



Sustainable Agriculture and Natural Resource Management
Collaborative Research Support Program

SANREM CRSP Newsletter, August 2007

Promoting stakeholder empowerment and improved livelihoods through knowledge-based sustainable agriculture and natural resource management systems

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Director's message



Theo Dillaha,
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The past three months have probably been the busiest quarter in recent SANREM CRSP history. As described in this newsletter, we held a very successful annual meeting in Cochabamba, Bolivia; the SANREM External Evaluation Panel (EEP) completed its interim review of our long-term research activities (LTRAs); a short film on the Binahon Agroforestry Farm was produced and released on the sustainable agriculture activities of a SANREM partner in the Philippines; **LTRA-4, Adapting to Change in the Andean Highlands**, held its annual meeting in La Paz, Bolivia; SANREM partner Agnes C. Rola and her co-authors received the 2007 Outstanding Book Award from the Philippines' National Academy of Science and Technology for a book describing SANREM research in the Philippines; Keith Moore and Maria Elisa Christie, SANREM's associate program director and gender equity coordinator, respectively, visited SANREM activity sites in South America; a technical assistance team visited Madagascar at the request of the USAID Mission to develop a reforestation plan for an illegally logged forest preserve; the SANREM budget situation for the next fiscal year appeared bleak, then we were surprised by an eleventh-hour increase in funding; and we were saddened by the passing of a Cornell colleague, Duane Chapman. The newsletter also highlights SANREM's **LTRA-5, Agroforestry and Sustainable Vegetable Production in Southeast Asian Watersheds**, led by Manuel Reyes of North Carolina Agricultural and Technical University.

In the previous SANREM newsletter, I described a projected 21.6% cut in the SANREM budget due to a shortfall in USAID funding; instead, SANREM will receive a one-time 25% budget increase. These funds will be used to initiate cross-cutting activities involving two or more long-term SANREM research activities and for \$125,000 in new biotechnology activities. Cross-cutting activity proposals in areas such as watershed management, soil quality, climate change, biodiversity, knowledge to action, and gender are being developed and will be considered by the SANREM Technical Committee (TC). These funds are for Fiscal Year 2008 only, so any activities initiated with the money must be completed by Sept. 30, 2008. SANREM partners are collaborating to develop proposals for cross-cutting activities to be considered by the TC. They are also preparing FY2008 work plans, which incorporate suggestions resulting from the EEP review of SANREM's long-term research. The EEP will complete its evaluation of the overall SANREM program this fall. The EEP's report will be used by USAID in its Administrative Management Review of SANREM early next year. This review will determine whether Virginia Tech will continue as SANREM's Management Entity (ME) for the next five years. If the review is positive, SANREM will issue calls for new research proposals during FY2009 for funding in FY2010.

Research spotlight

Agroforestry and Sustainable Vegetable Production in Southeast Asian Watersheds (LTRA-5)

Communities in many forest and vegetable-producing watersheds in Southeast Asia suffer from poverty, while forest, soil, and water resources are being degraded. The objective of LTRA-5 is to develop economically viable and ecologically sound vegetable-agroforestry systems (VAF) and to quantify the potential economic and environmental benefits of these systems.

VAF is the integration of vegetable crops with trees or trees with vegetable crops – under or beside them, simultaneously or in sequence. The technique has a strong potential to improve quality of life for small-scale farmers. In Vietnam, Indonesia, and the Philippines, researchers are experimenting with a variety of high-value medicinal plants and vegetables, including bell pepper, bok choy, cabbage, cauliflower, melons, and tomatoes; and with cash-crop trees such as cashew. The project is researching various techniques to enhance VAF, such as low-cost drip irrigation, reduced tillage, pest management, reintroduction of indigenous vegetables, and soil enrichment; and offering local workshops to introduce improved cultivation and production practices. Researchers also have conducted baseline household and market surveys that included demographics, household income and expenditures, vegetable market chains, and the role that gender plays in division of labor and farm decision-making.

The project goes by the acronym TMPEGS based on its six main objectives:

TTechnology. Developing economically viable, ecologically sound VAF systems.

Markets. Conducting market-value chain research at the local, regional, and national levels that builds on existing strategies.

Policy. Identifying options and frameworks that promote sustainable VAF and reward environmental services.

Environment. Evaluating the short- and long-term environmental and socioeconomic effects for farm families who adopt integrated VAF systems.

Gender. Ensuring women's involvement in decision-making and sustainable production and practices.

Scaling up. Building host country capacity to manage and disseminate integrated VAF.

The team, which comprises more than 30 scientists, engineers, and other development experts, works closely with the World Vegetable Center (AVRDC) and the World Agroforestry Center (ICRAF), and has a partnership with international food giant Mars Inc. Its principal investigator (PI) is Manuel Reyes, a biological and agricultural engineer at North Carolina Agricultural and Technical State University in Greensboro.

Research in Vietnam is predominantly with tree systems, especially cashew, the main cash crop. The team has found that cacao can be grown under the cashew canopy, which would give farmers crop diversification and the potential to increase income. Experiments are underway with commercial and indigenous vegetables and root crops, though for now the emphasis is on home gardens for family use. In Indonesia, research is focusing on 11 commercial and indigenous vegetables in VAF systems. In the Philippines, where commercial vegetable farms are a major income source, researchers are investigating how proximity to trees affects vegetable yield and which varieties thrive in the shade.

The project recently released a short documentary film, *Taming the land, the wind and the sun: The story of the Binahon Agroforestry Farm*. For details, see the story below: “Film documents the success of a model farm.”

TMPEGS member Agnes C. Rola was the lead editor of a book published by SANREM that won the 2007 Outstanding Book Award from the Philippines’ National Academy of Science and Technology. *Winning the water war: Watersheds, water policies and water institutions*, co-edited by Herminia A. Francisco and Jennifer P.T. Liguton, is a compilation of papers presented at a conference focusing on results of SANREM research.

The Philippine Council for Agriculture, Forestry and Natural Resources Research and Development highlights the book on its website with this summary:

“There is a water crisis, which is aggravated by a flawed governance of water resources. There is a need to empower local government units and communities to address the water crisis. This book presents a holistic analysis of the water situation that focuses on supply and demand conditions as well as on the social, economic, legal and institutional context of the problem. It argues for watersheds as the appropriate planning unit for an integrated water resources management system. It recommends pluralism in the modes in water governance in the country that will enable local stakeholders...to evolve appropriate mechanisms in accordance with local social, political, economic and ecological realities. In sum, the book seeks innovative ways of trying to win the ‘water war’ or of dealing with water scarcity and its related concerns.”

The book is not available digitally. It can be ordered from the Philippines Institute of Development Studies’ publications catalog. To request a copy of the catalog, e-mail publications@pidsnet.pids.gov.ph

News, notes, milestones

Annual meeting focuses on long-term research

More than 50 scientists, engineers, economists, and development specialists gathered in Cochabamba, Bolivia, on June 24 for the SANREM CRSP 2007 Annual Meeting. The conference was hosted by Fundación PROINPA – Foundation for the Research and Promotion of Andean Products – a SANREM partner in South America.

In his opening remarks, SANREM Program Director Dillaha cited achievements of the past year, among them completion of Bridging Awards, metadata development for the SANREM Knowledge Base (SKB), the Biodiversity in Agriculture symposium in the Dominican Republic, technical assistance to the USAID Mission in Madagascar, and progress on the next SANREM book, titled, *Innovating for Sustainable Agriculture and Natural Resource Management: The Science of Adaptive Management*.

SANREM is more than halfway through Phase II, Dillaha said, and the LTRAs are more than a year into their activities. The main focus of the four-day meeting was the five LTRAs, where the programs stand, what researchers have learned, how they can improve, plus an in-depth review of each LTRA by the SANREM External Evaluation Panel.

Dillaha's address and all other presentations from the annual meeting are on the SANREM website at http://www.oired.vt.edu/sanremcrsp/AM_2007/AM_2007_schedule%20of%20events.php

Images from the meeting, SANREM's programs and projects in Bolivia, and a profile of PROINPA are on the website at http://www.oired.vt.edu/sanremcrsp/AM_2007/PROINPA.profile.pps

EEP takes an in-depth look at SANREM's programs

The five-member SANREM External Evaluation Panel convened during the annual meeting in Cochabamba to evaluate individual LTRAs and discuss their progress with research leaders and partners. Chaired by Richard Harwood, professor emeritus of Michigan State University, the EEP also includes Kathleen Galvin of Colorado State University, Robyn Burnham of University of Michigan, Edwin Price of Texas A&M University, and Paul Vlek of University of Bonn. The panel submitted an interim report in July to the SANREM ME. This report will be a component of the SANREM program review set for completion in January.

Overall, the EEP concluded, "The LTRAs appear well on their way to providing cost-effective methods for the integration and nesting of key technologies and processes important to the integration of natural-resource use and productivity, people, and their environment." The panel lauded the broad range of geographical areas represented and the diversity of research topics; and complimented the PIs for their enthusiasm, innovative methods, cross-communication, and strong spirit of collaboration, cooperation, and team-building.

Through year's end, the EEP will continue to evaluate the progress of the SANREM CRSP in meeting its objectives. Besides the LTRA review, the EEP will assess the Bridging and Planning Awards programs, SANREM Knowledge Base dissemination, associate awards, cross-cutting activities, and technical assistance.

SANREM loses a colleague

Duane Chapman, a Cornell University professor and co-PI on the LTRA **Developing a Model for Food Security and Conservation in Southern Africa**, died July 29 at his home in Newfield, N.Y., where he was recovering from surgery. He was 66.

Chapman retired from Cornell in 2006 after 36 years as a professor in the Department of Applied Economics and Management. His areas of expertise were electricity markets, world oil prices and security, renewable energy costs and policy, climate change, and energy use. His obituary is online at: <http://www.legacy.com/theithacajournal/Obituaries.asp?Page=Lifestory&PersonId=91762982>

Film documents the success of a model farm

A short film just released by SANREM documents how a family applied sustainable agriculture practices to establish a highly successful business in Lantapan, Bukidnon, Philippines. Titled, *Taming the land, the wind and the sun: The story of the Binahon Agroforestry Farm*, the 21-minute documentary was produced by TMPEGS Scaling-Up Coordinator Maria Victoria O. Espaldon, associate professor in the School of Environmental Science and Management at the University of the Philippines at Los Baños.

The film opens with a couple's meeting in 1986, when Perla Quiblat, a forester, was directing a watershed management program and Henry Binahon, a social scientist, was developing a tree nursery nearby. They married, started a family, and opened their own nursery, but the business did not thrive. When a friend offered to sell them 2.75 hectares of land, they accepted, but they found that the soil was thin and dry. With seedlings from their nursery, "they planted trees to grow crops," the film's narrator explains. Vegetables in the shade of those trees prospered, eventually growing into a highly successful agroforestry enterprise.

Koi ponds, calla lilies, and honeybees illustrate the Binahons' approach to farming. They built ponds to collect rainwater for irrigation and stocked them with koi, a goldfish relative, to combat mosquitoes. The fish prospered and now are harvested for sale at a local market. The couple also planted rows of calla lilies to filter wastewater from livestock areas so it could be used for irrigation. The lilies thrived, and the showy white flowers now are a major income source, employing dozens of local women in growing, cutting, and marketing them. The lilies also attract bees, which the farm began keeping commercially in 2005.

Little is wasted on the Binahon farm. When trees are thinned, the timber is sold or used for construction on the property. Tree trimmings, kitchen waste, and farm byproducts are composted, fish bones and eggshells are pulverized, all for use as fertilizer. Goats initially brought in to control weeds also enrich the soil and can be sold for meat "when you run out of cash," Henry Binahon says. If the herd continues to do well, milk production may be added.

Though the farm is not 100% organic – some commercial hog feed and fertilizer are purchased – the goal is eventually to be self-sustaining and all natural. To combat insects, the Binahons use traps, a spray made with native chilies, and natural repellants, such as onions planted between rows of beans. Crops are rotated to avoid depleting the soil, thus minimizing the need for chemical fertilizer.

Innovation and success spurred requests for the couple to share their knowledge. The farm now has a training center, built with local timber, where Henry teaches agriculture technology. The center has become a local attraction, drawing not only farmers but also students, bird watchers, hikers, and other nature enthusiasts. With his community connections, Henry has built an online network for buying and selling, harvesting and transporting, and for keeping up with prevailing market prices. Perla has organized a group of local women who earn money by tending the nurseries, harvesting and packing crops.

The Binahons' industry and ingenuity have resulted in a model farm in the Philippines, demonstrating the successful application of sustainable agriculture and natural resource management principles. The film closes with the Binahons' philosophy: unity and diversity, balance and sustainability.

Click here to see the video:

http://www.oired.vt.edu/sanremcrsp/News%20archives/announcements_2007/Binahon.Farm.php

LTRA-4 team meets to fine-tune plans

The team for **LTRA-4, Adapting to Change in the Andean Highlands**, gathered June 30-July 3 in La Paz for its annual meeting. Led by PI Corinne Valdivia, the conference focused on several objectives: to review project activities and goals, to decide which activities and strategies to strengthen, to reconsider and update objectives and activities for years 4 and 5, to respond to the SANREM EEP's comments, and to discuss budget adjustments. Presentations covered a broad range of topics, among them, "Biodiversity, Integrated Pest Management and Integrated Disease Management" and "Livelihoods, Capitals, Markets, and Networks."

More than 30 people participated in the conference. Presentations are on the SANREM website at http://www.oired.vt.edu/sanremcrsp/AM_2007/documentos.html

Making jewelry to save wildlife

A novel anti-poaching incentive in Zambia was featured in the *New York Times*' Science section in July. Snares once used for poaching are being made into "snareware": necklaces, bracelets, and other decorative items. The project grossed more than \$350,000 last year, the *Times* reported, with proceeds divided among former poachers and Community Markets for Conservation (COMACO), the research focus of **LTRA-2, Developing a Participatory Socioeconomic Model for Food Security, Improved Rural Livelihoods, Watershed Management, and Biodiversity Conservation in Southern Africa**.

COMACO oversees a non-profit company called Conservation Farmer Wildlife Producer Trading Centre (CTC), which reinvests all profits in food security, rural incomes and conservation. The program aims to improve the lives of the rural poor in Zambia while conserving wildlife and other natural resources. Processed and packaged under the It's Wild! brand, COMACO's products are produced organically to meet high consumer standards.

Click here to read the full story on "snareware":

<http://www.nytimes.com/2007/07/31/science/31snar.html?ex=1186632000&en=00c3f5de36515851&ei=5070&emc=eta1>

Read more about COMACO at <http://www.itswild.org/home>

Moore, Christie travel in South America

On a monthlong mission to Bolivia, Ecuador, and Peru, SANREM Associate Program Director Keith Moore and Gender Equity Specialist Maria Elisa Christie visited SANREM CRSP field research partners and sites to observe their progress. As part of their trip, they attended the SANREM annual meeting and made presentations at the LTRA-4 conference in La Paz.

A major emphasis of LTRA-4 is empowering rural communities to adapt to climate and market changes. Researchers have completed baseline surveys and are analyzing data on vulnerable agro-ecosystems of the Altiplano of Bolivia and Peru. Christie visited two Bolivian communities where the SANREM team is working with farmers to build market connections and coalitions, and to improve production systems. Moore

replaced Christie on the team in Peru, where climate change is threatening wetlands that provide water for alpaca herds on which community livelihoods depend. The goal in both countries is to adapt resources for more sustainable production in the face of market and climate changes.

While Christie was on the Altiplano, Moore visited LTRA-1's site in Cochabamba, Bolivia, where partner organization CERES – Centro de Estudios de la Realidad Económica y Social – presented initial findings of a recently completed baseline study at the TIM-Ivirgarzama settlement. Unlike other SANREM projects in South America, which are in the Andean highlands, TIM-Ivirgarzama is in a tropical zone and accessible only by river. Indigenous Yuracaré people who subsisted there historically by hunting and gathering established territorial claims in the 1990s and are now conducting agroforestry through production of cacao, yucca, and cerebó, a fast-growing hardwood.

In the Illangama and Alumbre watersheds of Bolivar Province, Ecuador, Moore and Christie toured field sites focusing on varietal trials, soil fertility management, and run-off modeling. They discussed the progress of research activities with LTRA-3 team members before meeting with local authorities and community members. In Bolivia, Moore and Christie observed a system of dams and canals for irrigation of the upper, middle and lower Toralapa watershed. Early one morning, they saw the local trade system at work on a visit to the Tiraque market that serves the watershed area's residents. Meetings with local staff and residents indicated that a good relationship is developing with authorities and community members. The Ecuadorian and Bolivian teams are beginning to work together, with soils research and watershed modeling as unifying themes.

Members of all three projects showed interest in integrating gender as a theme and have proposals for doing so. At its meeting in La Paz, LTRA-4 considered existing and future opportunities for gender research, particularly regarding livelihood strategies and market access. One constraint is that indigenous women often do not speak Spanish, though that is the language for research and outreach.

Click here for Moore and Christie's full trip report:

http://www.oired.vt.edu/sanremcrsp/menu_information/trip.php

Policy seminars focus on payments for environmental services

“Environmental Services to the Economy and Economic Instruments to Promote Them” was the topic for a July 13 policy seminar, the first segment of a two-part series sponsored by SANREM CRSP and USAID in Washington for the agency's personnel and guests. The first seminar focused on payments for environmental services (PES), a new economic instrument being used to promote development and reduce poverty. Topics and key speakers were “Ecosystem Services: What Do We Know and Where Should We Go?” Bruce Byers, senior natural resources management and biodiversity specialist with ARD Inc., Burlington, Vt.; and “Hot Potatoes in the Payments for Environmental Services Debate,” Sven Wunder, senior economist with the Center for International Forestry Research (CIFOR), Belem, Brazil, and a SANREM partner.

A full-day PES policy seminar, sponsored by the SANREM and BASIS CRSPs, is set for Oct. 4 in Washington.

Watershed conference calls for papers

“21st Century Watershed Technology: Improving Water Quality and Environment” is the theme for a conference March 29-April 3, 2008, in Concepción, Chile. Co-sponsored by the American Society of Agricultural and Biological Engineers and SANREM, the international symposium will address emerging problems and new solutions to managing watersheds to meet quality and quantity standards. The conference will include lectures and poster sessions.

Abstracts for papers and posters are due by Sept. 30. All abstracts must be submitted electronically. For more information and the call for papers, go to <http://watershedtech.org>

Long-term research progress reports

LTRA-1: Decentralization Reforms and Property Rights: Potentials and Puzzles for Forest Sustainability and Livelihoods. PI: Elinor Ostrom, Indiana University

Field research continued in the four target countries of Uganda, Kenya, Bolivia, and Mexico, with a focus on data analysis, drafting of site reports, and follow-up training to share findings with local communities. Other activities were finishing the national-level survey in Mexico and continuing survey implementation in Bolivia, synthesizing findings on the effects of decentralization on rights and decision making, and continuing to develop analyses related to the effects of policy regimes on gender. All SANREM coordinators and PIs agreed to work together on a series of joint research papers comparing decentralization outcomes in the four countries.

LTRA-2: Developing a Participatory Socioeconomic Model for Food Security, Improved Rural Livelihoods, Watershed Management, and Biodiversity Conservation in Southern Africa. PIs: Alex Travis and Alfonso Torres, Cornell University; and Dale Lewis, Wildlife Conservation Society

Hygiene was improved at food processing centers, a first step toward production and marketing of profitable products such as a high-energy protein supplement that now must be imported for HIV patients. More than 500 villagers were trained in poultry husbandry, raising poultry numbers by 50% from the previous year. This increased available dietary protein and family incomes, both of which lessen the need for meat obtained through poaching. The team also performed the first aerial surveys of hippo populations in a portion of the Luangwa River, part of a watershed analysis to find links among agriculture, development, and loss of fish and wildlife species.

LTRA-3: Watershed-Based Natural Resource Management in Small-Scale Agriculture: Sloped Areas of the Andean Region. PI: Jeffrey Alwang, Virginia Tech

Among highlights were completion of appraisals at research sites in Guaranda, Bolivar Province, Ecuador; and Tiraque, Cochabamba Province, Bolivia. Geographic information systems (GIS) are established for both sites. A comprehensive soil survey for the Ecuador site is yielding information about the rate of erosion and its relationship to global carbon flows. A protocol is in place to assess and monitor biodiversity for both sites. Completion of a baseline survey of livelihoods for Ecuador shows highly diversified income-generation strategies being used for detailed household modeling of livelihood strategies and their effects on the natural-resource base.

LTRA-4: Adapting to Change in the Andes: Practices and Strategies to Address Climate and Market Risks in Vulnerable Agro-Ecosystems. PIs: Corinne Valdivia and Jere Giles, University of Missouri

Surveys of 450 households in three regions – two in Bolivia, one in Peru – collected data for analysis of livelihood strategies, assets, land use and production, information networks, and shock events and risk perceptions. For 10 communities in the Altiplano of Bolivia, 64 geo-referenced maps were produced depicting perceptions of change in natural resources, land use, and cropping areas. Research and training were done to combat the potato tuber moth and Andean potato weevil. Strategies were tested for increasing soil organic matter and fertility in potato-based cropping systems.

LTRA-5: Agroforestry and Sustainable Vegetable Production in Southeast Asian Watersheds. PI: Manual Reyes, North Carolina A&T University

Four villages – two in Indonesia, one in the Philippines, one in Vietnam – were selected for project activities. Rapid market assessment surveys were conducted with a range of stakeholders, and market-value chain research was completed. Promising results were found in vegetable agroforestry experiments, and suitable tree species were studied. No-tillage vegetable production, soil quality, and drip-irrigation training workshops were conducted, and gender surveys were completed.

Calendar

<u>2007</u>	
Sept. 30	End of 2007 fiscal year Deadline for paper abstracts, “21st Century Watershed Technology: Improving Water Quality and Environment Conference”
Oct. 15	2007 LTRA annual reports due
Oct. 4	PES policy seminar, Washington
Nov. 15	Deadline for submission of FY 2007 invoices
<u>2008</u>	
March 29- April 3	“21st Century Watershed Technology: Improving Water Quality and Environment Conference,” Concepción, Chile
April 15	LTRA semiannual reports due

How to reach us

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New on the SANREM website

Working papers from SANREM CRSP PIs, partners, and associates are now posted on the home page under "Information Resources." And a new "Meetings" menu has links to seminars, conferences, workshops, and symposiums.

To post upcoming events on the website and to report activities, achievements, and opportunities, e-mail the information to SANREM Editor Deanne Estrada, destrada@vt.edu

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