



SANREM CRSP

NEWS

Sustainable Agriculture and Natural Resource Management
Collaborative Research Support Program

March 2006

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The SANREM CRSP project promotes stakeholder empowerment and improved livelihoods through knowledge-based sustainable agriculture and natural resource management systems. Copyright 2006.

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FROM THE AMERICAN PEOPLE

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Program Director's Message

By Theo Dillaha

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The SANREM CRSP management team is very excited that the SANREM long-term research program is in place. We started the selection process last winter when RFAs were issued for planning and long-term research awards. Seventy-four planning award applications were received from 37 US universities and 18 planning awards were awarded to 13 different universities. The planning award recipients used the planning awards to visit host countries, consult with USAID Mission staff, and then develop their long-term research applications using a participatory approach with stakeholders.

Last fall, 28 long-term research applications were received from 17 different US universities. During the fall, the long-term research applications were reviewed by external review panels and five applications were awarded long-term research awards. Awards went to research consortia led by Cornell University, North Carolina Agricultural and Technical University, University of Indiana, University of Missouri, and Virginia Tech. Four awards were made to consortia that had received planning awards and one award went to a consortia that had not had a planning award.

The funding period for the new long-term awards is Jan. 2006 to Sept 2009. These activities will be conducting research in 11 countries in Africa, Latin America, and Southeast Asia. The five funded long-term research award activities are described in more detail later in the newsletter.

Two other major SANREM events will occur in April and May. The SANREM CRSP Annual Meeting will be held April 18-20, 2006 in Blacksburg, Virginia. The annual meeting will bring together all SANREM partners to review our first year progress and to plan activities for the coming year(s).

The second major activity is the Biodiversity Conservation in Agriculture Symposium that the IPM and SANREM CRSPs will be hosting May 30 to June 2, 2006 in Punta Cana, Dominican Republic. This symposium is targeted toward agricultural research and development specialists and is intended to teach them how to incorporate biodiversity conservation, particularly "wild" biodiversity into agricultural development projects. Additional details on the annual meeting and symposium are provided later in the newsletter.

Biodiversity Symposium Set for May in Dominican Republic

Make your plans now to attend the IPM and SANREM MEs **Biodiversity Conservation in Agriculture Symposium** in Punta Cana, Dominican Republic May 31 to June 2, 2006. The primary focus of the symposium will be on how "wild" biodiversity can be conserved in agricultural landscapes, and how agricultural development/research activities can meet USAID biodiversity conservation earmark requirements. The symposium will also address eco-friendly agriculture in general (activities that do not meet earmark requirements). The symposium is targeted at agricultural development researchers and implementers.

Additional information including registration and program materials will be forthcoming. As a consequence of the recent BIFAD meeting we are also proposing to tack on a half day workshop on Microenterprise Development and how it is defined by USAID so that we will be in a better position to show microenterprise development earmark credits in our activities (and upcoming application for new CRSPs). If we can help USAID meet its biodiversity conservation and particularly its microenterprise development earmark obligations, we may be able to reduce impending budget cuts in the CRSP program.

Travel costs to Punta Cana are quite reasonable because it is the second busiest airport in the Caribbean currently. We have negotiated rates of \$80/person/day for doubles and \$110/person/day for singles. This includes all meals. More information on the resort and activities are available at: <http://www.puntacana.com/>. If you plan to attend, please contact Theo Dillaha ASAP at dillaha@vt.edu, as attendance will be limited. More information on the symposium including a draft agenda is available at the SANREM website at <http://www.oired.vt.edu/sanremcrsp/index.php>.

SANREM Annual Meeting Set for April In Blacksburg

The 2006 SANREM CRSP Annual Meeting will be held April 18-20, 2006 at Virginia Tech in Blacksburg. The annual meeting will bring all the partners of SANREM together in order to build synergies, coordinate activities, standardize research methods, review SANREM procedures and identify host country representatives. Further information will be provided soon, for a full agenda click here—[Agenda](#).

SANREM CRSP Awards 5 Long-Term Research Projects

These projects will address sustainable agriculture and natural resource management issues in 11 countries in Africa, Asia, and Latin America through September 2009. Although each project is independent, cross-cutting issues will tie together synergies across landscape system levels.

Watershed-based Natural Resource Management in Small-scale Agriculture: Sloped Areas of the Andean Region

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Jeffrey Alwang	Department of Agricultural and Applied Economics, Virginia Tech
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Fundación Promoción e Investigación de Productos Andinos (PROINPA),
Bolivia Programa Manejo Integrada de Cuencas (PROMIC), Bolivia
Programa Agro Ecológica Universidad de Cochabamba (AGRUCO), Bolivia
World Cocoa Foundation
Rainforest Alliance

Overview

Households and communities in environmentally fragile Andean Region areas need alternatives to strengthen economic vitality through more productive livelihoods while ensuring environmental sustainability and promoting social development. This project integrates research, teaching and outreach/community engagement to promote sustainable natural resource management (NRM), in sloped areas in Ecuador and Bolivia. These areas have limited communications and transportation infrastructure, and are not well integrated with central governing institutions.

The major challenge in the study areas is to introduce new technologies and find innovative uses for the watershed's natural resources, while promoting sound natural resource management. Full scale participatory appraisals in the two watersheds' communities will assess new income-generating livelihood alternatives, investigate constraints to adoption of these alternatives, and encourage community and producer organizations to facilitate adoption. These appraisals will also assess climate-, pest- and market-based risks, perceptions about natural resource degradation and the social and political institutions. In addition, the project will analyze the region's present community-based NRM projects, and take a natural resource inventory for biodiversity monitoring.

This project seeks to increase knowledge about how household assets, society and gender affect the relationship between management of natural resource-based economic activities and the natural resource base itself. It will do so through comparisons between watersheds in Ecuador and Bolivia. In addition, the project will determine and mitigate constraints to new watershed based strategies, understand how focused local participation in activities designed to increase incomes and better manage and value watersheds can build social capital, enhance local governance and contribute to economic and social stability in resource-degraded, remote rural areas. Carrying out these objectives will generate information on scaling up of such efforts by replicating the process of community participation in several sites in the two watersheds.

As a result of these activities, the project will identify and adapt innovative new productive technologies for use in these watersheds. However, sustaining broad-based growth in fragile watershed areas like these can have major negative impacts on the environment through erosion, runoff, deforestation and biodiversity loss, so the project will use models to examine the relationship between the spatial spread of alternative livelihood activities and environmental quality.

The impact of changes in livelihood activities on social, economic and environmental outcomes will also be monitored in a participatory fashion. Training and capacity building, co-learning among project stakeholders and integration of gender issues form a central part of the project, and will include study tours to cross-fertilize ideas between the two sites, the introduction of watershed management to high school curricula, and the providing of internship and graduate training opportunities that stress the importance of watershed management.

Decentralization Reforms and Property Rights: Potentials and Puzzles for Forest Sustainability and Livelihoods

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Overview

Decentralization and property rights reform policies formulated at the national level for large geographic domains often fail to account for the complexities involved in land use at the local level, and can thus fall short of their goals of sustainable natural resource management (NRM) and improving local livelihoods. This research will collect and analyze data from Uganda, Kenya, Mexico, and Bolivia to identify the institutional conditions and interactions that will deliver benefits equitably to local people while sustaining natural resources. The project will answer the following: (1) What motivates the implementation of decentralization policies in the forestry sector? (2) What are the implications of forest decentralization policies for different groups, including women, the poor, and marginalized groups, at the local level? How can different interests be accommodated?

(3) What are the implications of forest decentralization policies for resource conservation, biodiversity, and ecological sustainability at the local level? (4) How may public policies be modified to more effectively improve both the ecological sustainability of forests and the livelihoods of the communities that depend on them?

Decentralization (like privatization and nationalization before it) is touted as the new panacea, a “one size fits all” approach. However, a large body of literature affirms that no single property regime is best for sustaining local livelihoods and natural resources. This research uses data from Bolivia, Mexico, Kenya, and Uganda to explore that diversity by addressing questions at multiple “learning nodes” (local, national, regional, and international). Comparing countries with substantially different decentralization reforms, but similar histories and cultures, allows for the determination of: (1) how designs at the national level influence the capacities of local actors to address forest governance challenges; and (2) the extent to which institutional fit and congruence explain variations in forest governance outcomes at the community and household levels. Regional and global comparative research also allows for identification of strategies within regions, and to create a learning environment among critical actors that may lead to more effective policy formation, implementation, monitoring, and enforcement.

Project Objectives and Activities

The project’s principle goal is to improve natural resources policy by developing and disseminating knowledge about the institutional conditions and interactions that will deliver benefits equitably to local people while sustaining natural resources, with particular attention to the gender impact of natural resources policy.

This will be supported by three objectives:

1. Develop capacity within resource user groups at the selected forest sites to enable differentiated actors (particularly women, the poor, and other marginalized groups) to identify, understand, and participate in forest governance, benefits, and policy processes.

Activities related to this objective include working with local partners and other key stakeholders to select eight forest sites in each country and conduct full studies at each site and working with user groups and others to develop a “resource and recourse” diagram of the flow of decisions, information, authority, responsibility, and financial and human resources in policy processes.

2. Develop capacity within key organizations in the forestry sector to understand the impacts of policies on differentiated local actors and to adopt strategies for inclusion of such actors within broader policy processes. Activities include a dissemination and training task, but the mechanisms will be tailored to each different audience.

3. Develop effective monitoring techniques for use at the community level to assess the impacts of decentralization and other property rights reforms on natural resources (including biodiversity) and livelihoods. Objective 3 will engage forest user groups at the selected sites in a process of hands-on learning about the relationships between decentralization and policy reforms, their own decision making, and the conditions of the forest that will be measured with the user groups at each site. Key decision makers will serve on the national advisory council in each country. They will not only act as advisors but will also participate in the research itself.

Agroforestry and Sustainable Vegetable Production in Southeast Asian Watersheds

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The SANREM TMPEGS project is developing sustainable agroforestry-based vegetable production systems for steeply-sloping hillsides in Southeast Asia to alleviate poverty and food scarcity and reduce environmental degradation. By combining economically viable and resource conserving technologies with gender friendly socio-economic policies, economically viable and ecologically sound integrated vegetable-agro forestry systems are being developed to increase farm production and income, thus generating a reliable supply of products for markets and increasing local food security.

The overall goal of this project is to demonstrate how steeply-sloping, degraded Southeast Asian watersheds can be converted to vibrant sustainable agroforestry systems with integrated vegetable production. The principal hypothesis is: Integrating vegetable production into agroforestry systems on small farms in steeply-sloping areas will help alleviate poverty and enhance environmental protection, sustainability and economic viability of Southeast Asian watersheds. Watersheds in Vietnam, Indonesia, and the Philippines are targeted specifically, but the developed technologies and knowledge should be transferable to other areas.

The TMPEGS acronym is derived from the project objectives, which are:

Technology: Develop economically viable and ecologically-sound integrated vegetable-agroforestry (VAF) systems to increase farm productivity, income, and food security.

Markets: Conduct market value chain research at the local, regional, and national levels that builds upon existing marketing strategies and develop interventions to overcome constraints and take advantage of opportunities.

Policy: Identify policy options and institutional frameworks that promote sustainable vegetable-agroforestry production and reward provision of environmental services.

Environmental and socio-economic impacts: Assess the short and long-term environmental and socio-economic impacts of integrated vegetable-agroforestry systems.

Gender: Provide mechanisms to improve the socioeconomic well-being of women engaged in vegetable production and agroforestry enterprises, especially in terms of income and labor share, and to involve women in decisions that concern their welfare.

Scaling-up: Build host country capacity in managing integrated vegetable-agroforestry systems and packaging related technical, social/economic and institutional innovations for replication and scaling up to other watersheds in the region.

Developing a Participatory Socio-Economic Model for Food Security, Improved Rural Livelihoods, Watershed Management and Biodiversity Conservation in Southern Africa

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Dale Lewis	Conservation Zoologist, Country Director for Zambia, Wildlife Conservation Society, Zambia
PARTNER	
Wildlife Conservation Society	

Non-sustainable agricultural and natural resource management practices and unsound economic strategies contribute significantly to food insecurity and limit livelihood opportunities throughout southern Africa. Consequently, wildlife has been severely threatened by farmers through illegal hunting and trapping, leading to diminished biodiversity. For example, it has been demonstrated in one study area in Zambia that 42% of food insecure families adopted the illegal killing of wild animals, creating an annual loss from wire snares to be as high as 3000-4000 wild animals in this region alone.

In this region of Zambia, a market-driven approach called "Community Markets for Conservation" (COMACO—pioneered by the Wildlife Conservation Society) has been developed to improve biodiversity conservation through improvements in food security and livelihoods. To increase smallholder incomes, COMACO works with farmers who agree to stop poaching to implement sustainable agricultural practices. The project provides extension support, including guidance on marketing, value added products, and pricing strategies organized around COMACO's community-owned regional trading centers. Preliminary data show that these market incentives are sufficient to foster sustainable agricultural practices and to reduce poaching. Wildlife populations are predicted to increase via explicit linkages to behaviors aimed at sustainably managing biodiversity, helping to make future game-based economic opportunities possible.

This project will use economic analyses and natural resource valuations to determine the extent to which the COMACO model can be economically self-sustaining while improving food security and rural incomes. In addition, it will examine new technologies in crop and soil sciences providing an improved understanding of soil conditions. In addition, research in veterinary science, animal production and food science will create an increased capacity to raise livestock and to develop safe and hygienic food products. The project will also explore COMACO's effects on the social environment including gender equity, public health, HIV/AIDS awareness, economic decision making, and local governance. An outcomes assessment regarding biodiversity conservation will be produced. Changes in wildlife populations will be measured directly and indirectly, and there will be comparisons with control regions where COMACO is not active. All aspects of the project will be subject to economic analyses to determine the extent to which these innovations will increase rural incomes.

Adapting to change in the Andean Highlands: Practices and strategies to address climate and market risks in vulnerable agro-ecosystems

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Cornelia Flora	Professor of Sociology,
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Roberto Quiroz	Leader, Natural Resource Management and Production Systems, International Potato Center, Lima, Peru
Greg Forbes	Plant Pathology, International Potato Center, Lima, Peru

Rainfall patterns and the high altitude of the Andes have always made agriculture in the region vulnerable to frost, hail, drought and flood. Existing climate models predict that in the future there will be longer dry seasons and more frequent severe storm patterns. These changes are already being observed by farmers in the region. As a result, traditional crop rotations are being abandoned and the agriculture production strategies that have sustained these populations for hundreds of years

no longer function. The Andean agro-ecosystems are becoming less diverse and more vulnerable to shocks. There has been a decline in the diversity and number of crops raised by farmers in the region and a decline in the number of varieties grown. Climate is not the only source of vulnerability in these agro-ecosystems. Migration and the penetration of the market economy have also made it more difficult to maintain traditional practices. These changes have caused a decline in food security by reducing available sources of protein, and an increase in crop losses due to drought, frost, disease and pests.

This research will explore ways to increase the resiliency of these agro-ecosystems by working with farmers to develop strategies to adapt to change, reduce their vulnerability and enhance the biodiversity of their agro-ecosystems. Specific interventions envisioned include in situ conservation of cultivars and native plants, the creation of new markets for traditional crops, the introduction of technologies and varieties to mitigate weather related risks, and the development of strategies to enhance soil organic matter.

The project's objectives include building an understanding of the ecosystem to determine environmental drivers, determining how livelihood strategies are developed, linking this knowledge to changes in available production alternatives, integration of these new cultivars into the market, and the integration of all findings into knowledge systems where they can be stored until used in the future.

The research team has a planned set of activities to reach the stated objectives. A baseline assessment of livelihoods in the region will be followed by an evaluation of climate variability over time and the determination of any effects of climate change on soil matter. Risk perception studies will determine how the farmers react to risks, and will look at a number of production alternatives. These findings will contribute to the development of training programs for local farmers in new techniques, including team planning activities. The team will work directly with farmers to conduct on-farm experiments, with other stakeholders playing a major role. Educational opportunities will be available for Ph.D. and Masters-level students and women will be included in all aspects of the project.

Rhoades Studying Human Response to Climate Change

Robert E. Rhoades, from the University of Georgia, and an international team have been working on an anthropological study of the loss of glaciers in the Andes Mountains due to global warming, with the assistance of a Bridging Grant from the SANREM CRSP. The research in Ecuador is conducted jointly with hydrologist Xavier Zapata, an Ecuadorian national and the team has collaborated with INAMHI (National Institute of Meteorology and Hydrology) and the indigenous organizations of UNORCAC (Union of Organizations of Peasant and Indigenous People of

Cotacachi). In the United States, the project is supported by University of Georgia Institute for Behavioral Research.

Rhoades's team has been studying the human response to the loss of the glacier on Mount Cotacachi in the Ecuadorian Andes. The harmful effects of glacier melting worldwide to human society can include



devastating glacier lake outbreaks, loss of alpine biodiversity, demise of mountain farming, drying up of freshwater sources for large cities, loss of tourism, and destruction of sacred mountain sites. Does awareness of these effects come only after immediate and possibly reversible changes have impacted vital resources such as water? Cotacachi's initial answer is awareness does not occur until irreversible changes have taken place, water availability dramatically diminishes, and social conflict begins.

Rhoades says it is critical that we understand what is happening on the ground in those communities which have historically depended on the resources of glaciers, that comparative research should also be done to be sure similar human responses would occur elsewhere, and it must be determined if those human responses are transferable to other effects of global warming.

SANREM CRSP Knowledge Base Goes Online to Store Critical SA & NRM Information

The SANREM CRSP Management Entity at Virginia Tech is creating an online SANREM Knowledge Base (SKB) that will be the place to go for information and answers about Sustainable Agriculture and Natural Resource Management (SA & NRM). The SKB provides the capacity to catalog and retrieve critical SA & NRM information resources.

An integral component of the SANREM CRSP's overall Knowledge and Information System (KIS), the Knowledge Base provides the capacity to catalog and retrieve critical information resources. The KIS is the overall framework for SANREM CRSP information management, providing steps for management of the resources being collected, catalogued, disseminated or managed.

A beta version of the SANREM Knowledge Base (SKB) is now available for use and testing at http://www.oired.vt.edu/sanremcrsp/menu_information/knowledgebase.php. Organized by landscape system and providing searchable fields in numerous categories, the SKB is a database of information resources, including books, reports, journal articles, research briefs, proceedings, movies and images pertaining to Sustainable Agriculture & Natural Resource Management.

The SKB is the heart of The Knowledge and Information System (KIS). The KIS works as follows—researchers conduct their research, produce information resources as research outputs, then enter metadata characterizing those resources to the database (the SKB). The metadata is a set of descriptors for each information resource, including keywords, abstracts, bibliographic references, and media types. Once classified, verified by SANREM information resource specialists and published, the records are available online for search and retrieval by SA & NRM researchers and development practitioners.

The primary task now underway is the entering of resources into the database (SKB). Nearly 700 records have already been established, including information resources from earlier phases of the SANREM CRSP (1992-2004). The majority of the information has been entered by the SANREM CRSP Landscape Systems Coordinators, and by a Virginia Tech team led by Conrad Heatwole that received a Bridging Award to catalogue metadata on SANREM Phases 1 & 2 information resources.

The SKB will also serve the project as the storage and retrieval center for project documents, (annual reports, trip reports, as well as extension and academic works) and will include a searchable photo/presentation library. The ME will provide an off-line version for those host country nationals

without reliable internet access. Many of the resources will provide external links to other databases, including the Sustainable Agriculture Research and Education (SARE) knowledgebase at USDA, and the INFOMINE scholarly internet resource collections at the University of California, Riverside.

The SKB will be the place to go for knowledge and information on cutting edge SA & NRM theory and practice. You are invited to take a tour of the beta version of the SANREM Knowledge Base at http://www.oired.vt.edu/sanremcrsp/menu_information/knowledgebase.php. please provide comments, suggestions to the SANREM CRSP at dillaha@vt.edu.

Associate Director in Mali to Provide an Overview of Resource Conflict for IFAD



Keith Moore, Associate Director of the SANREM CRSP has journeyed to Africa to prepare a Formulation Report for the Integrated Rural Development Program for the Region of Kidal, Mali (PIDRK) for the International Fund for Agricultural Development (IFAD). This report will specify a strategy of intervention for the Program, describe the technical components including (a) methods of their implementation, monitoring and evaluation indicators (taking gender into account), (b) an environmental evaluation specifying the anticipated effects of

the interventions on the environment and potential mitigating measures, and (c) specify the terms of reference for complementary baseline studies to lead to be conducted for the implementation of activities. In particular, Keith will be responsible for providing an overview characterizing the predominant dimensions of resource conflict in the Region of Kidal, identifying opportunities and conditions for consensus building and convergence of interests in resource management, and suggesting innovative options for integrating conflict management with productivity and income increasing activities. Finally, he is charged with formulating a research program to test the approach and its constituent elements.

New Book

Coxhead, I. and Shively, G. E. (Editors) 2005. Land Use Changes in Tropical Watersheds: Evidence, Causes and Remedies. CABI Publishing, Oxford, UK. Copies of the book are available at <http://www.cabi-publishing.org/Bookshop/BookDisplay.asp?SubjectArea=&PID=1885>

This SANREM sponsored book addresses land use change in tropical landscapes, with particular emphasis on the economic processes that influence rates of land degradation and forest clearing. Multidisciplinary contributions draw lessons from a rich, decade-long collection of economic, social and environmental data on the Manupali watershed in the southern Philippines. Through this detailed case study the book documents forces leading to land use changes, in particular the potential impacts of institutional devolution and policy reforms, and highlights interrelationships

among biological, economic and social phenomena. This book will be of significant interest to those studying natural resource economics, soil and water conservation, land use and agricultural development.

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Another New Book

Edited by R E Rhoades, University of Georgia, USA, 2005

Development with Identity: Community, Culture and Sustainability in the Andes

Readership

Researchers and policy makers in rural and sustainable development, sociology, economics and anthropology.

Main Description

Throughout Latin America, indigenous peoples are demanding that development must address local priorities, including ethnic identity. Simultaneously, sustainability scientists need to conduct place-based research on the interaction between environment and society that will have global relevance. This book reports on a 6 year interdisciplinary research project on natural resource management in Cotacachi, Ecuador, where scientists and indigenous groups learnt to seek common ground. The book discusses how local people and the environment have engaged each other over time to create contemporary Andean landscapes. It also explores human-environment interaction in relation to biodiversity, soils and water, and equitable development. This book will be of significant interest to sociologists, anthropologists, economists and sustainability scientists researching environment and agriculture in rural communities.

Available at <http://www.cabi-publishing.org/bookshop/BookDisplay.asp?SubjectArea=&Subject=&PID=1887>

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