conditions**	**Enhanced Quality of Life**

I. Adoption and Adaptation of the LAST Approach

Defined as significant elements of the LAST approach being used in domestic or international research, teaching programs, institutional development, and policy-making.

Activities/Accomplishments:

Provided Training

In the Philippines, 90 participants took part trainings on the SANREM cornerstones and work plan development. This provided the basis for an integrated strategy and shared vision of the SANREM philosophy among participants.

Strengthened Institutions

The program has enabled the transfer of new techniques and equipment for use in teaching and research and has improved laboratory and library reference materials in universities in the Philippines.

The National Power Corporation of the Philippines approved the inclusion of water quality monitoring as an official component of the ongoing watershed activities based on participation in the SANREM CRSP Philippines water quality work plan.

A linkage has been formed between EPA's Waterwatch Program and the Philippines "Tigbantay Wahig" Waterwatch Program for community water quality monitoring. This increased understanding about water quality as well as awareness of problems shared by Alabama and the Philippines end-users.

Formed New Collaborative Networks

The program has been successful in engendering relationships of trust and enthusiasm among participating institutions and individuals. Groups that had never collaborated before but are stakeholders in natural resource management are now collaborating rather than competing and are actively engaged in each stage of the research process.

Interdisciplinary teams, representing agricultural, ecological, and social sciences, have been formed to address the priority research questions identified through the diagnostic process. This collaboration has increased mutual understanding of and appreciation for different disciplinary perspectives on natural resource management among scientists.

The program has enabled NGOs/PVOs and research institutions to expand collaborative linkages and learn from each other. The field-level experience of NGOs has helped scientists to devise a more feasible and relevant research agenda, and to establish rapport with the community, while researchers have enabled NGOs to integrate research in their activities.

Integrated LAST philosophy and methodology into US and host country institutions.

In the US SANREM partner institutions are experimenting with holistic approaches, demand-driven research agendas, farmer-centered participatory methods, and intersectoral-institutional and interdisciplinary collaboration in research and development. The LAST approach has been incorporated into newly designed programs by SANREM CRSP partners including the PVO/University Center for Collaboration in Development, the University of Georgia, Virginia Polytechnic Institute and State University, and Tuskegee University.

The farmer-back-to-farmer model and the landscape/lifescape framework have been adopted by an international commission dedicated to reorienting soil, water, and nutrient management on a global scale sponsored by IBSRAM.

In the Philippines and Burkina Faso, high level government officials are integrating farmer participation and intersectoral-institutional collaboration in national programs. As a result of Dr. Willie Dar's participation in the SANREM CRSP, the LAST approach is being incorporated into the research agenda of PCARRD. The cornerstones of the SANREM CRSP have also been incorporated into the 10-year Strategic Research Plan of INERA and IRBET, the two main agricultural research programs in Burkina Faso.

At universities such as EARTH in Costa Rica and Zamorano in Honduras, the landscape/lifescape concepts and farmer participation are being incorporated into the curricula.

Materials developed by SANREM are also being used for curriculum development in a private agriculture high school in the Philippines.

50 individuals with research, development, and agricultural backgrounds received training on Gender Analysis and Sensitivity in Burkina Faso. This has resulted in enhancing the significance of gender issues in participatory methodologies and in research on sustainability, and its relevance to problems of economic development, environmental health and family well being.

LAST Approach Adopted in New Sites

In Cape Verde Islands, SANREM has been invited to assist the lead institution in agricultural research (INIDA) to improve its effectiveness by incorporating participatory methodologies and landscape/lifescape approach in its training and extension, monitoring and evaluation, and information exchange programs.

II. Sustainable Natural Resource Management and Conditions

Defined as the people who live in the watershed contributing to improved natural resource management, either by direct practice, by institutional support, or by effective policy decisions. As a result natural resources will be conserved or improved.

Activities/Accomplishments:

Gathered Baseline Data

Baseline data for soils, weather, water, biodiversity, and land use have been collected by collaborative, interdisciplinary teams. These data have been derived from field work, monitoring equipment, and GIS at two sites. The results of this work provide the basis for a better understanding of crucial environmental issues and increasing awareness of landscape/lifescape linkages by both local community members and scientists.

- Thirteen pedons across the Manupali watershed characterized.
- Six weather stations installed in the Philippines and Burkina Faso to record air and soil temperature, humidity, solar radiation, rainfall, and PAR.
- Models for soil erosion and crop response being developed using historical meteorological and hydrological records for the Burkina Faso and Philippines sites.
- Collected, digitized and ground-truthed baseline information for land-use and topography for the Burkina Faso and Philippines sites.
- Digital maps of soils, climate, land use, topography, road and river networks, and population distribution for the Philippines.
- Satellite Imagery.
- Census data for Burkina Faso including population, health, schools, and access to wells.
- Topographic maps of the Burkina Faso site.
- Biodiversity data for the Mt. Kitanglad Bioreserve in the Manupali Watershed in the Philippines collected.
- Gathered data on infestation of bacterial wilt of potatoes in the Manupali Watershed.
- Economic and land use data collected from 80 farm families and data on land use histories, cropping choices and technologies, prices and incomes of upland farmers collected in 11 villages in the Manupali River Watershed.
- Survey of 100 vegetable farmers on land abandonment and degradation in the Manupali River Watershed, including cropping patterns, inputs, outputs, revenue, choice of locations, and use of abandoned lands.
- Interviews with potato growers on the occurrence and extent of back wilt infestation of potatoes grown in 8 barangays conducted by researchers from CIP-UPWARD and NOMIARC-DA.
- Developed theoretical models for analyzing relationships between economic policies and trends and environmental impacts of upland agriculture.

Provided Training

A 2nd Annual Workshop on Innovative Research Approaches to Sustainability was held at Virginia Tech. It was attended by 35 participants from non-government organizations, national programs, and universities (11 of whom were host country nationals).

A group of 38 farmers and their family members in the Philippines participated in discussions on the root causes of poverty; discussions on the impacts of resource-use practices across the landscape; and training in low-cost and sustainable agricultural, agroforestry, and animal

husbandry practices. This activities has contributed to insight into landscape/lifescape linkages among end-users.

A group of 26 community members in the Philippines were trained in water quality measurements including biological and chemical assessments. This training resulted in the formation of community monitoring teams that are to carry out periodic measurements of water quality at three stream sites across the landscape. This activity resulted in better understanding of activities and factors which influence water quality and in enhancing end-users' sense of responsibility for their own environment.

Identified Indicators

Groundwork for the development of Indicators of Sustainability has been laid by electronic and face-to-face conferences. Establishment of a process for identifying and testing multi-level Indicators will provide a mechanism for evaluating the impact of practices and programs on sustainability both at global and local levels.

Established Monitoring Systems

A plan for participatory Monitoring and Evaluation for SANREM has been established 1) to monitor and evaluate the impact of program activities at each site; 2) to monitor and evaluate global-level activities; and 3) to document the SANREM process; 4) to facilitate the dissemination of results.

III. Enhanced Quality of Life

Defined as the people living in the landscape experiencing an improved quality of life (as defined by themselves) as a result of the SANREM activities, and by increased ability of local NGOs to network and mobilize resources.

Activities/Accomplishments:

Gathered Baseline Data

The systematic collection of ethnological and scientific data, particularly on climate and natural resources, provides the basis for the integration of indigenous knowledge and scientific expertise in assessing future changes in the standard of living resulting from SANREM.

Provided Training

The priming activity and the EFSAS programs in the Philippines provided the opportunity for 38 farmers and their family members to discuss the root causes of poverty and envision strategies for positive change as well as receive practical training.

The priming activity in Burkina Faso included training of 22 individuals in vision/goal setting according to the Holistic Resource Management Model. This activity local level capacity for community organization and development.

Identified Indicators

In keeping with the program's participatory approach, the SANREM Monitoring and Evaluation plan includes community-based activities for identifying and prioritizing indicators of Quality of Life that are meaningful and relevant to local people.

Established Monitoring Systems

The identified indicators will provide a basis for the development of a community-based process for defining and monitoring the impact of SANREM activities on the landscape/lifescape.

OVERALL ACCOMPLISHMENTS

PLANNED VS. ACTUAL ACTIVITIES

Planned vs. actual accomplishments are outlined by Quarter in Table 2. Targets for the second year were met and the program is on course.

Table 2.

SCOPE OF WORK
Planned vs. Accomplished
First Quarter

Planned:	Accomplished:
▸ Finalize Framework Plan and call for responses to the Invitation to Work in the Philippines	▸ Finalized Framework Plan and called for responses to the Invitation to Work in the Philippines
▸ Sign Memorandum of Understanding with Philippines Subcontractor - Heifer Project International/Philippines	▸ Signed Memorandum of Understanding with Philippines Subcontractor - Heifer Project International/Philippines
	▸ Initiated the Philippines Priming Activity
▸ Ship Weather Stations to the Philippines site	▸ Shipped Weather Stations to the Philippines Site
▸ Hold Board of Directors and Technical Committee Meeting	▸ Hosted Board of Directors and Technical Committee Meeting
▸ Review Literature for the Ecuador Site	▸ Reviewed Literature in Preparation for Honduras and Ecuador Site Activities
▸ Draft Framework Plan for the Burkina Faso site by the National Coordinating Committee	▸ Made Follow up Trip to Formulate Plan of Action in Honduras
	▸ Made Follow up Trip to Morocco to Identify Collaborators and Key Issues to be Addressed
	▸ Hosted Education Working Group Meeting
	▸ Participated in Tuskegee University SANREM CRSP Discussion and Meeting on Administrative Matters.
	▸ Participated in the Annual Meeting of the Center for PVO/University Collaboration in Development
	▸ Participated in the Annual Meeting of the Association for Women in Development.
	▸ Participated in Training Program for Chinese Financial Management Personnel from the Ministry of Finance at the Center for PVO/University Collaboration in Development.
	▸ Published and Distributed Ecolinks
	▸ Established of SANREM CRSP Library for SANREM Collaborators located at the Site of the Management Entity
	▸ Published and Distributed the General Brochure for the SANREM CRSP

SCOPE OF WORK
Planned vs. Accomplished
Second Quarter

Planned:

- Drafting of Framework Plan for the Burkina Faso site by the National Coordinating Committee
- Institutional Networking for the Ecuador Site - Sign MOU with FUNDAGRO
- Hold Philippines Roundtable for integration of Philippines Work Plans for Second Phase Implementation
- Initiate Soil Survey Activities at the Philippines Site
- Initiate Weather Station Activities at the Philippines Site
- Hold SANREM CRSP Training Workshop, Virginia Polytechnic and State University
- Host Indicators of Sustainability Working Group Meeting
- Place Site Coordinator, Philippines
- Send team to Morocco to identify areas of interest to be pursued by AID Rabat and National Programs with SANREM
- Participate in the American Society of Agronomy Meetings

Accomplished:

- Drafted Framework Plan for the Burkina Faso site by the National Coordinating Committee
- Conducted Institutional Networking for the Ecuador Site and signing of MOU with FUNDAGRO
- Held Philippines Roundtable for Integration of Philippines Work Plans for Second Phase Implementation
- Initiated Soil Survey Activities at the Philippines Site
- Initiated Weather Station Activities at the Philippines Site
- Held SANREM CRSP Training Workshop, Virginia Polytechnic Institute and State University
- Hosted Indicators of Sustainability Working Group Meeting
- Placed Site Coordinator, Philippines
- Sent team to Morocco to identify areas of interest to be pursued by US AID Rabat and National Programs with SANREM and Develop a Preliminary Plan of Work
- Initiated discussion with US AID Cape Verde for collaboration on WARD project
- Developed Preliminary Plan of Work and a Rapid Institutional Analysis and Needs Assessment of INIDA in Cape Verde
- Participated in Meeting at ISNAR
- Initiated Electronic Bulletin Board for Distribution of SANREM NEWS
- Held Orientation Meeting for External Evaluation Panel
- Participated in International Agroforestry Meeting in Burkina Faso
- Participated in the American Society of Agronomy Meetings

SCOPE OF WORK
Planned vs. Accomplished
Third Quarter

Planned:

- Participant Training - Philippines
- Implementation of Work Plans -Philippines
- Finalization of the Framework Plan- Burkina Faso
- Invitation to Work - Burkina Faso
- Site Identification and Networking Mission to Ecuador
- Work Plan Writing Trip-Honduras
- Finalization of Scope of Work-Cape Verde
- Development of Scope of Work Morocco

Actual Accomplishments:

- Participant Training - Philippines
- Community Advisory Council Workshop - Philippines
- Implementation of Work Plans -Philippines
- Initiated Data Gathering on Water Quality - Philippines
- Finalization of the Priming Program - Burkina Faso
- Participant Training - Burkina Faso
- Installed Weather Stations - Burkina Faso
- Site Identification and Networking Mission - Ecuador
- Work Plan Writing Trip -Honduras
- Finalization of SANREM Portion of Scope of Work - Cape Verde
- Development of Scope of Work - Morocco
- Presentation at World Bank Meeting -Morocco
- Gender/User Working Group Planning Meeting
- Finalized E-Mail Conference on Indicators of Sustainability
- Presentation at Alternatives to Slash and Burn Conference - Cameroon
- Presentation to Southern Association of Agricultural Experiment Station Directors

SCOPE OF WORK
Planned vs. Accomplished
Fourth Quarter

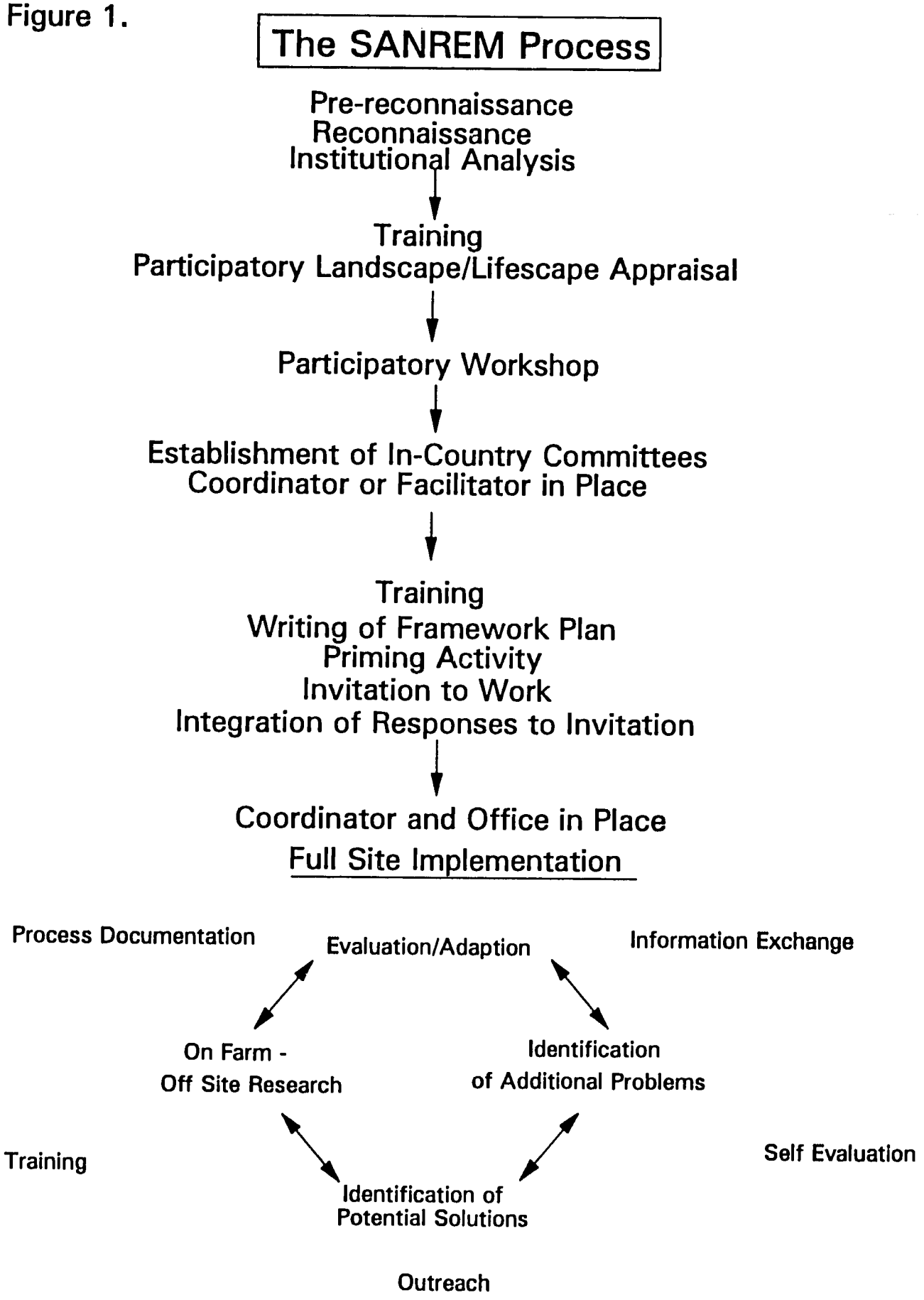
Planned:	Accomplished:
▸ Working Trip to Philippines	▸ Working Trip to Philippines
▸ Implementation of Philippines Work Plans	▸ Implementation of Philippines Work Plans
▸ Implementation of Burkina Faso Priming Activity	▸ Implementation of Burkina Faso Priming Activity
▸ Development and Execution of Invitation to Work in Burkina Faso	▸ Development and Execution of Invitation to Work in Burkina Faso
▸ Work Plan Development in Ecuador	▸ Work Plan Development in Ecuador
▸ Work Plan Development in Honduras and Costa Rica	▸ Work Plan Development in Honduras and Costa Rica
▸ Sign MOU with Honduras/Zamorano and Costa Rica/Earth University	
▸ Joint Work Plan Finalization and Phase I Implementation in Cape Verde	▸ Joint Work Plan Finalization and Phase I Implementation in Cape Verde
▸ Hold Board of Directors and Technical Committee Meeting	▸ Held Board of Directors and Technical Committee Meeting
▸ Hold Conference on the Next Step in Sustainable Development and Research - formerly called NEXUS	▸ Planned Conference Entitled " Toward Sustainability Revisited" - formerly called NEXUS
	▸ Published Last Update Newsletter

THE SANREM PROCESS

The SANREM CRSP has developed an interactive process to successfully build a strong base for outlining a sustainable research agenda and address the issues which have been outlined. This process has been successful in two locations and has been started in two additional locations. The process has two phases of implementation. The first phase of implementation is as follows: Networking which includes Site Selection, Pre-reconnaissance, and Reconnaissance; Descriptive Analysis including the Institutional Appraisal and Participatory Landscape/Lifescape Appraisal; the Preliminary Analytical Phase which includes the Workshop; and Implementation Design which results in the Framework Plan. This Framework Plan serves as the basis for the project for the life of the project. The second phase of implementation is the execution of the integrated Work Plan. This is done by identifying priority research questions from the Framework Plan and developing an invitation to work for collaborators. In response to the invitation to work, work plans are submitted which meet the SANREM CRSP philosophical cornerstones. A roundtable discussion follows and appropriate work plans are then implemented. Figure 1 shows the flow of the SANREM process.

To further express some of these steps, the following is offered. The Participatory Landscape/Lifescape Appraisal is a diagnostic survey in the community which gathers community perceptions and information related to the Landscape/Lifescape. This is done through a variety of participatory methodologies (PRA, MARP) including open interviews and conversations. The information is then presented to the community for verification and additional information. Workshops are held one to two months after the PLLA allowing for assimilation and distribution of the information collected. The participatory workshops are attended by individuals representing Government Organizations, Non-Government Organizations, International Research Centers, Local Government Units, International Voluntary Organizations, Farmer Groups, Tribal Councils, and National and US Universities. The objectives of the workshop are information exchange and the identification of prioritized research questions (based on the people's issues or themes), potential strategies and participants in those strategies, and ways to address policy issues. The individuals are asked to look at the people's issues in light of the elements of sustainability (environmentally sound, economically viable, long term productivity, socially just, culturally acceptable, holistic science, institutional/policy effectiveness), the relationship in the landscape and community/farmer first approach in both the long and short term. After the workshop, national coordinating and community advisory committees are formed. Members of each of these committees meet with US collaborators to write a Framework Plan based on the documentation from the workshop. Priority Research questions are developed for the Invitation to Work. Responding approved work plans are then put forth for implementation. Prior to implementation work plans are integrated and collaborators revisit the SANREM philosophy.

Figure 1.


The SANREM Process
Pre-reconnaissance
Reconnaissance
Institutional Analysis
Training
Participatory Landscape/Lifescape Appraisal
Participatory Workshop
Establishment of In-Country Committees
Coordinator or Facilitator in Place
Training
Writing of Framework Plan
Priming Activity
Invitation to Work
Integration of Responses to Invitation
Coordinator and Office in Place
Full Site Implementation
Process Documentation
Evaluation/Adaption
Information Exchange
On Farm -
Off Site Research
Identification
of Additional Problems
Training
Self Evaluation
Identification of
Potential Solutions
Outreach

DETAILED SITE ACTIVITIES

Figure 2 shows the 1993-1994 Time Line of Site Activities for the Philippines, Burkina Faso, Ecuador, Honduras, Costa Rica, Cape Verde and Morocco. Detailed project activities are described in detail below by site.

PHILIPPINES

Finalization of Framework Plan and call for responses to the Invitation to Work in the Philippines; August-January

The Framework Plan for the Philippines developed by a writing team from the Philippines and non-Philippine collaborators was reviewed, edited, and approved by the Philippine National Coordinating Committee and the Global Technical Committee prior to distribution to program collaborators. The Framework Plan provides both an outline of the priority research issues for the SANREM CRSP Philippines and the basis for the development of research programs to address the issues of soil and water quality and quantity, biodiversity, deforestation and forestation, process documentation and land, labor and tenure in the Manupali watershed. In this document, research activities for each focal issue are subdivided into database or characterization studies, action oriented programs, human resource development activities, and assessments of indicators of sustainability.

In mid-August, the Framework Plan and Invitation to Work were sent to program collaborators in the Philippines and US. These documents served as the basis for the development of work plans for research to be conducted in the Philippines. The Invitation to Work provided collaborators with guidelines for work plan preparation. It also specified landscape and lifescape characterization as the priority issue to be addressed during the first funding cycle.

By deadline, twenty-seven work plans were submitted in response to the Invitation to Work. They were distributed to members of PNCC and the GTC for initial review. Formal review and integration of these work plans took place during a round table review session during December in Los Baños. Finalized work plans were submitted and reviewed during the month of January.

Signed Memorandum of Understanding with Philippines Subcontractor - Heifer Project International/Philippines; August

Jim Orprecio, Heifer Project International/Philippines, visited the SANREM CRSP office at the University of Georgia during the week of August 2-6. Heifer Project International/Philippines contracted with the University of Georgia to be the responsible party for the subcontracting and communications linkages for the SANREM CRSP Philippines. Jim Orprecio, the Country Director, spent three days at the Georgia Station to discuss the logistical linkages to proceed with subcontracts within the Philippines.

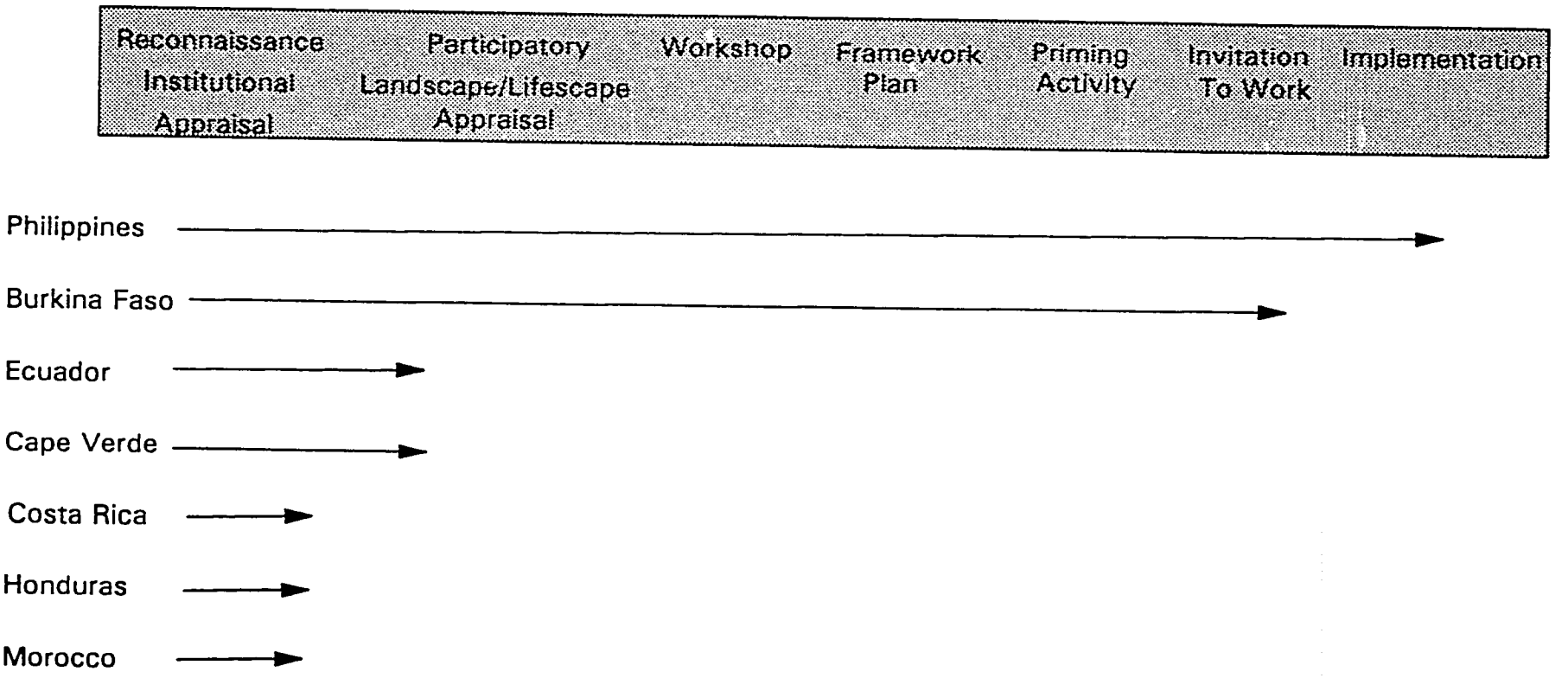
Priming Activity; September-February

The Priming Program is designed to effectively utilize the time between the finalization of the Framework Plan and the onset of the major SANREM work plans in order to stimulate and maintain community interest in SANREM CRSP research activities. Initiated in mid-September, this five month program was coordinated by Heifer Project International (HPI) in partnership with Network for Environmental Concerns (NECI) and San Hermanigildo Agro-Industrial School, Inc. (SHAISI).

Specific program activities included a three day training, conducted on October 24-26. This training was attended by 38 members of community-based groups and included dialogues on the root causes of poverty; training on low-cost and sustainable agricultural, agroforestry, and animal husbandry practices; and discussions on the impacts of resource-use practices across the landscape. In November, program participants went on cross-farm visits to the Mindanao Baptist Rural Life Center, an agricultural and agroforestry demonstration and training farm, as well as to various

Figure 2.

Progress on Process at Each Site



community-based and farmer-managed alternative agriculture programs. Following training and discussions on sustainable agriculture practices, the program assisted participants in implementing the practices of their choice.

Roundtable for Integration of Work Plans for Second Phase Implementation; December
The Philippines Roundtable held December 1 - 3 in Los Baños, worked through four focus groups: Soil and Water Issues, Biodiversity, Human Dimensions (formerly Land, Labor, Capitol and Credit), and Community Action/Communications. The focus groups identified the strengths of each proposal and integrated these with the specific research questions identified in the Invitation to Work. The work plans fell into four capability groupings: a) those that needed considerable revision, b) those that needed combining with other work plans and/or rewriting, c) those that warranted seed monies for planning and a complete reworking of the work plan, and d) those that were rejected. Letters were written to all of the proponents concerning the outcome and specific recommendations for the work plan.

Soil Survey Activities; November-December
Larry West visited Lantapan, Bukidnon, Philippines, from November 18 to December 14, 1993 for the purpose of describing and sampling soils in the SANREM CRSP Philippines research area. Samples from thirteen pedons were air shipped to the SCS Soil Survey Laboratory in Lincoln, Nebraska, and later to the University of Georgia for analysis. Also participating in the survey activities were Ronald Yeck (NSSC, Nebraska), Steve Lawrence (Asst. State Soil Scientist, Georgia), Barbara Bellows (Site Coordinator, SANREM CRSP) and scientists from the Philippine Bureau of Soil Management (Alejandro Micosa, Arturo Dayot, Queruben Navero, Lorenzo Tomas, Elino Bagoso, Ernesto Almendral, Jose Gerpacio, Reynaldo Villanueva and Elmer Ambaya). Assistance was also supplied by Manuel Marquez, Jose Aramces, and Conrado Duque, all from the Central Mindanao University.

Dr. West also visited the offices of the Bureau of Soil and Water Management and found them to be well equipped (including computers and a GIS system) and staffed by well trained workers. He suggested SANREM CRSP should make use of the great amount of expertise in aerial photo interpretation, preparation of land use maps, and laboratory analysis available within the Bureau of Soil and Water Management.

Weather Station Activities; November-December
Ian Flitcroft and Galen Harbers of the University of Georgia traveled to the Philippines November 29 to December 15 to transport weather station equipment and fencing materials to Lantapan where they installed the stations on property rented for the project from local landowners. Working with them was Theodoro Maribojouc, a technician from Central Mindanao University and weather station site manager. Local observers were hired to read the raingauges. Hourly and daily data gathered by the stations will include air and soil temperatures, humidity, wind speed and direction, solar radiation and rainfall. During the installation procedures they also had meetings with T. Pajaro, Mayor, Cosme Gawigan, Vice Mayor, Julieta Devibarr, Municipal Planning Coordinator, and Jermia Endrina, Vice President of the Barangay Captains Association. After completing the installations, they traveled to the NAPACOR power plant in Maramag and met with Elizabeth Cruz, Watershed Development Officer.

Placed Site Coordinator; February
Gladys Buenavista accepted the position of coordinator for the Philippines Site and reported to work in February. The SANREM Coordinating Office is located at the SHAISI school in Alanib community in the watershed.

Participant Training; March-April
Constance Neely, Bill Hargrove, Cornelia Flora, and Bill Deutsch conducted a Training and Integration Workshop at SHAISI and at Central Mindanao University in Alanib, Lantapan, Bukidnon. The purpose of this workshop was to renew the understanding of the philosophical cornerstones of the SANREM CRSP and research methodologies as well as to allow the work plan proponents to better integrate their work plans (including timing and methodologies) and discuss plans for coordination and integration.

Individual reports from the Priming Activity, Weather Station Installation and Soil Survey gave overviews of the good and the bad associated with each activity. It was an excellent way to start a "leveling" off. There could be no better teacher of what to do and not to do than actual experience. The remainder of the leveling off was by far the most positive of any workshop/meeting held to date. The enthusiasm was excellent and we were beyond the "money" issues. This activity was extremely successful and should be implemented at an earlier stage at other sites. This effort will provide for a more efficient and consistent operationalization of the Philippines activity.

In April, the US-based Philippines partners met in Griffin, Georgia to discuss their activities and further integrate their work plans as a follow up to the workshop held in Mindanao in March.

Community Advisory Council Seminar/Workshop; April
The Community Advisory Council, an organization within the SANREM CRSP Philippines umbrella created at the local level, held its first seminar/workshop at Central Mindanao University to promote community awareness and support of local SANREM activities by discussing the work plans for the Manupali Watershed and methods of information dissemination. In addition to the CAC, the meeting was attended by representatives from the Barangay Development Council and the hugpong. Local participants numbered 73. The workshop emphasized the value of indigenous knowledge systems. Discussion topics included indicators of declining natural resources and how local people can improve their community using the SANREM research process.

Implementation of Work Plans
In response to the Invitation to Work, 13 Implementation work plans and 3 Planning grants were finalized for initiation in the Philippines site. These activities were divided into natural resource focal areas of Soil, Water and Biodiversity. Human Dimensions and Community Action issues are within these three focal areas.

True Potato Seeds (TPS) Training; May
The CIP-UPWARD organized a training on the production aspects of True Potato Seeds at the Site Coordination Office from May 26-27, 1994. Resource persons included staff from the NPRCRTC of Benguet State University and the SAPPRAD-CIP. Twenty farmers selected from eight barangays attended the training. They were chosen based on the following criteria: (1) expressed interest and willingness to cooperate in the work plan on farm experiment; (2) farm owner/operator; (3) experience in planting potato and other vegetables for the past the past three

years. The activity combined lectures, discussions, and field exposure. The lectures included the following topics: culture and managements of TPS, crop protection, seed plot technique, and on-farm participatory research.

EFSAS; June
Glicerio J. "Boy" Tan and Hermie Nalzaro from the SHAISI conducted a consultative meeting and training on EFSAS June 24-30, 1994. The activity also included a field exposure to various sites in Mindanao, which are examples of sustainable farming systems. Forty farmers, teachers and students of SHAIS participated in the consultative meeting and training.

Data Gathering on Water Quality; March-April
Bill Deutsch initiated data gathering on water quality in the Philippines during a trip March 11 - April 1. He visited the National Power Corporation (NPC) reservoir and canals as well as numerous rivers, streams, creeks and fish ponds throughout the area. He gave formal presentations at several meetings and also talked informally with farmers, school teachers, local government officials and urban residents about water needs and uses including aquaculture. He worked out sampling routines and a budget for collecting data on water quality.

He again traveled to the Philippines, June 30-July 14, to conduct the Water Quality Workshop and discuss work plans with other SANREM participants. Before the workshop, he toured the CMU lab to see the equipment and technicians that will be doing some of the analyses as part of the work plan. After the workshop he also toured the BUSCO laboratory and discussed possible cooperation with them as a backup laboratory.

Twenty six people participated in the one-day teaching session at SHAISI and 10 people attended at least three of the sessions to become certified water quality monitors. After the first day of lectures and demonstrations at SHAISI, 12 people expressed interest in forming monitoring teams. Teams were formed for the Alanib River, the Kulasihan River and the Maagnao River. Water chemistry and Total Suspended Solids samples were collected by the teams at two sites on the Alanib River and three sites on the Kulasihan River. By the third day of the workshop (the second day of field work) all the team members were comfortable with the techniques and everyone was able to perform each analysis. Sampling in the Maagnao and Tugasin Rivers was delayed until the ritual with the Talaandig was completed and the SANREM partners were given permission to sample there. Team members who are from that area plan to set up sampling sites on those streams in the future. Data are being summarized from Lantapan and the Pulangi IV Reservoir to be incorporated into the next version of the training workbook for upcoming workshops.

Vegetable Production; May-June
Durga Poudel and David Midmore traveled to Lantapan to implement the work plans. They began by studying the currently available GIS database at IRRI for the watershed, preparing simple land-use maps and determining potential survey sites. They presented the project to the local community through the Association of Barangay Captains (ABC) for feedback. They pretested and conducted diagnostic surveys of vegetable production systems and abandoned lands. Besides data on inputs/outputs, cropping systems, sources of finance and the usual agronomic information, main plots on each of 102 farms were subsampled for soil analyses (as were the most "virgin" areas surrounding fields), georeferenced with the Global Positioning System and sampled for slope of arable and natural landforms. These data are currently being transferred to computer files for various analyses and for the improvement of the accuracy of current land use maps.

Marketing Surveys; June
As another part of the implementation Ian Coxhead and Phuong Hoang traveled to the Philippines in June to establish a regular survey of land use practices, including crop and technology choice by farmers in Lantapan municipality, and to initiate regular price monitoring and marketing data gathering in Lantapan, Malaybalay and Cagayan de Oro.

The survey was conducted by Hoang and Maren Umali, supervising a team of five local residents as enumerators. Return visits to the same panel of farmer respondents are planned on a twice yearly basis to collect updated crop production and price data. Results of the survey will be presented to Lantapan residents for verification and for discussion of proposed policy recommendations. A local collaborator was hired to conduct the price monitoring and marketing data on a year-round basis. Questions about prices and markets were also included on the survey and will be used by the data gatherer.

Potato Production Survey
Researchers from the CIP-UPWARD and the NOMIARC-DA interviewed potato growers on the occurrence and extent of back wilt infestation of potatoes grown in eight barangays. Data analysis is ongoing.

Flora and Fauna Indexing
Butch Dagondon of Green Mindanao together with work plan partners from the Talaandig tribal group and researchers from the Central Mindanao University conducted a reconnaissance and began initial indexing of the flora and fauna at the upper watershed, approximately 1060 to 1829 meters above sea level (m.a.s.l.). Interesting observations were pointed out from this activity. At 1680 m.a.s.l., it was observed that a previously old-burned residual forest region was planted to high value crops such as potatoes, cabbage, and carrots. Areas of permanent settlement were also observed and raised concerns among team members regarding the possible encroachment of the old growth forest region.

BURKINA FASO

Drafting of Framework Plan; November
Bill Hargrove, Mudiayi Ngandu and Irma Silva-Barbeau traveled to Burkina Faso November 15-19 to learn the issues and concerns of the SANREM collaborators. Those concerns: lack of participation in organization of the workshop, low per diems, lack of recognition at the workshop, lack of finances to prepare the report, lack of finances to have a coordinating committee meeting and lack of coordination of field activities were discussed and remedies were implemented.

The writing team met on the second day to outline the Framework Plan with major elements of an introduction, constraints, actions to address the constraints, expected results and an appendix that would include reports of previous activities. The constraints and actions would be presented in the six themes used at the workshop: water, maintaining soil fertility, management of livestock, management of non-cultivated soil, village participation in natural resource management, and human health and nutrition. A time line was outlined and writing assignments were made.

Priming Activity; February-June
Mudiayi Ngandu traveled to Burkina Faso during the period of February 9 to 17, 1994 to organize the development of the Priming Program Plan for the site. Plan International at Boulsa was responsible for the implementation of the Priming Program, working with SANREM partners and other institutions with the skills required for the sound implementation of the program. The overall objective of the project was to provide Donsin farmers ample information on the SANREM objectives within the context of "Sustainable Agriculture and Natural Resource Management". Specific objectives included 1) the organization of a SANREM local committee; 2) to train and inform farmers about sustainable agriculture and natural resource management practices; 3) to insure that Donsin farmers (men and women) initiate and assume responsibility for the proposed activities to be undertaken during the initial phase; 4) to undertake concrete actions in regard to priming themes through support activities.

As part of the priming activity Arne Vanderburg conducted a Holistic Resource Management (HRM) Workshop, June 28-30, for local participants to learn how to set and achieve goals in small groups similar to their villages. The first two days were spent in learning sessions in Ouagadougou where participants were exposed to the principles of HRM through lectures and other activities. On the third day they made a site visit to Donsin and informally ran some plans through the HRM testing guidelines while walking through the village.

While the HRM concept was unfamiliar and difficult for some of the participants to grasp at first, enthusiasm was high as indicated by the lively discussions and questions. It was decided to continue providing HRM training for people who serve as facilitators/animateurs in Donsin and other areas of Burkina Faso. Future training will be focused on either administrators or field level animateurs, rather than trying to address both audiences in one workshop. It was discovered in this workshop that administrators were less interested in the "how to" parts of the training while the animateurs wanted more information on how activities would be conducted in a field setting.

Participant Training; April
A training and planning activity took place April 19 -21 in Ouagadougou. Cornerstones of SANREM CRSP methodologies and work plan development were the focus of the event. Bill Hargrove, site coordinator Laurent Millogo and Mudiayi Ngandu were in charge of the training. Other trainers were Irma Silva-Barbeau, Suchet Louis, and Arne Vanderburg. Sessions addressed the definition, process and monitoring of participation; gender as it relates to participation; concepts of landscape/lifescape and inter-institutional collaboration. The American team presented guidelines for preparing work plans, including format and key elements.

Weather Stations Installed; April
Two weather stations were installed by Ian Flitcroft and Galen Harbers. As part of the weather station subcontract between the University of Georgia and the SANREM CRSP, one automatic weather station and seven manually-read rain gauges were installed in the area of Donsin. A second weather station was installed in the Planned Parenthood International (PPI) compound at Boulsa.

The installation was accompanied by training of the collaborators. Salif Boema, INERA technician in Donsin, was trained to download the data from the weather station datalogger to the storage module and to report any visually apparent malfunctions of the station. Ouedraogo Boureima (PPI, Boulsa) and Bikienga Moumini (Ministry of Tourism and the Environment) were also trained in

those functions. At Kamboinse, Leopold Some and Laurent Millogo were taught to download the data from the storage module and handle the subsequent data files.

Each month Salif Boema will download the data from the stations and turn the storage module over to personnel at PPI who will send it to Ouagadougou in the weekly mail pouch. Leopold Some will download the month's data from the module to the computer and convert the data to ASCII format. He will send a copy to the Georgia Station where it will be checked for problems. When it is cleared for distribution summary sheets will be available from Mr. Some or the Georgia Station.

Development and Execution of Invitation to Work
The writers of the Framework Plan for Burkina Faso in conjunction with the National Coordinating Committee met to formulate the priority research questions which will be included in the Invitation to Work for Burkina Faso.

LATIN AMERICA

HONDURAS/COSTA RICA

Indicators Literature Review; July-August
Activities directed toward Latin America began with a literature review on Indicators of Sustainability for Honduras and Ecuador, July 15-August 16, 1993. Greg Eckert, graduate student, Institute of Ecology, University of Georgia, spent 4 weeks in Honduras at Zamorano University to evaluate the "grey literature" for Honduras and Ecuador with particular emphasis on indicators of sustainability.

Visit with US AID Honduras
A follow up trip to formulate a plan of action in Honduras was made in September. Bill Hargrove and Jim Hoey visited met with US AID Honduras to discuss potential SANREM-CRSP activities in Honduras.

EARTH and Zamorano Networking; March
Kevin McSweeney, Jess Reed, and Ralph Montee traveled to Honduras and Costa Rica in March. The purpose of the trip was to explore with two leading higher educational agricultural training institutions in Central America — L'Escuela Agricola Panamericana (PanAmerican School of Agriculture) or EAP at Zamorano, Honduras, and L'Escuela De Agricultura De La Region Tropical Humedal (Agricultural College for the Humid Tropical Region or EARTH in Costa Rica — the prospects for establishing a Latin American network to work on indicators of agricultural and natural resources sustainability. They also met with representatives of US AID Honduras, Fundacion VIDA, and Zamorano to design a plan of work for the upcoming indicators of sustainability activity. They discussed changes in the draft Memorandum Of Understanding. The new version would assign more action-oriented roles for AID Honduras and scaled back roles for Fundacion VIDA due to VIDA's limited staff than the present draft contains. Technical support including GIS ARC information processes, student involvement and direct community projects were all discussed as possible avenues of collaboration.

Work Plan Development; July
Kevin McSweeney traveled to Zamorano-EAP, Honduras, July 7-9, to help local collaborators finalize the work plan. He met with Fred Madison (UW-Soils & WI State Geological Survey Water Quality Extension Specialist) and Michael Lee (Professor of Hydrology, Department of Natural Resources and Conservation Biology at the Escuela Agricola Panamericana, Zamorano.) As part of refining the plan of work they also inspected agricultural and resource management projects in the Zamorano watershed with several Zamorano faculty and students. Additionally a preliminary work plan has been developed by EARTH University.

ECUADOR

Program Establishment; December
There were several country visits to establish the SANREM project in Ecuador. Bill Hargrove and Constance Neely went in December to commence institutional networking for the Ecuador site and to participate in the signing of Memorandum of Understanding with FUNDAGRO. They met with Ken Weigand (US AID Ecuador) to discuss the concerns of the mission in conjunction with SANREM CRSP activities. Due to impending budget cuts on the parts of all concerned, the SANREM team proposed a network of small activities, building on existing projects, that still addressed the cornerstones of the SANREM CRSP, yet had greater focus and quicker impact probability.

Site Selection and Partners Met; April
Bob Rhoades initiated activities in Ecuador with a site selection and networking trip April 24 - May 3. He met with representatives of US AID, FUNDAGRO, SUBIR, PROMUSTA, FLASCO, and Heifer Project International to become familiar with activities in progress and to discuss possible strategies for SANREM. He explored valleys south of the Cotacachi-Cayapas Nature Reserve as potential sites in the buffer zone, particular the Rio Alminde and Pacto watersheds. The area is approximately two hours drive from Quito. On the northern side of the reserve he explored the Agro-Ecuadorian communities to become familiar with the problems they face.

Planning Workshop; July
Bob Rhoades again traveled to Ecuador, July 7-15, for the purpose of work plan development. A planning workshop was held at Hotel Quito and the initial team was formed of partners from local universities, NGOs and government agencies. The Guayallabamba Watershed in the Cotacachi-Cayapas nature Reserve buffer zone was selected as the SANREM launch site in the area. The SANREM-Ecuador advance team (Jim Hoey, Bob Rhoades, Eduardo Sotomayor and Hector Ballesteros) visited offices of each potential institution member to gather support for the project. A budget and work calendar for the next few months was developed. The plans called for a workshop on community self diagnosis led by COMUNIDEC on August 11-12, execution of the PLLA for August 15-September 1, writing of PLLA by September 15 and final presentation of work plans by October 30.

Other Country Activities

CAPE VERDE

Initiation of Cape Verde Activities; November-May
Bill Hargrove and Irma Silva-Barbeau went to Praia, Cape Verde, November 14-15, to discuss the WARD project with US AID Cape Verde and potential mission buy-in to SANREM CRSP. They met with Steve Dosh (Project Officer, US AID Cape Verde) to review the project description. They met with Barbara Kennedy (Mission Director) who requested that SANREM assist INIDA in developing a farmer-driven research agenda through diagnostic activities such as the Participatory Landscape/Lifescape Appraisal and to assist them in designing and implementing an on-farm research program.

The next step was to develop a preliminary Plan of Work and a Rapid Institutional Analysis and Needs Assessment of INIDA in Cape Verde. Irma Silva-Barbeau traveled to the Republic of the Cape Verde Island in January. In Praia she met Barbara Kennedy (US AID Rep) and Steve Dosh (ADO) and read pertinent reports on the National Institute for Agricultural Research and Development (INIDA) and the WARD project. She travelled to Sa Jorge dos Orgaos to meet with Eng. Carlos Silva (INIDA vice president), Drs. Jose Levy and Maria Isabel Andrade and other researchers and officials of INIDA. She distributed literature on SANREM CRSP and WARD. She interviewed scientists and staff for the purpose of developing a Plan of Work for SANREM CRSP's part of the Cape Verdean WARD project. She also developed a rapid institutional analysis and needs assessment of INIDA at the request of US AID Cape Verde.

SANREM representatives and ACDI personnel finalized their portion of the Scope of Work at a meeting in Washington, April 12-15. The technical assistance provided by SANREM will be in the areas of agricultural research management, research planning, coordination, research staff supervision, on-farm research, research-extension linkages, sustainable management of fragile lands and various aspects of training.

Bill Hargrove, Irma Silva-Barbeau and Bob Gurevich traveled to Cape Verde, May 10-22, to finalize and coordinate plans with officials from US AID Cape Verde, INIDA. ACDI, DGASP and INERF. A time line was set up with a training workshop planned as the first activity, followed by a PLLA and a planning workshop in the fall. Short-term overseas training is scheduled for spring.

MOROCCO

Identifying Collaborators and Key Issues; September-October 1993
Drs. Bill Hargrove (Program Director), Jim Bonner (Program Officer, US AID Washington), Bryan Duncan (Auburn University), Dave Swift (Colorado State University) and Ed Kanemasu (University of Georgia) traveled during the week of September 27 and October 1 to Morocco to further identify the research priorities and interests of national programs (INRA/Settat, IAV/Rabat, and ENA/Meknes); identify a network of potential collaborators; evaluate potential sites with respect to sustainability, natural resource issues, landscape linkages, and farmer-first approaches; and develop a plan for proceeding to be considered by US AID Morocco, SANREM, and the Moroccan institutions.

The team met with John Mullenax and Jeff Allen (US AID Morocco), John Day and Daniel Debye (TSMM), Tom Gillard-Byers (MIAC Team Leader) in Rabat. Following these meetings, the team traveled to Settat to meet with MIAC researchers, Tom Gillard-Byers and Keith Moore and Center Director, Dr. El Mourid.

The team then went on a field trip, guided by Dr. Mohammad El Gharous, Leader of Soils Program (Trained in soil fertility with Bob Westerman at Oklahoma State), and Haddou Bouksirat (soil physics and pedology) to some of the area around Settat where INRA is working. Following the field trip, the team had a meeting with INRA/Settat sub-program leaders. Mustapha El Bouhssini, cereal entomologist, was the moderator. Mustapha El Bouhssini gave an overview of INRA/Settat using slides and presented some of their perspectives on sustainability. These included the following needs: soil erosion control, preservation of genetic resources, water economy, increased farmer revenues, flexible and adaptive systems, and information dissemination.

The group identified four areas of potential collaboration of high interest to both SANREM and INRA/Settat:

1) A farmer-first approach to erosion control problems
2) A farmer-first approach to water harvesting techniques
3) A broad-based program in agrometeorology/GIS/modeling
4) A farmer-first program in integration of livestock/forage/crop production

Identifying areas of interest and developing a preliminary Scope of Work; January
Ed Kanemasu and Dave Swift met on January 10 with Mohamed Hanafi, Charles Uphaus, Mohamed Kamal (Secretary General of INRA), Abdel Ilah Ambri (INRA Department of Milieu Physique), and El Idrissi (INRA head of cooperation) to discuss areas of interest to be pursued. The discussion centered on the Rif as the primary area with a secondary site in the high Atlas. The following day they visited three major watersheds and weighed the possibilities of each. The next day they compared notes and selected Oued Laou watershed based on the fact that it was the smallest in size and diverse in agriculture, supporting forests and cork oaks, as well as vegetable production.

They explored some possible secondary sites in the Atlas Mountains on January 14-16, and decided the logistics of a mountain site would be too complicated without yielding significant additional benefit. It was agreed the Rif site is sufficiently large and complex enough to engage the capabilities of both the Moroccan and American collaborators.

On January 17 they met with Fouad Rachidi to discuss the organization of the program from the Moroccan end. Rachidi was appointed as the coordinator of the project activities in Morocco by Mohammed Rochdi, director of ENA Meknes. Over the next three days they developed a preliminary work plan which they presented to US AID and conveyed to Charles Uphaus, M'hamed Hanafi, and Mohammed Kamal.

DETAILED OTHER ACTIVITIES

Below are detailed activities related to program management, training and education, and public outreach and information exchange by quarter. Detailed site activities are discussed in the section entitled Site Activities.

PROGRAM MANAGEMENT

Hosted Board of Directors and Technical Committee Meeting; October
There was a joint meeting of the Technical Committee and Board of Directors in Atlanta, GA from October 4-6. The program for the Technical Committee meeting included site updates, new activity reports, working group reports, the process for reviewing work plans and budgets, the process for affiliating with other projects, self monitoring and evaluation procedures, publication procedures, preparation for the External Evaluation Panel visit, and upcoming workshops in Indicators of Sustainability, Farmer First Research Methodologies, and Geographic Information Systems. The Board of Directors met on the final day to address the following agenda items: budget status of the project, a report from US AID (Jim Bonner US AID Washington and Program Officer), and the role of the Board of Directors.

Held External Evaluation Panel Orientation; January
The initial External Evaluation Panel met at the Georgia Station in Griffin, GA on January 14 for an orientation. Panel members Grace Goodell (Johns Hopkins University, School of Advanced International Study), Thurman Grove (North Carolina State University, International Programs Agricultural & Life Sciences), Robert Herdt (Rockefeller Foundation, Agricultural Sciences), and Leslie Swindale (University of Hawaii) listened to presentations about SANREM's goals, organizational structure, and current projects.

Jim Bonner reviewed SANREM CRSP/US AID's commitment to sustainability, Jerry Arkin explained SANREM's organization and Bill Hargrove presented the Conceptual Framework. Constance Neely, Mudiayi Ngandu and Jim Hoey reviewed the projects in the Philippines, Burkina Faso and Latin America, respectively. Cornelia Flora gave an overview of the technical work groups. Bob Gurevich explained NGO and local participation. Constance Neely presented training and workshop activities. The presentations were interactive with spirited questions from the panel about local participation, defining goals, measurable results, and replication of research.

Future plans call for the External Evaluation Panel to visit the project sites as well as cooperating institutions and to meet periodically with SANREM representatives for comments and review.

Held Board of Directors and Technical Committee Meeting; June
The Technical Committee met in Atlanta, June 6-7. It was chaired by Cornelia Flora. There were reports on the following topics: Indicators of Sustainability, Gender/User Working Group, GIS/Modeling, Philippines, Burkina Faso, Ecuador, Honduras and Costa Rica, Cape Verde, Outreach/Communications, Morocco, Cameroon, Monitoring and Evaluation of SANREM research, Data Sharing Policy, External Evaluation Panel Terms of Reference, Policy and Procedures Manual, Organizational Structure and the Future of SANREM.

The Board of Directors met in Atlanta, June 8. The meeting was called to order by Dr. Arkin at the request of Dr. Ken Shapiro who tendered his resignation as chair due to other commitments. Dr. Robert Gurevich was elected to serve as chair and proceeded as moderator for the meeting. Major decisions included: additional members to the Technical Committee and Board of Directors, approval of Ecuador as the primary site in Latin America with secondary sites in Honduras and Costa Rica, approval of Cape Verde as a field mission support/institutional building activity, and approval of a subcommittee to analyze opportunities for additional site projects and funding outside the core funding of SANREM.

Planned Conference on the Next Step in Sustainable Development and Research
Plans have been made to hold a think-tank for the Sustainable Agriculture Programs on September 29-30. This meeting is being made possible through special monies allocated to the SANREM CRSP by the Office of Agriculture and Food Security. The purpose of the meeting is to employ the original concepts for this new paradigm in sustainable agriculture and natural resources management research to revisit the work they did in preparation for *Toward Sustainability*. The title of the working session will be Toward Sustainability Revisited.

Held Cross Site Visit; July
As a prelude to the Indicators of Sustainability Conference August 1-5, site teams from the Philippines, Burkina Faso, Ecuador,Honduras, Costa Rica and Cape Verde met to discuss present site activities and share learning points by each.

WORKING GROUPS

Education Working Group Meeting; October
Irma Silva-Barbeau (VPI and Silva Associates), Ron Carroll (University of Georgia), Bill Deutsch (Auburn University), Suchet Louis (Tuskegee University), Kevin McSweeney (University of Wisconsin), Ralph Montee (PVO/University Center), and Constance Neely (SANREM,UGA) comprise the Education and Training Working Group. At a meeting of the working group on October 4, 1993, Bill Deutsch was made the Chairperson. They outlined a work plan to compile information on environmental education and policy and programs at the site and country level, to assist researchers and service organizations to include education components in their programs, and to develop education materials based on output from the SANREM CRSP activities.

Indicators of Sustainability Working Group Meeting; November
The Indicators of Sustainability Working Group met November 1 in Griffin, GA to outline their strategy for an Indicators of Sustainability Workshop scheduled to take place in May. The event was co-chaired by Barbara Bellows and Walt Butcher. In attendance were Bob Hart, Irma Silva-Barbeau, Gladys Buenavista, Bill Hargrove, Constance Neely, Bill Deutsch, Christien Ettema, Ralph Montee and Bob Gurevich. Bob Hart of INFORUM was named to be responsible for setting up an Indicators of Sustainability "electronic conference" to gather information concerning ongoing activities from around the globe.

Gender/User Working Group Planning Meeting; March
A planning meeting was held March 7 in Charlotte, North Carolina, to plan the upcoming forum on the integration of participatory development and participatory research in domestic and international programs. Members of the Planning Committee include Dan Gudahl and Jennifer

Shumaker (Heifer Project International), Bill Hargrove (SANREM ME), Bob Rhoades (UGA), Cornelia Flora (Virginia Polytechnic Institute), Suchet Louis and Bob Zabawa (Tuskegee University), Bob Gurevich and Ralph Montee (PVO/University Center), Paula Ford (USDA/SARE/ACE), Bryan Duncan (Auburn University).

The focus of the forum will be participatory methodologies, including the definition of participation, soliciting and maintaining participation, measures of participation and monitoring/evaluating participation.

GIS/Modeling Working Group
The GIS/Modeling Working Group has been responsible for providing GIS leadership and the establishment of GIS databases in the Philippines and Burkina Faso. The Modeling Group has made headway in determining and testing models that are most appropriate for those sites. Meetings were held in conjunction with Board of Directors and Technical Committee Meetings.

OTHER MEETING PARTICIPATION

Ambassador Blake, Committee on Sustainable Agriculture; October
Drs. Bill Hargrove and Constance Neely traveled to Washington, D.C. for several days of meetings. Jim Bonner (US AID Washington and Program Officer of the SANREM CRSP) accompanied Hargrove and Neely during their visits. The met with Ambassador Blake of the Committee on Sustainable Agriculture. Ambassador Blake has been extremely supportive of the SANREM CRSP and had several suggestions for the project.

SANREM CRSP Discussion and Meeting on Administrative Matters, Tuskegee University; September
On invitation by Suchet Louis, Director of International Programs, Tuskegee University, Bill Hargrove and Tonia Davis visited Tuskegee in Alabama on September 22. The purpose of the visit was two-fold. Tonia Davis, Accountant, visited with the business office of the International Programs Office. Bill Hargrove gave a lecture on the SANREM CRSP. There was a very good discussion following the presentation.

Annual Meeting of the Center for PVO/University Collaboration in Development; September
Many collaborators with the SANREM CRSP attended the 9th Annual Membership Meeting of the Center for the PVO/University Collaboration in Development in Fayetteville, Arkansas from September 30 to October 2. The theme of this year's meeting was *People, the Environment, and Sustainable Development: Integrating Theory and Practice at the Grassroots Level.* The meeting was attended by representatives of 12 University/Research Institutions and 8 International NGOs. Dr. Jim Bonner of US AID Washington (Program Officer - SANREM CRSP) gave a presentation on the US AID Reorganization. Dan Gudahl (Heifer Project International) gave a talk on ethno-veterinary Medicine in the Cameroon and Constance Neely (Asst. Program Director - SANREM CRSP) discussed the Participatory Landscape/Lifescape Appraisal Process of the SANREM CRSP.

Annual Meeting of the Association for Women in Development; October
Dr. Cornelia Flora (Virginia Polytechnic Institute and State University), Dr. Irma Silva-Barbeau (Silva Associates, Inc.), Ms. Gladys Buenavista and Dr. Constance Neely (SANREM CRSP, UGA) attended the sixth International Forum for the Association of Women in Development

(AWID) from October 21-24, *Joining Forces to Further Shared Vision*. The group led a roundtable discussion entitled "Mainstreaming Gender through a Participatory Landscape/Lifescape Approach" which covered the SANREM CRSP process, the activities in Burkina Faso and the Philippines, and the method for integrating research and development. The discussion around the SANREM CRSP activities was well received and very appropriate to the two key themes of the conference, multiple strategies women use to effect change and the benefits of sharing our vision.

Training Program for Chinese Financial Management Personnel from the Ministry of Finance at the Center for PVO/University Collaboration in Development; October
On October 18, Mr. Bob Wallace, Contracts and Grants (UGA), Mr. Dave Richardson, Sponsored Programs (UGA) and Bill Hargrove Program Director, SANREM CRSP, participated in a training program for a group of Chinese financial management personnel from the Ministry of Finance at the Center for PVO/University Collaboration in Development. The 17 trainees are responsible from the financial management of a $115 million World Bank funded "Agricultural Systems Services Project". The training program was a three week course in Project Management and Financial Management related to agricultural development projects.

The project will assist in increasing agricultural production and farmers' incomes by strengthening institutions that provide support services to farmers including improved information, computer networking , and monitoring and evaluation systems; reorganization and improvement of crop and livestock extension systems; reorganization of seed centers and promotion of seed commercialization; strengthening of veterinary and preventive animal health services; establish a national breed improvement program for livestock; tighten pharmaceutical, agro-chemical, and feed quality control; and promote cost recovery for services provided to farmers.

Meeting at ISNAR; November
Bill Hargrove and Willie Dar were invited November 20-23 to ISNAR in the Hague to deliver a paper entitled "The SANREM CRSP: A Framework for Integration of Systems Analysis Methods in a Sustainable Agriculture and Natural Resource Management Research and Development Agenda". The paper was well received, generating much discussion and many questions. The SANREM model continues to generate much interest in the international research and development arena. A paper will be published from this conference.

International Agroforestry Meeting in Burkina Faso
Mr. Chuck Rhoades attended the Parc Agroforestry conference in Ouagadougou along with approximately 200 other participants who are working in semi-arid regions of West and Southern Africa. In addition to attending the conference he met with Rudy Vigil at the US AID mission. He also participated in a half-day field trip to Karite and Acacia albida parklands west of Ouagadougou (Koukoulougou) where the chief is famous for his Karite orchard. He met with Chin Ong, senior scientist from ICRAF, who is proposing to set up a project to examine Parc land management.

He also visited Bunasols, the national soils laboratory in Ouagadougou. A trip to Donsin was organized and led by Laurent Millogo, US AID liaison to SANREM. Also on the trip were Fredrick Kambou (INERA); Sara Workman (Winrock OFPEP Project); Mark Buccovich (USDA-Forest Service International Support Program).

American Society of Agronomy Meetings; November
Bill Hargrove, Constance Neely, and Barbara Bellows gave a series of talks on the activities of the SANREM CRSP at the American Society of Agronomy meetings held in Cincinnati, Ohio, November 7-12. The three papers were followed by a roundtable discussion led by Chuck Francis. S. K. DeDatta (Board of Directors, SANREM CRSP) participated in the discussion as well.

Alternatives to Slash and Burn Conference; March
More of the SANREM CRSP philosophy was disseminated in March when Bill Hargrove attended the Global Steering Committee of Alternatives to Slash and Burn Agriculture which met in Yaounde Cameroon, Africa in March. Dr. Hargrove served as a resource person for the steering committee which espouses values and philosophies similar to those held by SANREM. SANREM's representation at the conference opened the door for collaboration, especially for the working groups.

Southern Association of Agricultural Experiment Station Directors; April
Dr. Bill Hargrove presented an overview of SANREM activities and policies to the annual meeting of the Southern Association of Agricultural Experiment Station Directors held in Williamsburg, Virginia, April 13. The presentation was part of a mini-seminar on sustainable agriculture.

TRAINING AND INFORMATION EXCHANGE

Publication of Ecolinks Newsletter, September, 1993
The first issue of the SANREM Ecolinks Newsletter was published by the Center for PVO/University Collaboration in Development and mailed out in October, 1993. This newsletter is focused on sharing practical information and the results from the SANREM CRSP activities. At this time, it is published in English, French and Spanish.

Publication of LAST UPDATE; January and May, 1994
The newsletter LAST UPDATE has grown in readership from 200 last year to 450 for the most recent issue. A survey of readers was conducted by phone and through an insert in the newsletter to find out what they would like to read in future issues. Their suggestions are being implemented. Guest editorials by project participants have proved popular with the readers.

Publication of LAST IMPACTS
A monthly bulletin called LAST IMPACTS is released to officials in Washington D.C. to keep them current on SANREM activities. Each bulletin highlights one impact from a SANREM project.

Initiated Electronic Bulletin Board for Distribution of SANREM NEWS; January
The SANREM CRSP initiated an electronic bulletin board with the SANREM NEWS through INFORUM as of January 1. Bullets will be posting to the SANREM NEWS at least every two weeks. You can subscribe to SANREM NEWS by sending an e-mail message where the first line reads: SUBSCRIBE SANREM NEWS to ALMANAC@PARTI.INFORUM.ORG.

Establishment of SANREM CRSP Library for SANREM Collaborators located at the Site of the Management Entity

At the location of the Management Entity at the Georgia Station, Griffin, GA, there will be a central library for project related materials for the use of Collaborators. The library is housed within the Georgia Station Library. The materials have been organized into general categories as well as within site information. Dr. Mihovil Vlahinich has put the entries into Reference Manager so that there will be a ready computer reference by key word available for SANREM CRSP needs. There will be an update of new arrivals to the library in the subsequent newsletters.

Presently, the "Miho" Database has 1170 entries including site maps. There are presently 165 key words. Users of the database will be able to retrieve documents by author, key word, journal name, publication year, editors, titles and type of document.

The SANREM CRSP would like to use the SANREM Library to assist collaborators in obtaining information related to sustainable agriculture and natural resource management. This will be particularly useful for site-specific documents including grey literature collected on SANREM CRSP missions.

Second Annual SANREM CRSP Training activity

The second SANREM CRSP training activity entitled Innovative Approaches to Sustainability was held at Virginia Polytechnic Institute and State University. Although held in the United States, 11 participants from 5 SANREM CRSP country sites (Morocco, Honduras, Burkina Faso, the Philippines, and Ecuador) participated. The 35 participants were not limited to SANREM CRSP collaborators and represented host country and US universities, non-government organizations, US AID and collaborators from the new IPM CRSP.

Community Goal Setting, Landscape Ecology, Farmer Participatory Methodologies, Gender Analysis, Lifescape Interactions, Indicators of Sustainability, and Collaborating with Non-Government Organizations were the key topics of the training workshop. The program was clearly seen as a success and the interaction of collaborators across sites greatly improved the understanding of the entire SANREM CRSP mission.

Trainers included Cornelia Flora, Irma Silva-Barbeau, Ginny Seitz, Gladys Buenavista, Bob Rhoades, Ron Carroll, Jerry Aaker, Arne Vanderburg, Mary Lou Surgi, Julie Burt, Bill Deutsch, and Constance Neely. There was also a team from the University of Florida Farming Systems Training Group who assisted in evaluation.

SANREM Training Held on Site

A discussion of the training held in the Philippines and Burkina Faso are discussed under site activities in this section.

Conducted E-Mail Conference on Indicators of Sustainability

Over a three month period, 200 people from 35 Countries
addressed the topic from both a theoretical and practical perspective gathered their experiential resources to approach the topic by a) defining a framework, b) agreeing on what systems (phenomena) will be sustained, and c) developing a set of indicators for prediction of the future state of these systems. This activity laid some critical groundwork for the evaluation and selection of indicators, and measuring and using indicators. Although, it was known that the e-mail

conference would be followed by a face-to-face conference in August, 1994, participants asked to continue the e-mail discussion past the original closing date.

Site Teams Information Exchange
One of the most useful training sessions occurred in Washington D.C. when a cross-site exchange of SANREM information and experiences took place between teams from the Philippines, Burkina Faso, Ecuador, Costa Rica, Honduras, and Cape Verde. That meeting exemplified the SANREM CRSP philosophies of participation and farmer-to-farmer transfer of knowledge.

Chinese Financial Managers
Some training even extended outside of SANREM host countries. Bill Hargrove participated in a training program for a group of Chinese financial management personnel from the Ministry of Finance at the Center for PVO/University Collaboration in Development. The 17 trainees are responsible for the financial management of a $115 million World Bank funded Agricultural Systems Services Project. The training program was a three week course in Project Management and Financial Management related to agricultural development projects.

SANREM CRSP INSTITUTIONAL INVOLVEMENT

Philippines

Total Participation

U.S. Institutions:	US AID, UGA, PVO/U Cntr, VPI, Auburn, U Wisc, Tuskegee
Int. PVOs:	HPI, CCF
CGIAR Centers:	AVRDC, IRRI, ICRAF, CIP
Host Country Institutions:	DA, DENR, PCCARD, NPC, UPLB, CMU
Local NGOs:	NECI, SHAISI, Talaandig Tribe
LGUs:	Provincial, Municipality

Reconnaissance

U.S. Institutions:	UGA, PVO/U Cntr, VPI
Int. PVOs:	HPI
CGIAR Centers:	IRRI, ICRAF
Host Country Institutions:	NPC, UPLB, CMU
Local NGOs:	NECI

Workshop

U.S. Institutions:	US AID, UGA, PVO/U Cntr, VPI, Auburn, U Wisc
Int. PVOs:	HPI, CCF
CGIAR Centers:	AVRDC, IRRI, ICRAF, CIP
Host Country Institutions:	DA, DENR, PCCARD, NPC, UPLB, CMU
Local NGOs:	NECI
LGUs:	Provincial, Municipality

Writing Team

U.S. Institutions:	UGA, Auburn, U of Wisc, Tuskegee
Int. PVOs:	HPI, CCF
CGIAR Centers:	AVRDC, IRRI
Host Country Institutions:	DA, DENR, PCCARD, UPLB, CMU
Local NGOs:	NECI, SHAISI
LGUs:	Provincial, Municipality

Training

U.S. Institutions.	US AID, UGA, PVO/U Cntr, VPI, Auburn,
Int. PVOs:	HPI, CCF
CGIAR Centers:	AVRDC, IRRI, ICRAF, CIP
Host Country Institutions:	DA, DENR, PCCARD, NPC, UPLB, CMU
Local NGOs:	NECI, SHAISI, Green Mindanao, Talaandig Tribe
LGUs:	Provincial, Municipality

Implementation

U.S. Institutions:	UGA, Auburn, U Wisc, Tuskegee
Int. PVOs:	HPI
CGIAR Centers:	AVRDC, IRRI, CIP, ICRAF
Host Country Institutions:	DA, DENR, PCCARD, UPLB, CMU,
Local NGOs:	NECI, SHAISI, Green Mindanao
LGUs:	Provincial, Municipality

Burkina Faso

Total Participation

U.S. Institutions:	US AID, UGA, PVO/U Cntr, VPI, U Wisc, Tuskegee, Wash St
Int. PVOs:	Plan Int, World Neighbors, Save the Children, AFRICARE
CGIAR Centers:	ICRAF
Host Country Institutions:	INERA, IRBET, IDR/Univ
LGUs:	Provincial, Municipality, CRPA,

Reconnaissance

U.S. Institutions:	UGA, VPI, U Wisc, Tuskegee, Wash St
Int. PVOs:	Plan Int
CGIAR Centers:	ICRAF
Host Country Institutions:	INERA, IRBET, IDR/Univ
LGUs:	Provincial, Municipality, CRPA, MET

Workshop

U.S. Institutions:	UGA, VPI, U Wisc, Tuskegee, PVO/U Cntr
Int. PVOs:	Plan Int, World Neighbors, Save the Children, AFRICARE
CGIAR Centers:	ICRAF, ILCA
Host Country Institutions:	INERA, IRBET, IDR/Univ
LGUs:	Provincial, Municipality, CRPA, MET

Training

U.S. Institutions:	UGA, Silva Associates, U Wisc, Tuskegee,
Int. PVOs:	Plan Int
CGIAR Centers:	
Host Country Institutions:	INERA, IRBET, IDR/Univ
LGUs:	Provincial, Municipality, CRPA, MET

Writing Team

U.S. Institutions:	UGA, Silva Assoc., Wisc, Tuskegee, PVO/U Cntr
Int. PVOs:	Plan Int
CGIAR Centers:	ICRAF
Host Country Institutions:	INERA, IRBET, IDR/Univ
LGUs:	Provincial, Municipality, CRPA, MET

Ecuador

Total Participation

U.S. Institutions:	US AID, UGA, VPI, Auburn, U Wisc, Tuskegee, Colorado State
Int. PVOs:	HPI
CGIAR Centers:	
Host Country Institutions:	FLACSO, San Francisco de Quito
Local NGOs:	COMUNIDEC

Reconnaissance

U.S. Institutions:	US AID, UGA
Int. PVOs:	HPI
CGIAR Centers:	
Host Country Institutions:	FLACSO, San Francisco de Quito
Local NGOs:	COMUNIDEC

Cape Verde

Total Participation

U.S. Institutions:	US AID, UGA, PVO/U Cntr, Silva Associates, Auburn, Tuskegee
Int. PVOs:	ACDI, Plan International
CGIAR Centers:	
Host Country Institutions:	INIDA, DGASP, INERF
Local NGOs:	To be determined

Reconnaissance

U.S. Institutions:	US AID, UGA, PVO/U Cntr, Silva Associates, Auburn
Int. PVOs:	ACDI
CGIAR Centers:	
Host Country Institutions:	INIDA, DGASP, INERF
Local NGOs:	

Training

U.S. Institutions:	US AID, UGA, Silva Associates, Tuskegee
Int. PVOs:	ACDI, Plan International/Burkina Faso
CGIAR Centers:	
Host Country Institutions:	INIDA, DGASP, INERF
Local NGOs:	
Other Institutions:	SANREM CRSP/Burkina Faso

Costa Rica

Total Participation

U.S. Institutions:	US AID, UGA, PVO/U Cntr, University of Wisconsin, Iowa State
Int. PVOs:	
CGIAR Centers:	
Host Country Institutions:	Earth University
Local NGOs:	To be determined

Honduras

Total Participation

U.S. Institutions:	US AID, UGA, PVO/U Cntr, University of Wisconsin,
Int. PVOs:	Heifer Project International, Catholic Relief Services
CGIAR Centers:	
Host Country Institutions:	Zamarano
Local NGOs:	Fundacion Vida

PROGRAM TECHNICAL AND MANAGERIAL ISSUES
Problems/Issues and Approaches to Resolution

Technical Issues

Ecuador Site Initiation: In response to an invitation from US AID Ecuador to include Ecuador as a core site in the SANREM CRSP (September, 1992), we made several trips from which we got alternatively positive and negative responses from the mission. We were asked to send a team of full professors down to select a site. The team was told by mission personnel to make a decision about who they would be working with and to choose a site prior to departure. As a result, FUNDAGRO was chosen as the lead institution in the diagnostic phase and a large transect on the western coast was chosen. A new Mission Director was put in place and during a December, 1993 trip, we signed a MOU with Fundagro and the mission. Following this, we were informed that Fundagro had not fulfilled obligations related to accounting and we were advised not to work with them by the mission. In May, Bob Rhoades made a reconnaissance trip which resulted in the naming of new collaborators being named and new site selection. This was a successful trip from which we have received continued good input from the mission. During all of this frustration, a key liaison was Eduardo Sotomayor, HPI/Ecuador who worked with the mission to come to a decision as tc their relationship with SANREM. The lesson was one of persistence and flexibility.

Closing of Burkina Faso Mission: After holding our participatory workshop, it was announced that the Burkina Faso mission would be one of the missions slated for closure. Having built a good foundation for the program with the host country's national programs and the community of Donsin, we campaigned to continue the SANREM CRSP. The Management Entity provided impact statements to the mission and the Africa bureau. The Program Officer and the Management Entity worked with the mission to include SANREM in the closeout plan. Although the mission is now scheduled to close in 1995, the SANREM CRSP will be allowed to continue.

Equipment purchase: since the inception of the SANREM CRSP we have not been allowed to purchase any equipment. This situation came about because during the proposal stage, the equipment was not included in line items within the subcontracts for site activities. Equipment for the Management Entity was provided through cost share by the University of Georgia. Equipment costing over $500 had to have the approval by US AID Washington. This has been a very unfortunate turn of events and has yielded obstacles for progress at the sites. In order to get AID approval for equipment purchases, appropriate forms must be filled out, signed off on by the Program Officer and submitted to the Contracting Officer. We are now resubmitting our equipment needs list and revised our original budget to show the equipment in the subcontracts. This should allow for equipment purchase in the near future.

Managerial Issues

Subcontracting: To carry out the SANREM CRSP, subcontracts are issued to host country institutions and this results in many subcontracts that must be processed by the University of Georgia. Historically, the University of Georgia has not subcontracted with Host Country Institutions and was somewhat reluctant to change this pattern. Additionally, advances are

necessary for host country institutions to begin their work, since monies are not available at these institutions to use a reimbursement mechanism. SANREM was clearly a different kind of program and it was necessary to provide better information to Sponsored Programs, Contracts and Grants, and the Business and Finance departments of the University of Georgia. Jim Bonner and Mildred Blakeney of US AID Washington came to the University of Georgia and, with the Management Entity, met with representatives from the above departments. This may have been the first time that the donor, administrator and these entities had met on any program. It was extremely useful because now these departments are interested in the SANREM CRSP and are better prepared to facilitate the needs of the program. The advances to host country institutions continues to be a problem because there are no clear receipts to represent these monies in the accounting system. To date, the University has advanced $272,000 to these institutions. We have now put into place a monthly accounting system on advances.

Cost Share: During the proposal phase of the SANREM CRSP, $4.1 million was written in as cost share by the University of Georgia and consortium members for the life of the project. To date, institutions have not been providing enough information on cost share and it appears to be low considering the time frame. We have now put in a monitoring system to ensure that cost share is reported, and we are requiring that cost share be outlined on invoices submitted to the University of Georgia.

Personnel: The Management Entity is presently staffed by one program director, one assistant program director, an administrative assistant, and an accountant. Because of the growth in the number of sites of the SANREM CRSP and contracting and communications requirements, it was determined that more personnel are needed. Jim Bonner of US AID Washington concurred and the Board of Directors voted to add a communications specialist, an office manager and a grants officer. To date advertisements have been placed for both the communications specialist and the grants officer. This will greatly enhance the operation of the program ... and the life span of the original staff.

ATTACHMENT A

SANREM CRSP

ANNUAL REPORT

1 August, 1993 to 31 July, 1994

Project: Stabilizing commercial vegetable production in the Manupali Watershed, the Philippines - AVRDC

PI Completing this form: D.J. Midmore, AVRDC

Current Status: Work plan 1

Report: On-site activities started after the planned date due to delays in subcontract development, but involvement of the PI in four in-country discussion sessions within the year, and one GTC Meeting ensured close contact and a platform for the objective discussion of pros and cons of vegetable production and production research, and their integration with, and impact on, the use of other natural resources within the watershed.

Research proper began in May with a quick analysis of available hard copy documents of the physical and agricultural characteristic of the watershed, upon which were initially based the *ex-situ* choice of survey sites. In contrast to traditional research methodology where surveys/installation of research plots might well directly follow, we interacted with the knowledgeable members of the community at large, to pinpoint the most representative areas of vegetable production for survey. For example, farmers in one area supplement their production of vegetables through cultivation on an area in an adjacent municipality. One hundred and two farmers producing vegetables (approx. 15% of the number of vegetable farmers) were interviewed for information on cropping patterns (including non-vegetables), land abandonment, inputs, outputs, revenue, choice of location and only one fifth of these farmers actually had abandoned lands, indicative that perhaps other production systems were more responsible for such a phenomenon. Enhanced efficiencies in use of water (e.g. impoundment, mulching) might be implicated if vegetable production were to extend beyond the creeks, while analysis of soils on cultivated fields, non-cultivated land in the proximity (e.g. under hedgerows) and on abandoned lands might lead to hypotheses on current vegetable production areas and future

strategies for expansion of the production zones. It can be argued that, through expansion of sustainable production techniques which convert imported inputs into saleable high value outputs, vegetable production may play a role in the sustainable development of the watershed as a whole. The crux of the following years will be to view this hypothesis, in the light of the social, economic and environmental scenario.

Currently, the data which have been digitized are undergoing, routine analyses searching for trends in production, inter-relationships between biological, social and economic attributes, and the like.

Department of Agriculture Staff benefitted from this survey in that they were introduced to the concept of evaluating farmer knowledge on his/her production system, and associated constraints. Farmers themselves, as true partners in the research process, now have their expectations raised in-as-much as they hope to profit by feedback of analyses and recommendations for *in-situ* (and *ex-situ*) research. As short a turnaround as possible in returning to the community is called for, in order to maintain the momentum of good-will amongst the vegetable producers.

Staff summary:

Mr. Poudel (Graduate Student)
GIS/Agronomy Full time Taiwan/Philippines

Dr. Midmore (PI) visits to Philippines
18-21 Sept.; 30 Nov. -3 Dec. 1994, and 14-18 March; 4-9 April, 1995

Dr. Midmore trip to US
4-11 June, 1995
Data analyses and GTC review 5 days

Ms. G. Kuo (Secretary) 3 days

J.U. Yang (Student) 20 days data entry

Publications: None

Meeting/Symposia: None

AUBURN UNIVERSITY
INSTITUTIONAL/SUBCONTRACT REPORT FOR 1993-94

I. Institutional Relationship to the Project

All activities of the SANREM CRSP at Auburn University are coordinated through the International Center for Aquaculture and Aquatic Environments (ICAAE), in the Department of Fisheries and Allied Aquacultures (FAA). The Principal Investigators from Auburn are Dr. Bryan Duncan (Director of the ICAAE and FAA Professor) and Dr. William Deutsch (Environmental and Training Specialist, ICAAE) and Sr. Research Fellow, FAA). Auburn University has been an active consortium member since the inception of the SANREM program, and has participated in writing the Global Plan, initial Board of Directors and Global Technical Committee memberships and training/facilitation at orientation sessions and workshops. Our primary technical contribution to the SANREM consortium has been in the area of aquatic resource management and environmental education.

Personnel and SANREM roles

Dr. Bryan Duncan, Board of Directors (1993-), Morocco, External Evaluation Panel, Water Resource Management and Education work plan partner, the Philippines.

Dr. William Deutsch, Global Technical Committee, Chair of the Education and Training Committee, Member of the Indicators of Sustainability Committee, Technical Liaison to the Philippines, Principal Investigator of the Water Resource Management and Education work plan, the Philippines.

Dr. Upton Hatch (Assoc. Prof., Dept. of Agricultural Economics and Rural Sociology)
Water Resource Management and Education work plan partner, the Philippines.

Dr. Evelyn Belleza (Postdoctoral Fellow, Dept. of Agricultural Economics and Rural Sociology) Water Resource Management and Education work plan partner, the Philippines.

Ms. Marianne Jensen (Administrative Assistant, ICAAE) Financial accounting of the Auburn University work plan.

II. Accomplishments

A. Meetings in the U.S.

SANREM Board of Directors and Global Technical Committee Meeting - Atlanta, GA
4-6 October 1993, Deutsch

Indicators of Sustainability Comm. Meeting - Griffin, GA
4-5 November 1993, Deutsch

Planned for Conference and Workshop

SANREM Training Session - Blacksburg, VA
21-24 November, 1993, Deutsch and Belleza
Deutsch presented training session on the Landscape Approach; Belleza was oriented to SANREM approach

Formation of External Evaluation Panel committee
February, March 1994, Duncan
Duncan served as the Chairman of the committee and was charged to develop terms of references

Environmental Education Meeting - Auburn, AL
8 March 1994, Deutsch
Wrote a draft revision of the work plan with Constance Neely

Leveling Meeting for U.S. Work Plan holders - Griffin, GA
April 1994, Duncan (also representing Deutsch), Hatch and Belleza
Integrated work plans for the Philippines; updated on progress in the field

Environmental Education Meeting - Griffin, GA
3 May 1994, Deutsch
Wrote a draft revision of the work plan and meet with Bill Hargrove and Constance Neely

SANREM Annual Meetings - Atlanta, GA
5-7 June 1994, Deutsch
Presented a progress report and slides of the work in the Philippines
Participated in the draft revision of the Invitation to Work for Burkina Faso

Meeting re. Terms of Reference for the External Evaluation Panel - Griffin, GA
July 1994, Duncan
Finalization of Terms of Reference for the EEP

Indicators of Sustainability Conference and Workshop - Washington, D.C.
31 July - 5 August 1994, Deutsch
Presented paper called "Return of the Water Spirits..." and prepared draft for the Proceedings,
Co-facilitated Workshop Sessions

B. Meetings and Fieldwork in the Philippines

Round Table Meeting for work plan review and budgets, IRRI, Los Banos,
29 November -7 December, 1993, Deutsch
Co-facilitated the Water Focal Area for prioritizing and funding work plans

Training and Integration (Leveling) Workshop at Central Mindanao University and SHAISI, 11-18 March, 1994, Deutsch
Served as a Facilitator at workshops and made presentations re. work plan and Landscape

Association of Barangay Captains (ABC) and Community Advisory Council (CAC) Meeting Lantapan, Bukidnon, 22 March 1994, Deutsch Presented a SANREM overview and specifics of the Auburn work plan

Field work, including stream inventories and sampling at the Pulangi IV reservoir, 19-31 March 1994, Deutsch

Socioeconomic portion of the Aquaculture Feasibility Study of the Auburn work plan
Assessment of national and regional policy and programs in Environmental Education
13 June - 17 August 1994, Belleza

SANREM Water Quality Workshop and stream/reservoir sampling,
28 June - 14 July 1994, Deutsch
Conducted Workshop, facilitated water quality monitoring team formation, met with work plan partners at HPI, SHAISI, CMU and UPLB, and inventoried streams and the reservoir

B. Meetings and Fieldwork in Morocco

Preliminary assessment for SANREM activities,
September 1993, Duncan

III. Significant Findings and Impacts

A. Work Plan Implementation

We are on schedule for conducting our training workshops, monitoring team formation and biological and chemical inventories of Lantapan streams and the Pulangi IV reservoir.

1. A Water Quality Workshop was conducted from July 5-11, 1994. Day one was a teaching session at SHAISI, with demonstrations and practice for doing each water quality test. The following three sessions were field oriented and the final day's session summarized all data collected and discussed interpretations of the information. Twenty-six people participated in the first day's session at SHAISI; Eight of the 14 barangays of Lantapan were represented at the workshop; 10 participants attended at least three sessions and will become certified water quality monitors; 12 people expressed interest in forming monitoring teams. Data are being summarized from Lantapan and the Pulangi IV Reservoir and will be incorporated into the next version of the training workbook for upcoming workshops (two workshops are tentatively planned for October 1994).

2. Water quality data, including six water chemistry parameters (pH, temperature, dissolved oxygen, total alkalinity, total hardness and turbidity), stream macroinvertebrate samples and total suspended solids samples were collected by the teams at five sites (two sites on the Alanib river and three sites on the Kulasihan River). We avoided sampling in the Maagnao and Tugasan Rivers (in the western part of Lantapan) until the ritual with the Tala-andig was completed and we had their permission to sample there. Team members who are from that area are planning to set up sampling sites on those streams in the future. Water quality of the Pulangi IV reservoir was measured at 3 m depth intervals at the dam in March and July 1994, to supplement data collected there by a SANREM team in January 1993.

3. Water Quality Monitoring Teams were formed and equipped to sample streams in Lantapan on a regular basis, with a locally-based work plan coordinator. Teams were formed for the Alanib River (8 people), the Kulasihan River (2 people) and the Maagnao River (2 people).

4. A practical Training Design for citizen water quality monitoring was developed for the site which emphasized "hands on" work in streams of interest to the people. A Workbook was written to be customized for Lantapan, including previous water quality data collected on-site and at the Pulangi IV reservoir as examples of principles taught. This workbook will "evolve" at the pace of the community training and data collection to enhance "ownership" of the information and program by the citizens.

5. The socioeconomic (field work) portion of an Aquaculture Feasibility Study was completed. Participatory evaluations were made at 33 farms in nine barangays: 8 with existing fishponds, 5 with abandoned ponds and 20 with interest and potential sites for fishpond construction. The study also included visits to governmental and non-governmental organizations and farms related to aquaculture.

6. An evaluation of Environmental Education programs was made at the international, national and regional levels to determine what materials and policies exist and what SANREM might contribute. This included the identification of environmental education training centers throughout the country, interviews with governmental and non-governmental personnel and policy descriptions of DENR, EMB, DECS, ADB, UNDP and other groups.

B. Community Building and Extension of SANREM Cornerstones

1. Work with the Lantapan Community, the Philippines

Citizen water quality monitoring teams are being established in which people have been trained and equipped to work as a team and test their local water. These teams may form the nucleus for other forms of community development, including enhancing environmental education programs in the schools and among extracurricular groups and clubs.

Through the Barangay Captains Meetings and other meetings with the Local Government Unit, there has been a continuing extension of the SANREM approach in general and the

objectives of the Auburn work plan specifically.

The Principal Investigator of the Auburn work plan was active in the Tala-andig tribal ritual which resulted in a Memorandum of Understanding between the project and the tribal community. This also led to permission by the Tala-andig to begin implementing the Auburn work plan and monitoring water quality on tribal land, with tribal representatives in the monitoring teams.

Overall, people from the LGU, tribal community, schools and farmers have participated and express continued interest in the work plan and regular monitoring is underway at several sites on four streams.

2. SANREM Team Building

Through active participation in various SANREM programs, committees and meetings, we have learned much about designing a interdisciplinary/intersectoral work plan, building a team of participants and implementing a community-based water quality program in the Philippines. Much of this information has been transmitted to other work plan holders and to key personnel who are planning the activities at other SANREM sites. For example, we have been invited to participate in strategy meetings for planning the Invitation to Work for Burkina Faso, based on the Philippines experience.

We have begun to more fully integrate the Auburn work plan with other work plans in the Philippines, including those of SHAISI, IRRI, AVRDC and UGA, As they pertain to water quality and quantity issues and to environmental education. This will improve the conception and implementation of future work plans for the Philippines and perhaps other sites.

3. Philippine Institution Building

The Auburn work plan has partners at UPLB, CMU, SHAISI, HPI and the Governor of Bukidnon's Office. Implementation of our work plan has resulted in the transfer of new techniques and equipment to some of these institutions that our partners will be able to use in teaching, research and extension activities beyond SANREM.

Through the work plan, Filipino scientists have been linked with those in the U.S. to improve laboratory and library reference materials. For example, we have contacted taxonomic specialists in the U.S. who have agreed to verify identifications of biological specimens collected from the SANREM sites and initially identified by scientists at UPLB. These verifications will improve the ability of the Filipinos to do future studies an will provide them with museum specimens.

Non-governmental organizations, such as HPI, have increased contact with researchers at Auburn University and have expressed a desire to build partnerships that will improve their technical ability to implement aquaculture projects at other sites.

IV. Problems/Issues and Approaches to Resolution

1. It required more time than anticipated to build the work plan team and begin implementation. Field work began about 3-4 months later than planned. Much of this "delay time" was spent building community among SANREM partners and the residents of Lantapan. The ritual with the Tala-andig created a relationship with the tribal community that enabled us to work in a much more participatory way. It seems that the delays were absolutely required to improve the implementation of the plans and that all community-based activities will require future time to "stay leveled" and progress at the "pace of the people" which we believe to be the only pace of a meaningful, long-lasting approach to sustainability. We have made contingency plans to either complete our proposed objectives by July 1995, or to extend for one quarter.

2. Some of the work plan partners have less technical capability than anticipated, requiring additional training and equipment. In addition to providing technical data and conducting water quality workshops for the citizens, we see some of the initial constraints resolved through a process of "institution building" where scientist/partners of the work plan gain the skills, references and equipment they need to complete the objectives. Additionally, we have identified alternative groups (local industry laboratories) for some laboratory analyses that the university partners may not be able to do.

3. Communications by phone, fax and shipment of packages has been much slower and time/money consuming than anticipated. We have hired a locally-based work plan coordinator to stay in regular contact with all partners and facilitate the reporting of information. We are still learning the procedures for bringing equipment into the Philippines in such a way to avoid impoundment and paying unnecessary taxes.

INSTITUTION/SUBCONTRACT REPORT FOR ANNUAL REPORT

Year II - SANREM CRSP

Center for PVO/University Collaboration in Development (PVO/University Center)/Western Carolina University

I. INSTITUTIONAL RELATIONSHIP TO THE PROJECT

A. Dr. Robert Gurevich, Executive Secretary, is on the Board of Directors for SANREM. (In June 1994 he was elected as Chairman.)

B. The PVO/University Center is a continuing partner throughout the life of project of the SANREM Consortium. (It was also a member of the SANREM planning grant team.)

C. Responsibilities

The primary responsibilities of the PVO/University Center as defined in its work plan are to: assist in the development of mechanisms to facilitate the integration of end-users in SANREM CRSP research activities; help to promote linkages among PVOs/NGOs, grassroots organizations, and research institutions involved in the SANREM CRSP; assist in monitoring end-user participation; disseminate applied and technical information with a special focus on PVOs/NGOs, to include production of a global newsletter; help in the process of integrating important indigenous knowledge and practice with new knowledge generated by SANREM CRSP activities; and conduct applied research on collaboration and information exchange among PVOs/NGOs/local organizations and universities, researchers, and bilateral and international development agencies as it relates to SANREM CRSP sites. It was assigned the responsibility of coordinating the planning for a workshop in user participatory collaborative research to be held in Year III of SANREM.

II. DETAILED ACCOMPLISHMENTS

A. Global Planning

1. General

The PVO/University Center, as one of the initial core members of the SANREM Consortium, plays an ongoing active role in the planning, design, and monitoring aspects of the CRSP. It serves on various bodies in the SANREM organizational structure, including the Board of Directors, the Technical Committee, various cross-cutting working groups, and other committees such as the Monitoring and Evaluation Committee.

SANREM/PHILIPPINES
HEIFER PROJECT INTERNATIONAL
INSTITUTION/SUBCONTRACT REPORT 1993 - 1994

I. Introduction

As the workplan is entering its second year of implementation, it is seen as an important endeavor the review and measurement of the workplan past activities and accomplishments to determine whether original objectives have been met and/or (are) still relevant in the coming calendar year. Hence, this paper shall attempt to systematically outline and measure workplan progress and provide valuable love of information regarding the dynamics of its field implementation.

II. Scope, Limitation, and Organization of Information

The framework adopted in the assessment of the logistical workplan activities included the following essential aspects of its implementation: Activity, Targets, Actual Accomplishments, Problems Encountered, Action Taken, Impacts. Moreover, this assessment paper shall only cover the first year of workplan implementation and is based on the proposed targets and expected outputs as described n the approved logistical workplan.

The following objectives of the approved workplan were taken into consideration in the review and assessment of workplan implementation:

a) Establish the Financial Management Office within the Philippines, hiring affiliated personnel for this office, and providing the infrastructure necessary to implement the SANREM CRSP Program;

b) Establish the Site Coordination Office for SANREM CRSP in the Philippines, including hiring of Site Coordinator, necessary support staff, and the office infrastructure;

c) Provide financial and logistical support for the necessary meetings of the National Coordinating Committee and the Community Advisory Committee in the Philippines;

d) Participate in site activities in Philippines, Burkina Faso, and Ecuador, including workplan implementation, workplan development, reconnaissance, and workshops (HPI Headquarters Staff).

For purposes of clarity and cohesiveness, the workplan activities shall be divided into three major categories. These are: Financial Management Office, Site Coordination Office, and Meetings.

<u>Financial Management Office</u>
HPI/Philippines, being the implementor of the SANREM CRSP/Philippines Logistical

Workplan, was housed at HPI/Philippines (Muntinlipa, Metro Manila). The staffs housed in this office were the Project Assistant and the Project Accountant. However, in the latter part of this fiscal year (1993 - 1994), these two positions were transferred to Cagayan de Oro to improve efficiency of workplan implementation.

Considering that there are program partners based in Manila and it is the nerve point for international arrival (of visitors, and to a certain extent, of project equipments), the workplan holder decided to maintain a Liaison/Communication Office in HPI/Philippines - Manila to serve the aforementioned purpose with Mr. Bhong Sibayan as the Liaison Personnel.

Site Coordination Office. Under this category, three major activities were carried out to set the pace of SANREM CRSP and establish socio-physical infrastructure in preparation for its full blast field implementation.

The first activity was the identification of a site office in Lantapan and a communication office in Cagayan de Oro City.

The establishment of a site office within the perimeters of SHAISI was thoroughly discussed by members of the NCC and was finally approved with the following conditions (as quoted from the minutes dated November 4, 1993):

1) "Using the site at SHAISI would mean that HPI would have to rent for the use of the property and it would be covered with a contract subject to yearly review and renewal";

2) "SHAISI has to provide a minimum of 240 square miles for nursery purposes of this project";

3) "CAC has to provide clearance regarding the proposed site."

On the other hand, the NCC also found the need to establish a communication office in Cagayan de Oro City because of the difficulty in relaying and/or accepting messages to/from program partners and/or to/from the Site Office. Mr. Romy Banaynal readily offered a space in his office to serve as the SANREM Communication office in Cagayan de Oro. NCC members accepted the offer for the Communication office to be located temporarily at NECI's Cagayan de Oro Office. The act enhanced the facilitation of communication linkage between the Site Office and SANREM CRSP's major partners. However, in the latter part of workplan implementation, the workplan holder reached a decision to transfer to a bigger place to accommodate the expanding number of workplan staffs (CDO Liaison Personnel, plus the FMO staffs) and program visitors.

Hiring of Personnel for the Site Office was the second major activity of the workplan. Five staffs were hired to fill up the target lots as designated in the workplan proposal. As shown in the assessment summary, personnel for the site were hired in a "graduated" basis. Suggestions were made regarding the hiring of staffs, and one

of these was to hire staffs from within Lantapan. Thus, most of the staffs (three out of five) comes from the area. This activity expedites the activities of SANREM CRSP.

Another major activity of the workplan was the purchasing and/or rental of office equipments/furnitures. This enabled the site office to procure necessary materials for their operation. Thus enhancing SCO effectively and efficiency in the conduct of its activities related to SANREM CRSP. See the assessment summary.

Meetings

The National Coordinating Committee (NCC) and the Community Advisory Committee (CAC) held meetings in relation to the purpose of which they were formed. The NCC for one held about seven meetings - one meeting more than their annual frequency target. One of their major tasks were to review and recommend the approval of research proposals (for SANREM CRSP). For this, they were able to review twenty-one workplans. Eleven were recommended revision, three for rewrite, four planning grants, and three for further planning. Right now, eleven have been approved for funding and implementation. These are the following:

1) Modeling of Water Quality and Quantity
   (University of Georgia)
2) Water Resource Management and Education
   (Auburn University)
3) Biodiversity Conservation and Family Security through Home Gardening and Sustainable Vegetable production
   (CIP - UPWARD)
4) Research on the Economics of Sustainability
   (University of Wisconsin - Madison)

5) Inventory and Identification of Potential Non-Traditional Forest Products
   (ERDB - DENR)
6) Stabilizing Vegetable Production
   (AVRDC)
7) Biodiversity Research-Conservation Program
   (Green Mindanao)
8) COPARD of NECT
9) Environmental Education of SHAISI
10) Socio-demographic, technological, and economic factors Affecting Biodiversity (CFDS-UPLB)
11) User-First Research for Sustainable Development in the Manupali Watershed
   (HPI/Philippines)

Moreover, NCC handed down some guidelines regarding the submission of reports, Modifying/Changing Activities of Approved Workplans, Communications, Information Dissemination on SANREM CRSP, and the like.

The CAC, on the other hand, has been very active in disposing their duties. Review of workplans was one of it. For the details of their activities, see the assessment

summary.

By and large, meetings of the two SANREM CRSP entities contributed very much towards maintaining technical quality of activities as well as making sure that workplan implementations are very well following SANREM CRSP'S four cornerstones.

III. Concluding Remarks

In summation, one can conclude that the expected outputs and impacts outlined in the approved logistical workplan were very much met and attained by its workplan implementor - Heifer Project International/Philippines.

HPI/ECUADOR
INSTITUTION/SUBCONTRACT REPORT FOR 1993-1994

After two years of several frustrating trips and many communications the SANREM Technical Committee voted to accept Bob Rhoades recommendation to make Ecuador a primary site in June 1994. This was based on his May 1994 trip to Ecuador where he had meetings with the local US AID Mission. They confirmed that they wanted the SANREM-CRSP Program in Ecuador. They requested that the site be located in the buffer zone of the Cotapaxi National Reserve just north of Quito. They also requested that there be coordinated activities between the US AID funded SUBIR (Sustainable Use of Biodiversity Resources) Project managed by CARE-Ecuador.

Bob Rhoades and Jim Hoey met in Ecuador (7-15 July) to finalize the site selection for the SANREM Program. Eduardo Sotomayor, HPI Ecuador Representative, participated in the selection process. A meeting was held in Quito on 11 July 1994 of 11 institutions interested in understanding more about the SANREM Program. The meeting was led by Bob Rhoades, Jim Hoey, and Eduardo Sotomayor. A second meeting was held on 14 July of 7 institutions interested joining the SANREM CRSP Ecuador Program. A schedule of activities was tentatively planned until the end of the year which included final site selection, workshops with COMUNIDEC (participating member on Ecuador SANREM Committee) to orient both collaborating institutions and communities located at the site in participatory investigation methodology, orientation workshop by the University of Georgia SANREM office on how to formulate site work plans, and dates to have site work plans completed.

HPI accepted to manage the administrative activities for the Ecuador-SANREM Program. Hector Ballesteros, veterinarian, who over 20 years of experience in grassroots rural development programs in campesino communities with both public and private development agencies, was selected as Country Site Coordinator with the understanding that he will become the permanent site coordinator upon a positive six month evaluation. Eduardo Sotomayor was named Senior Country Site Coordinator until 31 December.

TUSKEGEE UNIVERSITY
INSTITUTION/SUBCONTRACT REPORT FOR 1993 - 1994

During the 1993 - 1994 project year, the SANREM team at Tuskegee University actively participated in various activities of the project and has achieved significant accomplishments in facilitating and implementing this project.

A. Institutional Involvement and Accomplishments

A.1 Suchet L. Louis

Served as a member of the SANREM Board of Directors.

Served as a trainer in the last Burkina Faso workshop and presented a paper entitled Interdisciplinary Collaboration in Burkina Faso, May 10 -17, 1994.

Attended the Board of Directors meeting in Atlanta, GA, June 4 - 6, 1994.

Attended the Indicators of Sustainability Conference and Workshop in Arlington, VA, July 31 - August 5, 1994.

Served as a trainer in Cape Verde workshop and presented a paper on interdisciplinary research August 13 - 20, 1994.

Attended a meeting of the Planning Committee for Global Participatory Research in North Carolina on July 30, 1994. The Committee decided to hold a Participatory Research Workshop at Tuskegee University, April 24 - 28, 1995.

A.2. Mudiayi Ngandu

Served as a member of the SANREM Technical Committee.

Served as the facilitator for the SANREM Burkina Faso site.

Traveled to Burkina Faso for writing of the Framework Plan and preparation for the site workshop, February 5 - 18, 1994

Attended and facilitated the Burkina Faso workshop on participatory methodology, May, 1994.

Traveled to Griffin, GA, to meet with the visitors form INERA.

Attended the Global Technical Committee meeting in Atlanta, GA, June 4 - 6, 1994.

Facilitated the visit of Drs. Millogo and Belem from Burkina Faso, July 7 - 8, 1994.

Attended a working meeting in Griffin, GA, with Drs. Millogo and Belem on July 9, 1994.

Attended the Indicators of Sustainability Conference and Workshop in Arlington, VA, July 29 - August 4, 1994.

Developed the Research Framework Plan and Invitation for Workplans for the Burkina Faso site.

A.3 Jianbang Gan

Attended the Philippine Site Workplan Integration meeting in Griffin, GA, April 14 - 15, 1994.

Attended the Indicators of Sustainability Conference and Workshop in Arlington, VA July 31 - August 5, 1994

Traveled to the Philippines to establish partnership with Filipino collaborators, visit the research site, collect data, and revise the workplan.

A.4 Errol Rhoden

Attended the training workshop at VPI, December 21 - 24, 1993

A.5 Robert Zabawa

Attended the Indicators of Sustainability Conference and Workshop in Arlington, VA, July 31 - August 5, 1994.

A.6 Ms. Melanie Lunsford

Attended the training workshop at VPI, December 21 - 24, 1993.

B. Significant Findings and Impacts

The participation of Tuskegee University in the SANREM CRSP project has helped the involved faculty, staff, and students gain new knowledge in sustainable agriculture and natural resource management and other related areas. This project has enhanced (a) the internationalization of the university, (b) university - wide awareness and interest in global sustainable agricultural and economic development, and (c) linkages of the university with institutions in developing countries.

C. Problems and Approaches to Resolution

During the 1993 - 94 project, we have experienced some internal problems in timely processing of our workplan, funding, and financial reports. Hopefully, in the future the designated offices at Tuskegee University and University of Georgia can find a way to overcome these difficulties.

SANREM ANNUAL REPORT, August 1, 1993- July 31, 94
DEPARTMENT OF ANTHROPOLOGY
UNIVERSITY OF GEORGIA
ATHENS, GEORGIA

1. Institutional Relationship to the Project

The Department of Anthropology, University of Georgia, continues to play a major role in the SANREM CRSP by providing anthropological input and "user participation" methods at a number of levels. The Department, largely through the efforts of Drs. Robert E. Rhoades and Virginia Nazarea-Sandoval, is actively involved in the technical committee, several crosscutting committees, and specific projects in Ecuador and Philippines.

II. Detailed Accomplishments

The Department of Anthropology, University of Georgia, made the following contributions to the SANREM CRSP during the 1993-94 year:

1. Played a major catalytic role in the formulation and establishment of SANREM-Ecuador

2. Continued to backstop SANREM-Philippines and development of the "Ethnoecology of the Manupali Watershed" project;

3. Service to the SANREM Technical Committee

4. Training and Conceptualization Roles

5. Networking Activities

Dr. Robert E. Rhoades, Head, Department of Anthropology

Dr. Rhoades serves on the SANREM Technical Committee, serves as the US Coordinator of the SANREM-Ecuador site, and as a co-PI to the project "Ethnoecology of the Manupali Watershed" In addition, he serves in various capacities on crosscutting committees (user participation, GIS)

Dr. Virginia Nazarea-Sandoval, Associate Professor, Department of Anthropology

Dr. Nazarea-Sandoval, who joined the Department of Anthropology in January, 1994, is the PI of the "Ethnoecology of the Manupali Watershed". She has long-term research experience in Mindanao. In the summer, 1994, she went to the Philippines and set up the project with Xavier University as collaborator.

III. Significant Findings and Impacts

Establishment of SANREM-Ecuador

A major effort was expended by the Department of Anthropology (principally Dr. Robert E. Rhoades) in the establishment of the SANREM-Ecuador project. During the year, Dr. Rhoades made two extended trips to Ecuador (May and July) for the purposes of clearing the project through the Ecuador-USAID office and beginning formulation of the Ecuador-SANREM team. Due to changing global emphasis in USAID, it was necessary to focus the Ecuador-SANREM project around the priorities of USAID-Ecuador which include biodiversity and rural poverty/income themes. In particular, a working arrangement with the SUBIR project in the area of the Cotacaxi-Cayapas Nature Reserve was required if SANREM-Ecuador was to enjoy success and full support of the mission. In addition, a number of operational questions had to be dealt with due to changes in FUNDAGRO which was initially contacted as the support institution in Ecuador. Proper arrangement of these institutional prerequisites were necessary and somewhat time consuming in the initial stages. Rhoades had to meet with all major actors in Ecuador (Subir, Care, USAID, future collaborators), including field visits with Eduardo Sotomayor and Julio Chang to Subir project sites along the southern and northern margins of the Cotacaxi-Cayapas Watershed. Excellent support was received from the USAID office (Ken Weigand and Cisco Ruybal) and by the end of the visit SANREM had been given a "green light" to work in Ecuador.

After the coordinating effort in Ecuador, it was necessary to overcome a belief within the SANREM technical committee that Ecuador was not a worthy site. During the June 6-8 Technical Committee Meeting in Atlanta, strong opposition (1/3 of total votes against Ecuador) was overcome when the majority of TC members became convinced that Ecuador should be our third main site. The central argument in favor of Ecuador is that SANREM was funded to work in three main sites; without Ecuador the project would continue to be incomplete. The Atlanta meeting was used as an opportunity to further develop a possible budget and workplans for continuation. In June, Dr. Rhoades and Hargrove visited the CARE-Atlanta office to coordinate our Ecuadorian effort with SUBIR in Ecuador. A future MOU was discussed between CARE and SANREM, not for Ecuador but for global interaction of the two entities.

During July, Rhoades returned to Ecuador for the explicit purposes: 1. select a site and 2. hold the invitational meeting of possible SANREM collaborators in Ecuador. Thanks to the efforts of HPI-Ecuador (Eduardo and Nancy Sotomayor), contacts were made with a host of Ecuadorian institutions and invitations sent for a "get acquainted" meeting. The meeting was a great success with the SANREM philosophy hitting the right cord with the Ecuadorians who have become tired of top-down, heavy handed projects. During the same trip, a return with Eduardo Sotomayor and Hector Ballesteros was made to the specific communities in the Guayllabamba Watershed. We decided, at this time, that we would argue in favor of this general region as the SANREM-Ecuador site. In Quito, we made personalized visits to each of the future collaborators offices to discuss mutual interests. It was decided that SANREM-Ecuador would make a strong push to be fully represented at the Indicators of Sustainability Conference complete with poster presentation and presentation of the Guayllabamba site. Dr. Rhoades played a key role in helping the Ecuador team prepare for this conference. Subsequent to this trip, further planning took place at the

Indicators Conference as well in more formal meetings held in August (to be reported in next year's annual report). In short, although we were not able to begin work in Ecuador until June, 1994, a tremendous amount of progress was made quickly and efficiently so that now Ecuador is moving on par with the other SANREM sites.

Philippine: Backstopping and Development of "Ethnoecology of the Manupali Watershed"

Throughout the year, the Department of Anthropology played a role in backstopping activities in the Philippines. In addition to periodic consultancies with the SANREM ME in Griffin over appropriate strategies, Dr. Rhoades travelled to the Philippines in December to review workplans. At this week-long meeting, proposals were reviewed in depth and new proposal suggested. Dr. Rhoades also corresponded with individuals in the Philippines concerning their workplans. At the invitation of the Philippines group, Department of Anthropology was invited to submit a proposal on the "Ethnoecology of the Manupali Watershed". This proposal was developed during January and Februay and hand carried by Drs. Hargrove and Neely to the next "levelling" workshop held in Bukidnon. During April, Drs. Rhoades and Virginia Nazarea-Sandoval participated in a workshop for US participants in SANREM-Philippines. The project "Ethnoecology of the Manupali Watershed" was finally approved by the various committee. Dr. Sandoval went to the field to set up the research at the end of July, 1994.

Service to the SANREM Technical Committee

Throughout the year, Dr. Rhoades reviewed proposals and assisted with a wide range of technical committee tasks. This included two technical committee meetings (Griffin and Atlanta) during the year and one meeting related to the SANREM external evaluation (Griffin). Considerable time was expended in advising EEP on participatory research.

Training and Conceptualization Roles

During the year, the Department of Anthropology participated in one major training activity and a number of small, focussed training events. Dr. Rhoades travelled to VPI during and presented a session on working with farmers (users). In addition, training activities were undertaken with the US Philippine group and in Ecuador. Anthropology has continued to be a major player in the conceptualization of landscape-lifescape interactions. These inputs have gone into the crosscutting working groups on user participation and GIS. A paper on "Culturally Relevant Indicators of Sustainability" by Drs. Rhoades and Sandoval was presented at the SANREM conference held in late July and early August.

Networking Activities

The Department of Anthropology has served SANREM by linking its ongoing development activities with SANREM. For example, Dr. Rhoades was invited by the international donor community to join a team of scientists to prepare a global position paper on soil, water, and nutrient management. The concepts of landscape-lifescape and user perspectives were integrated

into that position paper. In addition, the anthropology faculty was asked to give several lectures on SANREM or SANREM related activities. Dr. Rhoades gave the "Tex" Frazier Lecture before the American Society of Horticultural Science in Oregon. Dr. Sandoval spoke to a group of scientists at Griffin, Georgia. Drs. Rhoades and Sandoval gave a joint paper in an international meeting on rice blast held at the University of Wisconsin.

Major Impacts to date

Although it is early to define specific impacts, the following are noteworthy:

1. The Farmer-Back-To-Farmer model along with the landscape-lifescape framework (Sanrem Philosophy) have been recently adopted by an international commission dedicated to reorient soil, water, and nutrient management on a global scale. To date, too much emphasis was placed on technical solutions in isolation of the user and the larger social and physical environment. The commission, headed by Dennis Greenland, became acquainted with the work of SANREM through the participation of Dr. Rhoades.

2. Institutional impacts are clear in Ecuador where, for the first time, a diversity of organizations (NGOs, government, international bodies, universities) are working together on natural resource problems rather than competing with each other. The culture of competition has been replaced with a sense of collaboration, a viewpoint forced by the need to understand the lifescape-landscape interaction.

3. User participatory methods developed by the Department of Anthropology, especially Farmer-Back-to Farmer, continue to be adopted by applied groups around the world.

IV. Problems/Issues and Approaches to Resolution

The role of the Department of Anthropology, University of Georgia, is now coming to fruition as far as SANREM objectives. The real payoff will come during 1994-95. A attempt will be made to demonstrate the impact and efficiency of a user perspective by focussing on the use of ethnoecology. More specifically, ethnoecology will be linked with biological science areas (biotechnology, soils, agronomy) used to enhance biodiversity and sustainable solutions to problems. Attention as well will be given to methods.

ANNUAL REPORT - SANREM CRSP

CROP AND SOIL SCIENCES
UNIVERSITY OF GEORGIA, ATHENS
Soil Reconnaissance and Sampling (L.T. West)

1993-94

I. Institutional Relationship to Project

The University of Georgia .....(Bill, Constance, whoever, I assume someone will fill in activities of other UGA PI's and related verbage. During the past year a proposal for sampling and analysis of major soils in the Philippine study site (Manupali River Watershed) was approved under the direction of Dr. Larry West in cooperation with USDA-Soil Conservation Service and the Philippine Bureau of Soil and Water Management. Sampling was completed under the direction of Dr. West and laboratory analysis of the samples are underway.

II. Detailed accomplishments

The SANREM-Philippines work plan to sample and analyze major soils in the Manupali River Watershed was initiated in 1993-94. During the past year, major soils in the area were identified, described in the field, and sampled for laboratory analysis of chemical, physical, and mineralogical properties. During West's visit to the Lantapan area to describe and sample the soils, discussions with the Bureau of Soil and Water Management and local government officials were initiated concerning the need and benefits of a complete inventory of the soil resources in the region.

Thirteen pedons in the Lantapan area were sampled during November-December of 1993 and analysis is underway in laboratories of the USDA-Soil Conservation Service and the Department of Crop and Soil Sciences at the University of Georgia. Analyses are expected to be complete in early 1995 and reports of the data will follow. The purpose of the sampling, techniques, and expected benefits were discussed with local farmers and officials at each site. In addition, a soil science class from Central Mindinao University assisted with sampling two of the sites to better understand soil morphological properties and sampling techniques.

III. Significant Findings and Impacts

Soils in the Lantapan area of the Manupali Watershed are surprisingly uniform. Colors, textures, and horizonation varied little across the landscape. All soils observed in the region were well drained with no evidence of a water table within 2 to 3 m. Most soils across the region are developed from deep deposits of volcanic ash. Surface horizons were 9 to 28 cm thick, dark colored, acid, and silt loam or loam textured. Subsoils had textures of silt loam to silty clay and were acid and weakly structured. Saturated hydraulic conductivity of B horizons measured in the field ranged from 0.3 to 3.3 cm/hr. No features were observed in

any of the pedons that would be expected to restrict movement of water through the profile.

Soils in the region appear to be at an intermediate stage of development. Solum thickness ranged from 89 to more than 200 cm. Most of the soils sampled have evidence of translocated clay indicating the presence of a weakly-expressed argillic horizon, but clay translocation has not progressed to the point that the soils have a large clay increase between surface and subsoil horizons. Weathering has been sufficient to erase most of the properties associated with young volcanic soils (low bulk density, high amounts of amorphous components). Though some soil loss has probably occurred from cropped fields, no strong evidence of severe erosion, such as rilling or gullying, was observed.

Soils managed under paddy rice are not well suited for flooding. Soil textures and morphology suggest water will move through the profile relatively rapidly, especially under flooded agriculture. Thus, flooding is inefficient and is maintained in these soils is by applying water to the surface at high rates which are greater than the rate water will move through these permeable soils.

This work was not designed to have immediate impact on cropping systems and agricultural practices in the region. It was designed to inventory basic properties of the soil resource in the area. Before agricultural production systems can be designed and evaluated for their long term impact on production and the environment, properties of the soil and their distribution across the landscape must be understood. Data collected through this work plan will provide SANREM CRSP/Philippines participants with detailed baseline information regarding soil physical, chemical, and mineralogical properties. This information is necessary for effective design of experiments involving the soil resource base, and will provide the data base of soil properties used as inputs into model simulations evaluating the effectiveness of farming systems for long term agricultural and environmental sustainablility.

IV. Problems/Issues and Approaches to Resolution

No problems or issues have been identified at this time.

Geographical Information System and Automatic Weather Station Network fo SANREM CRSP

Annual Report 1993 - 1994

I.D. Flitcroft, E.T. Kanemasu and G. Harbers, PI

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Introduction

This annual report summarizes the work of two subcontracts undertaken by the Department of Crop and Soil Sciences at the University of Georgia. Both contracts provide a service to the CRSP as a whole and much of the work carried out involves the development of data sets of potential use to the SANREM CRSP.

The Geographical Information Systems (GIS) subcontract is charged with the creation of baseline datasets for each SANREM research site, and with the further development and integration of spatial data within a GIS as it is created. These datasets are also to be distributed amongst collaborators as needed. Research work has been or is soon to be initiated by teams of scientists and farmers at the Philippines and Burkina Faso sites. In the Philippines a baseline dataset of information featuring mainly biophysical information has already been created, and the creation of a similar dataset for Burkina Faso is now in progress. Details of these datasets are given below.

The second half of this report describes the work undertaken by the weather station subcontract. The modelling and GIS working group of SANREM recommended that a network of weather stations and raingauges be installed at each SANREM site. These stations would provide the meteorological measurements needed to drive crop growth, hydrologic and other models, which will be used to help answer a variety of research questions arising at each site. Weather stations and raingauges have been installed in the Philippines and Burkina Faso and are collecting hourly and daily averages of meteorological information.

GIS Accomplishments

Philippines

A GIS of baseline information for this site is nearing completion. With the addition of a detailed soils map, which is expected next year, the biophysical aspects of the site will be well characterized. Two examples of GIS coverages from the Philippines dataset are attached. The coverages are the slope grid and a SPOT satellite image (see below).

A topographic map series and a map series created by the Bureau of soils were used to digitize the ARC/INFO coverages listed below. In addition, a land use map of the area based on SPOT imagery has been prepared as part of the thesis work of Li Bin, a student at the Asian Institute of Technology. This raster image will be georegistered to the base coverage, vectorized, and used to create a 1:50,000 scale hard copy map. An Arc Info coverage will also be available in digital form.

Also listed below are a summary of the satellite imagery collected for this site, and point information (mainly meteorological records) collected.

Coverages

Hydrology

The river network of the Manupali watershed.

Heights

All spot heights within the watershed.

Contours

Contours at 100 meter intervals and at 20 meter intervals in areas of low relief.

Roads

Principal and minor roads of the watershed as marked on the 1:50,000 Bureau of Soils thematic map series. The network may not be complete, up to date, or accurate as the source maps were created approximately ten years ago.

Towns

Towns as marked on the 1:50,000 Bureau of Soils thematic map series were digitized as an ARC/INFO coverage.

Land Use

The land use map created by the Bureau of soils (early 1980's) showing dominant and secondary land use.

Boundaries

Municipality boundaries of Lantapan and Valencia from the Bureau of soils map series.

There are known discrepancies between these maps and present spellings or designations of towns, etc. These problems are being addressed.

Grids

DEM

A digital elevation model (DEM), or digital terrain map (DTM) as it is sometimes known, was created from the topographic map series. The ARC coverages of contours, spot heights and river network were used as inputs to a software package named ANUDEM (Australian National University DEM). The package produces a raster grid (an ARC grid layer) of elevation heights at 50 meter intervals, which form a hydrologically realistic surface.

Slope

A grid of the slope in degrees at each cell. Derived from the DEM.

Aspect

A grid of the aspect of each cell in degrees. Derived from the DEM.

Flow

A grid depicting the number of up slope cells which drain into each cell. Such a map is used for delineating stream networks and sub-watershed boundaries. Derived from the DEM.

Land Use

An interpretation of the SPOT satellite image acquired January 1994. Prepared as part of the graduate thesis of Ms. Li Bin, Asian Institute of technology.

Satellite Imagery

We have succeeded in using remotely sensed data to quantify land use changes in the area since 1973 (LI Bin's thesis). The table below summarizes the satellite images which we have purchased, rectified and added to the database.

Sensor Bands (RGB)	Date Format	Path/ Row	Pixel size	lines/ samples	project	min/max x (m)	min/max y (m)	r.m.s. error
Landsat MSS 4,2,1	1/7/73 BSQ	121/54	50 m	4555 4860	UTM zone 51	532900 775850	842200 1069900	382 m
SPOT HRV 3,2,1	4/5/87	315/334	20 m	3381 5400	UTM zone 51	683391 791371	852475 920075	49 m
SPOT HRV 3,2,1	1/11/88	315/334	20 m	3381 3480	UTM zone 51	683391 752971	852475 920075	52 m
SPOT HRV 3,2,1	1/29/94	315/334	20 m	3394 3636	UTM zone 51	676040 748760	851943 919823	25 m

Point Data

The following table lists rainfall, synoptic meteorological information and streamflow records relevant to the study area.

Rainfall

LOCATION	LAT/LONG POSITION	LENGTH OF RECORD	COMMENTS
Musuan	7° 52'00"N 125°03'30"E	1967-1989	Monthly totals available in paper form.
Malaybalay	8°09'N 125°SE	1931-1939 1949-1988	Daily totals in ASCII file.
Lantapan*	8°00'23"N 125°05'55"E	1973-1992	Monthly totals in ASCII file. Daily records possibly at NPC, Iligan City.
Panadtalan*	7°48'40"N 125°01'27"E	1973-1992	Same as above but in paper form.
Mailag*	7°58'25"N 125°08'20"E	1973-1992	Same as above but in paper form.

Synoptic Weather Stations

Musuan (CMU)	7° 52'00"N 125°03'30"E	1978-1990	daily T-max, T-min, r.h. at 8 am and 2 pm, pan evaporation, wind speed and rainfall.

Streamflow

Panadtalan	See above	1953-1993	10-day totals for 1953-1975 available as an ASCII file. Flows derived from daily staff gauge readings on Pulangi.
Pulangi IV	Pulangi IV reservoir	1987-1992	Reservoir levels and reservoir in-flow in paper form.
Manupali	Calonia, Valencia	1977-1984	Average daily discharge from staff gauge in ASCII file.

* Owned by National Power Corporation

GIS Workshop

We are preparing a workshop for participants from South East Asia on the use of GIS and remote sensing in environmental management and the transfer of sustainable agricultural technologies in the tropics. This workshop will be held at the Asian Institute of Technology in Bangkok, starting in late February, 1995. A separate proposal and budget have been prepared, participants have been invited and the logistics of the workshop have been addressed.

Burkina Faso

The SANREM site is the village of Donsin, approximately 100 km North East of Ouagadougou. The study area comprises the village territory of Donsin, which is of the order of 10,000 Ha. INERA (National Agricultural Research Institute) has worked at this site for a few years and has already gathered some baseline data.

A preliminary visit to Burkina Faso in April 1994 showed that there are a number of small groups working on the use of GIS and remote sensing in natural resource management. Agreements were made to collaborate with the GIS cell of the RSP (farming system production) program at INERA, and this linkage will shape the activities in the next year. Existing information which is available for dissemination is listed below.

Paper maps

A topographic map of the area at 1:200,000 scale has been purchased. At this scale, there is insufficient detail to delineate the study area.

ARC-INFO coverages

The RSP division of INERA has created two maps of the area at approximately 1:50,000 scale. One map depicts the geomorphology of the area and the other map

shows the land use. Both maps were derived from analysis of aerial photographs taken in 1990 by the Burkina Institute of Geography. These maps have been digitized as ARC-INFO coverages by our laboratory. The maps have not been rectified and will therefore require rectification before they are incorporated into a GIS.

Satellite Imagery

Two SPOT satellite images will be required to cover the Donsin area. We have purchased the more southerly of these and INERA is proposing to purchase the second within six months. Both images were acquired by SPOT on October 12, 1991. Most remote sensing scientists agree that delineation of crop land and natural vegetation in the Sahelian zone is easiest at the end of the wet season (October). INERA scientists have commented during discussions that interpreting the image for land use will be a difficult task, due to a variety of obstacles. Rectification of these images is also required.

An image map of the area has been purchased from the EROS Data Center. This map was derived from MSS imagery acquired in 1987 - 1988 and is usually displayed at 1:200,000 scale. The map series covers Burkina Faso in approximately one dozen sheets.

Census Data

Some census data for Burkina Faso has been obtained through the FEWS office of AID. Donsin is one record in this database, which contains descriptions of population, health, schools, wells, etc.

Impacts

We have succeeded in creating datasets which are being used by a number of research teams. For example the GIS baseline dataset for the Philippines site is being used to pinpoint areas of vegetable production in the uplands, and to quantify changes in land use at the forest margins.

A package of maps showing the main types of information available was distributed in the Philippines to farmers, researchers and local government officials.

We have succeeded in using remotely sensed data to quantify land use changes at the Philippines site since 1973. A map of present land use (as of January 1994) has been developed from the imagery. The results of this work will be summarized into an executive summary for general distribution.

Problems and Approaches to Solutions

GIS technology requires an investment in equipment and human resources before the benefits of GIS become apparent. One goal of this projects is to make the information collected available to the in-country researchers and the community. For this goal to achieve more than the distribution of products (paper maps) we would need to install GIS systems locally. This is impractical but we intend to investigate the use of a GIS display tool, ARC-VIEW, which allows

users to query GIS databases in a user friendly manner and is written for P.C.'s.

Another problem encountered is the difficulty of characterizing the socio-economic aspects of the sites. Such information rarely exists, or is insufficiently detailed. We are encouraging other work plan holders to make the results of socio-economic surveys available, and to plan their efforts to ensure the compatibility of their data with a GIS. This entails adding a location tag to all data collected.

Weather Station Accomplishments

Introduction

During the past year two sites, in the Philippines and Burkina Faso, have been successfully equipped with automatic weather station equipment and networks of raingauges. The automatic weather stations measure air temperature and relative humidity, wind speed, solar radiation, soil temperature at three depths and rainfall intensity in five minute intervals. In addition, some stations carry instruments to measure wind direction and photosynthetically active radiation (PAR). These measurements are made every 10 seconds and averaged into hourly and daily values.

The networks of raingauges are read daily by observers who meet with the site managers regularly to discuss the data they have collected and review the measurement techniques.

Philippines

In December 1993, Ian Flitcroft and Galen Harbers visited the site and installed four automatic weather stations and a supplemental network of nine raingauges. Hourly and daily data are being collected from the weather stations every month when the site manager downloads the data to a storage module from the weather station logger. This task and other site management tasks are performed by Teodoro Maribojoc, who is a computer specialist in the College of Engineering at Central Mindanao University.

A second collaborator, Mr. Lucio Laurente, Dean of the College of Agricultural Engineering at CMU, provides in-country leadership and is responsible for the weather station program in the Philippines.

To date we have received hourly data from the weather stations on diskette from December 1993 to June 1994. We check the quality of the data and return a copy to the Philippines with a table of the daily records for each station. A sample table and graphics used in quality control are attached. The data we have received have been of high quality although there have been some instrument failures.

Burkina Faso

In April 1994 a weather station and seven raingauges were installed in and around the village of Donsin. A second weather station was installed in the compound of Plan de Parianage International (PPI) in Boulsa, to serve principally as a means of checking the quality of the data from the Donsin site. Although an anemometer was installed in Boulsa the readings are unrepresentative as the weather station is sheltered by trees and buildings.

Mr. Leopold Some has agreed to take the responsibility for the management of the weather station network. He is an agro-climatologist with INERA and is based at Kamboinse. Mr. Salif

Boema, INERA technician at Donsin, is downloading the data and servicing the weather stations and raingauge network. PPI are generously allowing us to use their courier service to move the storage modules between Donsin and Ouagadougou.

We have received two months of data from this site, all of which is of good quality.

Distribution of weather records

In the USA, the weather database manager (Galen Harbers) has responded to requests for copies of the historical and weather network data. The manager has also been able to provide routine data analysis and data manipulation to SANREM investigators. Similar arrangement exists with the site coordinators.

Impacts

The weather station data are managed locally by site coordinators who are responsible for its dissemination in-country. Monthly summaries of daily data are distributed widely to anyone requesting the information. These summaries are being translated into the local dialect to encourage more wide spread use of the information. Hourly data is stored in ASCII format and distributed by the site coordinator as needed. A copy of these holdings is held by the database manager at UGA for distribution in the USA.

Direct impacts of this information on the communities involved is difficult to assess because the information has only been collected for a few months and local translations are not ready. The hardware and software requirements of the database have not yet been finalized by the GIS/modelling group. At present the files of hourly and daily data from each site are stored in ASCII format on a personal computer network hard disk. We could make this location available as an anonymous ftp site to allow access through the internet, although at present the volume of requests for data does not warrant this.

Information from the raingauge networks should be used to create monthly or ten-day surfaces of rainfall. We propose that Surfer for Windows, a software package for P.C.'s, is purchased to enable interpolation of rainfall fields from the point data. Summary maps could then be distributed to farmers and others to aid in planning and research.

Problems and Approaches to Solutions

Some instruments have failed within the first nine months of operation in the Philippines. The site manager is able to exchange sensors but is not yet able to diagnosis instrument and logger failures. The same situation exists in Burkina Faso. Our long term solution is to provide more extensive training for our site managers, probably at UGA. Before we begin this activity we wish to identify site managers for other sites where weather stations might be installed.

UNIVERSITY OF GEORGIA
INSTITUTE OF ECOLOGY
INSTITUTION/SUBCONTRACT REPORT FOR 1993 - 1994

The following Institute of Ecology faculty have participated in SANREM activities over the past year.

C. Ronald Carroll
Attended two workshops on Indicators of Sustainability, one Technical Advisory Committee meeting, made two trips to Ecuador. During the Ecuadorian trips, Carroll met with AID mission staff to discuss the structure of the SANREM program, met with potential collaborators at INEFAN, San Francisco de Quito, and Fundacion Maquipuncun. In addition, Carroll collected baseline data on agricultural practices, history of landuse, community health issues, and community perception of the value of native biodiversity. Some of the results of this work will be published in Annual Review of Ecology under the title "Is the Biological Basis of Agriculture Sustainable?" A presentation on the landscape dimension of sustainable landuse will be given at the AAAS meetings in February, 1995. A book chapter entitled *Landscape organization* in a book entitled *Tropical Managed Ecosystems: New Perspectives on Sustainability* (U. Hatch and M.E. Swisher, eds.), Oxford University Press is under contract.

Dave C. Coleman
Attended one Indicators of Sustainability workshop, and developed field methods for nematode extraction that are suitable for use under field conditions in Ecuador.

Carl Jordan
Attended a two-day workshop on the Philippine site activities and developed a photo essay on the participatory landscape/lifescape rural appraisal. The essay was published in his new textbook, *Conservation: replacing quantity with quality for global management*, John Wiley and Sons, Publ.

The following Institute of Ecology graduate students have participated in SANREM activities over the past year:

Christien Etema
Sampled nematodes in degraded lands in Ecuador as part of baseline data collection; she also attended one workshop on Indicators of Sustainability.

John Vickery
Attended one workshop on Indicators of Sustainability and is developing an approach for evaluating Indicators in pest management systems.

Fausto Sarmiento (Ecuadorian student)
Has been collecting the known history of landuse in the Ecuadorian project area.

Rebecca Justicia (Ecuadorian)
Has not received support from SANREM funds; however, Carroll met her through

SANREM activities and arranged a Fullbright/LASPAU fellowship to support her graduate studies at UGA.

ANNUAL REPORT -- SANREM CRSP
UNIVERSITY OF WISCONSIN-MADISON
1993-94

I. Institutional Relationship to the Project

The University of Wisconsin continues to be active in the SANREM CRSP through the work of three Principal Investigators (PIs). Drs. Ian Coxhead, Kevin McSweeney and Jess Reed serve as Principal Investigators for the Philippines, Latin America and Burkina Faso sites, respectively. During the past year, a proposal for economic research in the Philippines was approved. This work has begun at Lantapan site under the guidance of Dr. Coxhead. The Administrative backstopping at UW-Madison has been delegated to John Rowe and Lynn Nelson under the direction of Dr. Kenneth H. Shapiro, Associate Dean and Director of International Agricultural Programs.

II. Detailed Accomplishments

Dr. Ian Coxhead, Agricultural Economist

The SANREM-Philippines work plan led by Ian Coxhead (Wisconsin) and Agnes Rola (UPLB) has, as its goal, to find out what economic factors induce farmers to switch land use among crops and/or to adopt soil-conserving land management techniques. In 1993-94 the research program was established, a staff was appointed and secondary data were collected and analyzed. Several visits were made to the Lantapan site to refine the research goals in collaboration with farmers, sector representatives, local government officials and other SANREM work plan holders.

In June and July 1994 a survey of farmers in nine Lantapan villages was conducted to obtain data on land use histories and current crops, technologies, prices and incomes. Data entry, cleaning and analysis is the major off-site activity for fall 1994. The findings from this round of the survey will be used to characterize the Lantapan economy and the economic conditions of farming in the area. A second survey, to gather weekly market data on the prices of major agricultural crops grown in Lantapan, has also been established. This survey will gather data in local, provincial, regional and national markets. Results from these surveys will be used to explore options for policy reforms, local government initiatives and R&D programs that might enhance the profitability of less erosive crops and management techniques in the watershed.

In July, Rola and Coxhead both presented papers at a conference entitled "Environment and Development in Southeast Asia," held in Madison. Rola's paper presented recent research on the health effects of pesticide use among Philippine rice farmers. Coxhead's paper "Soil erosion in the Philippines: do government policies matter?" included a case study based on preliminary data gathered in Lantapan.

As a result of the preliminary investigations, review of secondary data and visits to the watershed, the survey by Coxhead and Rola focuses closely on farmers' decisions regarding cultivation of three major crops: vegetables, coffee and corn. These crops dominate agricultural land use in the sloping uplands of the Manupali watershed. The latter two were the principal commercial and subsistence crops, respectively, in the 1950s. Since then in-migration, infrastructural improvements and new market opportunities have contributed to a rapid expansion of vegetable and corn production and area, and a corresponding decline in coffee production and area. World market prices for coffee have been in a slump for a decade, and this must explain part of the shift out of this crop. However, a range of Philippine government policies on trade, exchange rates, marketing and credit also appear to have enhanced the profitability of vegetable and corn production, and diminished that of coffee.

The land use switch from coffee to annual crops (and especially to vegetables) has potential serious environmental consequences. Stable plantation systems with well-established ground cover maintain soil fertility and inhibit runoff much more effectively than short-term crops with frequent tillage. Moreover, intensive fertilizer, pesticide and fungicide use on vegetables contributes to water quality degradation and may create health problems for farmers, their families and neighbors. Continuing research will investigate both the private and broader social costs and benefits of alternative land use and crop management practices in the watershed.

Dr. Kevin McSweeney, Soil Scientist

Dr. McSweeney serves on the Technical Committee and the environmental education working group and participates in the activities of these groups as well as taking part in the Indicators of Sustainability Workshop and Conference. He recently assumed the responsibility for serving as U.S. coordinator for SANREM activities in Central America.

McSweeney spent four months at La Escuela de Agricultura de la Region Tropical Humeda (EARTH) in Costa Rica as part of his 1993-94 sabbatical. As a result of this experience, he proposed involvement of EARTH and Escuela Agricola Panamericana (EAP) Zamorano (Honduras) as participants in SANREM-Latin American activities. Zamorano and EARTH draw students from throughout Latin America and their educational, outreach and research programs are moving towards a strong emphasis on sustainable agriculture and natural resource management. McSweeney undertook two site visits to Honduras and Costa Rica to assist with development of work plans for EARTH, Zamorano and their community/NGO partners to participate in SANREM. The work plans are in the final stage of refinement following review by the Technical Committee. A distinctive feature of the proposed collaboration is the involvement of EARTH and Zamorano faculty and students in Ecuador site activities. It is hoped that this linkage, coupled with the local activities in Honduras and Costa Rica, will strengthen and help to sustain SANREM activities in Latin America.

As a part of one of the planning trips to Central America, McSweeney participated in the 15th World Congress of Soil Science, Acapulco, Mexico. One of the three invited papers he presented dealt with rehabilitation of degraded land, and included an emphasis on core SANREM tenets such as local participation and the intrinsic value of local environmental knowledge.

With the assistance of graduate students, Antoinette Winklerprins and Polly Erickson, McSweeney is conducting a critical literature review/recommendation for research in the area of local knowledge and its relationship to soil and environmental management and the inventory of natural resources. Polly Erickson was awarded a summer fellowship by the University of Wisconsin-Latin American and Iberian Studies Program to conduct field work in Honduras. She was based at Zamorano and worked closely with our SANREM cooperators. The field work will serve as Polly's framework for defining a dissertation proposal that will address incorporation of local knowledge into land use inventory and planning tools.

Dr. Jess Reed, Animal Scientist

Dr. Reed participated in two workshops and presented papers on sustainable agriculture and natural resource management. The first workshop was held at the University of Wisconsin-Madison, August 9-13, and was titled "An International Symposium on Rice Blast Disease." Dr. Reed's paper was titled "Crop-Livestock Interactions: Implications for Sustainable Agriculture." This paper will appear in the conference proceedings which will be published by CAB International (Zeigler et al 1994).

The second workshop was on "Livestock and Sustainable Nutrient Cycling in Mixed Farming Systems of Sub-Sahara Africa," held at the International Livestock Center for Africa (ILCA), Addis Ababa, Ethiopia, November 22-26. Reed and Julie Burt authored the paper titled "Role of Livestock in Sustainable Agriculture and Natural Resource Management" which will appear in the proceedings to be published by ILCA (Powell et al 1994).

Reed participated in planning collaborative research with the Escuela Agricola Panamericana (EAP), Zamorano, Honduras and the Escuela de Agricultra de la Region Tropical Humido, Costa Rica during a site visit with Dr. Kevin McSweeney and Dr. Ralph Montee (March 14-16 in Honduras and March 17-20 in Costa Rica). These activities resulted in the development of work plans for both sites.

Reed also participated in the Technical Committee and Board of Directors meetings in Atlanta, Georgia, June 6-8. Dr. Reed represented Dr. Kenneth Shapiro at the BOD meeting.

III. **Significant Findings and Impacts**

Philippine Site:

Dr. Coxhead and his collaborators made significant progress in the development of theoretical models for analyzing relationships between economic policies and trends and environmental outcomes in developing country agriculture The thrust of this work is to identify and understand the significance of links between upland agriculture and the economy as a whole. Its contribution will be to promote coordination of environmental and economic policy making in the Philippines.

In the field, the economics team conducted a major baseline survey of farm production, prices and practices. Data from the survey, currently being prepared for analysis, will indicate how economic conditions influence farmers' crop choice, technology and soil conservation decisions. A second survey gathering market price data for agricultural commodities was established in the summer of 1994. Data from this survey will be used to analyze relationships between prices in central markets and at the farm gate.

Latin America Sites:

The planning process for incorporation of EARTH and Zamorano into SANREM was accomplished in a timely (March-August 1994) and efficient manner (two site visits). The involvement of these two institutions in SANREM promises to have broad and sustained impacts throughout Latin America. Faculty at both institutions are keen to extend the content of SANREM and SANREM-like concepts and methodologies in their curricula. The two institutions train students from throughout Latin America, thus the prospects for wide dispersion of the SANREM mission are encouraging. The specific involvement of EARTH and Zamorano faculty and students in Ecuador site activities should only serve to strengthen and refine educational programs in sustainable agriculture and natural resource management at both institutions.

Burkina Faso Site:

Two papers on SANREM were presented to international audiences and published in conference proceedings. Training of Ms. Julie Burt will be completed December 1994. Ms. Burt will receive an MSc in Conservation Biology and Sustainable Development. Her participation in the SANREM planning activities in Burkina Faso will serve as her internship experience and as the basis of her thesis for the MSc degree.

IV. Problems/Issues and Approaches to Resolution

There are no problems or issues at this time.

USDA-ARS, NSTL
INSTITUTION/SUBCONTRACT REPORT FOR 1993-1994
Douglas L. Karlen

The objectives being addressed in this cooperative project are:

1. To determine optimum soil quality indicators for assessing long-term sustainability of tropical landscapes.

2. To identify sampling, appropriate analytical techniques, or pedo-transfer functions for measuring or estimating the various indicators.

3. To develop a framework for evaluating the soil resource at the various SANREM research sites.

Progress toward accomplishing Objective 1 has included developing a thesis plan that will be carried out in Eastern Kenya by Mr. Moses Siambi. The primary objective for his PhD research will be to identify and evaluate several indicators that can be used to evaluate soil quality in that region. The study will focus on measurement (Objective 2) of soil aggregate characteristics, penetration resistance, bulk density, volumetric water content, earthworm populations, respiration, microbial biomass, ergosterol concentrations and chemical parameters as primary physical, chemical, and biological indicators of soil quality. The data will be interpreted (Objective 3) using a framework similar to that developed for long-term tillage and crop residue management studies in the USA (Karlen et al., 1994; Karlen et al., 1995).

Other activities have included contributing to the Biological Indicators Working Group and participating in the "Indicators of Sustainability" conference. A poster presentation entitled "Soil Quality Research" was developed by several scientists at the National Soil Tilth Laboratory" and presented by Mr. Siambi. He was very pleased with the conference, which provided an opportunity for excellent information exchange.

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OFFICE OF INTERNATIONAL RESEARCH AND DEVELOPMENT
VIRGINIA TECH -SANREM SUBGRANT ANNUAL REPORT
Year 1993-1994

Institutional Relationship to the Project

Virginia Tech's role in the SANREM CRSP consortium is to provide leadership in the area of gender analysis. The University collaborators include (1) Dr. S.K. De Datta, Director of the Office of International Research and Development. He serves as a member of the Board of Directors of SANREM CRSP, (2) Dr. Cornelia Butler Flora, Head and Professor of the Department of Sociology , Chairperson of the Gender/User Group, Chair Person of the SANREM CRSP's Global Technical Committee and Core participant of the Ecuador site team , (3) Dr. Irma Silva-Barbeau, Nutrionist , member of the gender-use group and a core participant of Bukino Faso site team , (4) Dr. Revathi Balakrishnan, Program Director Women in International Development, core participant of the Philippines site and leader of gender-user group for Philippines site, and (5) Dr. Virginia Seitz, Assistant Professor in Women Studies and Sociology and a member of gender-user group, (6) Ms. Allison Meares, graduate student, Department of Sociology, and (7) Ms. Margaret Kroma, graduate student, Department of Sociology.

Institutional Activities Accomplishments

Dr. S.K. De Datta, Director Office of International Research and Development and Associate Dean College of Agriculture and Life Sciences, participated in SANREM CRSP Philippines site activities from MArch 12 to 13, 1994. He visited the Manapali watershed project site with Ms. Gladys Buenavista, the site coordinator. The purpose of the visit was to get acquainted with the project personnel and the site characteristics Dr. De Datta met with SANREM/CRSP personnel at the site office, namely Ms. Joy Carbajal and Aleth Alsola. Joy explained the soil and topographic maps which provided some idea on topography, landscape and soils in the site. He also met with Mr. Glicerio ("Boy") Tan of San Herminihildo Agro-Industries-Industrial High School, Inc. and Ronelo Alvarez, of the local government unit of the office of the Mayor of Lantapan, Bukiduon. The briefings by "Boy" and Mr. Alvarez were excellent. The group visited field sites where in indigenous methods of soil erosion control, biodiversity, natural IPM systems, crop-livestock-poultry system are actually practiced. Dr. S. K. De Datta also visited some sites wherein fisheries in small pond systems are being practiced to diversify risks and income.

Research areas identified by SANREM/CRSP were: Soil, water,biodiversity, human dimension, process documentation (documenting all the processes that take place during implementation). The tripartite involvement proposed were: local, and regional, university (Xavier) and International CRSP group.

The trip to SANREM/CRSP site was very informative and useful to Dr. S.K. De Datta to learn first hand about the site issues which will be helpful to him to serve better on SANREM/CRSP board.

Dr. De Datta also participated in a session on SANREM CRSP at the ASA meeting in 1993.

In August 1994, **Dr. George Norton,** Professor Agriculture Economics, Virginia Tech, attended the SANREM CRSP's " Indicators of sustainability " conference in Washington D.C. He presented a paper on "Sustainability and Participatory IPM".

Revathi Balakrishnan, Program Director, Women in International Development, participated in the U.S. Collaborators -Philippines SANREM CRSP work plan meeting, at the invitation of SANREM ME. It was held in Griffin, Georgia from April 14 to 15, 1994. Dr. Balakrishnan reviewed the work plans for the Philippines site to assess the potential for integration of gender and social dimensions . She was charged with the leadership to gender analysis component for the site. In the meeting, she presented her ideas for including gender aspects in the work plans reviewed. The meeting was valuable for Dr. Balakrishnan, since it gave her the opportunity to learn about various ongoing efforts in the site including PLLA, to become familiar with and work plans and to get acquainted with the U.S. collaborators in the Philippines site . The workshop format that emphasized participatory learning through role playing provided useful insights to the philosophy and approach of SANREM CRSP. She was asked to prepare a concept paper to initiate gender research activities in Philippines site.

In May 1994, she submitted a concept paper on " Gender, Class, and Ethnicity Implications for Resource Management in Manupali Watershed Area." The specific objectives included in the concept paper are: Documentation of gender, ethnic, and class interactions impact on power relations and resource use strategies in the intra-household and intra-community context; identification of gender, ethnic and class differentiated incentives and dis-incentives to participate in sustainable resource management; develop strategies to broaden the diversified stakeholders' participation in sustainable resource management activities, based on the findings.The concept paper was reviewed by Dr. Cornelia Flora and Dr. Irma Silva-Barbeau.

In June 1994, the concept paper was accepted by the SANREM ME. Dr. Balakrishnan has started her preliminary activities to begin her research in the Philippines site. SInce Dr. Balakrishnan also provides leadership for gender activities in the IPM CRSP led by Virginia Tech, she will explore the means for cross-crisping. Dr. Balakrishnan will work with Philippines collaborators to address a major concern which is to create a clear understanding on the conceptual definition of gender and operationalization of gender in SANREM mandate at the Philippines site.

C.Flora and gender-user group and sustainability indicator group Activities

1.Planning and preparation for the SANREM CRSP training workshop at Virginia Tech in November 1993

Development of role-play that was geared towards addressing the gendered nature of rural household activities and decision making.

2.Documentation

Documentation of workshop activities, insights and ideas

Documentation including interactive participatory activities such as preference ranking, stakeholder analysis that explicitly illuminated gender complexities in access, control and use of community natural resources.

2. Extensive literature review through library research focussing on end-user participation in research process with specific focus on the gender implications; particularly in terms of how far different groups and gender in community are represented and included in the participatory research process.

3. Literature review on gender and indicators of sustainability which is ongoing.

4. Cornelia Flora and Allison Meares participated in research for typology of NGOs and PVOs.This research culminated in a literature review which included gender as a professional issue within NGOs/PVOs and gender as one focus of analysis embraced by particular NGOs/PVOs.

5. Cornelia Flora, Ginny Seitz, Gladys Buenavista and Allison Meares reviewed a proposal written by Irma Silva-Barbeau for integrating gender analysis into SANREM activities.

6. Cornelia Flora, Margaret Kroma, Allison Meares and Gladys Buenavista conducted research and were involved in preparation for November 1993 SANREM training held at Virginia Tech which included the following information or activities pertaining to gender issues:

(a) developing an agenda which included a special discussion on gender analysis presented by Ginny Seitz

(b) integration of gender analysis into the training sessions through preparation of role plays that focused on gender issues and inclusion of participatory research

activities and inclusion of participatory research activities such as preference ranking exercises by gender

(c) preparation of a bibliography on gender and participatory development and research for inclusion in the workshop packets

(d) selection of articles on gender analysis for inclusion in the workshop reading materials that focused on methodological tools

7. **Allison Meares** reviewed ICRAF's Alternatives to Slash-and-Burn project papers in Cameroon for potential areas of collaboration with SANREM, noting areas where participatory research and gender analysis needed to be carried out

8. **Cornelia Flora, Allison Meares and Margaret Kroma:** Research and writing of first draft of paper on participatory research in preparation for SANREM 's 1995 conference on the subject. This project, conducted over the summer, included an extensive review of applied participatory research and classification of different types of participation. Attention to gender issues where applicable was noted as part of the classification and review. The paper will contain a section specifically on gender and participatory research.

9. **Cornelia Flora,** served on organizing committee for SANREM's " Indicators of Sustainability" conference held in Washington D.C in August 1994. Margaret Kroma and Allison Meares were asked to review documents, objectives of the conference, workshop guidelines paying particular attention to gender and other sociological variables as they related to indicators work and revising those documents to reflect the potential gendered nature of some indicators of sustainability. **Margaret Kroma and Allison Meares** also played a role at the conference as facilitators and moderators in order to encourage participants to consider gender in discussion of actual indicators and the methods for identifying indicators. **Cornelia Flora** gave a paper at the conference on

gender and indicators of sustainability, partially based on research conducted by Margaret Kroma and a bibliography prepared by **Margaret Kroma and Allison Meares.**

Dr. Irma Silva-Barbeau

Note: Dr. Irma Silva-Barbeau' s activities report will be forwarded later. She has requested two weeks time to complete her report.

INSTITUTION/SUBCONTRACT ANNUAL REPORT
Irma Silva-Barbeau, Silva Associates/VPI

I. Institutional Relationship to the Project

Virginia Polytechnic Institute and State University's role in the SANREM CRSP consortium is to provide leadership in the area of gender analysis. Gender analysis is one of the three cornerstones of the SANREM CRSP. The understanding of gender roles of the people living within the research sites is necessary for the success of the program and for the development of a new paradigm for sustainable agriculture and natural resource management.

II. Detailed Accomplishments - PI, Silva-Barbeau

During the week of October 18-23, 1993, Dr. Irma Silva-Barbeau prepared a presentation for the panel discussion *"Mainstreaming Gender through a Participatory Landscape/Lifescape Approach"* which was presented at the Association for Women in Development Conference in Washington, DC. She wrote and presented a paper entitled *"The Silent Revolution: the Breaking of Women into the Cattle Industry in Donsin"*, based on the Burkina Faso PLLA.

In November, 1993, Dr. Silva-Barbeau went to Ouagadougou to participate as a member of the Framework Writing team. As a member of that team, she was responsible for making sure gender was an integral part of the plan. She was also responsible for writing the section on nutrition and health for the framework plan.

She also was part of the planning team for the workshop on "Innovative Research Approaches to Sustainability" held at VPI, November 21-24, 1993. She presented several sections related to gender specific issues relative to Burkina Faso and also indicators of sustainability. She developed a skit which illustrated the role of gender in the economic development of Donsin which was used in the training.

In April, 1994 she again traveled to Ouagadougou and participated as trainer in the workshops "Atelier SANREM - Burkina". She worked with two Burkinabé researchers and organized framework for gender analysis. She also participated in a session with Drs. Bill Hargrove, Mudiayi Ngandu, and Suchet Louis on "how to write a fundable work plan in response to the SANREM CRSP invitation to work".

III. Significant Findings and Impacts

The training resulted in Burkinabé researchers being more sensitive of gender issues and with perhaps a clearer understanding of the role of gender analysis to the participatory method and the process of sustainability.

The process of both the writing of the framework plan and the prioritization of the research questions has elucidated new dimensions of gender analysis (i.e., the participatory nature) and its contribution to economic development, environmental health, and family well-being and stability. The Burkinabé researchers and developmental professionals are beginning to distinguish between the nature and the contribution of gender analysis and that of "femme en development" and/or "action feminine" activities.

The two workshops (one at VPI and the other in Ouagadougou) were very dynamic. The workshop in Ouagadougou clearly indicated a real need for gender analysis training materials to be available in French addressing issues specific to Burkina Faso. The holistic approach of gender analysis in the

context of SANREM CRSP appears to be non-threatening and welcomed by researchers and service professionals alike. The gender analysis approach, however, needs to be explained in a manner which distinguishes it from "women in development" activities which raises immediate obstacles in the process.

IV. Problems/Issues and Approaches to Resolution

The commitment of SANREM CRSP to gender are beginning to pay off in Burkina Faso. Gender is becoming a key work in the discussions and focus of concern for greater inclusion of women professionals in the process. The framework plan and the research questions of priority for Donsin are testimony of our Burkinabé partners in their understanding of the gender issues in sustainable agriculture and natural resource management. The need for "novel" approaches to gender training and analysis which is specific to Burkina Faso may be one of the greatest problems facing this site.

WASHINGTON STATE UNIVERSITY
REPORT FOR 1993 - 1994

I. Summary

The primary objective of this workplan was to sponsor an interdisciplinary and intersectoral conference/workshop on indicators of sustainability. The workshop, held August 1-5, 1994, was divided into conference and workshop components. The objective of the conference portion of the program (Days 1-2) was to bring together people actively working in programs involved in the identification and assessment of indicators of sustainability. The workshop portion of the program (Days 3-4) was used to develop "working guidelines for assessing indicators of sustainability." These working guidelines will outline flexible, reiterative, and participatory approaches for monitoring changes in agricultural production and natural resource conditions and predicting the impact of these changes on environmental quality and the quality of life of the resource users.

This report outlines activities conducted in preparation for the workshop including the development of the program agenda, identification of invited speakers and site-based participants, development of workshop processes and guideline questions, and preparing conference logistics.

II. Detailed Accomplishments:

Accomplishments of this workplan include:

1. Developed program agenda (see attachment 1).
   a. Identified conference speakers and moderators.
   b. Identified poster presenters.
   c. Developed guide questions for the workshop sessions.
2. Invited conference speakers and moderators
   a. Sent out guidelines for oral and written presentations (see attachment 2).
   b. Received title/summaries for papers and posters and first drafts of papers
   c. Invited and arranged transportation for site-based participants.
3. Developed and mailed out registration materials for the conference and workshop.
4. Participated in the SANREM/INFORUM email conference and used conference contacts and information to identify conference speakers and provide inputs into the development of workshop guideline questions.
5. Developed guidelines for interactive processes during the conference and the workshop (see attachment 3).
6. Made a preliminary identification of workbook writing team members.
7. Developed the table of contents and a first draft outline of the workbook.
   a. developed site-specific questions for site-based teams (see attachment 4).
   b. encouraged site-based teams to use site-specific questions in preparation for their

presentations and workshop discussions.

8. Obtained an agreement from Alice Jones, the Interim Director of the Sustainable Agriculture and Education Program (SARE), to provide $4000 towards the airfare and subsistence costs for the participation in the conference/workshop of one farm producer representative from each of the four regional offices.
   a. Coordinated with the regional program directors to identify farmer producer participants
   b. Invited participants to the workshop and identified oral and poster presenters
9. Arranged logistical requirements for the conference.
   a. contracted with the staff of the Westpark Hotel for the use of rooms and equipment during the conference and for banquet services.
   b. formulated a prepaid room contract for the lodging of the site-based participants.
   c. contracted with Berliz for translating equipment during the conference.
   d. contracted with Freeman Decorating for poster board rental.
   e. contracted with Unique Personnel for secretarial assistance during the conference.
   f. identified sources of audio-visual equipment
10. Held a workshop planning meeting with indicators of sustainability working group members.

All workplan activities were undertaken collaboratively in conjunction with the Indicators of Sustainability workshop planning committee, the chairs of the other cross-cutting working groups, the site coordinators/facilitators, and the ME. Primary contacts and their involvement during the planning stages of the workshop are listed in attachment 5.

Interactions with the SANREM/INFORUM e-mail conference and discussions with potential and invited conference participants were extremely helpful in identifying people and organizations involved in the assessment of indicators of sustainability and in providing insights regarding sustainability perspectives and indicator identification processes and indicator uses.

III. Significant Findings and Impacts

The three most significant findings during the phase of workshop development was 1) an awareness of the high level of interest and involvement in indicators of sustainability assessment within the research and development community, 2) the wide range of definitions and perspectives of sustainability, and 3) the diverse and varied uses for indicators of sustainability. The high level of interest in indicators of sustainability combined with the sometimes divergent perspectives on this subject provided a challenge for defining the focal parameters for the conference while at the same time maintaining interest in the conference from broad range of sectors and disciplines.

IV. Problems/Issues and Approaches to Resolution

Three major problems were encountered during the preparation for the indicators of sustainability conference and workshop. The problems and the approaches used to resolve these problems are listed below:

1. Assistance was required in identifying participatory interaction processes for the workshop sessions
    a. Arne Vanderberg reviewed initial guidelines developed for interactive processes and provided materials suggesting additional interactions
    b. GTC and End-User/Gender Working Group Chair Cornelia Flora made available the assistance of graduate students Alison Meares and Margaret Kroma. These graduate students provided additional guidelines for facilitators, rapporteurs, and synthesis team members and coordinated a pre-conference meeting for SANREM site-based participants.
    c. SANREM collaborators were invited to provide workshop assistance as facilitator, rapporteur, and synthesis team members (see attachment 5).
2. Time consuming program logistics encroached on the ability of the conference coordinator to develop/refine program content.
    a. The conference coordinator obtained assistance from the ME in developing and distributing invitation letters to the SANREM site conference participants.
    b. Alison Meares provided assistance in obtaining audio visual equipment, translation equipment, and working with the hotel staff.
    c. The ME agreed to provide additional funding to cover meetings with personnel from the Washington State University office of conferences and institutes. These meetings provided the conference coordinator and secretariat staff with numerous helpful suggestions for running a well-coordinated conference.
    d. Increased secretarial assistance was obtained from Debbie Schwenson (WSU) and arrangements were made for her attend the conference as the conference secretariat.
3. Site facilitators and coordinators provided very limited responses to letters addressing content issues of the conference.
    a. Additional information was sent to the site facilitators/coordinators.
    b. A pre-conference meeting for site-based participants was arranged to insure their ability to provide insights

into the planning of the conference.

V. Attachments

1. Program agenda
2. Guidelines for oral and written presentations
3. Interactive processes for the conference and workshop
4. Site-specific questions for the SANREM site-based teams
5. Involvement of SANREM participants in conference planning

Attachment 2: Guidelines for oral and written presentations
Memo to: indicators of sustainability conference speakers:

From: Barbara Bellows
office telephone: 509-335-7425; fax: 509-335-1173
e-mail: bellows@wsuvm1.csc.wsu.edu

Dates to remember:

As soon as possible- Please complete the attached form and return it to me. Information on this form will be used to finalize the agenda.

July 15, 1994 _ Please submit 1) a draft version of the paper to be presented and 2) a 2-5 paragraph summary or outline of your oral presentation. (Both documents should be submitted in both hard copy and diskette format.) The summary will be reproduced for inclusion with the registration package to be received by all participants at the meeting. The receipt of the papers and summary documents in advance of the meeting will allow for better integration between conference and workshop activities and will allow the French translators to better assist the participants from Burkina Faso.

August 31, 1994 - Please submit the final version of your Paper for inclusion in the volume of conference plenary papers.

Presentation recommendations:

The audience for the conference will be diverse. Participants will represent government, non-government, university, international research, and community sectors. They also will represent a variety of disciplines (biophysical/environmental sciences, agriculture, community development, socioeconomic, policy studies) and hierarchy perspectives (field, community, watershed, national and international policy). To enhance audience understanding of the papers being presented and to encourage audience participation in the discussion sections, I am recommending the following guidelines for oral presentations:

Please minimize the use of "jargon" terms and acronyms
Please try to translate technical concepts into "layman's" terms or provide a "layman's" introduction to technical discussions.
As much as possible, within the limitations of time and the

scope of your topic, try to relate your topic to the other disciplinary and hierarchy perspectives of the participants.
Please provide visual representations of your discussion whenever possible to illustrate interactions or complex concepts or relationships.
Text in visual aids should be in Helvetica or Universe font and limited to 10 lines per slide or overhead.

Slide projectors and overhead projectors will be available for use at the conference. Thank you for your continuing interest. If you have any questions, need other audio-visual equipment or materials, or feel that you may not be able to meet the deadlines outlined above, please contact me.

Attachment 3: Interactive processes for the conference and workshop
Guidelines for facilitators

1. Goal of the workshop: Through open, yet focused discussion on the topic assigned to your workshop, generate ideas and attempt to answer the questions provided working towards contributing to a SANREM workbook for identifying and assessing indicators of sustainability.

2. Be familiar with the draft outline of the framework, in particular those parts of the workbook which relate to your workshop topic.

3. Attend the conference moderated panel sessions to glean issues relevant to your workshop. Synthesize ideas and info coming out of these lectures in order to remind workshop participants of the relevant issues and pertinent info arising from the first two days of the conference. The workshop should build on the conference session discussions.

4. Introduce your own relevant field experience. Come prepared with examples if possible.

5. Keep in mind (and remind participants) of the SANREM cornerstones or key ingredients: interrelationship with the landscape; centering on people; interdisciplinarity; collaboration. These should form the general context of the discussion.

6. Prepare questions that will strategically refocus the discussion according to the goals of the workshop.

Suggestions for creating interaction, stimulating discussion and facilitating the sharing of information during the workshop:

1. Using the overhead projector or manilla paper poster boards, write down major ideas as they come up to enable participants to build on or be inspired by others' ideas.

2. Break up workshop participants into small roundtables to tackle separate pieces of the same issue. Have someone serve as a rapporteur at each table and report back to the group.

3. Design role plays which will suggest some of the issues facing the group. Design a scenario (such as an interaction in the field between scientists and farmer, for instance) and assign parts. Give the details of the scenario to the actors and have them present the scenario in a very informal and impromptu fashion to the rest of the participants. Then have participants discuss the role play as a group and identify issues which arose in the scenario. You can also have groups of participants come up with a role play to illustrate the particular issue they are discussing to the group at large and any conclusions they have drawn.

4. Develop graffiti boards by posting large pieces of paper around the room and writing the major subquestions or subtopics of your workshop across the top. Give the participants magic markers and have them mill about the room writing short answers to these questions. Then use the graffiti boards to spark discussion.

5. Treat the workshop as a field experience in participatory information gathering. Use and adapt some of the PRA methods (ranking, matrixing, etc.) you've used in the field to generate information.

6. Break up discussion groups into smaller groups according to their role in SANREM. First form small discussion groups by grouping all the scientists together, all the NGO people together, all the policymakers together, all the grad students together, etc. Then, in a second round, mix up the roles in different groups -- a scientist, NGO representative, policymaker, etc in one group, and so on. Compare the responses obtained to the same questions. Perhaps in a third round you could have participants take on the role of somebody else -- say, a policymaker could put him or herself in the shoes of a university scientist and answer the questions accordingly. This usually brings to light perceptions and expectations of various partners.

7. Set aside a meeting time of 15 minutes or so at the end of each day for the S-team to coordinate synthesizing activities, to give you feedback on minor adjustments that might be made to the agenda, ongoing feedback from conference participants and to designate a reporter who will report to the group at large the next morning on the previous day's content.

8. During breaks have workshop participants circulate to other workshop rooms and note on the graffiti boards the sorts of ideas being generated.

Attachment 4: Site-specific questions for the SANREM site-based teams

Country-based writing teams

Philippines, Burkina Faso, Central America

Membership:

Coordinated through site coordinators/facilitators

Objectives of country-based writing teams:

1. Provide a brief, outline description of the site using the results from the participatory rural appraisal and other reports or first-hand knowledge of the area. Within this description, please include the following factors:

Biophysical/Agroecological condition
- Location, topography, streams (permanent and seasonal)
- Climate (seasonal changes)
- growing seasons (length and variability)
- Soil descriptions across the landscape
- Soil and water quality changes over time
- Natural vegetational and changes over time
- Cropping patterns: across landscape and socioeconomic classes
- land-use: agricultural, forest, fallow, homes, infrastructure

Socioeconomic/community conditions
- population/population density/demographics
- cultural groups and integration/interaction
- social/economic groups and their interactions
- gender interactions/gender roles
- quality of life
- marketing interactions
- credit availability and interactions
- land tenure relationships
- labor: on-farm/off-farm/migration, relationships, availability
- infrastructure/information/transportation
- education: formal/informal, youth/adult
- development programs/interventions
- indigenous community groups
- political organizations/groups
- community involvement/responsibility in decision making

Policy/Macro economic conditions:
- market forces and market regulations
- subsidies for food/agricultural inputs
- land-tenure regulations
- policies regarding natural resource use and conservation
- infrastructure development

(Please add additional categories as appropriate)

2. From the community, research, and policy perspectives, describe local visions of sustainability (e.g. what is the ideal that programs on sustainability should be working towards)

3. Identify and describe specific site conditions and changes that impact on sustainability (involving a range of disciplinary and hierarchy perspectives and interactions among these conditions).

4. For each condition and change impacting on sustainability, identify a stressor (causative factor), process, and/or exposure (impact) indicator. (eg, for soil degradation, a stressor may be removal of crop cover/exposure of the soil surface, the process may be erosion, and the exposure indicator may be lack of top soil, siltation of streams, or landslides)

5. Identify examples of technical, indigenous, and community-based assessment methods for each indicator described. Provide citations of methodologies wherever possible.

6. Describe culturally-sensitive procedures for involving community members in the identification and assessment of indicators of sustainability. How can community empowerment processes at the field, community, and watershed levels be integrated with technical assessments of soil, water, biodiversity, agricultural, and socioeconomic factors. What processes, technologies, and frameworks are necessary to accomplish this integration? How can these processes be developed to provide both short-term and long-term tangible benefits to the community members?

7. Describe how indicators at the field and community levels may be integrated or aggregated into assessments at the watershed, regional, national, and international hierarchy levels. What processes, technologies, and frameworks are necessary to accomplish this integration?

8. Describe how community-based indicators and technical measurements at the community and watershed levels can be linked to policy indicators and policy decision-making. What processes, technologies, and frameworks are necessary? How will these linkages benefit community members? extension agents/development workers? researchers? policy makers?

9. Develop a conceptual framework for interactions among community, development, research, and policy sectors and for interactions across field, farming system, watershed, regional, national, and international hierarchy levels.

10. Based on the framework and the processes discussed above, outline a process for assessing changes in natural resource sustainability. The method should start at the community level, be participatory and community-beneficial, be technically verifiable, and provide inputs into policy decision making.

Attachment 5: Involvement of SANREM participants in conference planning

Participant	1	2	3	4	5	6	7	8
J. Aaker		X		X				X
W. Butcher			X				X	X

R. Carroll						X*	X*		
B. Collins						X			
B. Deutsch	X	X		X		X	X	X	
C. Flora	X	?		X	X		X*	X	
B. Hargrove	X					X	X	X	
B. Hart		X				X	X		
D. Karlen		X*					X*		
C. Neely						X	X		
M. Ngandu						X	X	X	
K. McSweeney						X	X	X*	
R. Montee					X		X	X	
B. Rhoades	X	X	X	X	X	X	X	X	
D. Swift						X			
I. Silva-B.						X	X		
R. Zabawa						X			

Phil. team	X	X		X	X	X	X	X
B.F. team	X	X		X	X	X	X	X
Ecuador team	X	X		X	X	X	X	X
Central America		X		X		X		X

Conference portion of the program
1. Paper presentation
2. Poster presentation
3. Conference session moderator

Workshop portion of the program
4. Preliminary discussions regarding workshop facilitation
5. Designated writing team member
6. Assistance provided for participation of site-based teams
7. Other information/assistance provided
8. Attending meeting

SANREM CRSP TRIP REPORT
Burkina Faso
August 1, 1993 - July 1994

Report by: Laurent Millogo **Contract No: LAG-4198-A-00-2017-00**

SANREM Representatives: Laurent Millogo, US AID Mission

I) ACCOMPLISHMENTS DURING THIS PERIOD

a) Establishment of SANREM/BF structure

i - Setting up of the Community Advisory Committee (CAC) in September 1993

This committee composed of six persons of the village of Donsin is very representative of the different states of the village; gender/end-users issues are been addressed in the establishing of this committee. The designation of the members of the committee was the entire responsibility of the village with the collaboration of PPI. The fact is that this committee is very representative to the configuration of the village is a proof of sustainability. This committee has also elected its representative to the National Coordination Committee (NCC).

ii - election of the representative of all the technical government services present in the area of Donsin (the research site) to the NCC and designation of the local government administration representative to the NCC (September 1993).

iii - election of the NCC president (September 1993). The mandate of the president covers the life period of the Memorandum of Understanding (MOU) as decided during the first meeting of the NCC.

b) Elaboration of SANREM Framework Plan

i - Designation of seven (07) representatives of SANREM/partner institutions to build the writing team of the research framework plan (October 1993) in collaboration with the coordinator. This team has worked participatively and collaboratively and made two trips to Donsin to present its results, which have been amended by the villagers.

ii - Submission of the Framework Plan to the CAC (December 1993) and the NCC (February 1994) for their respective revision and adoption; this was also the case of the Priority Research Questions (PRQ)

c) Nomination of the National Coordinator

It is here worth noting that until January 1994, there was no official coordinator nomination; the nominee served until this date and some time later (April 1994) as USAID/BF mission Program specialist.

d) Priming Project

Four persons of the Framework Plan writing team and the coordinator were designated to write the priming project in close collaboration with the villagers of Donsin. This was a good exercise for the villagers of Donsin (the research site) to better understand the philosophy/cornerstones of SANREM. As a matter of fact, some of them expressed needs like roads building, welfare center, agricultural equipment...etc, at the beginning of the entry meeting the writing team held with them. Yet, at the end of the first meeting, they had perfectly understood what SANREM can fund, what should be their contributions and that of other SANREM/partners; as a fact of this comprehension, when they expressed the need to have "a SANREM Demonstration plot", their own suggestions were:

- we, villagers, will prepare the plot, and plant the trees and maintain the plot throughout the year, and later manage it;

- PLI will help to transport the plants to Donsin and fund a well within the plot area so that we can water the small plants during the dry season;

- the other SANREM/partners will train us to maintain the trees and later to manage the plot.

The priming project was submitted on January 21, 1994 to the NCC for its adoption. This project was intended to start in February 1994, but it was delayed until July 1994 because of unavailability of funds. During a field trip to Donsin on June 30, 1994 the villagers proposed to start only with the demonstration project and postpone the other "Priming activities" after the rainy season which ends in end September; the main reason was the advanced degree of the rainy season.

With regard to the "demonstration plot", the following accomplishments have been achieved:

- identification of the site of the one hectare plot was made by the villagers in June;

- preparation of the plot and digging took place in July;

- planting of more than 2,200 plants of which 1,800 plants for the lively defensive hurdle.

It should be here noted the great enthusiasm shown by the villagers during the above activities. There was also a massive and representative participation of the whole villagers of Donsin.

The main impact of this activity is a strengthened awareness of the biodiversity. Lots of local species such as Parkia biglobosa were planted within the plot. As a reminder, the

name Donsin (the research site) means place of many Nere trees (Parkia biglobosa); yet, today few exist. The follow-up activities plan of demonstration plot is attached hereafter. Regular meetings are held with partners to better follow-up this priming activity.

e) Holding of 3 day training/planning workshop (April 1994) on participatory user first on-farm research methods in agriculture and natural resource management.

This workshop brought together 60 participants from partner institutions, private farmers (men and women) of Donsin, local Administration and non-government organizations. The training sessions addressed the cornerstones of the SANREM and allowed the participants to learn and discuss the philosophy of SANREM. All the directors of the research institutes of Burkina Faso attended this workshop throughout.

f) Installation of two weather stations (April 1994) in the research site area.

Partners are also collaborating in this activity; the data are collected by the INERA local technician based in Donsin who sends them to his headquarters located in Ouagadougou through the NGO/PPI; one person committed for this activity within INERA headquarters forwards the date (by E-mail or DHL) to the UGA for Dr. Flitcroft.

h) Signing of the MOU by SANREM national research partners (CNRST and the University of Ouagadougou) on July 15, 1994.

i) Setting up of SANREM/BF GIS working group composed of 4 PERSONS:
Dr. LOMPO François and Dr. SOME Leopold from INERA, Dr. PALO François from IRBET, drs. ZOMBRE Prosper and SOME Salibo from IDR and the indicators of sustainability working group who participate to the August 1994 conference.
Other working groups on:

-Education and Training; and
-End-user/gender

are in the process to be established and structured.

As soon as these working groups are functional, we will work to publish a three-month SANREM/Burkina Faso Newsletter.

II) IF ESTABLISHED GOALS ARE NOT MET, INDICATE WHICH ONE AND LIST REASONS WHY.

The only delay of activities was the starting of the priming project. The only reason was the unavailability of funds.

III) ADDITIONAL ACTIVITIES NOT SPECIFIED IN THE WORKPLAN

For the two weather actions installed in Boulsa (20 km from Donsin) and in Donsin, two point persons have been nominated; one of them collects data on a monthly basis and

sends forwards of them to Dr. SOME Leopold (an agrometeorologist of INERA) who is responsible of retrieving, storing and sending the data to the USA. Dr. SOME expressed the need to have a desk-top computer to manage the data and send them by E-mail to Dr. Ian Flitcroft (UGA); the one he is using now belongs to another researcher.

IV) STAFF ACTIVITIES

The coordination unit has been recently staffed with new personnel:

a) **the local facilitator, Mrs. YAMEOGO Françoise** who will be based at Boulsa within PPI field office compound. Mrs. Françoise YAMEOGO is a sociologist with a 2-year rural field experience; she will hold office on October 1, 1994. The facilitator attended the June training on holistic resource management.

b) **Mrs. THIOMBIANO Adama Nadège** has been recently recruited as part-time accountant (Administrative Assistant) and has already held office on September 1. She has a bachelor in social education and a strong background in bookkeeping. She worked 3 years as an accountant with the National Development Bank (BND)

c) **The coordinator participated to some outside training and meetings:**

-in Blacksburg (November 20-29, 1993) for the workshop on innovative research approaches to sustainability;

-in Atlanta and Griffin (June 5-12, 1994) for the GTC meeting together with SANREM/BF NCC president (Dr. BELEM Celestin); and

-in Praia (Cape Verde), (August 12-20) for the workshop on participatory user first on-farm methods, together with PARCOUDA Albert of PPI.

d) **Six Burkinabe researchers** and one translator participated to the August conference on the indicators of sustainability. They have just submitted their trip report and finalized their scientific presentation; these two documents will be sent ASAP to UGA and Barbara Bellows.

V) MISSION INTERACTION

Dr. BELEM Celestin, former Director of INERA and president of NCC of SANREM has been replaced by Dr. Paco SEREME, an entomologist.

A meeting of the NCC has been held on September 7, during which Dr. Paco SEREME took officially duties as the new president of the National Coordinating Committee (NCC).

VI) PUBLICATION

The coordinator has recently (August) issued a synthetic document titled: "Le Programme d'Appui à la Recherche collaborative sur l'Agriculture Durable et la Gestion de Ressources

Naturelles, Dossier de présentation". This document presents the program SANREM CRSP: its goal, philosophy, organization, Project activities, the Framework Plan, the priority Research Questions and the Priming Project; the document also outlines the methodology for formulating the project proposals. This document will be sent to SANREM/ME ASAP per DHL.

VII) PROBLEMS/ISSUES ITEMS OF INTEREST

a) Invitation to work

The researchers have begun to get together to formulate the projects. Yet, SANREM/BF has not yet received its "invitation to work".

During the last NCC meeting (September 7), all members agreed, that Burkinabe researchers are ready to formulate research proposals. The writing team needs not meet again to get the priority Research Questions more inter disciplinary, as requested by the Management Entity. Two things have been decided to have researchers formulate the proposals more inter disciplinary:

-the document published by the coordinator should be distributed on a large basis to all interested researchers; one chapter of this document outlines the principal contents and methodology of research proposals;

-the NCC members will meet (starting the week of September 12) with researchers of each institution to explain the methodology of formulating good research proposals.

Conclusion: SANREM/BF is urgently waiting for the Invitation to work.

b) Process

SANREM philosophy has really begun to change the mentalities of farmers (men and women), researchers and politicians involved in rural and research sector; that is a real brain investment which remains undescriptive in this report. The remaining challenge is to translate this change of mentality into action.

VIII) FINANCIAL INFORMATION

Estimated costs for this period as of September 8, 1994: CFA 9,700,000
Detailed information will be sent later.

IX ACTIVITIES PLANNED FOR NEXT 6 MONTHS

SCHEDULED	DESCRIPTION	ACTION AGENT
September 1994	a) Priming project with the demonstration plot	-PPI/Boulsa -SPET/Boulsa -IRBET -Coordinator
	b) Meeting with Research Institutions to discuss the formulation of research proposals	-President of NCC -Members of NCC -Coordinator
	c) Training of Administrative Assistant in USAID regulations	-USAID Accountant -Coordinator
	d) Invitation to work	-Research facilitator -GTC/SANREM
October 1994	a) Transfer of local facilitator to Donsin	-PPI/Boulsa
	b) Continuation of Priming activities	-PPI/Boulsa -local facilitator -SANREM/Partner
	c) Submission of the first financial report	-coordinator -PPI/Ouaga -Administrative assistant
	d) communication between US researchers and local researchers on project proposals	-Researchers -coordinator -Research facilitator

SCHEDULED	DESCRIPTION	ACTION AGENT
November 1994	a) Continuation of Priming activities	-PPI -Local facilitator -Coordinator -Partners
	b) Communication between US researchers and local researchers (formulation of project proposals)	-Coordinator -Research facilitator -Researchers
	c) Mission of U.S. researchers to advise on Research Proposals	-Coordinator -Research facilitator -Researchers -other U.S. Researchers
	d) Second training of village level facilitators in Holistic Resource Management	-PPI -Local Facilitator -Coordinator -Partners -Holistic center trainer
	e) Travel to U.S. on Evaluation process. The coordinator and the new president of NCC discussed with the Director General of CNRST on how to build an evaluation team of SANREM. For Dr. SEDEGO (the Director General of CNRST on how to build an evaluation team of SANREM. For Dr. SEDEGO (the Director General), Dr. BADINI, the Director of the Research Institute of Human Sciences could be an indicated resource person for this activity. Dr. BADINI (a sociologist researcher) has actively participated to the April workshop.	-Local facilitator -Coordinator -Dr. BADINI?
December 1994	a) Submission of the Research Proposals to the GTC/SANREM	-Research facilitator -Coordinator -President of NCC
	b) continuation of priming activities (demonstration plot, training of villagers)	-PPI -Local facilitator -President of the NCC
	c) Annual leave of coordinator	-Coordinator -Administrative Assistant
January 1995	a) Continuation of priming activities (training, Zai project)	-PPI -Local facilitator -Other Partner
	b)Financial report	-Coordinator -Administrative Assistant -PPI
	c) third training in holistic resource management	-PPI -Local facilitator -Coordinator -Holistic center trainer

SCHEDULED	DESCRIPTION	ACTION AGENT
February 1995	a) Evaluation of Research proposals	-Restricted committee of GTC/SANREM -NCC -Research facilitator
	b) Continuation of priming activities	-PPI -Local facilitator -Coordinator -Other partners

SANREM CRSP/PHILIPPINES
INSTITUTION/SUBCONTRACT REPORT FOR 1993 - 1994

I. ACCOMPLISHMENTS

1. Surveys Conducted/Completed

Three work plans completed their surveys during the period. David Midmore and Durga Dutta Poudel from the AVRDC surveyed 102 farmers producing vegetables (approximately 15% of the number of vegetable farmers) to obtain information on cropping patterns (including non-vegetables), land abandonment, inputs, outputs, revenue, and choice of location. The survey covered 8 barangays. Field activities included interviews conducted by locally hired enumerators and soil sample collection from the main parcel of vegetable land, nearby virgin land, and abandoned land. The natural slope, slope of the arable land, and representative altitude were also measured. Using the GPS, the geographic coordinates of soils collected were identified. Preliminary analysis of the land abandonment situation has been done.

Researchers from the CIP-UPWARD and the NOMIARC-DA interviewed potato growers on the occurrence and extent of black wilt infestation of potatoes grown in 8 barangays. Data analysis is ongoing.

Ian Coxhead and Ms. Phuong Hoang from the University of Wisconsin-Madison and work plan partners from the Center for Policy and Development Studies at the University of the Philippines collected information from 9 barangays pertaining to agricultural production, input use, marketing, transport costs and credit. The survey was aimed at understanding farmers' land management practices, crop production decisions, and the economic and environmental problems that they currently experience. Data analysis is ongoing.

The surveys conducted by the AVRDC and CIP-UPWARD will be used as basis for planning farmer-participatory on-farm activities.

Butch Dagondon of Green Mindanao together with work plan partners from the Talaandig tribal group and researchers from the Central Mindanao University conducted a reconnaissance and began initial indexing of the flora and fauna at the upper watershed, approximately 1060 to 1829 meters above sea level (m.a.s.l.). Interesting observations were pointed out from this activity. At 1680 m.a.s.l., it was observed that a previously old-burned residual forest region was planted to high value crops such as potatoes, cabbage, and carrots. Areas of permanent settlement were also observed and raised concerns among team members regarding the possible encroachment of the old growth forest region

2. Ongoing Surveys

Bill Deutsch, the principal investigator of the Water resource Management and Education Work Plan, together with the local water quality monitoring team conducted a stream survey from sixteen sample sites of the Kulasihan River, Alanib River, Tugasan Rivers, and Maagnao River. Physicochemical and biological data were collected. Samples were sent to Estela Cequina, faculty member at Central Mindanao University, for analysis. Ongoing surveys are conducted by the water quality monitoring team under the supervision of a locally hired research assistant, Ananias Altomera.

Deutsch also conducted a water quality sampling at the Pulangi River and reservoir with staff from the National Power Corporation. The NPC staff presently conducts regular water quality sampling at the reservoir. They have arranged for a back up analysis of the samples collected from the sites in Lantapan at the laboratory of the Bukidnon Sugar Company (BUSCO).

Ongoing data collection include readings from the automated weather station and rain gauges. Data processing continues to be done by UGA and are sent to Central Mindanao University. Transforming the information into a material that is comprehensible and useful to farmers' is currently being planned.

Ian Coxhead and Agnes Rola visited the Bureau of Agricultural Statistics (BAS), which is based in Malaybalay, for the market price monitoring of crops grown in Lantapan and sold in Malaybalay, Valencia, Cagayan de Oro and other major markets.

3. Training/Workshops/Consultative Meetings Conducted:

3.1 Water Quality Monitoring Training

The first training on water quality monitoring was held at the San Herminigildo Agro-Industrial School from July 5-7, 1994. The objectives of the training were as follows: (1) to organize, train, and equip citizens who can monitor the streams at the SANREM CRSP/philippines project site; (2) to develop, improve, and edit the field manual and test procedures; (3) to disseminate the results gathered from the survey conducted in March 1994. The training design consisted of lectures, demonstration, field activities, and discussion. Types of measurement, test procedure, soil erosion and sediment of water, and biological assessment were covered in the lectures. Eleven farmers, three students from SHAIS, 13 work plan partners, and five staff from SANREM CRSP attended the training.

3.2 True Potato Seeds (TPS) Training

The CIP-UPWARD organized a training on the production aspects of True Potato Seeds at the Site Coordination Office from May 26-27, 1994. Resource persons included staff from the NPRCRTC of Benguet State University and the SAPPRAD-CIP. Twenty farmers selected from eight barangays attended the training. They were

chosen based on the following criteria: (1) expressed interest and willingness to cooperate in the work plan on farm experiment; (2) farm owner/operator; (3) experience in planting potato and other vegetables for the past the past three years. The activity combined lectures, discussions, and field exposure. The lectures included the following topics: culture and managements of TPS, crop protection, seed plot technique, and on-farm participatory research.

3.3 EFSAS

Glicerio J. "Boy" Tan and Hermie Nalzaro from the SHAIS conducted a consultative meeting and training on EFSAS last June 24-30, 1994. The activity also included a field exposure to various sites in Mindanao, which are examples of sustainable farming systems. Forty farmers, teachers and students of SHAIS participated in the consultative meeting and training.

3.4 Training on Process Documentation for SANREM CRSP/Philippines

As part of its planning grant implementation activities, the PCARRD-led work plan under the leadership of Rogelio Serrano conducted a training on process documentation held at the Central Mindanao University from July 18-22, 1994. Resource persons included Dr. Elena Chiong Javier of the De La Salle University, Dr. Filomena Javier of the University of the Philippines-Dilliman, and partners from SANREM CRSP/Philippines. The training included lectures, discussions, field work, and setting up of the process documentation strategy for the Philippine program. Representatives from various work plans participated in the training.

3.5 Community Information Drive

A joint seminar/workshop of the CAC, the Barangay Development Council (BDC), and the Priming Program participants was held at CMU last April 19 and 20. The activity's overall objective was to promote community awareness about SANREM CRSP/Philippines and to generate local support. The activity highlighted the SANREM CRSP research process. Workplan holders present in the meeting provided an overview of their research activities.

Furthermore, two community-based work plans, the Community Participatory Action Resource Development Research (COPARD) and the User-First Research for Sustainable Development in the Manupali Watershed, and the Site Coordination Office had started conducting community information drive activities in the 14 barangays of Lantapan to introduce SANREM CRSP/Philippines and the COPARD and User-First work plans.

The COPARD work plan led by Mr. Romeo Banaynal and the community development facilitator conducted a two-day Barangay Consultation and Workshop at the San Herminigildo AgroIndustrial school. Thirty-one participants from the three barangays covered in the work plan: Songco, Kaatuan, and Cawayan, attended the activity. The activity's objectives included the following: (1) to review SANREM CRSP's mission, vision, goals, and objectives; (2) to update the community on the

developments within SANREM; (3) to develop among the participants a basic understanding of the COPARD work plan and level off on expectations; and (4) engage the participants in the creation of a community map.

Community development facilitator of the User-First work plan organized special meetings and participated in barangay assemblies and council meeting. The work plan covers all 14 barangays of Lantapan.

Awareness of and interest on the program at the local level is emerging. Barangay leaders requested the SANREM CRSP/Philippines staff to provide a presentation about the program in barangay assemblies and council meetings. The site coordinator and the community development facilitator had been responsive to these requests.

4. **Planning Activities Initiated:**

Planning activities for work plan development/implementation were initiated by Constance Neely (UGA), Bill Deutsch (Auburn University), Evellyn Belleza (Auburn University), Glicerio J. "Boy" Tan (SHAIS), and Milagros Tan (SHAIS) on environmental education. Belleza also initiated work on the feasibility of integrating aquaculture into the research area.

Agnes Rola from the Center for Policy and Development Studies of the University of the Philippines at Los Banos also initiated contacts for the implementation of the CPDS-led workplan on the socio-demographic factors affecting biodiversity in the Manupali Watershed.

V. Pal Singh and scientists from the International Rice Research Institute began preliminary field activities for the implementation of the IRRI-led work plan, Development of Sustainable Production Systems for Different Landscape Positions in the Pulangi River Watershed, Bukidnon, Philippines: Soil and Water Resource Management and Conservation".

7. **External Linkage Created:**

The National Coordinating Committee welcomed the proposal of Dr. Conrado Duque, CMU faculty and principal investigator of an ACIAR-funded upland research project, to link with SANREM CRSP/Philippines through information exchange. ACIAR'S research site is in Lantapan.

8. **Participation in the Indicators of Sustainability Conference in Arlington, Virginia:**

Six members of the NCC participated in the Indicators of Sustainability Conference in Arlington, VA. The team comprised of Ronelo Alvarez representative of the Community Advisory Committee; Romeo Banaynal from the NGO sector, Antonio Sumbalan from the local government unit; Roger Serrano and Mariliza Ticsay-Ruscoe from the academic/research institutions and Gladys Buenavista from the Site Coordination Office. The team presented a paper, "Where's the Gold: Issues of

Sustainability of Community Participation in Philippine Upland Development" and a poster, "The Landscape and Lifescape of the Manupali Watershed". Serrano prepared a poster on "Sustainability Indicators and Issues: The Case of Barangay Halog in Lamut, Ifugao".

10. Strengthened Ties with the Ethnic Community:

The Talaandig ethnic community and the SANREM CRSP/Philippines enacted a Ritual of Understanding to formalize mutual understanding between the two entities. The ritual symbolized the formal acceptance by the Talaandig community researchers involved in the SANREM CRSP/Philippines. Representatives from various work plans took part in the ritual. The Talaandig community was well-presented by the chieftains and ethnic group members.

11. Priming Program Concluded:

The Priming Program, which was designed to effectively utilize the time between the finalization of the Framework Plan and the onset of SANREM CRSP/Philippines workplans, concluded in April 1994. Processes learned in implementing the program with the various farm households, organized into existing informal social networks or hugpong, provide a road map for SANREM CRSP/Philippines' researchers in pursuing the project's mission and vision.

An evaluation of the Priming Program was conducted by the community development facilitator. The participants gave their individual perceptions of the FSR activities which they participated. These activities included: (1) development of a visual representation of their existing land use systems, (2) problem identification and analysis, (3) development of visual representation of their farm development plan, and (4) the implementation of farm development plan. The first activity enabled the participants to analyze their current farm system which they then used as a guide in developing their farm development plans. The second activity enabled the participants to analyze the problems that they currently experience and identify potential solutions. The third activity was instrumental in enabling them to chart and prioritize their farm activities. According to the participants, the environmental fund that they received from the program facilitated the implementation of their farm development plans which included the establishment of contour farms, establishment of vegetable gardens, tree planting, animal (hogs, ducks, chickens, goats, and turkeys) raising, and rejuvenation of existing coffee trees. The problems encountered in the process of implementing their farm development plans included the unavailability of seedlings, poor quality of seeds/seedlings, absence of additional farm labor, heavy rain, lack of pesticide, insufficient funds, and unavailability of material for pen construction. The User-First work plan currently monitors the implementation of the farm development plans.

12. Soil Characterization Survey Completed:

The soil characterization survey conducted by the USDA-SCS, the Philippine Bureau of Soils and Water Management, and the Central Mindanao University late last year had been completed. Report on the activity included (1) site location map of the 13 pedons sites from the different major landforms (LMU) and (2) pedon and site information. A copy of the report is available at the SCO.

13. Improving the CAC's Involvement in Work Plan Implementation:

The CAC developed measures to improve its current involvement in the implementation of the various work plans. Work plan holders would be required to meet with the CAC prior to implementing their research. A subcommittee within the CAC was assigned to help work plan holders fine tune survey questionnaires. Work plan holders would be required to hold an exit meeting with the CAC.

14. Work Plans Approved for Implementation:

Work plans from the International Rice Research Institute and Heifer Project International were approved for implementation. Presently, a total of 12 work plans have been approved for implementation at the SANREM CRSP/Philippines site. These are as follows.

1. The Economics of Sustainability: Production, Prices and Policies in the Manupali Watershed, Bukidnon, Philippines
2. Community Action - Environmental Awareness Of, By and For the Manupali Landscape
3. Upper Manupali Watershed Biodiversity Research - Conservation Program
4. Enhancing Biodiversity Conservation and Family Security through Home Gardening and Sustainable Field Production of Vegetable
5. Community Organizing Participatory Action Resource Development Research (COPARD)
6. Socio-Demographic Factors Affecting Biodiversity in the Lantapan Sub-Watershed
7. Potential Non-Traditional Forest Products in the Manupali Watershed
8. Modeling of Water Quality and Quantity at the SANREM CRSP Philippines Site
9. A Plan for Collaborative Work in Water Resource Management and Education in the Manupali Watershed, Bukidnon, Philippines
10. User-First Research for Sustainable Development in the Manupali Watershed, Philippines
11. Stabilizing Commercial Vegetable Production in the Manupali Watershed, Philippines
12. Development of Sustainable Production Systems for Different Landscape Positions in the Pulangi River Watershed, Bukidnon, Philippines: Soil and Water Resource Management and Conservation

Work plans reviewed during the quarter included from Central Mindanao University (CMU), Bureau of Soils and Water Management, PCARRD, and the University of

Georgia by Virginia Sandoval and Robert Rhoades. Three work plans from CMU, which were awarded planning grants, were recommended for integration by the NCC.

14. Work Plan Synthesis and Integration:

The Site Coordination Office prepared a synthesis of work plans approved for implementation and work plans currently under review. The work plan synthesis provides a brief description of the various work plans and activities planned for year one. The work plan integration groups work plan by activity type. Both materials provide information on who is doing what type of activity and where SANREM CRSP/Philippines' partners can potentially interact with each other, and share expertise and resources.

15. Guidelines/Policies Set by the NCC:

At the onset of work plan implementation, the NCC endeavored to set guidelines/policies to facilitate the conduct of research activities. These included: (1) the review and approval of the duties and responsibilities of the NCC, CAC, and the SCO, (2) the development and signing of memorandum of understanding between Heifer Project International and the partner institutions, (3) the development of a monitoring and evaluation system for SANREM CRSP/Philippines, (4) the strengthening of institutional representation in the NCC and the committee's capacity as the policy making body of the Philippine program, (5) the facilitation of research fund release, (6) the standardization of salaries/wages for the Philippine-based research and support staff, and (7) the mobilization of the soils, water, and biodiversity task forces.

ATTACHMENT B

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ATTACHMENT C

SANREM INFORMATION, OUTREACH, AND REPORTS ISSUED THROUGHOUT THE YEAR

INFORMATION

- Soils Information
  - Detailed Characterization of 13 Pedons Across the Landscape of the Manupali River Watershed, Philippines

- GIS Maps and Information
  - Digital maps of soils, climate, land use, topography, road and river networks, and population distribution for the Philippines site
  - Satellite Imagery
  - Topographic maps of Burkina Faso site

- Weather Data
  - Air Temperature, Humidity, Soil Temperature, Solar Radiation, Rainfall, and PAR for the Philippines and Burkina Faso Sites
  - Historical meteorological and hydrological records for Burkina Faso and Philippines sites
  - Stream Flow

- Other Data Bases
  - Preliminary data base of vegetable growers in the Manupali River Watershed - including cropping patterns, inputs, outputs, revenue, choice of locations, and abandoned lands.
  - Preliminary data base on land use histories, current crops, technologies, prices and incomes of upland farmers in 11 villages in the Manupali River Watershed
  - Preliminary data base on the infestation of bacterial wilt of potatoes in the Manupali Watershed
  - Preliminary data base on flora and fauna in the upper Manupali River Watershed
  - Physicochemical and biological data from sixteen sample sites of 4 tributaries of the Manupali River
  - Census data for Burkina Faso including population, health, schools, and wells

OUTREACH/COMMUNICATIONS

- Newsletters
  - *LAST Update*
  - *ECOLINKS*
  - *SANREM NEWS*
  - *LAST Impact*

- Water Quality Manual
  A Field and Laboratory Manual for a Community-Based Water Quality Monitoring Program in Bukidnon, Philippines - W. G. Deutsch, International Center for Aquaculture and Aquatic Environments, Auburn University

- Process Documentation
  - Philippines Priming Activity
  - Philippines Leveling-Off Meeting

- Papers and Literature Reviews
  - *The Silent Revolution: the Breaking of Women into the Cattle Industry in Donsin, Burkina Faso*
    Irma Silva-Barbeau, Silva Associates
  - *Towards a Landscape/Lifescape-User/Community Participatory Approach: An Interim Progress Report on User/Community Participation*
    Ralph Montee, Center for PVO/University Collaboration in Development
  - *Conceiving Sustainability - The Web*
    Ralph Montee and Bill Collins, Center for PVO/University Collaboration in Development
  - *Landscape Organization (book chapter) in Tropical Managed Ecosystems: New Perspectives on Sustainability* (Hatch and Swisher,eds.),Oxford University Press
  - Photo Essay in *Conservation: replacing quantity with quality for global management*, Textbook by Carl Jordan, John Wiley and Sons, Publ.
  - Review of literature related to indicators of sustainability in Ecuador and Costa Rica
    Greg Eckert, Institute of Ecology, University of Georgia
  - Review of literature of gender as a professional issue within the NGO/PVO community
    Cornelia Flora and Allison Meares, Virginia Polytechnic Institute and State University
  - Reference library for sustainable agriculture and natural resource management for the SANREM CRSP at Griffin, Georgia. Information is obtainable through a reference manager software.

- Summary of International Electronic Conference on Indicators of Sustainability

- Training Materials

- *Gender Analysis Skit - the Village of Donsin*
  Irma Silva-Barbeau, Silva Associates

- Innovative Research Approaches to Sustainability, 2nd Annual Workshop Documentation, Virginia Polytechnic Institute

ATTACHMENT D

REPORTS SUBMITTED DURING THE YEAR

Quarter 1

- **Literature review on Indicators of Sustainability for Honduras and Ecuador; July 15-August 16, 1993**
  Greg Eckert, graduate student, Institute of Ecology, University of Georgia, spent four weeks in Honduras at Zamorano University to evaluate the "grey literature" for Honduras and Ecuador with particular emphasis on indicators of sustainability.

- **Honduras Trip Report; September 12-14, 1993**
  Bill Hargrove and Jim Hoey visited Honduras to discuss US AID Honduras to discuss potential SANREM CRSP activities in Honduras, September 12 -14, 1993. Hargrove and Hoey met with Dr. Vince Cusamano (US AID Honduras), Vicky de Diaz (Executive Director - Fundación VIDA), René Gamero (Technical Director - Fundación VIDA), and David Knoll (United Nations Volunteer), Dr. Jay Hughes (temporary head the Department of Natural Resources and Conservation Biology, Zamorano), and Elias Sanchez (Organic Farmer and Trainer).

- **Morocco Trip Report; September 27 - October 1, 1993**
  Drs. Bill Hargrove (Program Director), Jim Bonner (Program Officer, US AID Washington), Bryan Duncan (Auburn University), Dave Swift (Colorado State University) and Ed Kanemasu (University of Georgia) traveled during the week of September 27 and October 1 to Morocco to further identify the research priorities and interests of national programs (INRA/Settat, IAV/Rabat, and ENA/Meknes); identify a network of potential collaborators; evaluate potential sites with respect to sustainability, natural resource issues, landscape linkages, and farmer-first approaches; and develop a plan for proceeding to be considered by US AID Morocco, SANREM, and the Moroccan institutions.

Quarter 2

- **Burkina Faso Trip Report; October 23-30, 1993**
  Mr. Chuck Rhoades attended the Parc Agroforestry conference in Ouagadougou along with approximately 200 other people who are working in semi-arid regions of West and Southern Africa. Additionally he met with US AID Burkina Faso, visited the National Soils Laboratory, and visited the SANREM site in Donsin.

- **Burkina Faso Trip Report; November 15-19, 1993**
  Bill Hargrove, M. Ngandu and Irma Silva-Barbeau traveled to Burkina Faso November 15-19 to learn the issues and concerns of the SANREM collaborators. The writing team met on the second day to outline the Framework Plan. A time line was outlined and writing assignments were made. They met with Nitiema on November 19 to discuss the Plan International work plan.

- **Ecuador Trip Report; December 8-11, 1993**
  Drs. Bill Hargrove and Constance Neely met with Ken Weigand (ADO, US AID Ecuador) to outline the activities planned for SANREM CRSP in Ecuador and to sign an MOU with FUNDAGRO. They also visited the training dairy farm of Eduardo and Nancy Sotomayor.

- **Philippines Trip Report; November 29-December 4, 1993**
  Bill Hargrove, Bill Deutsch, Bob Rhoades, David Midmore, and Constance Neely traveled to the Philippines to attend the roundtable review process December 1-3 at IRRI in Los Baños. They assisted in the review, integration and revision of the Philippine work plans.

- **Philippines Trip Report; November 18-December 14, 1993**
  Larry West visited Lantapan, Bukidnon, Philippines, for the purpose of describing and sampling soils in the SANREM CRSP Philippines research area. He also examined the offices of the Bureau of Soil and Water Management.

- **Philippines Trip Report; November 29-December 15, 1993**
  Ian Flitcroft and Galen Harbers of the University of Georgia traveled to the Philippines where they attended the SANREM CRSP Roundtable in Manila and helped develop the work plan. Then they transported the weather station equipment and fencing materials to Lantapan where they installed it at the sites. After completing the installations, they traveled to the NAPACOR power plant in Maramag.

- **Morocco Trip Report; January 10-21, 1993**
  Ed Kanemasu and Dave Swift traveled to Morocco to meet with US AID Morocco to discuss areas of interest to be pursued. They selected Oued Laou watershed based on the fact that it was the smallest in size and diverse in agriculture. They met with Fouad Rachidi to discuss the organization of the program from the Moroccan end and developed a proposal (attached) which they transported to US AID and presented to Charles Uphaus, M'hamed Hanafi, and Mohammed Kamal.

  Uphaus said that US AID Morocco had agreed to make $150,000 available for furnishing a GIS lab, contingent upon a strong possibility of funding from the World Bank.

- **Cape Verde Trip Report; November 14-15, 1993**
  Bill Hargrove and Irma Silva-Barbeau visited Praia, Cape Verde to discuss the WARD project with US AID Cape Verde and potential mission buy-in to SANREM CRSP. They met with Steve Dosh (Project Officer, US AID Cape Verde) and Barbara Kennedy (AID Rep).

- **Cape Verde Trip Report; January 11-29, 1994**
  Irma Silva-Barbeau traveled to the Republic of the Cape Verde Island to meet with US AID personnel in Praia as well as researchers and officials of the National Institute for Agricultural Research and Development (INIDA) with the purpose of developing a Plan of Work for SANREM CRSP's work with the Cape Verdean WARD project. While there she also conducted a rapid institutional analysis and needs assessment of INIDA at the request of US AID Cape Verde.

Quarter 3

- **Philippines Trip Report; March 12 - 25, 1994**
  Constance Neely, Bill Hargrove, Cornelia Flora, and Bill Deutsch traveled to the Philippines for a Training and Integration Workshop at SHAISI and at Central Mindanao University in Alanib, Lantapan, Bukidnon. The purpose of this workshop was to renew the understanding of the philosophical cornerstones of the SANREM CRSP and research methodologies as well as to allow the work plan proponents to better integrate their work plans (including timing and methodologies) and discuss plans for coordination and integration.

- **Philippines Trip Report; March 11- April 1, 1994**
  Bill Deutsch traveled to the Philippines to examine water sites and set up a schedule for gathering data on water quality. He also attended the Training and Integration Workshop.

- **Burkina Faso; April 18-23, 1994**
  Bill Hargrove, Mudiayi Ngandu, Irma Silva-Barbeau, Suchet Louis and Arne Vanderburg traveled to Burkina Faso to conduct a participant training workshop and planning activity, April 19-21. After the training sessions they met with the National Coordinating Committee on April 22.

- **Burkina Faso; February 9-17, 1994**
  Dr. Mudiayi Ngandu traveled to Burkina Faso to participate in the finalization of the Priming Program. He attended the February 16 Meeting of the Community Advisory Committee for revision of the Framework Plan.

- **Burkina Faso; April 10-24, 1994**
  Galen Harbers and Ian Flitcroft traveled to the village of Donsin April 10-24 to install two weather stations and train collaborators to collect the data.

- **Ecuador; April 24 - May 3, 1994**
  Bob Rhoades traveled to Ecuador to initiate networking with agencies already there and to explore some possible sites for SANREM activities.

- **Honduras and Costa Rica; March 14-20, 1994**
  Kevin McSweeney, Jess Reed, and Ralph Montee traveled to Honduras and Costa Rica to explore with two leading higher educational agricultural training institutions in Central America — L'Escuela Agricola Panamericana (PanAmerican School of Agriculture) or EAP at Zamorano, Honduras, and L"escuela De Agricultura De La Region Tropical Humedal (Agricultural College for the Humid Tropical Region or EARTH in Costa Rica — the prospects for establishing a Latin American network to work on indicators of agricultural and natural resources sustainability.

- **Morocco; January 30 - February 5, 1994**
  Bill Hargrove attended a planning workshop entitled "Aide-Memoire de la Mission de Preparation et Pre-Evaluation du Projet de Developpement Rural et Protection de l'Environment de Montagne (RIF/HAUT ATLAS)".

- **Cameroon; March 24-25**
  Bill Hargrove attended the Global Steering Committee of Alternatives to Slash and Burn Agriculture which met in Yaounde Cameroon, Africa. SANREM's representation at the conference opened the door for collaboration, especially for the working groups.

Quarter 4

- **Philippines Trip Report - Neely; June 20-July 16, 1994**
  Constance Neely traveled to the Philippines to review the activities of the site coordination and financial management offices and help them identify opportunities and mechanisms for improvement. She also followed up on active and imminent site work plan activities.

- **Philippines Trip Report - Poudel and Midmore; May 8-Jun 7; May 15-21, 1994**
  Durga Poudel traveled to Lantapan, May 8-June 7 and David Midmore joined him May 15-21. To implement the work plans they studied currently available GIS database at IRRI for watershed, prepared simple land-use maps and determined potential survey sites. They presented the project to the local community through the Association of Barangay Captains (ABC) for feedback. They pretested and conducted diagnostic surveys of vegetable production systems and abandoned lands.

- **Philippines Trip Report - Coxhead and Hoang; June 16-24, 1994**
  Ian Coxhead and Phuong Hoang traveled to the Philippines to establish a regular survey of land use practices, including crop and technology choice by farmers in Lantapan municipality, and to initiate regular price monitoring and marketing data gathering in Lantapan, Malaybalay and Cagayan de Oro.

- **Philippines Trip Report - Deutsch; July 2-13, 1994**
  Bill Deutsch traveled to the Philippines to provide training in water quality measurements and form citizen monitoring groups within the community.

- **Burkina Faso Trip Report; June 28-30, 1994**
  Arne Vanderburg conducted a Holistic Resource Management Workshop for local participants to learn how to set and achieve goals in small groups similar to their villages.

- **Ecuador Trip Report; July 7-15, 1994**
  Bob Rhoades traveled to Ecuador for the purpose work plan development. A planning workshop was held at Hotel Quito and the initial team was formed of representatives from local universities, NGOs and government agencies. The Guayallabamba Watershed in the Cotacachi-Cayapas nature Reserve buffer zone was selected as the SANREM launch site in the area.

- **Honduras Trip Report; July 7-9, 1994**
  Kevin McSweeney traveled to Zamorano-EAP, Honduras, July 7-9, to help local collaborators finalize the work plan.

- **Cape Verde Trip Report; May 10-22, 1994**
  Bill Hargrove, Irma Silva-Barbeau, and Bob Gurevich traveled to Cape Verde, to finalize and coordinate plans with officials from US AID Cape Verde, INIDA, ACDI, DGASP and INERF.

- **Board of Directors and Technical Committee Meeting Minutes; June 6-8, 1994**
  The Technical Committee met in Atlanta, June 6-7. It was chaired by Cornelia Flora. The Board of Directors met in Atlanta, June 8. The meeting was called to order by Dr. Arkin at the request of Dr. Ken Shapiro who tendered his resignation as chair due to other commitments. Dr. Robert Gurevich was elected to serve as chair and proceeded as moderator for the remainder of the meeting.

ATTACHMENT E

SANREM CRSP ANNUAL FINANCIAL REPORT
GRANT NO. LAG-4198-A-00-2017-00

YEAR ENDING JULY 31, 1994

COST ELEMENT	PLANNED LIFE OF PROJECT BUDGET	ANNUAL BUDGET	QUARTER 5 EXPENDITURES	QUARTER 6 EXPENDITURES	QUARTER 7 EXPENDITURES	QUARTER 8 EXPENDITURES	TOTAL EXPENDITURES
MANAGEMENT ENTITY							
SALARIES	750,518.00	145,933.00	36,836.85	37,809.76	38,046.28	37,666.25	150,359.14
FRINGE BENEFITS	202,230.00	38,310.00	10,328.05	9,616.16	10,321.64	10,302.06	40,567.91
CONSULTANTS	34,560.00	5,120.00	0.00	0.00	5,939.66	0.00	5,939.66
TRAVEL/TRANSPORTATION							
-DOMESTIC	119,659.00	5,000.00	2,214.89	8,261.73	5,006.95	5,638.50	21,122.07
-INTERNATIONAL	152,001.00	12,000.00	1,039.45	13,556.28	3,499.40	5,343.87	23,439.00
OTHER DIRECT COST**	78,703.00	89,414.00	17,510.23	74,150.22	36,823.63	64,683.59	193,167.67
INDIRECT COST	661,439.00	155,688.00	56,353.62	56,091.72	49,662.42	47,043.18	209,150.94
SUBTOTALS	1,999,110.00	451,465.00	124,283.09	199,485.87	149,299.98	170,677.45	643,746.39
FIELD MISSION SUPPORT (TECHNICAL CONSULTANT & INFORMATION EXCHANGE)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RESEARCH SUBCONTRACTS							
US COLLABORATORS							
UNIVERSITY OF GEORGIA	1,956,548.00	536,432.00	44,155.01	0.00	2,242.54	10,944.64	57,342.19
PVO/UNIVERSITY CENTER	405,568.00	81,114.00	51,760.00	0.00	58,790.00	52,497.00	163,047.00
VIRGINIA TECH UNIVERSITY	417,052.00	83,410.00	0.00	82,719.26	15,003.13	23,293.59	121,015.98
UNIVERSITY OF WISCONSIN	664,187.00	108,999.00	0.00	27,070.31	26,518.48	17,447.36	71,036.15
COLORADO STATE UNIVERSITY	184,950.00	46,249.00	0.00	0.00	0.00	41,458.52	41,458.52
USDA ARS	119,190.00	23,838.00	0.00	1,062.00	0.00	0.00	1,062.00
TUSKEGEE UNIVERSITY	396,629.00	79,325.00	0.00	20,138.82	0.00	0.00	20,138.82
HEIFER PROJECT INTERNATIONAL	240,000.00	369,584.00	37,728.86	0.00	79,461.83	183,935.55	301,126.24
AUBURN UNIVERSITY	499,100.00	99,820.00	20,681.27	803.02	9,725.01	0.00	31,209.30
WASHINGTON STATE UNIVERSITY	265,000.00	53,000.00	0.00	4,648.06	9,585.20	19,038.43	33,271.69
INTERNATIONAL COLLABORATORS							
IRRI	801,694.00	60,339.00	0.00	0.00	0.00	0.00	0.00
PCARRD	301,860.00	0.00	0.00	0.00	0.00	0.00	0.00
INTERNATIONAL POTATO CENTER	126,725.00	0.00	0.00	0.00	0.00	0.00	0.00
ICRAF	94,000.00	0.00	0.00	0.00	0.00	0.00	0.00
ICRISAT	152,350.00	0.00	0.00	0.00	0.00	0.00	0.00
AVRC	99,325.00	19,865.00	0.00	0.00	0.00	0.00	0.00
FUNDAGRO-ECUADOR	325,380.00	0.00	0.00	0.00	0.00	0.00	0.00
SITE AND SPECIAL PROGRAMS							
PANAMERICAN AGRICULTURE SCHOOL -HONDURAS	318,530.00	0.00	0.00	0.00	0.00	0.00	0.00
PLAN INTERNATIONAL BOULSA -BURKINA FASO	632,802.00	126,560.00	0.00	0.00	0.00	43,910.00	43,910.00
SUBTOTAL-RESEARCH CONTRACTS	8,000,890.00	1,688,535.00	154,325.14	136,441.47	201,326.19	392,525.09	884,617.89
TOTAL AMOUNT	10,000,000.00	2,140,000.00	278,608.23	335,927.34	350,626.17	563,202.54	1,528,364.28

PARTICIPANT TRAINING EXPENDED TO DATE TOTALS $125,501.66. THESE AMOUNTS ARE INCLUDED IN THE RESEARCH SUBCONTRACTS.

** OTHER DIRECT COSTS INCLUDES COSTS THAT WERE EXPENDED FOR PARTCIPANT TRAINING, FIELD MISSION SUPPORT AND INFORMATION EXCHANGE PENDING AMENDED BUDGET LINE ITEMS.

ATTACHMENT F

ACRONYMS

ACRONYM	MEANING
AARD	Agency for Agricultural Research and Development
ABC	Association of Barangay Captains
ACDI	Agricultural Cooperative Development International
ACIPHIL	Associacion Consultants Independente (Philippines), Inc.
ACORD	Association for Community and Rural Development
ADB	Asian Development Bank
ADRK	Association Pour le Development de Regione de Kaya
AFRD	Agency for Forest Research and Development
AU	Auburn University
AVRDC	Asian Vegetable Research and Development Center
(A)WID	Association for Women in Development
BAND	Bukidnon Association for National Development, Inc.
BHW	Barangay Health Worker
BIDANI	Barangay Integrated Development Approach through Nutritional Improvement
BIOTROP	Center for Tropical Biology
BOD	Board of Directors
BSWM	Bureau of Soil and Water Management
CAC	Community Advisory Council
CC	Coordinating Committee
CFM	Community Forestry Management
CIAT	International Center for Tropical Agriculture
CIMMYT	International Maize and Wheat Improvement Center
CIP	International Potato Center
CLT	Certificate of Land Transfer
CMU	Central Mindanao University
CRPA	Centre Regionale Pour Production Agricole
CSU	Colorado State University
DA	Department of Agriculture
DAR	Department of Agrarian Reform
DECS	Department of Education, Culture, and Sports
DENR	Department of Environment and Natural Resources
DESFIL	Development Strategies for Fragile Lands
DGASP	Directorate General for Agriculture, Silviculture, & Animal Husbandry

ACRONYMS

ACRONYM	MEANING
DILG	Department of Internal and Local Governments
EAP	Escuela Agricola Panamerica - Zamorano
EDC	Eros Data Center
ERDB	DENR Environmental Research and Development Bureau
FAO-APAN	Foreign Agriculture Organization - Asisan Pacific Agroforestry Network
FSSRI	Farming Systems and Soils Research Institute
GIS	Geographic Information Service
GO	Governmental Organization
GPS	Global Positioning System
GTC	Global Technical Committee
HPI	Heifer Project International
HRD	Human Resource Development
HYV	High Yielding Variety (nitrogen responsive grain varieties)
IARC	International Agricultural Research Center
IAV	Institut de Agriculture et Veterinaire
ICAAE	International Center for Aquaculture and Aquatic Environments
ICLARM	International Center for Living Aquatice Resource Management
ICRAF	International Council for Research in Agroforestry
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IDR	Institute for Rural Development
IESAM	Institute of Environmental Science and Management
IITA	International Institute for Tropical Agriculture
ILCA	International Center for Livestock for Africa
INERA	Institute for Agricultural Research and Study
INERF	National Institute for Rural Engineering and Forestry
INIDA	National Institute for Agricultural Research and Development
INRA	Institut National Pour Recherche Agricole
IPD-AOS	Institut Pan-African Pour Development - Afrique Del Quest Et Sahel
IPM	Integrated Pest Management
IRBET	Institute for Tropical Ecology and Biology Research
IRRI	International Rice Research Institute
ISF	Integrated Social Forestry Program
ISNAR	International Service for National Agricultural Research
LASAS	Laboratory for Sustainable Agroecosystems

ACRONYMS

ACRONYM	MEANING
LGU	Local Government Unit
MIAC	Midwest International Agriculture Consortium
MBRLC	Mindanao Baptist Rural Life Center
MMWDP	Muleta-Manupali Watershed Development Program
MUCARD	Muslim-Christian Agency for Rural Development
MUSUAN	Mindanao Upland Stabilization and Utilization Through Proper Agroforestry Networking Program
NAPOCOR	National Power Company
NECI	Network for Environment Concerns, Incorporated
NFA	National Food Authority
NGO	Non-Governmental Organization
(N)IPAS	(National) Integrated Protected Area Site
NIA	National Irrigation Association
NPC	Philippine National Power Corporation
NRDI	Nature's Rehabilitation and Development Concerns
ONRAD	Office of Rural and Agricultural Development of USAID
PCARRD	Philippine Council for Agriculture, Forestry, and Natural Resource Research and Development
PLLA	Participatory Landscape-Lifescape Appraisal
PME	Participatory Management and Evaluation
PO	People's Organization
PPAEP	Pilot Provincial Agricultural Extension Project
PPI	Plan International (Planned Parenthood International)
PVO	Private Voluntary Organization
RRA	Rapid Rural Apprasial
SALT	Sustainable Agricultural Land Technology
SANREM CRSP	Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program
SECAL	Sectoral Adjustment Loan Program (of the DENR)
SHAISI	San Herminiglido Agro-Industrial School Foundation
SUBIR	Sustainable Utilization of Biological Resources
TC	Technical Committee
TU	Tuskegee University
TOUCH	Technology Outreach and Community Help Foundation, Inc.

ACRONYMS

ACRONYM	MEANING
UGA	University of Georgia
UPLB	University of the Philippines at Los Baños
UPWARD	User's Perspective with Agricultural Research and Development
USAID	United States Agency for International Development
USDA	United Stated Department of Agriculture
VPI	Virginia Polytechnic Institute and State University
VT	Virginia Polytechnic Institute and State University
VOS	Voluntary Offer of Sale (of land for redistribution under land tenure laws)
WARD	Watershed and Applied Research Development Project
WSU	Washington State University
WWF	World Wildlife Fund
UW	University of Wisconsin