



Sustainable Agriculture and Natural Resource Management  
Collaborative Research Support Program

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# SANREM CRSP Newsletter

June 2009

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

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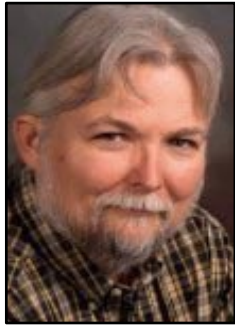
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## Program director's message



**Program Director  
Theo Dillaha**

The Management Entity (ME) in the Office of International Research, Education, and Development (OIRE) at Virginia Tech is pleased to report that we received a letter on June 3 indicating that USAID intends to extend the SANREM CRSP Leader with Associates Cooperative Agreement for five years from October 1, 2009, to September 30, 2014. The letter requests submission of an extension application describing the work SANREM will undertake at an annual funding level of \$3 million for a total \$15 million over the five years. USAID indicated that its decision to extend the award was based on the continued relevance of sustainable agriculture and natural resource management in achieving the goals and objectives of the Foreign Assistance Framework, especially in light of the current global food security crisis. The extension decision was also supported by the recommendations of the SANREM External Evaluation Panel (EEP) and the Administrative Management Review (AMR) team, which were very satisfied with SANREM's technical progress and with Virginia Tech's management of the CRSP.

The renewal application is due to USAID by June 30, and we are currently preparing it along the lines of the SANREM CRSP Phase IV concept paper released previously. The ME spent considerable time reviewing feedback on the draft concept paper for Phase IV, and responses and comments are summarized in this newsletter. The ME at Virginia Tech is very grateful to you, our research partners and collaborators, for your feedback, support, and assistance in getting us to this point. We will release our request for applications (RFA) for Phase IV long-term research awards (LTRAs) as soon as we have clearance from USAID, we hope in early July. Recipients of Phase IV LTRAs will be announced in October. Please check the SANREM CRSP website for updates to the RFA. We will also be posting answers to all questions concerning the Phase IV research program and RFA on the website.

Two major SANREM events are scheduled this summer. SANREM is hosting the Conservation Agriculture and Food Security Symposium at the International Meeting of the Soil and Water Conservation Society (SWCS) in Dearborn, Michigan, on July 13. The symposium will kick off the SANREM Phase IV conservation agriculture theme and provide a forum for prospective researchers to ask specific questions about the Phase IV research program and RFA. The symposium presenters include noted conservation agriculture experts including Rattan Lal of Ohio State

University, Josef Kienzle of the United Nations Food and Agriculture Organization, and Paul Hepperly of the Rodale Institute. The symposium will focus on how conservation agriculture can be used to achieve food security and environmental goals in developing countries. Details of the symposium are provided later in this newsletter.

The SANREM CRSP annual meeting will be August 31 and September 1 in Falls Church, Virginia, and will focus on dissemination of knowledge produced by the five SANREM Phase III LTRAs and the cross-cutting initiatives. The meeting will include presentations to USAID personnel on Phase III research findings and impacts.

Looking ahead to 2010, SANREM will cosponsor the 21<sup>st</sup> Century Watershed Technology Conference at Earth University in Costa Rica. The meeting will bring together experts in natural resource management, watershed science and technology to study solutions to global water quality and quantity problems.

Our research spotlight this quarter is on the five SANREM cross-cutting initiatives, featured on the SANREM website, [http://www.oired.vt.edu/sanremcrsp/menu\\_research/CrossCut.php](http://www.oired.vt.edu/sanremcrsp/menu_research/CrossCut.php). This newsletter also includes midyear summaries from the LTRAs, an update on visa requirements for non-U.S. residents traveling to the United States on SANREM business and for students funded by SANREM, a synopsis of our work in Southern Sudan under an Associate Award from USAID, and links to SANREM articles on payments for ecosystem services (PES) just published in the *Journal of Sustainable Forestry*.

I want to congratulate Corinne Valdivia, lead principal investigator (PI) for LTRA-4, for winning the International Engagement Award from the University of Missouri. The award, given this year for the first time, commends outstanding work that contributes to the university's global outreach. Corinne, whose research and teaching have centered on sustainable livelihood issues, also led a seminar in May for USAID personnel in Washington.



**Prijanto  
Santoso**

Finally, I sadly announce that SANREM lost one of its partners: Prijanto Santoso, the principal USAID-Indonesia Mission contact for SANREM's Southeast Asia LTRA activities. Prijanto was also involved in the Integrated Pest Management (IPM) CRSP. It is my understanding that Prijanto unexpectedly passed away in the hospital on May 30 from a heart attack while recuperating from an earlier heart attack. He had served at USAID-Indonesia from January 1983 to October 2008. He is survived by his wife and daughter. I wish to express our condolences to the family and our gratitude to Prijanto for his contributions to SANREM.

## News

### **SANREM CRSP expects to be extended through 2014**

USAID intends to extend the SANREM CRSP through 2014, the agency stated in a June 3 letter to Administrative PI S.K. De Datta at Virginia Tech. The letter cites the continued relevance of sustainable agriculture and natural resource management during the ongoing global food crisis and commends SANREM on its technical progress and management in the past five years.

The SANREM ME will prepare an extension application, to be submitted by June 30, describing the work to be done during Phase IV. Funding is proposed at \$3 million a year, a total of \$15 million. The focus of the work is to be on USAID priorities – food security and new presidential mandates. The application will also describe SANREM's major accomplishments to date and the process to be used in selecting the long-term research projects for October 2009 through September 2014.

“We are delighted finally to have official word that USAID intends to renew SANREM,” Program Director Dillaha said. “We welcome this opportunity to continue our collaboration with USAID and to initiate the SANREM Phase IV competitive long-term research awards program. We are completing our extension application now and will send out the Phase IV RFA as soon as we have USAID clearance.”

He also expressed appreciation to Harry Rea, USAID's agreement officer's technical representative for SANREM, for keeping the ME updated on the progress of the renewal in Washington and for his encouragement and support.

The research theme for SANREM Phase IV is, “Increasing food security for smallholder rainfed production systems through sustainable agriculture and natural resource management strategies.” This unifying theme will contribute new knowledge and technological innovations for sustainable cropping and related systems that increase agricultural productivity, soil organic matter, and soil fertility in food-insecure regions of East, West, and Southern Africa; South and Southeast Asia; and Latin America and the Caribbean.

The research program will focus on conservation agriculture technologies and practices that increase soil productivity, quality, function, and resilience. The central SANREM hypothesis is that greater agricultural production requires improved soil quality. Given the greater management intensity required by these practices, local innovation and adaptation must play a central role in the

development of appropriate Conservation Agriculture Production Systems (CAPS).

### **Phase IV concept paper generates enthusiasm and questions**

*By Keith M. Moore*  
*Associate Program Director*

The SANREM CRSP Phase IV concept paper stimulated considerable excitement and response in the conservation agriculture community and among current SANREM CRSP partners. The most common observations were that the example list of countries did not include the food-insecure and rainfed staple-cropping systems of . . . (*fill in your target country*) and that the research emphasis was too heavy on soil science/quality. With respect to the example list of countries, these were developed from three criteria that will be necessary for Phase IV research activities: research in a food-insecure country, the presence of a USAID Mission or program, and the political and social stability necessary for the success of a five-year research activity. While we will not exclude applications from countries not listed, it will be incumbent on research applicants to convince the LTRA review panel that their countries meet these criteria.

The feedback on the first draft also helped clarify our intention to meaningfully transform resource-poor smallholder production systems and not simply address the critical technical issues of soil quality. The purpose of Phase IV long-term research projects will be to develop adoptable conservation agriculture technologies and practices that account for social and human factors facilitating and constraining improved productivity of existing smallholder production systems. Hence, each winning proposal will be led by a biophysical scientist and a social scientist paired with their disciplinary counterparts in the host country to assure that projects are both technically sound and socioeconomically adaptable to small-scale agricultural systems. In this way, we expect widespread impact.

Some of you were concerned about the definition of conservation agriculture. We hope to have demonstrated clearly that we are less concerned about the definitional purity of the principles than we are about effectively transforming smallholder agriculture to ensure food security and long-term environmental sustainability. Indeed, many of you pointed out that any successful system must account for the forage and grazing needs of smallholder livestock. Others noted the importance of field variability, soil biota, markets, and local knowledge systems, as well as the networks of institutions at various socio-organizational scales and the multiple roles of local champions, commercial interests, non-governmental organizations, and agricultural ministries. We are looking

for innovative research projects that effectively engage resource-poor small-scale farmers in the technological and socioeconomic transformation of their production systems.

The SANREM CRSP Phase IV concept paper is a continually evolving document and is available at:

<http://www.oired.vt.edu/sanremcrsp/documents/PhaseIVConceptPaper.pdf>.

## SANREM to lead symposium at SWCS international conference



Conservation agriculture and food security issues will be the focus of a July 13 symposium sponsored by SANREM at this summer's International Meeting of the Soil and Water Conservation Society (SWCS) in Dearborn, Michigan. The symposium will immediately follow an address by U.S. Secretary of Agriculture Tom Vilsack, who will deliver the H. Wayne Pritchard Lecture at the opening session that day.

The SANREM symposium will explore the role of declining soil quality in agricultural productivity in developing countries; the potential of conservation agriculture to improve agricultural productivity, soil quality, and ecosystems services; and challenges that must be overcome if conservation agriculture is to improve food security. The daylong session will be recorded and available later on the SANREM and SWCS websites. Registration information for the SWCS meeting is available at: <http://www.swcs.org/>.

Founded in 1943, SWCS is a nonprofit scientific and educational organization that advocates for conservation professionals and science-based conservation practice, programs, and policy. Its membership of more than 5,000 includes researchers, extension agents, administrators, planners, policymakers, technical advisors, teachers, students, farmers, and ranchers.

### Conservation agriculture and food security issues in developing countries

#### Agenda for SANREM CRSP symposium, July 13, 2009

10:30 a.m.	<b>Welcome and opening remarks.</b> Theo Dillaha, program director, SANREM CRSP, and professor, biological systems engineering, Virginia Tech.
10:40 a.m.	<b>Conservation agriculture in developing countries.</b> Josef Kienzle, agro-industries officer, Division of Rural Infrastructure and Agro-industries, United Nations Food and Agriculture Organization.
11:20-noon	<b>Soil carbon sequestration for advancing food security and offsetting CO<sub>2</sub> emissions.</b> Rattan Lal, director, Carbon Management and Sequestration Center, Ohio State University
1:30 p.m.	<b>Food security crisis: Causes and solutions.</b> John M. Staatz, professor, agricultural, food, and resource economics, Michigan State University.
2:00	<b>Conservation agriculture and soil quality.</b> Paul Hepperly, research director, Rodale Institute.
2:30	<b>Conservation agriculture and ecosystem services.</b> Theo Dillaha.
3:30	<b>Challenges and opportunities for smallholder adoption of conservation agriculture.</b> Keith M. Moore, program director, SANREM CRSP.
4:00-5:00	<b>Panel discussion on international conservation agriculture outlook</b>
5:00-6:00	<b>SANREM CRSP Phase IV Long-term Research Award Program question-answer session.</b> Theo Dillaha, Keith Moore

## SANREM to cosponsor international watershed conference



SANREM will cosponsor next year's 21<sup>st</sup> Century Watershed Technology Conference in Costa Rica. The conference is a forum for natural resource management researchers and practitioners to exchange

information on science, applications, and developments in the use of watershed science and technology. The conference February 21-24, 2010, will be at [Earth University](http://www.earthuniversity.edu), a private university in Guácimo, Limón, dedicated to education in agronomy and natural resources in the tropics. Conference participants are invited to submit proposals for workshops and abstracts for papers by July 29. Details are on the conference website, <http://www.watershedtech.org/index.htm>. The website will post updates on the program, lodging, and travel.

Organized by the American Society of Agricultural and Biological Engineers (ASABE), the event is one in a series of international conferences covering topics ranging from new applications of well established technologies to applications of emerging technologies, policy issues, and knowledge dissemination. The Costa Rica conference will focus on emerging problems and new solutions to managing watersheds to meet water quality and quantity standards.

ASABE is an educational and scientific organization dedicated to the advancement of engineering applicable to agricultural, food, and biological systems. Founded in 1907, it has 9,000 members in more than 100 countries. Conference cosponsors besides SANREM and Earth University are the Tropical Agricultural Research and Higher Education Center (CATIE), Texas Institute for Applied Environmental Research (TIAER), University of Florida, Universidad de Costa Rica, and Colegio Federado de Ingenieros y de Arquitectos de Costa Rica.

## Annual meeting to center on LTRA research results

The SANREM CRSP Annual Meeting 2009 will be Monday, August 31, and Tuesday, September 1, in Falls Church, Virginia. The goal of the meeting is to disseminate the scientific findings and knowledge developed by SANREM Phase III researchers with USAID and other development partners.

The meeting will be at Virginia Tech's Northern Virginia Center in Falls Church and USAID headquarters in Washington, D.C. Monday's agenda will include a half-day mini-symposium to present research results to USAID personnel and other stakeholders; and a SANREM

Technical Committee meeting. On Tuesday, researchers will make in-depth reports on their work and meet informally with USAID personnel. Monday's first session will begin at 8 a.m., so meeting participants should plan to arrive in the Washington area on Sunday, Aug. 30. The meeting will conclude by 5 p.m. Tuesday.

To book hotel rooms and facilitate travel, the ME must have the names of all who plan to attend. More information will be posted on the SANREM website later this month.

## University of Missouri honors LTRA-4 leader for international work



**Corinne Valdivia**

Corinne Valdivia, lead PI for LTRA-4, was honored with an International Engagement Award from the University of Missouri's International Center. The award, bestowed this year for the first time, recognizes outstanding work that contributes to internationalizing the university through research, service, or teaching.

From 1994 to 1997, Valdivia collaborated with researchers at Instituto Boliviano de Tecnología Agropecuaria, Kenya Agricultural Research Institute, International Potato Center, and International Livestock Research Institute. Between 1998 and 2003, she was PI for the U.S. National Oceanic and Atmospheric Administration's Human Dimensions project. The SANREM project she leads, [Practices and Strategies for Vulnerable Agro-ecosystems](http://www.sanrem.org), was one of the five LTRAs chosen for funding in 2005.

Valdivia's research, teaching, and outreach activities concentrate on mechanisms that lead to sustainable livelihood strategies. Her methodological approaches integrate household economics, political economy, and sociology to study decision making in rural areas of the tropics, especially in semi-arid highland and sub-humid regions of Latin America, East Africa, and India. She has graduate students involved in African and Latin American research programs.

"One of the characteristics of what I do is that most of my students have developed their field research overseas," Valdivia said. "My 'classroom' for teaching international development research has mostly been the Andes and East Africa. This is important to me. Five of my graduate students completed their thesis field work in Kenya, Uganda, and Tanzania, and five in the Andes of Bolivia and Peru. The relations we built have made these students welcomed around the world."



Valdivia holds a bachelor's degree in economics and planning from Universidad Nacional Agraria La Molina, Peru, and a master's degree and Ph.D. in agricultural economics from Missouri. An associate professor of agricultural economics, Valdivia has been on the Missouri faculty since 1991 and is the graduate school's director of the interdisciplinary minor in international development. She also is a Fellow at Missouri's Cambio Center, an organization addressing international and local dimensions of immigration.



**SANREM'S Michael Bertelsen meets with Sudanese education officials in Juba.**

## **SANREM wraps up Southern Sudan higher education assessment**

SANREM is nearing completion of an assessment of higher education needs in agriculture and natural resource management in Southern Sudan, funded by an Associate Award from USAID's Sudan Mission. Because the region's higher education system collapsed or functioned only intermittently during more than 50 years of civil war, few well-trained Sudanese are available to deal with agriculture and natural resource issues in the south.

Led by Program Director Dillaha, the team developed curricula to promote agricultural development and protect the region's ecosystem. Co-PIs were Michael Bertelsen, SANREM's economic assessment impact coordinator;

Father Michael Schultheis, acting vice chancellor for the Catholic University of the Sudan; Thomas Broyles, assistant professor of agricultural and extension education at Virginia Tech; and Peter Wyeth, an agricultural economist and professor emeritus at Washington State University.

SANREM sponsored an international symposium November 17-19, 2008, in Juba to review current knowledge of needs for higher education in agriculture and environmental sciences in Southern Sudan and to reach a consensus on final project goals and objectives. A second symposium March 11-12 reviewed progress to date and presented preliminary findings of the Higher Education in Agriculture Needs Assessment survey.

The most critical need cited in the survey was a shortage of personnel in a wide range of fields. The team recommends that Southern Sudan universities consider developing and offering associate degrees with practical training in general agriculture, in addition to proposed and existing five-year specialized degree programs. The shorter-term associate degree programs would provide appropriately trained general agriculturalists who could quickly contribute to agricultural redevelopment in the south. Symposium participants from Southern Sudan emphasized that bachelor's degrees given by their institutions would eventually need to be equivalent to those awarded in other countries so that their graduates could be accepted by post-graduate programs.

## **USAID updates and clarifies visa requirements for U.S. travel**

All SANREM CRSP partners who are not U.S. residents and are traveling to the United States on CRSP business funded by USAID in whole or in part can travel on a B-1 visa. This revised interpretation is in response to recent changes to the Automated Directives System (ADS), chapters 252 ([Visa Compliance for Exchange Visitors](#)) and 253 ([Training for Development](#)).

The essence of the new interpretation is that a B-1 visa should be used by a person traveling as part of his or her employment-related duties:

- to undertake the review or drafting of a scope of work or other proposal
- to discuss program management, personnel, or budgets, or
- to report on progress, accomplishments, or lessons learned.

SANREM collaborators of all institutions supported by SANREM fall under this interpretation.

The only exception is for SANREM CRSP long- or short-term trainees, who are designated "participants" in USAID

(ADS) language. The key words are “learning activity” as opposed to “business related.”

If an individual is traveling to the United States to attend a seminar for training purposes, a workshop, a degree or non-degree program, or a study tour and is funded by USAID in whole or in part, he or she is a “participant” and must travel on a J-1 visa.

## Journal publishes SANREM PES Associate Award papers

A series of three papers written for SANREM’s Associate Award on Payments for Ecosystem Services (PES) was published in a special edition of the *Journal of Sustainable Forestry*. The themed edition, *Financing for Forest Conservation: Payments for Ecosystem Services in the Tropics*, includes:

- “Paying for Watershed Services in Latin America: A Review of Current Initiatives” by Douglas Southgate and Sven Wunder
- “Regional Review of Payments for Watershed Services: Sub-Saharan Africa” by Paul J. Ferraro, and
- “Payments for Watershed Services in Asia: A Review of Current Initiatives” by Marjorie Huang, Shyam K. Upadhyaya, Rohit Jindal, and John Kerr.

Preliminary versions of the papers were presented at the Global Event on Payments and Rewards for Environmental Services, cosponsored by SANREM in Lombok, Indonesia, in January 2007; and at SANREM’s Pro-poor Payments for Ecosystem Services policy seminar for USAID personnel in October 2007.

The *Journal*, published by Yale University’s School of Forestry and Environmental Studies, is online at <http://www.informaworld.com/smpp/title~content=t792306917~db=all>. Longer versions of the papers are available in the *USAID PES Sourcebook* on the SANREM website: [http://www.oired.vt.edu/sanremcrsp/menu\\_research/PES\\_Sourcebook.Contents.php](http://www.oired.vt.edu/sanremcrsp/menu_research/PES_Sourcebook.Contents.php).

## Research spotlight: The cross-cutting initiatives

When SANREM selected five LTRAs for funding, those reviewing the proposals noted common themes in many of the projects and recommended developing cross-cutting activities that would create synergies across SANREM’s global work. In September 2007, when SANREM learned that it would receive additional funding to make up for earlier budget cuts, the Technical Committee voted to use the funding for the five cross-cutting research activities (CCRAs) described here.

## Gendered Access to Markets: Networks and Livelihood Alternatives

Led by Maria Elisa Christie of Virginia Tech, this CCRA is working in Bolivia, Ecuador, Indonesia, Peru, the Philippines, Vietnam, and Zambia. Its goal is to determine how the gendered nature of market networks affects the quality of information women receive and their bargaining power in the household and the market. The specific proposition is whether women producers’ participation in networks consisting primarily of women increases their access to markets. Following are research findings from case studies in these countries.

- In the Jatun Mayu watershed communities of Tiraque, Bolivia, the whole family participates in production and marketing of agricultural products, but responsibilities are differentiated by gender. Men have the leading role in production, while women lead in marketing.
- In highland Ecuador, men are twice as likely as women to market household agricultural production, but neither gender has access to higher-value markets for potatoes and other products.
- At wholesale markets in Bolivia’s urban centers of La Paz and El Alto, women are the primary negotiators. Depending on the market, they may buy products directly from farmers, buy from intermediaries of either gender, or own wholesale agencies that are run by a woman with one to three male assistants who help to carry heavy loads.
- In the Bolivian municipality of Ancoraimes, where potato is grown primarily for food, about 70 percent is sold by women, while 80 percent of the onion crop is sold exclusively by men. In the municipality of Umala, where potato is produced mostly for sale, about half the crop is sold by men and women together, 28 percent by women, and 20 percent by men.
- Among upland women farmers in the Philippines, participation in market networks confers privileges such as exclusive patronage, preferential treatment, lenient or reduced pricing, and quality assurance for products or services exchanged.
- In the Nghia Trung community of Binh Phuoc province, Vietnam, division of labor within households as well as laws and market structures leave women with little time for formal training or access to markets. However, women have built informal networks that provide market access, micro-credit, education, and health care.
- In Nanggung, Indonesia, access to markets is open to everyone but is dominated by men – few women use it. Men’s sources of power are long-established networks with intermediaries, institutionalized farmer groups, and access to capital.

## Linking Knowledge and Action: Meeting NRM Challenges

This CCRA is led by Esther Mwangi, currently a Giorgio Ruffolo Post-doctoral Fellow at Harvard University and soon to join the Center for International Forestry Research in Indonesia. The knowledge-to-action CCRA is working in Bolivia, Uganda, Kenya, Ecuador, Vietnam, and the Philippines. The goal of this activity is to identify the conditions under which research knowledge can influence the practice and behavior of policymakers, practitioners, and resource users. By systematizing the recording and analysis of different strategies and processes used by SANREM researchers to influence policy and practice, this initiative hopes to gain an understanding of which strategies work, which do not, and how research and policy linkages can be enhanced to improve decision making at multiple levels of governance.

Case studies show that farmers and resource users are more likely to apply research findings if they have participated in the research process. How best to incorporate research findings varies from direct involvement in data gathering to the design and execution of field trials. Regardless of method, farmers clearly appreciate the knowledge gained from participation, just as they appreciate their expertise being recognized and valued. Different strategies also must be used to influence policymaking at different levels of government. Round tables that include government and non-governmental personnel as well as national research institutes have been effective in some instances. In situations with significant political barriers to participation – for example, ethnic mistrust or skepticism by politicians – the sequencing of activities becomes important. Current activities include the following.

- Researchers in Bolivia and Peru are working on guidelines for sharing information on markets and climate change with local communities.
- The Uganda team completed and circulated a video that explains its strategies for linking knowledge with action and their effectiveness.
- In the Philippines and Vietnam, researchers conducted two seminars at international forums.
- The Kenya and Uganda teams took part in a workshop to exchange their knowledge and experiences.

## Metagenomics for Analysis of Soil Microbial Communities, Soil Quality

This activity, led by Karen Garrett of Kansas State University, is collaborating with researchers in Bolivia and Zambia to evaluate the utility of soil metagenomics for assessing soil quality. Metagenomics is the study of genetic material obtained from environmental samples to profile the microbial diversity of the samples. Garrett is

using metagenomics and DNA sequencing to identify soil microbes and use changes in the soil microbe community to inform management decisions. This CCRA works closely with the soil quality CCRA, which is using more conventional agronomic analysis techniques. Correlations between metagenomic and conventional soil-quality tests are being investigated. The project's graduate students and faculty are currently analyzing soil samples from three LTRA projects. The first samples have been submitted for sequencing, and results are expected soon.

## Soil Quality

Peter Motavalli of the University of Missouri is leading the CCRA research on soil quality in Bolivia, Zambia, Indonesia, and the Philippines. The goal of this project is to identify effective, low-cost methods to evaluate soil quality across the range of climates, cropping systems, and socioeconomic conditions represented in SANREM projects. The need for an effective, low-cost method to evaluate soil quality is critical in developing countries because soil degradation is a major factor in food insecurity.

Researchers reported significant progress with surveys of community members and agricultural professionals, and laboratory testing and field procedures for soil quality in Bolivia, Indonesia, and the Philippines. Variables being studied for comparison include differences in tillage and fertility treatments, cropping histories, and periods of fallow. Following are significant research findings.

- Laboratory and field-based tests that measure more biologically available forms of soil organic matter are sensitive indicators of changes in management practices and are relatively rapid and inexpensive tests of soil quality and soil degradation.
- Near infrared spectroscopy is a rapid and non-destructive field method for evaluating changes in soil organic matter fractions, but its cost may make it less favorable for developing countries.

The SANREM team is looking at ways to reduce costs and is evaluating other rapid methods of soil quality testing under a wide range of environmental conditions in Asia and Latin America. These tools will then allow community members and organizations working closely with them to obtain information to make informed decisions to conserve their soil resources.

## Watershed Modeling and Assessment

This CCRA is working in Bolivia, Ecuador, the Philippines, and Zambia and is led by Conrad Heatwole of Virginia Tech. The goal of this activity is to enhance the impact of the SANREM CRSP by providing technical support and a cross-cutting focus in watershed modeling and assessment. The primary focus this year has been field



data collection to coincide with the November-April rainy season in Bolivia, Ecuador, and Zambia.

Accomplishments include establishment of automated and manual meteorological and water quality monitoring systems in Bolivia, Ecuador, and Zambia; initiation of field studies in the Bolivian Jatun Mayu watershed for use in modeling studies to evaluate the effects of cropping on runoff, erosion, and nutrient losses in the high altitude “upper zone” of the watershed; and watershed-scale analysis and integration studies through imagery analysis and modeling.

## LTRA progress reports

As SANREM enters the final months of Phase III, the five LTRAs are showing measurable success. Following are highlights from each project for the first half of Fiscal Year 2009.

### **LTRA-1. Decentralization Reforms and Property Rights: Potentials and Puzzles for Forest Sustainability and Livelihoods.**

After dealing with data entry delays, researchers are focusing on data analysis, training, and dissemination. A meeting of the steering committee in December identified analytical products and assigned members to begin drafting them. Early findings show that both rulemaking activities and investments in natural resources increased significantly after decentralization in three of the four countries: Kenya, Uganda, and Bolivia. There was no significant difference in Mexico.

### **LTRA-2. Developing a Participatory Socioeconomic Model for Food Security, Improved Rural Livelihoods, Watershed Management, and Biodiversity Conservation in Southern Africa.**

Key accomplishments included the collection of sales, transportation, and cost data for all products at all regional trading centers of the Community Markets for Conservation and the headquarters in Lusaka, Zambia. In food sciences, SANREM research on production safety culminated in more varied food products, exports of such products to wider markets, and the development of new products. Research on poultry vaccination for Newcastle Disease virus continues, as does analysis of wildlife counts from aerial surveys.

### **LTRA-3. Watershed-based NRM in Small-scale Agriculture: Sloped Areas of the Andean Region.**

Research continues in Bolivia and Ecuador on livelihoods and their impact on water quality, soil productivity, and household wellbeing. Tests in farmer fields are evaluating conservation agriculture practices such as contour and limited plowing, and use of cover crops. Another important area of study is biological control of important plant diseases. Such controls have the potential to reduce

production costs, improving the financial sustainability of farm systems; and to reduce the use of pesticides.

### **LTRA-4. Adapting to Change in the Andes: Practices and Strategies to Address Climate and Market Risks in Vulnerable Agro-ecosystems.**

Soil amendment research, monitoring of pest dynamics, and crop experiments were established. Knowledge was shared with community research groups through 21 workshops. Posters, leaflets, and detailed reports were distributed to community centers, families, and community officials, respectively. Research findings were presented to USAID Missions, the Bureau for Economic Growth, Agriculture and Trade, and at the International Scientific Conference on Climate Change.

### **LTRA-5. Agroforestry and Sustainable Vegetable Production in Southeast Asian Watersheds.**

Farmers were provided with planting material to test viability of vegetable agroforestry systems. Ongoing experiments showed results of various tree-vegetable interactions. Drip irrigation kits and seeds were also provided to farmers. Gender researchers noted that women benefit more from informal networks than from workshops and training. The first International SWAT-Southeast Asia conference was held in Thailand, and a book titled *SWAT: Global Applications*, sponsored by SANREM, was published.

## Notables



**Paul Farmer**

SANREM ME members were among Virginia Tech faculty who met with **Paul Farmer** during the noted anthropologist and physician's visit to Virginia Tech April 27-28. Farmer, cofounder of the international health and social justice organization Partners in Health (PIH), was on campus as part of the university's Distinguished Speaker Program and for meetings on potential partnerships between his organization and Virginia Tech.

SANREM Program Director **Theo Dillaha**, Economic Impact Assessment Coordinator **Michael Bertelsen**, and Associate Program Director **Keith M. Moore** participated in several sessions with Farmer and **Gillaine Warne** of Zanmi Agrikol (ZA), PIH's agriculture partner in Haiti. Founded in 2002, ZA operates a farm and a food-production facility, and trains agricultural extension agents.

**Ma. Elena Chiong-Javier**, a researcher for LTRA-5, led a seminar May 5 at Harvard University as part of the Frontiers in Sustainable Development Speaker Series. Titled “Women in Agriculture and Marketing: Evidence and

Lessons from the Philippines and Vietnam," her seminar focused on gender role expectations in the agricultural sector of Southeast Asia, which historically have assigned subsistence crop production to women and commercial crop production to men. She presented lessons and implications for mainstreaming gender in agricultural development programs. Chiong-Javier is a faculty member and director of the Social Development Research Center at De La Salle University, Philippines. The seminar was hosted by SANREM Researchers **Delia Catacutan** and **Esther Mwangi**, both of whom are Giorgio Ruffolo Post-doctoral Fellows in Harvard's Sustainability Science program.

**Corinne Valdivia** led a team of SANREM researchers who presented a half-day seminar for USAID personnel in Washington on May 7. Titled "Practices and Strategies for Vulnerable Agro-ecosystems," the seminar outlined how climate, economic, and social changes in the Andes are affecting small landholders and how SANREM is working with farmers to achieve food security and biodiversity. SANREM researchers who conducted sessions were **Anji Seth**, "Understanding climate change projections for the Northern Altiplano"; **Peter Motavalli**, "Soil organic matter in mitigation and adaptation in the Bolivian Highlands"; and **Karen Garrett**, "Anticipating and responding to pest and disease risks." Valdivia and **Jere Gilles** developed "Fostering Adaptive Capacity," which she presented. The LTRA-4 team made earlier presentations to USAID-Bolivia and USAID-Peru.

**Kevin Inman** joined the staff of the Office of International Research, Education, and Development as art director and is working with SANREM on website management and design. Inman has more than 10 years of experience in illustration, graphic and web design. Before coming to OIRED in April, he was an art instructor at Radford University. He holds a bachelor's degree from the University of Virginia and a master of fine arts from Radford. He has worked in Japan and Spain, and speaks Spanish, Italian, and Portuguese.



**Kevin Inman**

LTRA-5 is making over its TMPEGS website so that researchers can log on and upload their reports, success stories, and photos directly. **Edwin Abucay** of University of the Philippines-Los Baños is directing the redesign, which features homepage photos, a downloads section, links to online articles about researchers and partners, news and announcements, a calendar, and a map that logs website visits by location. Lead PI **Manuel Reyes** notes that the new website is best viewed with the Mozilla Firefox browser. See the site in progress at <http://www.tmpegs.org/beta/>.

A new documentary *Flow* by filmmaker **Irena Salina** takes a provocative look at the growing privatization of the world's water supply and raises the question, "Can anyone really own water?" The *New York Times* describes the film



as "a three-alarm warning," saying it "dives into our planet's most essential resource – and third-largest industry – to find pollution, scarcity, human suffering and corporate profit. And that's just in the United States." While some critics describe the film as one-sided and

oversimplified, it has stirred debate and raised public awareness of a significant public and environmental issue – corporate ownership of water supplies. Learn more on the film's website: (<http://www.flowthefilm.com/>).

The SANREM CRSP now has a **Facebook** page. The ME will post links to news and discussion about agriculture and natural resource management issues, as well as broad environmental developments. Become a fan at <http://www.facebook.com/home.php?#/pages/SANREM-CRSP/69503719402?ref=ts>.

## Kudos

**Charmaine Pailagao**, a student supported by SANREM, has received her master's degree in environmental science and management. Research for her thesis, "Dynamics of Land Renting among Vegetable Growers in Lantapan, Bukidnon, and Policy Incentives for Land Conservation," was part of LTRA-5's work in the Philippines.

## Calendar

### 2009

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|-----------------------------|---|
| <b>June 30</b>              | SANREM CRSP extension application due to USAID  |
| <b>July 14</b>              | SANREM International Conservation Agriculture Symposium, Soil and Water Conservation Society, Dearborn, Mich. |
| <b>Aug. 31-<br/>Sept. 1</b> | SANREM CRSP Annual Meeting 2009, Falls Church, Virginia   |

### 2010

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| <b>Feb. 21-<br/>24</b> | 21 <sup>st</sup> Century Watershed Technology Conference, Earth University, Costa Rica |
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