

**Sustainable Agriculture and Natural Resource Management
Collaborative Research Support Program (SANREM CRSP)**

**Request for Phase IV Long-Term Research Award
Applications**

Date of Release: July 6, 2009
Applications Due Date: September 2, 2009
Announcement of Selections: October 7, 2009



This request for applications is issued by the:

Management Entity (ME) of the SANREM CRSP
Office of International Research, Education, and Development (OIRE)
Virginia Polytechnic Institute and State University
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Request for Applications:

SANREM CRSP Phase IV
Long-Term Research Awards (LTRAs)

Notice: Funding and awards under this RFA are subject to final USAID approval of the Oct. 1, 2009 to Sept. 30, 2014 SANREM CRSP Phase IV extension.

LTRA Updates: Updates and modifications to the Phase IV LTRA RFA, if any, will be posted at: http://www.oired.vt.edu/sanremcrsp/menu_research/longtermPhaseIV.php. The website will also contain supplemental information and guidance, required application forms and budget templates, and answers to frequently asked questions about the RFA and LTRA program. If you would like to receive immediate notifications of RFA modifications, answers to questions asked by others, and other updates, please join the SANREM RFA listserv using the following instructions:

1. Address a new email message to listserv@listserv.vt.edu.
2. In the body of the message, type: *subscribe sanrem_rfa [Your First Name & Last Name]*
3. Send the e-mail message.

Due Date

All applications must be received in both paper and electronic format by the close of business on Wednesday, September 2, 2009 (5 p.m., Eastern Daylight Savings Time). Applications received after the deadline will not be considered for funding.

Eligibility

This RFA is open to all Title XII U.S. universities and their partner institutions. Title XII universities are defined as universities that benefited from the First and Second Morrill Acts (1862/1890), sea-grant colleges designated by the 1966 Act, Native American land-grant colleges, and “other United States colleges and universities which (1) have demonstrable capacity in teaching, research, and extension activities in the agricultural sciences; and (2) can contribute effectively to the attainment of the objective of this title.” The lead institution submitting the application must be a U.S. Title XII university.

Program Description

The Sustainable Agriculture and Natural Resource Management (SANREM) Collaborative Research Support Program (CRSP) implements multidisciplinary and multi-institutional applied research that mobilizes science and technology, fosters innovation and improvement in the social, economic, and environmental sustainability of agriculture and natural resource management, and leads to improved food production, secure livelihoods, and expanded trade opportunities and capacities for stakeholders. After consulting with USAID/Washington, other USAID missions, and a large number of SANREM CRSP stakeholders around the world, the following research theme was chosen for SANREM CRSP Phase IV:

Increasing smallholder food security through the introduction of conservation agriculture production systems (CAPS).

SANREM CRSP Phase IV research and capacity building activities will develop and demonstrate locally sustainable CAPS for smallholder rain-fed crop production systems that improve food security and the productive capacity and ecosystem services of degraded and productive agricultural lands. These agro-silvo-pastoral production systems must include a substantial component of staple crop production. The challenge for this research effort is twofold:

- (1) develop appropriate CAPS technologies adapted to targeted rain-fed staple crop smallholder production systems; and
- (2) identify and test effective mechanisms and strategies through which smallholders can transition to sustainable CAPS.

SANREM CRSP Phase IV research will seek to identify and optimize locally appropriate CAPS that:

- maintain, to the extent possible, a year-round soil cover provided by residues from previous crops and/or a cover crop intended to improve food production and soil quality;
- minimize soil disturbance by tillage. Tillage should only be used 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 that have been adapted to local socioeconomic and environmental conditions for the improvement of soil quality/health and control of agricultural pests. The rotation system must include a principal staple crop of the research region;
- utilize integrated pest management (IPM) options to minimize pesticide use for pest and weed control, improve profitability, and minimize potential environmental consequences;
- utilize integrated nutrient management (INM) techniques, using organic and inorganic fertilizers to improve agricultural productivity, profitability, and soil quality;
- utilize improved water management techniques, such as deficit and supplemental irrigation and other intensification techniques, to improve smallholder agricultural productivity and profitability.

The new CAPS knowledge and technological innovations generated will address food security, economic and social (including gender) viability, soil quality, water productivity, and other ecosystem service issues. For the purpose of this RFA, smallholders are loosely defined as agricultural producers in developing countries whose farm units are managed primarily by family labor and whose cultivated land holdings are relatively small (<1 ha for high population density areas with favorable production conditions to 10 ha or more in semi-arid regions). Smallholders also currently employ few external inputs. Targeted production systems will be in both degraded and productive lands of major agro-ecosystems dominated by rain-fed agriculture with or without supplemental irrigation (more crop per drop) in food-insecure areas of East, West, and Southern Africa; South and Southeast Asia; and Latin America and the Caribbean. The purpose of the proposed research is to test the ability of CAPS to:

- increase food production in existing smallholder staple crop production systems;
- become adoptable and economically viable for smallholders;
- enhance the productive capacity of smallholder soils; and

- enhance ecosystem services through improvements in soil quality that promote carbon sequestration, reduce soil erosion, and reduce risks associated with climate change through improved water management and productivity.

The goal is to improve smallholder food security in each targeted region through the development and dissemination of new technologies and knowledge.

Long-term research award (LTRA) applications must be led by a U.S. Title XII university and include a partnership of appropriate host country public sector institutions, NGOs, IARCs, and private sector organizations. Funding for each LTRA will be in the range of \$258,000 to \$277,000 per year for five years due to differences in travel cost associated with each region. There will be a comprehensive external evaluation at the beginning of year three to determine continuation of project funding in years four and five. Proposed activities must leverage funding through partnerships with other organizations and show a minimum of 25% cost-share on non-exempt funding. Items exempted from cost-share include: (a) funds committed under the terms of a formal CRSP host country sub-agreement, including funds for facilities, host country personnel services, and equipment and commodity purchases by a participating U.S. institution for use by a host country entity or by the U.S. institution in a host country; (b) costs for training of participants as defined in ADS 253; and (c) hospital and medical costs of U.S. personnel of the CRSP while serving overseas.

There will be six competitively selected LTRAs, with at least one LTRA in each region listed below. Each LTRA, which will focus on an existing major agricultural production system characteristic of its region that is suitable for a CAPS approach, will involve two or more countries in each region. Host country partners and research sites must be situated in countries with (1) USAID missions/programs, (2) significant food insecurity, and (3) social/political stability required for quality research. Applications for other countries are possible if they meet these criteria. Maximum 5-year budgets for each region and priority countries for each region are indicated in the table below. Annual budgets should be approximately one-fifth the 5-year maximum budgets listed.

Region	5-Year Budget Maximum	Priority Countries
East Africa	\$1,385,000	Burundi, Ethiopia, Kenya, Rwanda, Southern Sudan, Tanzania, Uganda
Latin America and Caribbean	\$1,290,000	Bolivia, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Peru
South Asia	\$1,385,000	Bangladesh, India, Nepal, Sri Lanka
Southeast Asia	\$1,325,000	Cambodia, Indonesia, Laos, Philippines
Southern Africa	\$1,385,000	Angola, Madagascar, Malawi, Mozambique, Zambia
West Africa	\$1,350,000	Ghana, Liberia, Mali, Senegal

All SANREM-supported activities will be conducted in compliance with the SANREM Policy and Operating Procedures (POP) Manual. The POP Manual describes the organizational and governance structure of the SANREM CRSP as well as SANREM policies and operating

procedures, and is available at: [http://www.oired.vt.edu/sanremcrsp/documents/SANREM_CRSP_POP_Manual - May 2008.pdf](http://www.oired.vt.edu/sanremcrsp/documents/SANREM_CRSP_POP_Manual_-_May_2008.pdf).

The SANREM CRSP Approach

The SANREM CRSP conducts applied research and knowledge dissemination activities in collaboration with host country scientists and decision makers for the enhanced food security and economic, social, and environmental well-being of developing country populations. The approach is collaborative and implies collaboration between U.S. universities and host country public institutions and other partners. It is also a participatory approach where all stakeholders, including disadvantaged groups, have a role in contributing to problem identification, research design and implementation, and final research and development outcomes. SANREM CRSP's program strategy is based on promoting stakeholder empowerment and improved livelihoods through the discovery, organization, and dissemination of sustainable agriculture (SA) and natural resource management (NRM) knowledge.

Gender: Consideration of gender and the needs of women and other marginalized groups is a fundamental component of the SANREM CRSP approach. SANREM encourages decision makers to think and act in a gender-sensitive manner, and to mainstream gender and the needs of underrepresented groups in all issues related to SA and NRM. Agriculture and natural resources cannot be sustainably managed unless these conditions are met during research design and implementation. The SANREM CRSP approach explores how linkages between gender and the most vulnerable sectors of the population through biophysical, technology, governance, economic, social, environmental, and globalization factors can be used to achieve sustainable development. Participant training programs will include degree and non-degree training plans targeting women and other underrepresented groups.

Partnerships: All applications must include strong partnerships between U.S. universities and host country public institutions (universities, national research institutes, and ministries), and additional partnerships with non-governmental organizations (NGOs), International Agricultural Research Centers (IARCs), and the private sector as appropriate. Local community participation is the foundation for all of these partnerships and will be expected in all applications. Without the insights and active contributions of local user groups, successful adoption and dissemination of developed technology is unlikely. Signed institutional commitments are required from collaborating U.S. and international institutions. If the application is selected, Memorandums of Understanding (MOU) will need to be developed with the host country institutions. Activities should seek to leverage funding through partnerships with other organizations

Individuals and organizations interested in participating in SANREM CRSP activities may visit the SANREM CRSP partnering web site and provide a brief description of their capacities, areas of interest, regional preferences, and contact information. Those seeking partners can then visit the website to identify potential partners. A list of contacts for IARCs is also available on the SANREM CRSP website for identifying potential IARC collaborators. The partnering website is located at http://www.oired.vt.edu/sanremcrsp/menu_resources/partneringresources.php.

Capacity Building: Host country capacity building, particularly of the public sector, is a critical component of the SANREM CRSP. Capacity building is accomplished through long-term degree

training in U.S. and host country universities, research sabbaticals for host country and U.S. scientists, and short-term conferences, workshops, seminars, and field days designed to disseminate SANREM generated knowledge. While the principal goals of SANREM CRSP efforts are applied research and scientific capacity building, public institutional capacity building for sustained host country scientific research, science-based policy and decision making, enhanced local innovation, and the introduction of improved agricultural and natural resource management practices into farmer production systems and communities are also important.

USAID Mission Consultation: SANREM CRSP researchers are expected to develop applied research programs in support of USAID mission strategic objectives in the countries in which they are working. It is essential that USAID missions be consulted during the development of LTRA applications to ensure that the mission will not object to LTRA implementation if approved for funding. Applicants will indicate in their proposals that such mission consultation has occurred. The SANREM CRSP ME will verify this consultation for successful applicants after the selection process. The SANREM CRSP ME and USAID Agreement Officer Technical Representative can assist applicants in making contact with appropriate USAID mission personnel.

SANREM Knowledge Base: All SANREM award recipients are required to contribute to the SANREM Knowledge Base (SKB). The SKB is a key component of the SANREM CRSP. It organizes SA and NRM knowledge into an online searchable database that enables users of the SKB to quickly locate information (articles, reports, books, projects, presentations, photos, videos, etc.) using keywords and other criteria. All knowledge developed through the SANREM program is accessible via the SKB. Award recipients are required to develop metadata describing all their knowledge products, and to upload their products (unless copyrighted) and associated metadata to the SKB. Details on the SKB are available at http://www.oired.vt.edu/sanremcrsp/menu_information/SKB.php.

Technical and Programmatic Considerations for Long-Term Research Award Applications

Long-term research awards are the heart of the SANREM program. LTRA recipients will identify, investigate, and develop optimal implementations of CAPS designed to increase smallholder agricultural production, reduce food insecurity, improve soil quality, and enhance ecosystems services. Developed CAPS must be adapted to local agro-ecozones and socioeconomic systems through researcher- and farmer-managed field trials involving user groups. The CAPS must also be consistent with local input and output networks. Research in farmer-managed fields is essential to address constraints to smallholder CAPS adoption and sustainability, and extensive farmer involvement in the development and adaptation of the technology is expected if successful adoption is to occur. Therefore, factors facilitating or constraining introduction of CAPS technologies and practices must be identified and a viable strategy for introducing and maintaining sustainable performance sought. This will most likely involve working with stakeholders (farmers and farmer organizations) at the community level and developing support from policy and marketing systems. Phased introduction and dissemination strategies to maximize impact are expected.

Research Goals, Problem Statement, Hypotheses, and Methodology: SANREM Phase IV research goals are to:

1. increase agricultural productivity and food security;
2. build on existing practices and conservation agriculture experiences in the region;
3. engage in the development, testing, and adoption of locally relevant CAPS involving minimum tillage, soil cover, and crop rotations;
4. develop an approach that promotes incentives and opportunities for diverse local innovation strategies; and
5. quantify the socioeconomic and biophysical impacts of researched CAPS versus traditional cropping systems.

Applications are expected to include a clear and concise problem statement(s), testable hypotheses and/or research questions, and research methodology that tests the hypotheses and/or answers the research questions.

Issues that LTRAs might address include, but are not limited to, the effects of CAPS relative to traditional practices on: crop/livestock yields, smallholder income, smallholder health/nutrition, labor (male, female, and child) and input requirements, soil carbon, soil bulk density/porosity, soil cover, water productivity, soil fertility levels, pest levels and required pest management over time, crop/livestock nutrient recycling systems, provision of required forage, soil biodiversity, control of livestock disease and zoonoses, weed and insect management, erosion control, carbon sequestration in soils, market-led intensification, women's spaces/gardens, mitigation of risks associated with climate variability and change, the benefits of supplemental and deficit irrigation for smallholders, external enabling conditions required for successful CAPS, organic versus non-organic CAPS, agroforestry CAPS, and the effects of widespread adoption of CAPS on hydrologic and other ecosystem services.

Cross-Cutting Research Activities (CCRAs):

Each LTRA will collaborate with and contribute to cross-cutting research activities (CCRAs) managed by a SANREM CCRA Leader. In contrast to the in-depth, locally adapted LTRA research, the purpose of the cross-cutting research activities is to synthesize selected findings across LTRA sites and globally. Each CCRA will involve a standardized research protocol developed by the designated CCRA leader in collaboration with the LTRA PIs, which will then be integrated with LTRA activities. To the extent possible, data needs for the various CCRAs will be met through LTRA data collection activities. The CCRAs include:

- Economic and impact analysis
- Gendered knowledge
- Soil quality and carbon sequestration
- Technology networks

Details on the individual CCRA research goals, methodologies, and minimum CCRA data requirements are available in an appendix to this RFA and on the SANREM CRSP Phase IV RFA website. Your LTRA application should budget for and include plans for the collection of the specified minimum CCRA data. Please contact the designated SANREM CCRA Leaders with questions concerning the CCRAs and minimum CCRA data collection requirements.

Baseline Survey: Each LTRA should conduct an initial socioeconomic and biophysical baseline survey to refine their research plans and collect data on baseline conditions for use in impact analyses of the LTRAs and CCRAs.

Research Teams: Each LTRA team will include a minimum of one U.S. biophysical scientist and one social scientist matched with collaborating host country scientists. These scientists are expected to bring world-class knowledge and experience to combat the local obstacles to using CAPS to improve agricultural productivity, food security, soil quality, and ecosystems services. The specific CAPS research problems to be addressed should be identified in collaboration with host country partners and stakeholders (men and women farmers, private sector (input and output), and government services, etc.). Applications should demonstrate that PIs clearly understand the current state of knowledge concerning both the biophysical interactions of CAPS in the targeted environment and the socio-economic challenge of implementing CAPS practices among smallholders in the region. Their research plan should address these challenges and include a plan for building community relationships and collaborative processes, with a focus on how social and biophysical components will work interdependently. The research activity should also be designed to be supportive of SANREM cross-cutting themes.

Mid-term Evaluation: There will be an external evaluation of research progress during year three to assess the likelihood of future project success and to determine continuation of project funding in years four and five. Minimum expected mid-term benchmarks will include: prototype CAPS demonstrating promising preliminary results; a fully-developed group/association of farmers and other stakeholders testing proposed CAPS or CAPS components; and evidence of likely project success demonstrated in semi-annual and annual reports. By the end of the project, conclusive findings on the viability of the proposed CAPS, including expected sustainability and impact, must be demonstrated. Application evaluations will heavily consider the likelihood of reaching conclusive findings within the proposed study period.

Training Plan: Long-term research applications must contain both a degree and a short-term training plan. Collaborative efforts that involve graduate students are especially encouraged. Applications must present a year-by-year plan for participant training with a rationale explaining how the training will support the sustainability of project results. All SANREM-supported host country/non-U.S. resident degree or short-term training participants are required to obtain J-1 visas to enter the U.S. They must also be entered into the TraiNet System. J-1 visas must be obtained before SANREM funds can be used to support student trainees who originally entered the U.S. on non-J-1 visas. SANREM CRSP funding can only be used to support U.S. and host country students and trainees. Use of SANREM funds for non-U.S. and non-host country students is allowed only under exceptional circumstances and must be approved in advance by the SANREM program director and USAID. All SANREM-supported students must be engaged in SANREM CRSP research.

Participatory Approach: The proposed research approach must be participatory and facilitate interactions among all stakeholders, resource users (men, women, farmers, fisherfolk, herders, foresters, etc.), scientists, extension workers, agricultural marketing agents, and USAID personnel among others. A description of the participatory process used in developing the application (host country workshops, rapid rural appraisals, interviews with key stakeholders, etc.), and how resource decision makers at multiple levels will be involved in project

implementation, must be provided.

Outreach Plan: In order to facilitate dissemination of developed CAPS, institutions and policies need to be identified, and promoted when possible, for creating and disseminating the new knowledge and skills (e.g., farmer associations, farmer field schools, new university curricula). Building on links to local knowledge nodes (e.g., public agencies such as extension offices, research institutes, and universities; input suppliers; and NGOs) is essential.

Outcomes: The expected outcome of the technologies and practices developed and demonstrated through this research program is increased agricultural productivity and food security through improved cropping systems that contribute to and take advantage of improved soil quality and fertility. The additional expected outcomes may include:

- increased soil organic matter levels, which are required for effective utilization of agricultural inputs, to levels that are characteristic of higher-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 increased sequestered carbon levels in soils;
- 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 to support wide-scale CAPS adoption while 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).

Minimum Award Requirements

To be considered for review, all applications must meet the following minimum requirements:

- The institution submitting the application and leading the activity must be a U.S. Title XII university.
- At least 50% of funding must directly support research and capacity building of host country partners. The following types of expenditures by U.S. universities fall into this category:
 - direct funding to host country institutions through subawards;
 - funds spent in the U.S. on behalf of the host country (e.g., equipment, materials, and supplies to be used by the host country partners);
 - support for host country graduate students or other host country partners (travel and training expenses);
 - travel and other expenses of U.S. investigators while working in host countries.
- Support a minimum of two graduate students (host country or U.S.) per year in the U.S. (at least 50% from the host country). In addition, their thesis research must be a component of the identified SANREM research problem. Host country students must be

from the country where the LTRA research occurs. Due consideration for gender balance of students is expected.

- Provide a minimum of 25% cost-share of non-exempt project funding. Items exempted from cost-share include:
 - funds committed under the terms of a formal CRSP host country subagreement, including funds for facilities, host country personnel services, and equipment and commodity purchases by a participating U.S. institution for use by a host country entity, or by the U.S. institution in a host country;
 - costs for training of participants as defined in ADS 253; and
 - hospital and medical costs of U.S. personnel of the CRSP while serving overseas.
- Include at least two U.S. PIs, one each from the biophysical and the social sciences, with each having a designated host country counterpart.
- Include a plan to integrate gender into the research program that specifies how gender relations affect the achievement of sustainable results, and how proposed results will affect the relative status of men and women.
- Include a letter of commitment from participating host country institutions, with the names of the collaborating scientists, their disciplines, and levels of effort detailed. If the application is selected, a Memorandum of Understanding (MOU) will be developed with the host country institution.
- Indication that mission consultation occurred.
- Include funds for at least three Co-PIs (including host country nationals) to participate in a three-day annual program meeting each budget year.
- Include funds and commit to sending two LTRA PIs (preferably the lead socioeconomic and biophysical research leaders) to the SANREM CRSP Phase IV Kick-Off Meeting which will be held in Blacksburg, Virginia Dec. 3 and 4, 2009.
- Signed SANREM CRSP Subawardee Assurances Agreement.

Instructions for the Preparation of Applications

Research award applicants are encouraged to visit the SANREM CRSP Phase IV RFA website (http://www.oired.vt.edu/sanremcrsp/menu_research/longtermPhaseIV.php) frequently for RFA amendments, answers to frequently asked questions, and partnering opportunities. .

- For all applications, indirect costs are limited to the federally negotiated off-campus research rate (with a maximum of 30%) applied to modified total direct costs for U.S. universities, international centers, and non-host country organizations. Host country institutions with a formal indirect cost rate may charge a maximum of 26%. Host country institutions without a formal indirect cost rate may charge an administrative fee not to exceed 10% of direct costs. No indirect costs or administrative fees are allowed on equipment and student tuition. **Applications with indirect costs exceeding federally negotiated off-campus research rate and/or those exceeding 30% will not be evaluated.**
- The applicant should provide a breakdown of the U.S. and host country expenditures in the budget justification.
- Annual work plans: Include a detailed annual work plan organized by project objectives for year one and anticipated annual work plans for years two through five.
- Results from prior CRSP support: If the PI(s) has received CRSP funding in the past five years, information on the prior award is required. If the proposer has received more than

one prior award, the proposer should provide the information requested for the award most closely related to the proposal:

- CRSP sponsoring the research, amount, and period of support;
- Title of the project;
- Project objectives and summary of the results of the completed work
- List of principal publications resulting from the award; and
- If the proposal is for renewal of an award, include a description of the relation of the completed work to the proposed work.

Reviewers will be asked to comment on the quality of the prior work described in this section of the proposal. Please note that a PI with prior support may use up to three additional pages to describe the results of previous CRSP research.

- **Capacity building:** Proposals must include information on capacity building of both the U.S. and host country at the institutional, postdoctoral, graduate, and undergraduate levels. This may involve, but is not limited to, the role of research in student training and course preparation and seminars (particularly for undergraduates). Special accomplishments in the development of professional scientists from groups that are currently underrepresented should be described.
- **Notice of intent to submit an application:** Prospective applicants are asked to email a notification of intent to submit an application by the close of business (5 p.m., Eastern Daylight Time) on July 27, 2009. The notification of intent to submit is not required and will not be considered during the review of a subsequent application. This confidential information will assist the SANREM CRSP ME in planning for the external review of applications. This email should include the following information:
 - Subject line of email should read “**SANREM LTRA – Intent to Submit.**”
 - Descriptive (draft) title of proposed research;
 - Name of the lead PI and contact information;
 - Names of other potential co-PIs and their affiliations;
 - 150-200 word abstract of the proposed research; and
 - Countries where the research is proposed.

Notice of intent emails should be sent to dillaha@vt.edu.

The SANREM CRSP has prepared a list of long-term research award application review questions, available on the SANREM CRSP Phase IV RFA website, to assist applicants in assessing how well their proposal meets SANREM CRSP objectives. Please use the review questions to assess the quality of your application and to determine how well your application meets the goals of the SANREM CRSP.

Organization and Format of Long-Term Research Award Applications

Applications for long-term research awards must contain the following elements:

1. **Cover Page:** (one page) Must include the name of the lead institution applying for the award and the name, title, mailing address, e-mail address, telephone, and FAX numbers of principal investigators.
2. **Project Abstract:** (one page) Must include the following:
 - a. Project title and names, titles, and affiliations of principal investigators
 - b. 150-200 word abstract

- c. 3-5 keywords describing the proposed research
 - d. Project period: October 1, 2009 to September 30, 2014
 - e. Targeted counties/region(s)
3. Technical Narrative: (20 page maximum, excess pages will be deleted) Must include the following:
- a. Introduction and justification
 - b. Problem statement and research objectives and questions
 - c. Literature review
 - d. Methods to be used in carrying out the proposed project, including the feasibility of the methods (clearly describe the systems thinking used in the project methodology and the contribution of trans-disciplinary approaches)
 - e. Expected outcomes, including how the project expects to contribute to long-term profitability and sustainability of specialty crops
 - f. Means by which results will be analyzed, assessed, or interpreted
 - g. How results or products will be used
 - h. An outreach plan including, where appropriate, science-based tools disseminated, participants involved in delivery, and how impacts will be measured
 - i. Pitfalls that may be encountered
 - j. Limitations to proposed procedures
 - k. Environmental impacts. Describe any project activities that may be hazardous to personnel or the environment (e.g., use of any pesticides, genetically modified organisms, deforestation activities, discharge of wastes) along with an outline or precautions to be exercised to avoid or mitigate the effects of such activities. Use of any pesticides or GMOs or other activities that negatively impact the environment will require subawardee preparation of an Initial Environmental Examination (IEE) as defined by 22 CFR 216 and IEE, and approval by the ME and USAID of before the proposed activities can be implemented
 - l. Contribution to USAID Mission objectives
 - m. Training plan
 - n. Schedule of critical tasks and proposed outcomes
 - o. Roles and responsibilities of key personnel and partner organizations.
4. Results from prior CRSP support (three page maximum)
5. Literature cited
6. Statement of institutional experience in the proposed region(s)/country(s) (one page)
7. Curriculum Vitae for Lead PI, Co-PIs, and key personnel (two page maximum per CV)
8. Letters of commitment from partners and collaborating institutions
9. Statement of consultation with relevant USAID Missions
10. Budget with cost-sharing indicated using the appropriate SANREM CRSP budget form
11. Budget and cost sharing narrative and additional sources of support (if any)
12. Required ME and USAID forms (blank forms/templates are available at: http://www.oired.vt.edu/sanremcrsp/menu_research/longtermPhaseIV.php)
- a. SANREM CRSP Subawardee Certifications and Assurances Agreement
 - b. Part I - Certifications and Assurances
 - c. Part II - Other Statements of Recipient
 - d. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion Lower Tier Covered Transactions
 - e. Key Individual Certification Narcotics Offenses and Drug Trafficking

- f. Participant Certification Narcotics Offenses and Drug Trafficking
- g. Self Certification Letter
- h. Certification Regarding Terrorist Financing Implementing E.O. 13224 (Rev. 2)
- i. Negotiated Indirect Cost Rate Agreement for your university

In addition to submission of the research application in paper form:

- Items 1-7 and the budget narrative from Item 11 must be submitted electronically as a single Microsoft Word document.
- Items 8 and 9 may be submitted in PDF or other readable format.
- Items 10 should be submitted electronically as Microsoft Excel or PDF document.
- Item 11, the SANREM CRSP budget form, must also be submitted electronically as a Microsoft Excel file.

Format (Items 2 to 7):

Paper size: standard 8.5” x 11”

Line spacing: single spaced

Margins: 1 inch on all sides

Font: Times New Roman

Font size: 12 point

WARNING: Page, font, and margin requirements will be strictly enforced.

How and Where to Submit

Applications must be submitted both electronically through e-mail and in paper format (7 copies). Electronic applications should be submitted to sanrem@vt.edu and should have “**SANREM Long-Term Research Award Application**” in the subject line.

Applicants are encouraged to submit completed paper applications via overnight mail or delivery service to ensure timely receipt by the SANREM CRSP. The address for hand-delivered applications or applications submitted using an express mail or overnight courier service is:

SANREM CRSP Competitive Grants Program
Theo Dillaha, Program Director SANREM CRSP
Office of International Research, Education, and Development (0378)
International Affairs Offices
526 Prices Fork Road, Suite 211
Blacksburg, Virginia 24061
Phone: 540-231-1230

Seven (7) paper copies of the application are required. The receipt of all applications will be acknowledged by e-mail.

Appendices

SANREM CRSP Phase IV LTRA Application Evaluation Criteria

Each application meeting the minimum requirements will be evaluated using the following review criteria:

Understanding of Research Problem and Issues (16)

- Knowledge of current research on conservation agriculture practices (4)
- Knowledge of agriculture in the proposed research region (4)
- Knowledge of local social, economic, and cultural constraints and opportunities (4)
- Knowledge of strategies for promoting technological change in smallholder communities (4)

Quality of Research Program Design (25)

- Appropriateness of research methods (10)
- Project feasibility (potential for attainment of project objectives and deliverables) (5)
- Strong and balanced collaborative team (5)
- Creative and original concepts (5)

Quality and Pertinence of Proposed Capacity Building (20)

- Plan for student and other training/capacity building (5)
- Plan for women and other underrepresented groups in training/capacity building (5)
- Proposed institutional capacity building (5)
- Plans for integration of local knowledge and participatory learning (5)

Participation and Equity Issues (15)

- Role for community level partners (5)
- Balanced gender and minority participation at all levels (5)
- Gender sensitive activity planning (5)

Potential Research and Development Impacts (24)

- Fit with USAID Mission objectives (6)
- Potential of proposed research and capacity building activities to enhance food security in the region (6)
- Potential for scaling up and out beyond the study region (6)
- Potential of proposed research and capacity building to impact soil quality (6)

The External Evaluation Panel (EEP) reviewing these applications may recommend some modification to selected or high-ranking proposals. Our goal is to fund an LTRA in each region. If sufficient, high-quality proposals from a region are not obtained, a proposal in that region will not be funded.

SANREM CRSP Subawardee Assurances Agreement

The authorized university/college representative and lead principal investigator must read and agree to the following (by answering yes to each item below).

We agree to:

- Yes No Submit annual work plans and the annual USAID performance monitoring indicators data by August 31 of each year.
- Yes No Submit semi-annual and annual progress reports by April 15 and October 15, respectively, of each year.
- Yes No Obtain J-1 visas through TraiNet for all host country students studying in the U.S. who are supported by SANREM, including those who entered the U.S. prior to SANREM support with non J-1 visas.
- Yes No Only provide SANREM CRSP financial support for students who are U.S. citizens, permanent residents, or host country nationals. Students from other countries may be cost-shared to the project.
- Yes No Follow SANREM's USAID Marking and Branding Policy in the publication of all papers, reports, articles, book chapters, and presentations, and provision of equipment to host country partners.
- Yes No Describe any project activities involving pesticides, genetically modified organisms, deforestation activities, or discharge of wastes. Such practices will require sub-awardees to prepare an Initial Environmental Examination (IEE) as defined by 22 CFR 216 and IEE and obtain approval by the ME and USAID before the proposed activities can be implemented.
- Yes No Comply with SANREM CRSP pipeline policies which de-obligate unexpended funds from the previous year's budget (carryover) exceeding 10% of the previous year's allocation. Exceptions may be made if they are requested in writing 30 days before the end of the budget year and approved by the ME.
- Yes No Provide copies of all project-generated information resources to the ME, enter metadata on the resources into the SANREM Knowledge Base (SKB), and upload the actual information resources (if they are not copyrighted) to the SKB as they are developed/published.
- Yes No Provide the ME with all data, associated metadata, and materials generated through SANREM CRSP funding within six (6) months of the termination

of the LTRA. At the request of LTRA PIs, data may be kept confidential for up to one additional year.

We understand that failure to comply with these items will result in either withholding of invoice reimbursements until compliance is achieved or termination of the award.

Signatures:

Principal Investigator

Date

Print name

Authorized University/College Representative

Date

Print name

Performance and Outcomes Indicators

The SANREM CRSP is part of USAID's overall program to increase food security, rural livelihoods, and sustainable natural resources management in developing countries. In the interests of accountability, SANREM will document progress toward achievement of USAID development objectives. All SANREM activities will conduct baseline surveys during the first six months to define existing conditions, challenges, and opportunities that the research will seek to address, and to establish baseline indicators against which program impacts will be measured. LTRAs will use the following performance monitoring indicators, as appropriate to their research activities, as measures of research progress and program impact. The indicators are adapted from the USAID Initiative to End Hunger in Africa (IEHA) and Foreign Assistance Framework indicators.

Beneficiaries

- Increases in smallholder income
- Improved nutrition of smallholder families (increase in caloric and protein intake)
- Health benefits (reduction in malnourishment)
- Number of rural households benefiting directly from interventions
- Number of vulnerable households benefiting directly from interventions
- Number of partner organizations and active institutional members of those partner organizations
- Number of agriculture-related firms benefiting directly from interventions
- Number of producer organizations, water user associations, trade and business associations, and community-based organizations assisted/benefiting
- Number of women's organizations/associations assisted/benefiting
- Number of new public-private partnerships formed/benefited
- Number of ongoing public-private partnerships assisted/benefited

Training

- Male participation in short-term training
- Female participation in short-term training
- Male participation in long-term training
- Female participation in long-term training

Technologies

- Increase in crop yields
- Decrease in production costs
- Technologies under research
- Technologies being field tested
- Technologies available for transfer
- Hectares under new technologies
- Number of farmers adopting new technologies
- Number of processors adopting new technologies
- New surveillance systems

Policy development

- Policy studies undertaken
- Policy studies disseminated
- Number of institutions/organizations assessed
- Number of institutions/organizations undertaking capacity/competency strengthening as a result of SANREM assistance
- Number of institutions/organizations mature/viable in the competency areas strengthened as a result of SANREM assistance
- Number of policy reforms/regulations/administrative procedures presented for legislation/decrees as a result of SANREM assistance
- Number of policy reforms/regulations/administrative procedures prepared with SANREM assistance passed/approved
- Number of policy reforms/regulations/administrative procedures passed for which implementation has begun with SANREM assistance
- Number of policy reforms/regulations/administrative procedures drafted and presented for public/stakeholder consultation as a result of SANREM assistance
- Number of policies/regulations/administrative procedures analyzed as a result of SANREM assistance

Checklist for Evaluating Gender Components in SANREM Proposals

Women are the poorest of the poor but have less access to the resources necessary for building sustainable livelihoods. They have gender-specific roles, carry out the majority of agricultural labor in many parts of the world, harbor a wealth of gendered knowledge relevant to conservation and agriculture, and are often the primary conservators of biological diversity. Increasing women's access to knowledge, rights, and control over natural resources can further the goals of conservation agriculture.

SANREM CRSP is committed to promoting gender equity, and to making a significant contribution to knowledge of gender issues in the field of SA and NRM. Proposals and ongoing progress will be evaluated on that basis. In addition to integrating gender in the overall project proposal and budget, funds must be set aside for participation in a SANREM-wide cross-cutting gender research program. Teams must budget for a social scientist with expertise in gender analysis and participative methodologies who will serve as the lead for gender research, for gender capacity building, and to work with the ME gender coordinator on cross-cutting initiatives.

As a USAID funded project, SANREM CRSP is mandated to strive to ensure that at least 50% of the beneficiaries are women. The composition of research teams, and both long and short-term trainees, should reflect this. Reports of training activities, and all other research data, must be disaggregated by gender. If you cannot achieve gender parity, you will need to provide justification or, when possible, find a creative way around constraints. Constraints should be anticipated, and the proposal should reflect this and include a gender strategy to address them. The strategy must show how participation issues as well as gender analysis of preliminary data will be factored into workplans with the aim to increase gender equity and benefits to women and other vulnerable sectors of the population. Elements range from the basics (selection of training topics, times, location, trainers, and participants) to considering how gender disaggregated data are used in planning for research and extension.

Keep in mind that two overarching questions are asked by the USAID Automated Directives System (ADS) that need to be addressed in a gender analysis:

- (1) how will gender relations affect the achievement of sustainable results; and
- (2) how will proposed results affect the relative status of men and women?

Addressing these questions involves taking into account not only the different roles of men and women, but also the relationship and balance between them and the institutional structures that support them.

For guidance on integrating gender into your proposal and research, see SANREM's gender webpage (http://www.oired.vt.edu/sanremcrsp/menu_resources/gender.php). It contains information on the following topics:

- Principles for integrating gender into agriculture-based projects
- SANREM CRSP principles for integrating gender
- SANREM gender assessment guidance

- Bill & Melinda Gates Foundation Gender Impact Strategy for Agricultural Development
- USAID Women in Development website link
- Department for International Development Gender Manual
- Managing Ecosystems and Resources with Gender Emphasis Conceptual Framework for Gender and Community-based Conservation
- Gender and community conservation
- Publications and articles on gender and development
- Link to OIRED Women in Development website

Methodology for Cross-Cutting Research Activities Comparative Analysis

It is expected that each LTRA will conduct participatory rural appraisals and household and community level baseline surveys of their targeted population. To the extent practicable, these activities should integrate the four cross-cutting research activities (CCRAs), at least at the primary research site. Each LTRA should identify a disciplinary-appropriate liaison for each CCRA and provide adequate funding for their activities.

Gender balance is expected in all data collection efforts. The recommended procedure for socio-economic/household baseline surveys is to utilize pairs of men and women interviewers (men interviewing the male head of household and women interviewing the female head of household). Single-headed households should be included in the baseline survey sample as well. Once baselines have been established, routine monitoring can be targeted to relevant population components as needed, until the final follow-up survey(s) are conducted in year five.

Survey activities will vary depending on the specific conservation agriculture research problems, research approaches, and critical site specific issues addressed and team composition. In all cases, collected CCRA “specific minimum data” will be shared with the SANREM CCRA leader. SANREM CCRA leaders will obtain approval from LTRA PIs prior to the release of any LTRA generated data and findings to insure that planned LTRA publications are not compromised. The CCRAs are designed to elicit and organize common elements that will help generalize and extrapolate findings to a wider range of sites and circumstances. To obtain reliable and valid comparability across LTRA sites, a balance is required between standardization of methodology and the flexibility to adjust for site and activity specifics. Some of the issues involved in standardizing CCRA methodologies include:

- Specified minimum data should be collected for each CCRA.
- Sampling procedures must account for primary sources of within-site variation at a level of aggregation that can demonstrate comparability across sites.
- Sample sizes should conform to disciplinary standards and methodologies.
- LTRA social scientists involved in applying qualitative methods should coordinate with the SANREM CCRA Leader to develop standardized methodology.
- Assessment of technology adoption will require a common set of indicators, measured in terms of gradation or scale (e.g., by individual CA practice, amount or percentage of farm land used, etc.).
- In order to achieve comparative results, standard methodologies will require clarification and agreement in year one.

Additional details on the individual CCRA research goals, methodologies, and minimum CCRA data requirements are available on the SANREM CRSP Phase IV RFA website at: http://www.oired.vt.edu/sanremcrsp/menu_research/longtermPhaseIV.php.

Minimum Data Requirements for CCRAs

Economic and Impact Analysis CCRA

Goal: Identify field- and farm-level production system(s) and sequencing of CAPS elements that will minimize smallholder costs and risks while maximizing benefits and adoption.

The minimum baseline data requirements in support of this CCRA are complementary to the general baseline data and information expected of all SANREM LTRAs as well as other goals that proposers may specify in their applications for the different regions. LTRAs are expected to gather data on the following:

- Biophysical and socioeconomic characterization of the predominant production systems in the targeted region including cropping, livestock and forestry subsystems.
- Throughout the life of the LTRA for each field trial/intervention (researcher and farmer managed);
 - Changes in yields
 - Changes in input usage (purchased or provided, family and other labor (disaggregated by gender)
 - Changes in biophysical characteristics (soil quality, erosion, etc.)
- In addition, data and information (gender disaggregated where appropriate) on the following will be collected periodically:
 - Changes in quantities marketed/consumed by collaborators
 - Practice adoption (direct collaborators, spontaneous regional)
 - Changes in market conditions/prices
 - Changes in predominant use of land resources
 - Changes in income of target population

This activity will be led by Dr. Michael K. Bertelsen, Associate Director OIRED, and Associate Dean for International Agriculture, College of Agriculture and Life Sciences, Virginia Tech. Tel: (540) 231-9665; Email: bertel@vt.edu

Gendered Knowledge CCRA

Goals: Identify gendered constraints and opportunities to promote wide-scale adoption of CAPS and Ensure mobilization and recognition of women's knowledge in the process of cultural change which CAPS represents.

The ultimate success of the individual LTRAs will be influenced by how well they incorporate gendered knowledge and women's needs in the development of site specific CAPS. Women often possess specialized agricultural knowledge in areas such as seed selection, soil fertility, and crop management practices. In addition, women are key to guaranteeing nutrition and food security for the household as well as generational transmission of agricultural and ecological knowledge. Consequently, women are essential to understanding the complexities of local production systems and to developing sustainable CAPS.

The following data will be collected via a Participatory Rural Appraisal, focus groups, household

surveys, and unstructured interviews with key informants.

- Types of knowledge, beliefs and perceptions relevant to CA (regarding soils, erosion, plant selection, innovation and risk, for instance) and differences between women and men.
- Location of sites where knowledge is acquired, practiced, and reproduced.
- Activity profiles identifying who does what, where and when. This includes productive, reproductive and community activities, as well as leisure to include training or other learning activities.
- Maps of men and women's access to and control of resources (land, water, learning, farming inputs community centers, etc).

This activity will be led by Dr. Maria Elisa Christie, SANREM CRSP Gender Equity Coordinator and Program Director for Women in International Development, OIRED/VT. Tel: (540) 231-4297; Email: mechristie@vt.edu

Technology Networks for Sustainable Innovation CCRA

Goal: Identify priority knowledge transmission points, network connections, and knowledge leaders leading to widespread and sustainable innovation and adoption of CAPS technologies.

The transfer of research findings from LTRAs to farmers is critical to achieving sustainable impacts on rural livelihoods and natural resource stewardship. In order to determine how research findings enter the knowledge networks fostering technological change for conservation agriculture, this research examines a diverse sample of men and women farmers, community leaders, researchers, extension agents, and service providers, input and output market actors, etc. Implemented in collaboration with the LTRA teams and other CCRA activities, this activity will use focus groups for data gathering and feedback, snowball sampling, as well as informal and formal survey instruments to collect the following data:

- demographic characteristics
- network linkages,
- types and direction of exchanges,
- frequency and intensity of communication,
- decision making influences on adoption, and
- levels and types of CA knowledge.

This activity will be led by Dr. Keith M. Moore, SANREM CRSP Associate Program Director, and OIRED/VT's Program Director for Education, Training, and Technology Transfer. Tel: (540) 231-2009; Email: keithm@vt.edu

Soil Quality and Soil Carbon Sequestration CCRA

Goals: To assess the likely impacts of large-scale adoption of CAPS on soil quality, soil productivity, carbon sequestration, and the potential for and implications of carbon sequestration payments to smallholders engaged in CAPS that sequester soil carbon.

Conversion of local conventional management of cropland to CAPS increases the soil organic

matter over time until a new soil organic matter equilibrium is reached. This CCRA investigates the extent to which increasing soil organic matter: improves the water and nutrient holding capacities of soil; improves soil structure and aeration, which creates a more favorable root zone environment for most crops; and increases infiltration, which reduces surface runoff and soil erosion. LTRAs are expected to collect data on the following:

- Soil carbon: baseline and annually at end of growing season, 0-15 cm, 15-30 cm
- Soil bulk density/porosity: baseline and annually at end of growing season, 0-15 cm, 15-30 cm
- Soil cover: monthly and after planting and harvest, mass and % cover
- Soil nutrient levels (N, P, K, pH, key micronutrients, etc.): baseline and annually at end of growing season, 0-15 cm, 15-30 cm
- Soil amendments: type/formulation, dates, method, rates
- Organic matter additions: type, dates, method, rates
- Wilting point and field capacity: baseline and annually at end of growing season, 0-15 cm, 15-30 cm
- Soil classification

During the interim while a soil scientist post-doc is being identified, this activity will be led by Dr. Theo A. Dillaha, SANREM CRSP Program Director, and Professor of Biological Systems Engineering, Virginia Tech. Tel: (540) 231-6813; Email: dillaha@vt.edu

USAID Branding/Marking Strategy for SANREM CRSP Phase IV

Branding Strategy

(1) Positioning

- *Name of program:*
Sustainable Agriculture and Natural Resource Management Collaborative Research Support System (SANREM CRSP).

- *USAID Identity:*

All materials developed as a result of this activity will contain the following attribution statement:

This project was made possible by the United States Agency for International Development and the generous support of the American People through USAID Cooperative Agreement No. EPP-A-00-04-00013-00.

- *Will a program logo be developed and used consistently to identify this program?*
All publications and products developed through this project, with the exception of research articles published in academic journals, will display currently approved USAID Identity graphics and the existing logo for the SANREM CRSP LWA and conform to other requirements of the USAID Graphic Standards Manual.

:



(2) Program Communications and Publicity

- *Who are the primary and secondary audiences for this project or program?*
The primary audience for this project is USAID Mission and other personnel involved in agricultural and natural resource management development work. The secondary audience is other bi-and multi-lateral development agencies, development scientists and the public.
- *What communications or program materials will be used to explain or market the program to beneficiaries?*
SANREM CRSP: websites; knowledgebase, newsletters; research and policy briefs; working papers; project listserv; presentations at public, professional, and beneficiary/stakeholder meetings/conferences; semi-annual, annual, and other reports; books; program brochures
- *What is the main program message?*
Improved livelihoods through knowledge-based sustainable agriculture and natural resource management systems.
- *Will the recipient announce and promote publicly this program or project to host country citizens?*
We do not plan to undertake a widespread public communications campaign as part of the project. Publicity and promotion of the program during its early and mid stages will target stakeholders (farmers, NGOs, ministry personnel, etc.) involved in the project. In the later stages of the program, potential beneficiaries not engaged in project activities will be targeted to assess the potential for scaling up and out of the technologies developed.

(3) Acknowledgements

- *Will there be any direct involvement from a host-country government ministry?*
Yes. Involvement of host-country ministry officials is required of all research projects. Projects have not been awarded so countries and specific ministries involved is not known at this time. Their participation will be acknowledged.
- *Please indicate if there are any other groups whose logo or identity the recipient will use on program materials and related communications?*
Individual projects will be led by US universities in partnership with IARCs, NGO, private sector entities, and host country universities, NARS, and ministries. It is likely that their logos and identity material will also be used on program materials and communications. For example, the SANREM CRSP frequently incorporates the following Virginia Tech logo into program materials. When such logos are used, they shall be in accordance with USAID marking requirements.



Marking Strategy

The recipient will follow the requirements of 22 CFR 226* for all publications and activities conducted under this agreement.

1. Please list any anticipated materials/activities that will require marking under this agreement (i.e., publications, website, events, workshops, curricular materials, etc.):

SANREM CRSP: websites; knowledgebase, newsletters; research and policy briefs; working papers; project listserv; presentations at public, professional, and beneficiary/stakeholder meetings/conferences; semi-annual, annual, and other reports; books; program brochures

2. Use the chart below to describe the type of marking for materials/activities listed above:

Activity	Type of Marking
<i>General reference to program</i>	USAID, SANREM CRSP, and other significant partner logos USAID attribution: (1) This project was made possible by the United States Agency for International Development and the generous support of the American People through USAID Cooperative Agreement No. EPP-A-00-04-00013-00.
<i>Other public communications</i>	USAID, SANREM CRSP, and other significant partner logos USAID attribution: This <i>study/report/audio/visual/other information/media product (specify)</i> is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of <i>[insert recipient name]</i> and do not necessarily reflect the views of USAID or the United States Government.

Note: as stipulated in 22 CFR 226, all logos will be of equal size and prominence.

* This regulation was amended by a final rule called “Administration of Assistance Awards to U.S. Non-Governmental Organizations (NGOs): Marking Requirements,” August 18, 2005 – Effective January 2, 2006.