



Sustainable Agriculture and Natural Resource Management
Collaborative Research Support Program

SANREM CRSP Newsletter

March 2009

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

multidisciplinary, multi-institutional research, our cross-cutting initiatives continue to promote collaboration among individual scientists and scholars.

As indicated in previous newsletters, USAID has indicated orally that SANREM will be renewed for another five years beginning in October. However, the written request from USAID for an application for extension (our research proposal for Phase IV) has not been received, and we may not receive it for another couple of months. The letter is being delayed because of USAID uncertainty over the budget situation and other issues. Once we receive the letter and its guidance, we will submit a Phase IV research plan, USAID will review it, and our hope is that our existing cooperative agreement will be extended quickly. After meetings in Washington in late February, I believe that SANREM will probably not be formally extended until this summer. Phase IV funding is expected to be at a level of \$3 million annually, a 25 percent increase over Phase III funding.

We would not ordinarily release a request for applications for Phase IV activities until we had an approved USAID Phase IV plan, but we feel that we must to avoid a significant time lag between SANREM Phase III and the anticipated Phase IV research. All Phase IV activities will be funded through open competition. Consequently, we are proposing the following 2009 schedule to prepare for Phase IV.

- This newsletter announces that the principal focus of the next phase of SANREM will be conservation agriculture for smallholders.
- In April, SANREM will release for comment a concept paper on our vision for the Phase IV conservation

agriculture research theme.

As the SANREM CRSP wraps up Phase III, we are seeing measurable successes among our five Long-term Research Award (LTRA) activities. Scientific results have been presented in dozens of journal articles, extension publications, theses, reports, working papers, and conference proceedings. In Fiscal Year 2008, we supported 98 long-term degree students and conducted short-term training for more than 11,000 participants. Besides contributing to our

- In April or May, SANREM will release a draft request for applications for Phase IV research activities for public comment and so that research teams can begin making their plans.
- As soon as we receive the USAID request for an application for extension and are certain of USAID requirements for the Phase IV program, we will release a formal Phase IV request for applications (RFA); researchers will have six to eight weeks to prepare their applications. I believe this will happen in May, so applications would be due in June or July.
- The SANREM External Evaluation Panel will review the applications over the following month and make funding recommendations to the SANREM Management Entity. The ME will then select research activities for Phase IV and begin negotiations with lead universities of successful applications. Our hope is that the application review process and selection of Phase IV award recipients will be completed by the end of August.
- Our goal would then be to complete contracts with the lead U.S. universities by Oct. 1 so that Phase IV research could begin immediately, but this will depend on the timing of the signing of a USAID-Virginia Tech Phase IV cooperative agreement, which could be as late as Sept. 30.

Other SANREM highlights are described in this newsletter. Among them, SANREM cosponsored the SWAT-Southeast Asia Workshop and Conference Jan. 5-8 at Chiang Mai University in Thailand. The lead organizer of the conference was Manuel Reyes, principal investigator (PI) for LTRA-5. Also, SANREM Associate Program Director Keith Moore presented at The National Academies' January workshop on 21st Century Systems Agriculture. And SANREM Administrative PI S.K. De Datta was named a Fellow by the American Association for the Advancement of Science.

I would particularly like to make you aware of a new documentary, *Dirt! The Movie*. Produced by Common Ground Media Inc., a non-governmental organization dedicated to "understanding and a sustainable future," the movie was screened at the Sundance Film Festival and drew excellent reviews. The documentary tells the story of soil, "the glorious and unappreciated material beneath our feet." Because this topic is such an integral part of SANREM's research, the film should have resonance with our researchers and partners. It is set for release later this year.

– **Program Director Theo Dillaha**

News

SANREM Phase IV research will center on food security issues

After consulting with USAID-Washington, USAID Missions, and other SANREM stakeholders, we have chosen the research theme for SANREM Phase IV: "Increasing food security for smallholder rainfed production systems through sustainable agriculture and natural resource management strategies."

This uniting research program 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 both degraded and productive lands of major agro-ecosystems dominated by rainfed agriculture in food-insecure regions of East, West, and Southern Africa (countries included in the 2002 Initiative to End Hunger in Africa [IEHA]), South and Southeast Asia, Latin America, and the Caribbean. The research proposed will focus specifically on conservation agriculture technologies and practices that increase soil quality, function, resilience, and productivity.

The central SANREM hypothesis is that improving agricultural production requires improved soil quality. This will be achieved only if inputs of carbon and nutrients to the soil exceed losses due to erosion, mineralization, volatilization, crop/animal harvest, and leaching. Evidence from sub-Saharan Africa and South Asia indicates that the mining of soil carbon and nutrients has produced severe soil degradation and low levels of soil organic matter in many areas, which results in poor response to improved seed, fertilization, and water management. Consequently, many small-scale farmers may be trapped in a downward spiral of poverty and food insecurity.

SANREM CRSP Phase IV will focus on the development and demonstration of sustainable Conservation Agriculture Farming Systems (CAFS) for smallholder rainfed crop production systems that improve food security and restore the productive capacity and ecosystem services of degraded agricultural lands. Crop production systems must include a substantial component of staple crop production. CAFS research supported by SANREM Phase IV will:

- maintain to the maximum extent possible a year-round soil cover provided by residues from previous crops and/or a cover crop intended to improve soil quality and productivity of food crops
- minimize soil disturbance by tillage and use tillage only when required for pest control and/or amelioration of undesirable soil conditions that cannot otherwise be corrected in a timely manner

- utilize crop rotation systems, adapted to local socioeconomic and environmental conditions, that improve soil quality/health and help control agricultural pests. The rotation system must include principal staple crops of the research region.
- utilize integrated pest management (IPM) options to minimize pesticide use for pest and weed control, to improve profitability, and to minimize potential environmental consequences of pesticide use, and
- utilize integrated nutrient management (INM) techniques, using organic and/or inorganic fertilizers to improve agricultural productivity, profitability, and soil quality.

The Phase IV research award recipients will investigate, develop, and identify optimal combinations and implementations of the above CAFS practices and their associated knowledge systems. The practices will be adapted to local agro-ecozones and socioeconomic systems through researcher- and farmer-managed field trials involving user groups and consistent with local input and output networks. Phased introduction and dissemination strategies to maximize impact are expected.

Expected impacts of technologies developed and demonstrated through this research are:

- increased agricultural productivity through improved cropping systems that contribute to and take advantage of improved soil quality and fertility
- increased soil organic matter levels required for effective utilization of agricultural inputs and to levels that are characteristic of high-quality, resilient, and productive soils
- improved agricultural water productivity through decreased runoff and soil evaporation, and increased infiltration and soil moisture storage in the root zone to reduce risks associated with drought and climate change
- reduced net emission of greenhouse gases into the atmosphere through reductions in losses of soil carbon and nitrogen, and sequestering carbon in soils at least until soil carbon levels reach their maximum sustainable levels
- increased quantity and quality of food for improved farm household nutrition
- improved provisioning (water supply), regulating (climate and flood control), and supporting (nutrient cycling, pollination) ecosystem services
- increased and sustainable incomes leading to better nutrition, health, and education levels for all farm household members
- improved input and output market functioning required for increasing local incomes and reducing

short-term risk for smallholders, and

- enhanced gender equity and empowerment of women (bargaining position, application of women's knowledge, recognition of their contributions).

Additional details of the Phase IV research theme and a draft request for applications will be released for public comment later this month on the SANREM listserv, website, and other means. Comments and suggestions on the proposed research theme and draft RFA are welcome and may be sent to Keith Moore (keithm@vt.edu).

SWAT-SEA draws researchers and scholars from around the globe

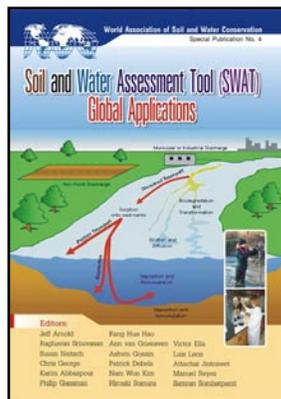
Engineers, scientists, and researchers from 16 countries took part in January's Soil and Water Assessment Tool (SWAT) Southeast Asia Workshop and Conference. The SWAT model was developed by the U.S. Department of Agriculture's Agricultural Research Service and is used around the world for modeling and managing water resources at the watershed scale. The event was co-sponsored by Thailand's Chiang Mai University, North Carolina A&T State University, the World Association of Soil and Water Conservation, and SANREM. Other partners included Iowa State University; Shimane University, Japan; United Nations University; Texas A&M; and the USDA-ARS.

Manuel Reyes, a professor at NCA&T and lead PI for SANREM's LTRA-5, gave welcoming remarks. SANREM Program Director Dillaha and Researcher Victor Ella, a professor at University of the Philippines-Los Baños, gave keynote addresses at the opening session on Jan. 7.

"The first international SWAT conference was a resounding success," Reyes said. More than 80 attended from many

parts of the world. Several participants expressed hope that the training and education they received on SWAT will enable them to better manage their countries' water resources. Reyes praised the planning done by the organizing committee and hospitality team members. Among topics covered during the four-day event were geographic information system (GIS) technology and database developments for SWAT modeling, agroforestry modeling tools, and SWAT best management practices.

SANREM researchers made several presentations at the conference: Dillaha gave a presentation titled "Watershed Modeling: What Is Needed in the Next Generation of Models?" Ella spoke on "Potential applications of the SWAT model for sustainable soil and water resources management in Southeast Asia." Reyes presented a paper on vegetable-tree complementarity by SANREM Collaborator Agustin Mercado of the World Agroforestry Center in the Philippines. And Mahmud Raimadoya (Indonesia), Nguyen Kim Loi (Vietnam), and Nathaniel Alibuyog (Philippines) reported on the progress of their SWAT-based SANREM research.



Coinciding with the conference was the release of a 400-page book, *Soil and Water Assessment Tool (SWAT) Global Applications*. Published by the World Association of Soil and Water Conservation (WASWC) with SANREM and NCA&T as lead sponsors, the book credits 17 editors, including Reyes and Ella; and 50 co-publishers. It is available in paperback with a DVD of SWAT resources for \$8

to \$9 plus shipping costs. To order the book, e-mail Samran Sombatpanit of WASWC: sombatpanit@yahoo.com or samran_sombatpanit@yahoo.com



SANREM was a co-sponsor for January's SWAT-SEA conference at Chiang Mai University in Thailand.



At a bustling market, traders clinch a deal.

Women take the lead in Bolivia's marketplaces, researcher finds

When Bolivian farm families bring their produce to the sprawling market in Tiraque, husbands help their wives carry in the huge sacks of potatoes that are the main commodity, and the women take over from there. "Men rule the fields, but women rule the markets," said Nadezda Amaya, a master's student in the Department of Agricultural and Applied Economics at Virginia Tech. Her analysis of male and female roles in the farming communities of the Andes is part of SANREM's research in seven countries on gendered access to markets.

In Tiraque, a province in the central Bolivian highlands, eight of the market's 10 major wholesalers are women. Through a social network that increasingly depends on cell phones to gather information, they set the prices based on supply, demand, and quality. Men do not know how to bargain with the majority female wholesalers, they say: "Between women there is more understanding."

Amaya's findings contradict the conventional wisdom that Andean societies are strongly male-dominated, with women relegated to reproductive responsibilities in the home. It is true, she said, that in mixed company women tend to be shy and not to speak up. In the marketplace, however, they are in charge, managing the money and making the decisions. Their clout is significant. Wholesale merchants can sell more than \$60,000 worth of potatoes a week.

Amaya is one of eight students participating in the SANREM gender project, which pays for part of their field research. She was initially recruited to complete her master's degree at Virginia Tech by Jeffrey Alwang, PI for SANREM's LTRA- 3: Watershed-based Natural Resource Management for Small-scale Agriculture in the Andes. In 2007, she joined the gender cross-cutting initiative.

She presented some of her findings in November as part of Virginia Tech's Women in Development (WID) Discussion Series. Led by WID Program Director Maria Elisa Christie, SANREM researchers are studying the role of gendered networks in market access and enhanced livelihoods in Bolivia, Ecuador, Peru, Indonesia, the Philippines, Vietnam, and Zambia.



Nadezda Amaya

Among questions guiding the research are: Which products are sold by women and which by men? Do men and women get different prices for the same products? If so, why? How do coalitions and networks arise? How are they sustained? How do they benefit people?

Learn more about SANREM's gender work at:

http://www.oired.vt.edu/sanremcrsp/menu_research/xcGender.php

Amaya's Nov. 20 presentation is online at:

<http://www.oired.vt.edu/sanremcrsp/News%20archives/Tiraque.pdf>

Seminar explores effective ways of linking knowledge with action

Linking research findings to new practices that help communities and the environment is a perennial challenge for scientists. Scholars may be viewed skeptically by policymakers and vice versa, says SANREM CRSP Researcher Delia Catacutan, a social scientist at the World Agroforestry Centre in the Philippines and Giorgio Ruffolo Fellow in Sustainability Science at Harvard University.

Catacutan, also an adjunct associate professor at University of the Philippines-Los Baños, has been exploring effective ways of linking knowledge with action. She gave an overview of her findings Feb. 3 at SANREM headquarters in a seminar, "Linking Knowledge with Action: Meeting NRM Challenges through SANREM." Her presentation was co-sponsored by Virginia Tech's WID program.

The seminar focused on Catacutan's work in the Philippines and Vietnam investigating strategies used by researchers to link their results to policy changes and wise stewardship of resources. She pointed out three barriers between knowledge and action:

- Public policy decisions may not be informed by the best available science.

- Research is often driven by the scientist's curiosity rather than the community's needs.
- Scientists may not have useful answers at the right time for policymakers.

Before new knowledge can be applied, it must be trusted, Catacutan said. Trust has three criteria:

- Credibility. Is it true?
- Saliency. Is it relevant?
- Legitimacy. Is it unbiased, respectful, and accountable?

Based on her work with SANREM's LTRA-5, which is studying agroforestry and sustainable vegetable production in Southeast Asia, she described several successful strategies. The first is to involve farmers in all phases of a project: choosing the crops to be tested, planting those varieties in their home gardens, and evaluating their performance in field tests. LTRA-5 also is training farmers in new technologies, offering workshops for local scientists, and developing an array of practical guides and manuals.

Attitudes are important, she said. To win a community's trust, make courtesy calls and be respectful – do not treat farmers as lowly people. And make the technology accessible by including information on how to apply it.

Catacutan's presentation is available at:

http://www.oired.vt.edu/sanremcrsp/documents/K2A_SANREM.ppsx

Moore speaks at National Academies workshop on sustainable agriculture

Associate Program Director Keith Moore was a speaker at The National Academies' Jan. 12 Workshop on 21st Century Systems Agriculture. The workshop, "Principles for Improving Sustainability of Agriculture That Can be Applied to Other Regions," covered a range of topics, including integrated pest management, biotechnology, conservation agriculture, marketing and trade, livestock production, and agricultural extension.

Moore spoke on how knowledge networks shape the transfer of technology. His presentation demonstrated how



Delia Catacutan confers with Keith Moore (center) and Manuel Reyes before her seminar.

social learning and adaptive management contribute to technological change in agriculture. He cited Green Revolution technology transfer, farming systems, and farmer field schools as a continuum of network methods for fostering change.

Also on the workshop program was SANREM Researcher Ruth Meinzen-Dick, who spoke on property rights and collective action. The vice chair of the 21st Century Systems Agriculture Committee is Richard Harwood, past chair of the

SANREM CRSP External Evaluation Panel. Cornelia Flora, co-PI on LTRA-4, is also a committee member.

The workshop, held at Beckman Center in Irvine, Calif., was sponsored by The Academies' Board on Agriculture and Natural Resources (BANR), a major program unit of the National Research Council. The board is responsible for organizing and overseeing studies on issues of agricultural production and related natural resource development, including forestry, fisheries, wildlife, and land and water use. In that context, the board plans new studies, oversees projects, and appraises accomplishments and potential new initiatives. For more information on BANR, see: <http://www8.nationalacademies.org/cp/projectview.aspx?key=48873>.

The BANR website describes January's workshop as part of a two-year study of the science and policies that influence the adoption of farming practices and management systems designed to reduce the costs and environmental effects of agricultural production. A set of case studies is being used to examine farming systems that address those concerns and to explore the factors that affect their implementation, economic viability, and success in meeting environmental and other goals of sustainability.

Moore's presentation is available at:

<http://www.oired.vt.edu/sanremcrsp/documents/MooreNetworking.ppsx>

Scientific association honors De Datta for contributions to food security

S.K. De Datta, administrative PI for SANREM, was named a Fellow by the American Association for the Advancement of Science (AAAS) at the society's 2009 meeting in February.



S.K. De Datta

De Datta was recognized for his contributions to global food security, the Green Revolution, and environmental stewardship in a global context. Election as a Fellow is a distinction given to AAAS members by their peers. This year, 486 of the organization's 119,045 members were honored.

De Datta, director of Virginia Tech's Office of International Research, Education, and Development, came to the university in 1991 and since

then has led the office in administering grants totaling more than \$115 million to raise the standard of living in developing countries. De Datta worked previously at the International Rice Research Institute in the Philippines. As a young agronomist there, he co-discovered a variety of rice known as IR-8, which produced 10 times the yield of conventional rice. This rice was a key component of the Green Revolution of the 1960s, the development that allowed agricultural production to keep pace with population growth at the time.

Over his career, De Datta has been named a Fellow of the American Society of Agronomy, the Soil Science Society of America, and the Crop Science Society of America. He received the Norman Borlaug Award for Outstanding Contribution to Agricultural Sciences; and four years ago he was presented with a citation in Manila by Philippines President Gloria Macapagal Arroyo for his contribution to the Filipino people.

AAAS is the world's largest general scientific society and publisher of the journal *Science*. Founded in 1848, the nonprofit organization comprises 262 affiliated societies and academies of science.

SANREM will sponsor conservation agriculture symposium

SANREM will sponsor a symposium, "Conservation agriculture and food security in developing countries," at this summer's International Meeting of the Soil and Water Conservation Society in Dearborn, Mich. The July 14 symposium will kick off the conservation agriculture focus of SANREM CRSP Phase IV by exploring the role of declining soil quality in agricultural productivity in developing countries; the potential of conservation agriculture to improve soil quality, agricultural productivity, and ecosystems services; and challenges that must be overcome if conservation agriculture is to improve food security.

The symposium will be recorded and available later on the

SANREM and SWCS websites. Additional details will be forthcoming.

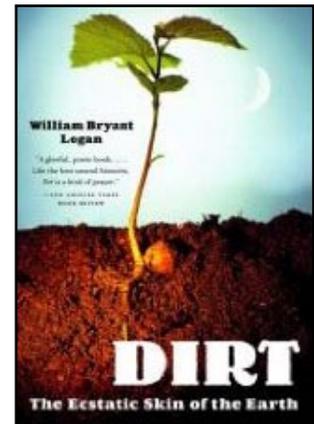
Documentary tells the story of dirt in a movie with 'heart and soil'

A new documentary film *Dirt! The Movie*, to be released later this year, tells the story of soil and how humans have related to it over the millennia. Inspired by William Bryant Logan's book *Dirt: The Ecstatic Skin of the Earth*, the documentary "takes a humorous and substantial look into the history and current state of the living organic matter that we come from and will later return to," the producer's website says.

Dirt! The Movie was made by Common Ground Media Inc., a non-profit foundation that states its mission as "producing innovative media projects that open new paths for understanding and creating a sustainable future." The movie poster describes the documentary as "a story with heart and soil." It was filmed at locations in India and the United States.

Screened at this month's Sundance Film Festival, the movie is winning praise from critics. "An invigorating look at an invaluable substance we take for granted that makes the case that dirt might be more alive than we are," Kenneth Turan wrote in the *Los Angeles Times*.

Learn more about the movie and the filmmaker at: <http://dirtthemovie.org/>



SANREM continues research on soil quality in Southeast Asia

Peter Motavalli, PI for SANREM's cross-cutting soil quality initiative, traveled to the Philippines and Indonesia in November and December to coordinate research and to train local partners in the use of a soil quality test kit. His visit included field sites in Lantapan, Philippines; and Nanggung, Indonesia.

In the Philippines, Motavalli met with officials at Central Mindanao University and the International Center for Research in Agroforestry (ICRAF), which with SANREM has introduced many successful conservation farming practices in the region over the past decade. Samples are being collected to evaluate changes in soil quality over time after conversion from forest to cultivated soils and to collect

baseline data on soil quality of cultivated fields before conversion to agroforestry buffer strips.

At Bogor Agricultural University in Indonesia, Motavalli met with faculty members and graduate students who will work on the soil quality project. Samples will be taken, and the field kit will be tested in the Nanggung region on representative crops of the region: paddy rice and organic and conventionally produced vegetables.

Motavalli's complete trip report is available at: <http://www.oired.vt.edu/sanremcrsp/documents/reports/MotavalliPhilippinesIndonesiaNov-Dec2008.pdf>



As a Peace Corps volunteer, Harry Rea (right) worked in Camaroon during the 1970s.

World Aquaculture Society honors SANREM representative Harry Rea

Harry Rea, USAID's agreement officer's technical representative for SANREM, has been recognized with a lifetime achievement award from the World Aquaculture Society. The citation was given "in recognition of longstanding and significant contributions to aquaculture."

Rea, who holds master's degrees in aquaculture and agricultural economics from Auburn University, has a broad background in development service. A Peace Corps volunteer in Cameroon in the 1970s, he was subsequently appointed director of aquaculture training in Zaire. He went on to positions in which he has overseen nearly \$40 million in aquaculture research and development activities. He is currently USAID's technical liaison with the WorldFish Center.

Rea's award citation is available at:

<http://www.oired.vt.edu/sanremcrsp/documents/HarryReaAward.ppsx>

Rea's SANREM title was formerly cognizant technical officer (CTO). USAID recently changed the designation for this position to agreement officer's technical representative (AOTR).

Report describes Nigeria's sustainable agriculture successes

A 2008 report "Soil conservation in Nigeria: Past and present on-station and on-farm initiatives" offers evidence that practices like those being studied by SANREM researchers can effectively lower the risks of water runoff and soil erosion in agricultural land.

The report describes how techniques such as mulching, conservation tillage, cover cropping, and use of contour hedges also improve soil quality by enhancing organic matter and increasing activity by beneficial fauna such as earthworms and microorganisms. Targeted to researchers, extension agents, policymakers, and development organizations, it also raises questions about why proven technologies have not been adopted.

The 28-page report begins with a brief history of soil conservation in Nigeria, followed by descriptions of agronomic conservation strategies, conservation tillage, mechanical measures, and other approaches including agroforestry and crop diversification. It includes detailed figures and tables, and more than 200 references. The authors conclude that the most effective soil conservation measures are site-specific, depending on the topography, soil texture, availability of water from rainfall or irrigation water, and the particular crop system. Besides the benefits of various techniques, the report describes potential drawbacks, including added costs in time and labor.

Authors of the report are Birte Junge, Robert Abaidoo, and David Chikoye of the International Institute of Tropical Agriculture in Nigeria; and Karl Stahr of University of Hohenheim, Germany. Their research was funded by the German Federal Ministry for Economic Cooperation and Development. The full report, published by the Soil and Water Conservation Society, is available at:

<http://www.swcs.org/documents/filelibrary/SoilConservationInNigeria.pdf>

Diversity program offers fellowships for African women scientists

Sixty fellowships are being offered to African women scientists by the Gender & Diversity Program of the

Consultive Group on International Agricultural Research (CGIAR) for research in 14 fields of study. The goal of the two-year African Women in Agricultural Research and Development (AWARD) fellowships is to fast-track the careers of women scientists and professionals by giving them opportunities to strengthen their leadership and research capacities.

Each Fellow will be paired with senior scientists in her field who will serve as mentors. The 2009 fellowships are available at post-bachelor's, post-master's, and post-doctorate levels to women from Ethiopia, Ghana, Kenya, Malawi, Mozambique, Nigeria, Rwanda, Tanzania, Uganda, and Zambia.

Researchers in the following disciplines may apply: crop sciences (including horticulture), soil sciences, animal and livestock sciences, plant and animal virology, agroforestry, agricultural economics, aquatic resources and fisheries, food sciences and nutrition, natural resource management and ecology, biodiversity conservation, entomology, agricultural extension education, molecular biology (applied to plant/animal breeding), and water and irrigation management. The deadline to apply for the 2009 fellowships is March 30.

AWARD grew from a pilot fellowship program conducted by the Gender & Diversity Program in collaboration with the Rockefeller Foundation, USAID, and the Syngenta Foundation for Sustainable Agriculture. Its aim is to fight hunger and poverty in sub-Saharan Africa by:

- strengthening science and leadership skills
- enhancing visibility and networking, and
- increasing opportunities to share newly acquired skills, helping to inspire the next generation of women scientists in Africa.

Details and application forms are available online at: <http://www.genderdiversity.cgiar.org/resource/award.asp> or by e-mailing AWARDFellows@cgiar.org

Research highlights

Following are highlights from annual reports for Year 4 of SANREM's five LTRA projects. Details, including research strategies and accomplishments by objective, will be available in the *SANREM CRSP 2008 Annual Report*.

LTRA-1: Decentralization Reforms and Property Rights

Lead PI: Elinor Ostrom

- Partners in Uganda won the prize for the best

case-study analysis at the 12th Biennial Conference of the International Association for the Study of the Commons. The paper, "Multi-Stakeholder Governance in Land and Forestry in Uganda: Conflict Mitigation, Scale, Knowledge and Collective Action," presented findings from the project's Mabira site.

- The role of women in forest governance in the two study regions of Africa and Latin America appears to vary significantly, with no female-dominated community groups found in the Latin American countries but numerous well-established women's groups in Kenya and Uganda. This suggests an insufficient voice for women in forestry management in Latin America.

LTRA-2: An Agricultural Markets Model for Biodiversity Conservation

Lead PI: Alex Travis

- "It's Wild!" brand peanut butter has increased market contracts and profits due to SANREM research on lipid emulsification and particle size, as well as experiments with product packaging, which together have improved product quality and shelf life.
- Preliminary data show that poultry production can increase and be stabilized through a community-operated vaccination program against endemic Newcastle Disease.
- "Willingness to pay" survey results quantified the value of different classes of wildlife and conservation activities. These results, which provide an economic value for wildlife conservation, will assist with Zambian Wildlife Authority management activities.

LTRA-3: Watershed-based NRM for Small-scale Agriculture

Lead PI: Jeffrey Alwang

- Researchers are using calibrated watershed models for sites in Ecuador and Bolivia to estimate the effects of alternative land management systems on runoff and water quality at the watershed scale. Results are being used to evaluate alternatives and as input into community decision making.

LTRA-4: Practices and Strategies for Vulnerable Agro-ecosystems

Lead PI: Corinne Valdivia

- A large-scale analysis of 21st century changes in the South American Monsoon has been performed and suggests weakened early-season rains and stronger precipitation in January through March.
- The use of organic amendments such as fertilizer was shown to improve soil properties, increase production, and meet community acceptance. Use of alternative organic amendments and commercial fertilizer to supplement conventional organic amendments such as animal manure may be important to reduce soil degradation.
- Research indicates that farm households where decision making is shared equitably between men and women have higher incomes.

LTRA-5: Agroforestry and Sustainable Vegetable Production

Lead PI: Manuel Reyes

- Research indicates that for several vegetables, yields are higher in agroforestry systems than in open field conditions.
- An extensive evaluation of the water application uniformity of a low-cost drip irrigation system was completed, resulting in publication of guidelines for steep slopes and prompting the manufacturer to accelerate its drip-kit redesign to achieve better water application uniformity.
- Researchers found that vegetable agroforestry policies tend to benefit rich farmers more than poor farmers. Hence, there is a need to alert decision makers to revise policies to address this bias.

Kudos

Le Thanh Loan has been selected for a 2008-09 Eurasia scholarship through the European Union's Erasmus Mundus External Cooperation Window. Loan, a partner in LTRA-5 and a member of the economics faculty at Nong Lam University in Vietnam, will study for 34 months at Wageningen University in the Netherlands.

2009 calendar

DATE	EVENT
March 30	Application deadline, AWARD Fellowships
April 15	Phase III LTRA six-month progress reports due
May 27-29	LTRA-5 TMPEGS-Philippines meeting, Lantapan, Mindanao
June 3-5	LTRA-5 TMPEGS-Vietnam meeting, Nong Lam University and Nghia Trung village
June 10-12	LTRA-5 TMPEGS-Indonesia meeting, Nanggung
July 14, 2009	SANREM Conservation Agriculture Symposium, Soil and Water Conservation Society
Late August or early September	SANREM CRSP 2009 Annual Meeting, United States