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ANNUAL REPORT

CLIMATE CHANGE RESILIENT DEVELOPMENT

ANNUAL IMPLEMENTATION REPORT

OCTOBER 2012 – SEPTEMBER 2013



October 10, 2013

This report was produced for review by the United States Agency for International Development (USAID). It was prepared by International Resources Group (IRG).

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ACRONYMS

AGU	American Geophysical Union
ALM	Adaptation Learning Mechanism (website)
AMEs	Associations des Mères-Elèves
AP	Adaptation Partnership
APEs	Associations des Parents-Elèves
CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
CCRD	Climate Change Resilient Development Task Order
CDKN	Climate Development Knowledge Network
CEQ	Council on Environmental Quality
CGIAR	Consultative Group on International Agricultural Research
CIMH	Caribbean Institute of Meteorology and Hydrology
CIMPACT-DST™	Climate Impacts Decision Support Tool
COMESA	Common Market for Eastern and Southern Africa
CoP	Community of Practice
COP	UNFCCC Conference of the Parties
CRIS	Climate Resilient Infrastructure Services Program
CRM	Climate Risk Management
CSP	Climate Services Partnership
DCHA	Bureau for Democracy, Conflict and Humanitarian Assistance
DL	Data Library
E3	Bureau for Economic Growth, Education and the Environment
ECOWAS	Economic Community of West African States
EGU	European Geosciences Union
ELI	Environmental Law Institute
EGAT	Bureau for Economic Growth, Agriculture and Trade (USAID)
E.O.	Executive Order
FCMC	Forest Carbon, Markets, and Communities Task Order
FY	Fiscal Year

GCC	Global Climate Change
GEF	Global Environment Facility
GFCS	Global Framework for Climate Services
GLOF	Glacial Lake Outburst Flood
GM	Grants Manager
GPR	Ground penetrating radar studies
GUC	Grants Under Contract
HiMAP	High Mountain Adaptation Partnership
HQ	Headquarters
ICCS2	(Second) International Conference on Climate Services
ICF	ICF Incorporated, LLC
ICIMOD	International Centre for Integrated Mountain Development
ICT	Information and Communication Technology
IDB	Inter-American Development Bank
IQC	Indefinite Quantities Contract
Engility-IRG	International Resources Group/Engility
IRI	International Research Institute for Climate and Society
ISET	Institute for Social and Environmental Transition
IUCN	International Union for Conservation of Nature
IQC	Indefinite Quantities Contract
KACC	Khumbu Alpine Conservation Council
KM	Knowledge management
M&E	Monitoring and evaluation
NAP	National Adaptation Plan
NCAR	National Center for Atmospheric Research
NEPAD	The New Partnership for Africa's Development
NGO	Non-governmental organization
NOAA	National Oceanic and Atmospheric Administration
PMP	Performance Management Plan
RFA	Request for Applications
SAC	Senior Advisory Committee

SIWW	Singapore International Water Week
SOW	scope of work
SS	South-South
TDY	Temporary Duty
TMA	Tanzania Meteorology Agency
TMI	The Mountain Institute
UKMO	United Kingdom Met Office
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USG	U.S. Government
UT	University of Texas at Austin
V&A	Vulnerability and Adaptation
VDC	Village Development Committee
WASH	Water, sanitation and hygiene
Water II IQC	Integrated Water and Coastal Resources Management Indefinite Quantities Contract
WG	Working Group
WMO	World Meteorological Organization

A. INTRODUCTION

This report summarizes the activities undertaken by the consortium led by International Resources Group (Engility-IRG) during the yearly reporting period of October 2012 – September 2013, under the Integrated Water and Coastal Resources Management Indefinite Quantities Contract (Water II IQC) Climate Change Resilient Development (CCRD) Task Order. The report covers project management and implementation activities undertaken and/or completed during the reporting period. The CCRD annual Performance Management Plan (PMP) report, current CCRD organizational chart, and annual financial report are provided as Annexes. The remaining sections are divided into four sections: 1) Project Management; 2) Objective One activities; 3) Objective Two activities; and 4) Objective Three activities.

The report includes updates on activities and tasks described in the CCRD Year Two Work Plan:

Project Management, Planning, and Evaluation:

Task PM-1 Develop Year Two Work Plan

Task PM-2 Update and Implement Performance Management Plan (PMP)

Task PM-4 Conduct Advisory Committee Meetings

Task PM-6 Develop & Disseminate CCRD Knowledge Management (KM) Products

Task PM-7 Implement Grants Under Contract Program

Objective 1: Support for USAID Missions and Bureaus

Task 1.1.1 Revise Vulnerability and Adaptation Manual

Task 1.1.2 Develop Climate Briefs and Annexes

Task 1.1.3 Develop Lessons Learned on Mainstreaming Climate Adaptation

Task 1.1.4 Prepare Case Studies to Demonstrate the Mainstreaming Guidance

Task 1.1.5 New Directions in Pilots and Research

Task 1.2.1 Understand USAID Bureau and Mission Needs for Climate Change Adaptation Tools

Task 1.2.3 Support the United Nations Development Programme (UNDP) Adaptation Learning Mechanism Website

Task 1.3.1 Provide Capacity Building Support on Mainstreaming V&A

Task 1.3.3 Support Development of USAID's Federal Agency Climate Change Adaptation Plan

Task 1.3.4 Provide support for USAID Integration Pilot in Kazakhstan

Task 1.4.1 Design a Health Program for Inclusion in the climate services program

Objective 2: Coordinate with Other U.S. Government (USG) Agencies to Support Mainstreaming

Task 2.1.1 Conduct Adaptation Partnership Workshops

Task 2.2.1 Facilitate Adaptation Partnership Communities of Practice (CoPs)

Task 2.2.2 Develop Adaptation Partnership Materials

Objective 3: Identify and Respond to Emerging Issues and Fill Gaps

Task 3.1.1 Support Preparation of National Adaptation Plans (NAPs)

Task 3.1.2 Develop and Pilot Fast Track Implementation Concept

Task 3.2.2 Develop the High Mountain Adaptation Partnership (HiMAP)'s CoP

Task 3.2.3 Design and Conduct the Climber-Scientist Competitive Solicitation

- Task 3.2.4 Implement CoP Pilot Projects and Research
- Task 3.3.2 Coordinate Activities of the Climate Services Partnership
- Task 3.3.3 Compile and Disseminate Current Climate Services Knowledge
- Task 3.3.4 Conduct Case Studies and Assessments of Climate Services
- Task 3.3.5 Economic Valuation of Climate Services
- Task 3.3.6 Climate Information Guide
- Task 3.3.7 National/Regional-level Climate Services Development
- Task 3.3.8 Develop Climate Services Products for the Agriculture Sector
- Task 3.3.9 Climate Services Technical Backstopping of Development Programs
- Task 3.4.1 Identification of Pilot Cities
- Task 3.4.2 CRIS Support To pilot Cities To Accelerate Climate Risk Management
- Task 3.4.3 Fast Tract Implementation Small Grants Program
- Task 3.4.4 Global City-to-City Information Exchange
- Task 3.4.5 Provide Information and Technical Resources to USAID Staff
- Task 3.4.6 Evaluate CTIS Activities and Recommend Next Steps
- Task 3.4.7 Cascadia Vietnam Pilot

A documents CD is provided with this report and contains all reports and presentations drafted and/or finalized during FY 2013. In addition, performance indicators and achievements for the reporting period are provided in Annex I, an organizational chart is provided in Annex II, and a small grants summary table is provided in Annex III.

B. PROJECT MANAGEMENT, PLANNING, AND EVALUATION

Project management activities during Fiscal Year (FY) 2013 focused on finalizing the Year Three Work Plan, holding three high-level Senior Advisory Committee (SAC) meetings, continued development of web pages related to CCRD Program areas, issuing and monitoring small grants awards, and creating and implementing a new CCRD communications strategy.

TASK PM-1 DEVELOP YEARS TWO AND THREE WORK PLAN

Approval for the Year Two Work Plan was received from USAID in January 2012, and a final copy of was given to all partners during the winter 2012 SAC meeting. The Year Two Work Plan covered the period of August 2012 – July 2013.

For the Year Three Work Plan, CCRD partners were asked to provide a summary of Year Two activities that would carry over into Year 3 and propose new activities. Inputs were summarized in a matrix for USAID to facilitate prioritization of Year 3 activities, tasks, and subtasks. A memo was prepared addressing USAID's comments and was attached to the revised Year Three Work Plan. Approval was received from USAID and a final copy was distributed at the fall 2013 SAC meeting. The Year Three Work Plan covers the period of August 2013 – July 2014.

TASK PM-2 UPDATE AND IMPLEMENT PERFORMANCE MANAGEMENT PLAN (PMP)

Working closely with USAID, new PMP targets were proposed for Year Two and were updated quarterly, reflecting project implementation. Emphasis was placed on reporting standards and procedures for the CCRD team and partners. At the fall 2013 SAC meeting, a PMP working group was formed to ensure that CCRD-related activities are reported to the fullest extent possible.

TASK PM-4 CONDUCT ADVISORY COMMITTEE MEETINGS

Three Senior Advisory Committee Meetings were held during Year Two:

Fall (October 18-19, 2012): Focused on forward looking activities. Day one was devoted to specific technical areas, which are featured in the CCRD Work Plan. The second day was designed to examine opportunities for undertaking cross-cutting work. During both days, committee members identified options for increasing the value of CCRD's current activities and adding new stand alone or complementary activities.

Winter (January 24-25, 2013): Covered a narrow range of topics in greater depth allowing for robust discussion on opportunities to build on previous work, encourage collaboration across CCRD, and combine program elements. A critical element of the winter SAC meeting was the theme of integration among partners on upcoming CCRD activities. The first day was devoted to programmatic updates, next steps on CCRD guidance, and an afternoon discussion on Fast-Track Implementation. The second day focused mostly on the urban program including an overview of the Climate Resilient Infrastructure Services (CRIS) activity, Cascadia's decision support tool, and a white paper briefing on planning for post-disaster redevelopment.

Spring (April 24-26, 2013): This meeting focused on a review of the draft climate resilient development framework, with supporting presentations on the vulnerability assessment and other annexes, CCRD's communications strategy, and kickoff of Year 3 work planning activities.

TASK PM-6 DEVELOP AND DISSEMINATE CCRD KNOWLEDGE MANAGEMENT PRODUCTS

In FY 2013, CCRD staff on-boarded a communications manager to manage, coordinate, and disseminate CCRD communications and knowledge management products for the duration of the CCRD contract. The manager re-shaped the CCRD communications team to include a core team of key staff from USAID, IRG, Stratus Consulting, ICF, TMI, and IRI. This restructuring created a more efficient and effective workflow for the team to develop communications products. The team comprises writers, reviewers, researchers, and technical specialists, all with climate change adaptation specific backgrounds.

A communications strategy was produced to encompass CCRD communication objectives, coordinate communication products for USAID and CCRD, and implement a process for developing and disseminating communication products.

A new workflow system based on Google Apps was successfully pilot tested with select members of the communications team. The aim of this workflow pilot was to test the functionality and learning curve of the various writers. Google Apps workflow will be scaled up to manage the entire CCRD communications strategy in FY 2014 and beyond. This includes collaborative workflow methods for developing, writing, and reviewing fact sheets, reports, technical papers, videos, and other communications products. A communications project management and product dissemination website was also developed (<http://www.ccrdproject.com/>).

Several high-priority CCRD communications products were developed, including two videos, seven fact sheets, a CCRD project map, and a photo library-database.

In addition to an implementation of a new communications plan, two major CCRD websites were redesigned to more effectively deliver CCRD products.

The High Mountain Adaptation Partnership (HiMAP) website was completed and launched in April. The site more clearly highlights activities undertaken by the Climber Scientists, assists interactions between members of the Communities of Practice, and provides visitors overall faster access to the HiMAP program. The website also facilitates discussions for its Steering Committee meetings and serves as a portal for videos, research documents, and webinar recordings. Since its launch, The Mountain Institute (TMI) has taken the leading role in managing, updating, and promoting the site. For more information, visit: <http://www.highmountains.org/>.

The Climate Services Partnership (CSP) website was completed in July, 2013. Emphasis was placed on the mapping feature, which provides a visual overview of partner projects and activities around the world. Since its launch, The International Research Institute for Climate and Society at Columbia University (IRI) has taken the leading role in managing the site and preparing follow-on e-events. For more information, visit: <http://www.climate-services.org/>.

TASK PM-7 IMPLEMENT GRANTS UNDER CONTRACT PROGRAM

Climber-Scientist Small Grants

Six individual and five institutional Climber-Scientist Small Grantees produced a high-volume of very high-quality deliverables in FY 2013. Deliverables include: cutting edge field research techniques and policy frameworks that will be used as models by governments in India, Nepal, and Peru; peer-reviewed scientific journal articles; a Memorandum of Understanding forming a new pilot project to implement local adaptation

plans; a GLOF risk reduction model to be used in high mountain regions; an innovative Local Adaptation Programme of Action policy using a regional cooperative approach; and a documentary film.

Several grantees made important – and sometimes unexpected – discoveries while conducting their CCRD grant supported climate adaptation research. In Nepal, a dangerous, flood-prone glacial lake was accidentally discovered by the Geo-Science Innovation team during a routine helicopter refueling stop in the Seti River basin. While studying glaciers in both Peru and Nepal, higher concentrations of heavy metals and other chemicals such as arsenic were discovered in glacial melt outflows by Raúl Augusto Loayza Muro and Ulyana Nadia Horodyskyj. These concentrations could have significant impact on human and ecosystem health for downstream communities. Also in Nepal, it was found that additional video footage captured during aerial recording from helicopters and ultra-light planes can be used by climate researchers and institutions conducting cross-cutting geographic surveys of the Himalyan glaciers.

Major highlights from grantees' work during FY 2013 are summarized below:

- **Stephanie Spray (Harvard University):** Pre-production planning began for the documentary film, *Snow River*. The film covers how the Seti River flood of 2012 affected families and villagers throughout the valley. Footage was collected in the field during FY 2012 and FY 2013 and release is expected in FY 2014. Ms. Spray interviewed and shot with a pilot from the Avia Club, which flies ultra-lite planes. (Note, this particular pilot was the first to witness and film the massive landslide off of Annapurna IV, which triggered the 2012 flood). Ms. Spray captured over 30 hours of footage using technologically advanced cinematic equipment, including a Canon EOS C100 and a GoPro HERO3. The GoPro HERO3 was attached, externally, to helicopters and an ultra-lite plane to capture footage of flood devastation, landscape topography, and general geography.

It was discovered that the video footage will have **cross-benefits** to other climate scientists studying glacial risk the Seti Valley. The goal of the film is to allow flood victim's stories to be heard, and daily life struggles to be seen, so audiences can begin to understand the immense challenges (social, economic, and cultural) of what it would mean to implement effective risk response and development solutions in Nepal. Although the Seti River event was not a GLOF, the trauma and devastation of events such the Seti River flood are likely to increase with climate change.

- **Ulyana Nadia Horodyskyj (University of Colorado at Boulder):** A new bathymetry (depth) map of a large terminal supraglacial lake growing on the Ngozumpa glacier (Nepal) advanced to the completion phase. Analysis of data collected during FY 2013 will also be interpreted, and both the map and analysis are expected to be published in FY 2014. The bathymetry analysis will be accompanied by temperature profiling of similar basins as well as hydrodynamic modeling. Additionally, the research paper, "The Ngozumpa Glacial Lake Imaging Project" was cleared for publication in the UK Alpine Journal. And a new research paper covering cartographic and photographic glacier analysis techniques on the north side of Mt. Everest was submitted to a major climate science journal.

An important new discovery was made while conducting field research on the Ngozumpa glacier. Preliminary major and trace element chemical analyses showed surprisingly high amounts of arsenic in lakes and outflow channels of the glacier. With increased glacial melting, these chemicals may impact the health of downstream communities. This unexpected finding warrants further study. It is recommended that future climate adaptation analysis of the Ngozumpa glacier include these risks.

- **Adam French (University of California, Santa Cruz):** Presented and distributed HiMAP supported research publication to stakeholder groups and universities researchers in Peru covering impacts of global change in the Santa River watershed. The publication received wide distribution in Peru in hardcopy and online. The support of the Climber-Scientist Small Grants Program is gratefully acknowledged in the preface of the paper. A Spanish version will be disseminated via

copyright holder Elsevier in FY 2014. In addition, Mr. French led a risk-research field visit to the Santa River, from Huaraz to Trujillo, with the Transdisciplinary Andean Research Network researchers, students, the President of the Parón-Llullan Irrigators' Commission, residents from Cruz de Mayo, and researchers from the local university, UNASAM. His team also visited potentially vulnerable infrastructure in the area, including the *Cañon del Pato* Hydroelectric Plant and the CHAVIMOCHIC Special Irrigation Project.

- **Laura Read (Tufts University):** New pilots and prototype methodologies were developed for community water assessments in the Tres Cuencas Commonwealth, Peru. The assessments involve teaching local stakeholders sampling techniques, demographics, and structure of the community. Results of these assessments are being published in a Commonwealth Portfolio, which will be distributed in Peru FY 2014. **The pilot framework was** presented at the 2013 Global Innovations Virtual Forum. The pilot was also presented at the 2013 Environmental Water Resources Institute conference in Cincinnati, Ohio. Both presentations describe work in communities on water management, capacity building, and the planned pilot to launch a mobile application for collecting water and climate data.
- **Raúl Augusto Loayza Muro (Universidad Peruana Cayetano Herida):** Analysis of physical chemical parameters and metal concentrations were conducted in water, sediment, and plant samples from the Churup Lagoon and River, Shallap Lagoon and river (polluted), and Quilcay River (polluted), all located in the Quilcay sub-catchment, in the Cordillera Blanca area, Peru.

Preliminary results indicate polluted sites are characterized by acid conditions and high metal concentrations. Among these metals, aluminum, iron, manganese, and zinc exceed the national environmental quality standards for several categories. This suggests that acid drainage from metal-rich bedrock occurring in the headwaters of the Quilcayhuanca and Shallap gorges due to glacier retreat may impoverish water quality at the sources and also downstream.

With increased glacial melt in the Andes, these high concentrations may imperil human health, agriculture, and cattle-raising in downstream communities. Mr. Muro's results have been shared with authorities and project stakeholders.

- **Shah Raees Khan (University of Manitoba):** Activities and site visits have been postponed for this grant due to the current situation in Pakistan, including both political and religious clashes. CCRD is in the process of canceling this grant.
- **ATREE (India-Nepal):** ATREE-USA has made substantial efforts to maximize funds from the Climber Scientist Small Grant. In FY 2013, **seven Indian government agencies and ATREE partnered** to develop a comprehensive assessment and monitoring tool and Open-Source database of climate vulnerable biodiversity in Sikkim, India. Partner government agencies include the Sikkim Forest Department, the Botanical Survey of India, the Zoological Survey of India, and the Department of Science and Technology. The new partnership, database tool, and program will be completed during FY 2014 and will:
 - Create a baseline documenting Sikkim's climate vulnerable biodiversity, including plants, animals, fungi, lichens and microorganisms
 - Develop a comprehensive database using tools and approaches of biodiversity informatics. Databases will also include ethno-botanical knowledge.
 - Map ecosystems and distribution of species to identify patterns of species richness, rare and endangered species, and to monitor current pressures on biodiversity, including the impact of climate change and patterns of resource use.

- Make curated data Open-Access and available on the portals of a) the project b) partners and c) the India Biodiversity Portal.
- Develop strategic plans for sustainable use and management of Sikkim's unique biodiversity, and assist state agencies set up a Biodiversity Institute and Biodiversity Museum.
- Enhance human and technical resources of partners, the state of Sikkim, and northeastern states in research, policy analyses, and education related to biodiversity science.

In addition, with grant support, ATREE assisted two new doctoral students, Alexa Wilson and Anand Gazmer, with fieldwork in Singalila National Park. Wilson and Gazmer worked through the monsoon season studying village household fuel-use impact on forest vegetation structure and function. Importantly, as a result of the Climber Science grant, **Ms. Wilson received a leveraged grant** from the Indo-US Foundation to support her research.

Training continued for climate adaptation and environmental students from northeastern India and University of Massachusetts Boston. An MOU was signed between ATREE and UMass-Boston (UMB) to support development of a framework for climate-resilient development that can be applied from multiple cultural and administrative units (e.g., Nepali, West Bengali, Sikkimese indigenous ares, etc.). These countries share biodiversity, watersheds, and traditional knowledge and practices. The focus area is the Kanchenjunga Trans-boundary Conservation Area (KTCA). CCRD grant-supported UMB Ph.D. candidates Tenzing Ingty and Anand Gazmer will conduct the research to develop the framework in the KTCA.

- **The Research Foundation for the State University of New York (SUNY) (Mongolia-Altai):** Initiated in January 2013, began assembling a time series of remote sensing data for western Mongolia from NASA MODIS enhanced vegetation index data (EVI). Resulting maps and analyses will help identify field verification sites in collaboration with local herders in Mongolia-Altai.

In addition, the team assembled 10-years of wildlife data for ibex, argali, and snow leopards in a GIS along with environmental and infrastructure layers. Analysis will include species distribution modeling with respect to regional specific climate risks.

SUNY completed internal review of a wildlife observation-based ecotourism enterprises guidance document in western Mongolia.

- **Geo-Science Innovations (Katmandu, Nepal):** The grantee conducted two scientific expeditions to the upper Seti Basin. One of these expeditions was co-funded by the NASA/USAID SERVIR Applied Sciences Team. Detailed hydrographic/topographic and demographic/socioeconomic surveys were conducted in villages across the flood basin. Field research and mapping were completed in FY 2013 and analysis of socio-economic status in the region will take place in FY 2014. Initial survey results show that the flood displaced many families and villagers, killed 32 people, and left over two dozen missing. Livestock, livelihoods, temples, roads, community buildings, and vital infrastructure such as suspension bridges, electric poles, and drinking water transmission pipes were also recorded as destroyed and in need of replacement.

Preliminary results show more than 90 percent of households had prior knowledge of flood risks, but no uniform emergency response is in place in the area.

In addition, two PhD dissertations began development based on Geo-Science Innovations, Ltd.'s research. One dissertation will cover the physical geology of the Seti basin. The other will explore socioeconomic impacts from the 2012 flood. The team also prepared four preliminary reports on findings and analysis during FY 2013 on the hydrogeology of the Seti River basin; bedrock geology

and superficial sedimentology of the upper basin; hydrographic survey of the basin; and the socioeconomic/demographic aspects of impacted communities.

Importantly, **an unanticipated hazard may have been discovered** during a helicopter refueling stop during field research. The team observed that Thal Village, which contains a school and several residences in riparian zones, may be in danger from new sets of landslides, a glacier lake outburst flood from Thulagi Tsho glacier, and monsoon rainfall-related flood events. During a fly-over from this stop, the team also observed several small village clusters, scattered individual residences, and a 42 MW hydroelectric power plant may also be vulnerable to a GLOF, landslides, and monsoon-related floods. A report will be filed with local governments in Nepal and USAID in FY 2014.

- **Resources Himalaya Foundation (Kathmandu, Nepal):** The grantee identified four municipalities in Ramechhap as candidates to develop LAPAs, Manthali, Chisapani, Khaniyapani, and Himganga. The grantee formed a District Support Committee with 11 local stakeholder groups. The committee is chaired by the Local Development Officer, and staffed by representatives of the District Forest Office, District Education Office, District Agriculture Office, District Livestock Service Office, District Disaster and Watershed Management Office, Nepal Federation of Journalists, Federation of Community Forests, Non-Governmental Organization Federation of Nepal, and the District Woman Development Office.

The grant team visited project VDCs (Village Development Committee, the lowermost administrative unit in Nepal) for a consultation meeting with local stakeholders to prioritize technology interventions on climate change adaptation.

- **Institute of Environmental Engineering (Zurich, Switzerland):** ETH collaborated with ICIMOD to conduct a study to understand how to best use soft knowledge in hard sciences. The study supports the research of four graduate students from the department of Glaciology, Kathmandu University. The students assist ETH with training local community stakeholders with survey, translation, and logistical support.

A new concern arose during the project. ETH believes that communicating climate risk and environmental hazards need to be hand-tailored to meet the needs of people with limited or basic reading and writing skills. More research will be required to design such communications needs.

Central America Small Grants

Three institutional grantees maximized their grant investments to develop agricultural training and capacity building programs in Honduras, Costa Rica, Guatemala, Nicaragua, and El Salvador. Zamorano Pan-American Agricultural School provided over 7,000 hours of climate adaptation and agricultural training to a diverse range of farmers and students in Honduras. Working in Guatemala and Nicaragua, Private Institute for Climate Change Research trained over 467 people - the majority women - in gender, agriculture, and climate adaptation information sharing techniques between area farmers. And Centro Agronómico Tropical de Investigación y Enseñanza developed an agricultural climate adaptation database for farmers in Costa Rica. The information will provide small-holder farmers with the latest best practices in climate adaptation techniques for farming in Costa Rica specific climates.

Below are brief summaries of FY 2013 activities:

- **Zamorano Pan-American Agricultural School (Honduras):** In FY 2013, the CCRD Small Grant supported the establishment of several agricultural demonstration sites in Honduras, Nicaragua, and El Salvador. The sites are used in various training exercises using plot specific growing scenarios under various climate regimes. The training will promote the socio-economic benefits of climate adaptation technologies and practices to members of small communities in Honduras, Nicaragua, and El Salvador. In FY 2013, over 120 students from nine countries were trained to be trainers for agricultural adaptation to climate change in rural farms.

In Honduras, a new teaching facility in the Centers for Family Development of Honduras (CEFEDH) was built. The facility is used to train students in hydroponic crops, nurseries, and integrated pest management under various climate scenarios.

In Honduras, El Salvador, and Nicaragua, demonstrative farms were established and used to train farmers in climate change adaptation and practices. Community farmer field school events have taken place at these sites. Educational materials have been designed and will be tested during FY 2014. These materials include:

- A manual for CEFEDH students on Climate Change Adaptation. Developed in coordination with the National Institute for Professional Training of Honduras, it will be used in all CEFEDH centers in the country.
 - A manual for Learning-by-doing practices in Agricultural Climate Change Adaptation.
 - A “radio program” (title tba) targeting local farmers will be broadcast in FY 2014. The program combines humor and entertainment with basic concepts of climate adaptation and best management practices.
- **Private Institute for Climate Change Research (ICC) (Guatemala):** ICC collaborated with local communities of practice to train farmers, students, women, and indigenous peoples across four geographic areas on the Guatemalan Pacific slopes. ICC issued education certificates (e.g., *Diplomados*) to 190 farmers and participants that focused on climate adaptation practices for staple crops. Training included field trips to demonstration farms aimed at exploring adaptation practices, such as soil incorporation of stubble, agricultural terraces, and agroforestry systems, participated in activities of maintenance of the demonstration plots, and in the construction of a storage unit for drying maize.

ICC also published an adaptation farm practice portfolio for local distribution, and will deliver a new book on local climate change adaptation practices for staple crops farmers in FY 2014. In addition, ICC took actions to strengthen the impact of the grant, including:

- **Women engagement.** ICC held climate and gender engagement sessions designed to help empower women farmers engage in new farming techniques and practices.
 - **Communities of practice.** ICC trained farmers on how to share information, experiences, and develop joint work. The idea behind these sessions is to transform a process led by the ICC into a process led by beneficiaries.
 - **Facilitate access to agrometeorological information.** This will increase farmers self-planning and resilience to climate change by creating a structure for weather data communication concurrently with the development of climate tools.
- **Centro Agronómico Tropical de Investigación y Enseñanza (CATIE) (Costa Rica):** CATIE selected 15 farms as the basis for case studies on adaptation practices. The team collected biophysical, socio-economic, and productive information of livestock systems and climate adaptation practices in the selected farms. From here, a database of adaptation case studies was established.

In addition, the team documented climate adaptation practices in five farms, considering seven elements of the intervention process: a) the activities that constituted the process; b) activities sequenced in time; c) the role played by each of the main actors; d) the methods or strategies employed; e) the means and resources (human, material, financial); f) factors of the environment that facilitated the process; and g) factors of the environment that hindered the process.

Four technical notes were prepared and will be delivered to CCRD in FY 2014. Strategies to promote good practices include financial incentives such as green credit (Nicaragua), PSA (Costa Rica,

Colombia, Nicaragua), certification of sustainable cattle farming (with Rainforest Alliance), as well as technical assistance from farm field schools.

Of note, preliminary results from this grant were presented at the 7th Wallace Conference on Climate Smart Territories in Turrialba, Costa Rica, held fall 2013.

Sole Source Grants

The International Data Rescue Organization (IEDRO) worked with the African Centre of Meteorological Applications for Development (ACMAD) staff in Niamey, Niger to install microfiche scanning equipment, computers, and software at the new USAID-funded ACMAD West Africa Climate Data Rescue and Digitization Facility.

ACMAD staff scanned and sent to IEDRO nearly 1000 frames of historic hydrometeorological observations, primarily from the African country of Nigeria. Also in FY 2014, IEDRO team will partner with the Famine Early Warning Systems Network to develop applications from the scanned-sources for food security research.

Importantly, as a result of this grant, IEDRO has begun work with national meteorological services in Zimbabwe, Djibouti, and Nigeria. These countries are in need of accessible, central databases and processes for hydrometeorological data.

In addition, IEDRO also trained various members of the African Hazards desk in the utilization of the Annual Climate Explorer (ACE) climatology software. ACE provides a unique platform to easily identify the annual cycle of various environmental parameters (precipitation, wind speed, temperature, etc.) while also displaying related statistical information.

Solicitations and New Grant Activity

Academic small grants

CCRD awarded nine new grants under the small grants program – five under the CRIS program and four under Climate Services Program. These grants were designed to support to support engineering and physical and social science research related to climate change impacts and adaptation. There is particular focus on supporting sustainable development outcomes despite climate change stressors.

Climate Resilient Infrastructure Services (CRIS) small grants

The CRIS small grant solicitation was released in Q2 to approximately 60 organizations worldwide. CCRD partners ICF and IRG received 11 proposals in response to this solicitation. In consultation with USAID, **five** grants were recommended and approved for funding and the process of developing grant agreements was begun. ICF worked with IRG and CCRD partners Stratus and Cascadia to review the proposals and make funding recommendations. The objective of the first call for proposals was to identify and fund projects that involve direct collaboration with city governments in developing countries to increase the climate resilience of infrastructure services.

Scaling Up Climate Services for Farmers in Africa and South Asia

CCRD and CSP Secretariat developed the call for proposals for small grants to be implemented under CCRD relating to scaling up climate services for farmers in Africa and South Asia. CCRD received five proposals. Two were awarded full awards and three were recommended for partial awards. These climate services grants were developed from the CCAFS/WMO/USAID/CSP workshop held in December 2012. Workshops were convened in June and July 2013 to assist potential applicants develop their proposals. IRI worked with CCAFS and other partners to include a session on climate services for smallholder farmers at ICCS3.

C. OBJECTIVE 1: SUPPORT FOR USAID MISSIONS AND BUREAUS

Under Objective 1, CCRD provides support for USAID Missions and Bureaus. During FY 2013, CCRD continued work on the climate mainstreaming guidance and supporting Annexes, completed work on the Infrastructure Fact Sheets and Synthesis Paper, the Water, Sanitation and Hygiene (WASH) case study in Iloilo, Philippines, country vulnerability profiles as part of the USAID Climate Change Adaptation Plan, various desk studies, a set of six white papers, as well as launched new pilot work in Kazakhstan and work for the USAID Health Bureau.

ACTIVITY 1.1 GUIDANCE, PILOTS, AND RESEARCH

Task 1.1.1 Revise Vulnerability and Adaptation (V&A) Manual

CCRD completed the final draft of the guidance on vulnerability and adaptation, titled, “Climate-Resilient Development: A Guide to Understanding and Addressing Climate Change.” The guidance has been distributed for final review by the Global Climate Change (GCC) Office. Based on final comments from USAID, CCRD will make necessary edits, refine graphics, and prepare a production ready draft. The document is expected to be finalized in early November 2013 for dissemination at the Conference of the Parties (COP19) in Warsaw, Poland.

Task 1.1.2 Develop Climate Briefs and Annexes

Water Annex

The Water Annex is in final draft form and accommodates additional reviewer comments. This annex aligns with the Climate-Resilient Development guidance.

Coastal and Marine Annex

The Coastal and Marine Annex has been revised to align with both the Climate-Resilient Development guidance and the Water Annex. A final draft will be distributed for GCC review in early FY 2014.

Identifying and Reducing Vulnerability to Climate Change for Disadvantaged Populations Annex

A first draft of this annex has been prepared. The draft will be reviewed and revised in early FY 2014 by Dr. Ed Carr at the University of South Carolina.

Governance Annex

First and second drafts of the Governance Annex to the Vulnerability Assessment Manual, titled “Governing for Resilience: A Guide to Climate-Adaptive Development Decisions,” have been prepared with inputs from USAID and is expected to be finalized in early FY 2014.

Vulnerability Assessment Guidance Annex

The Vulnerability Assessment Guidance Annex has been revised in response to comments from partners and USAID. This revision broadens focus on the diagnosis stage of Climate Resilient Development Guidance and shifts focus on vulnerability assessments. ICF and Engility-IRG have begun work on a final version of the Annex. The document is expected to be finalized in early November 2013 for dissemination at the 19th session of the COP19 in Warsaw, Poland.

Infrastructure Fact Sheets and Synthesis Paper

A set of nine factsheets on infrastructure were produced covering transportation, buildings, flood control structures, cultural heritage assets, potable water, sanitation systems, solid waste management, energy systems, and information and communication technology. The individual fact sheets were compiled into booklet form and distributed to CCRD partners, stakeholders, and other groups in order to facilitate collaboration and peer-learning.

Climate Info Users Guide

A detailed outline of a user-friendly guide to climate change was developed. The guide's focus is on how to identify and use climate information, including the design of rigorous climate data scenarios for use in climate change assessments. The team is considering modifying the guide into a training, which would be made available online.

Exploring Climate Resilient Low Emissions Development Strategies (CRLEDS)

Under the CRLEDS work stream the proposed activities include 1) a desk review for a technical analysis and process review, and 2) a demonstration of the CRLEDS concept in a USAID partner country. CCRD identified Jamaica as the most likely partner country.

Work has begun on the technical analysis and process review by gathering and compiling information. Ms. Charlotte Mack of ICF attended the Analysis and Investment for Low Emissions Growth (AILEG)-Jamaica project's final project symposium in Kingston, Jamaica in July. Mack met stakeholders involved with climate change activities in Jamaica to explore opportunities to pilot CRLEDS in Jamaica. It was agreed that a desk review would help stakeholders understand the applicability, potential, and reach of CRLEDS before actively implementing a community or national-level pilot. Mack led the development of a CRLEDS concept paper. The paper will include a series of technical appendices to assist readers identify synergies and conflicts between mitigation and adaptation within a specific sector. Discussions on next steps will commence once the concept paper and appendices are delivered to GCC for review in FY 2014.

Task 1.1.3 Developing Lessons Learned on Adaptation

A second draft of the "Good Practices" document, formerly "Lessons Learned," was reviewed by USAID. The report will be revised based on USAID's comments and instructions and finalized for printing, translation, and distribution early FY 2014.

Task 1.1.4 Prepare Case Studies to Demonstrate the Mainstreaming Guidance

The CCRD Team, Jenny Frankel-Reed (USAID), Jason Vogel (Stratus), Joel Smith (Stratus), Jessica Troell (ELI), and Phil Brown (Engility-IRG consultant), prepared a final report on the WASH case study in Iloilo, Philippines. The report provides background on Iloilo and describes water security and governance conditions. The report also identifies and analyzes 22 options for improving water security in Iloilo.

Task 1.1.5 New Directions in Pilots and Research

The CCRD team prepared prospectuses for background, research, and white papers focused on climate change and development. The objectives of the papers are to describe innovative approaches that may be explored further within CCRD and to articulate ideas or concepts that have the potential to expand knowledge of the climate adaptation community.

Of the 60 concept proposals received by CCRD, six were selected:

- Informing Climate-Resilient Development in Data Sparse Regions
- Using Demographic Health Surveys to Advance Climate-Resilient Development
- Harmonizing a Climate Resilient Development Approach with Disaster Risk Reduction and Management Planning

- Evaluating Adaptation Options: Assessing Cost, Effectiveness, Co-Benefits, and Other Relevant Considerations
- Private Sector Engagement in Climate Change Adaptation
- White Paper on Developing a U.S. Agency for International Development Adaptation-focused Awards Program

The six papers were finalized, reviewed by CCRD leadership, and submitted to USAID. The Senior Advisory Committee will make recommendations on use and dissemination of the white papers.

ACTIVITY 1.2 INFORMATION, TOOLS, AND SCIENCE AND TECHNOLOGY

Task 1.2.1 Understand USAID Bureau and Mission Needs for Climate Change Adaptation Tools

CCRD team members met with potential collaborators to develop an adaptation game, sharing lessons learned and best practices. A game, originally developed by the Red Cross/Red Crescent, was used during training in Kazakhstan to demonstrate the utility and value of seasonal forecasts and insurance (see Task 1.3.4).

An interactive session was also developed that reinforces what constitutes an adaptation activity (versus non-adaptation activities) and what qualities make activities eligible for USAID adaptation funding. This session was designed to be incorporated into USAID’s Global Climate Change Training package. The CCRD team travelled to USAID’s Global Climate Change Training – Central America workshop in El Salvador in May to pilot the new Global Climate Change Adaptation Game, “TEC Challenge,” and identify opportunities for improvements in GCC training.

Task 1.2.3 Support the United Nations Development Programme Adaptation Learning Mechanism Website

Consultant Eric Stephan created a preliminary redesign for the Adaptation Learning Mechanism (ALM) website that included a content map, page explanations, and sample wireframe. The document was reviewed and approved by Jenny Frankel-Reed and Andrea Egan (UNDP). CCRD staff regularly reviews and uploads adaptation documents, such as sector-specific case studies, to the ALM website. The redesign will be completed early FY 2014.

ACTIVITY 1.3 TECHNICAL ASSISTANCE AND CAPACITY BUILDING SUPPORT

Task 1.3.1 Provide Capacity Building Support on Mainstreaming V&A

Niger and Burkina Faso Desk Study

The CCRD team conducted a desk study on major vulnerabilities and adaptation options for Niger and Burkina Faso. The team delivered a summary report of the existing literature on climate change trends and projections relevant for Niger and Burkina Faso; key climate change vulnerabilities and adaptation challenges; and national priorities. The team also made recommendations for sectors, key adaptation entry points, and actors that should be the focus of a more in-depth assessment process. The study focused on the following sectors: agriculture and food security; natural resources management; water and WASH; health and nutrition; disaster risk management; rural infrastructure; and climate and early warning information. The background paper, “Climate Vulnerabilities and Development in Burkina Faso and Niger,” will inform the ongoing USAID Joint Planning Cell (JPC) process for the Sahel, through which the agency is developing strategies and programs to increase the resilience of poor populations in marginal agricultural and agro-pastoral zones.

Task 1.3.3 Support Development of USAID's Federal Agency Climate Change Adaptation Plan

The purpose of this task is to provide support for the development of USAID's Federal Agency Climate Change Adaptation Plan under Executive Order 13514 Federal Leadership in Environmental, Energy, and Economic Performance.

CCRD finalized the Country Vulnerability Profiles, incorporating agency-wide USAID input. The CCRD team submitted a compiled Annex to USAID for submission to CEQ and worked on formatting and branding the individual Profiles, which will be used as outreach materials.

An update to the Agency Climate Change Adaptation Plan (ACCAP) was submitted. The ACCAP aims to address the vulnerability of USAID's own missions, operations, and programs. This included an update of the past, current, and planned actions to address those vulnerabilities and inform more resilient programming. The ACCAP was revised, in part, to address public comments which led to the following changes: development of a new section on governance programming; recognition of links to education; clarification of the purpose and scope of the ACCAP, in comparison with the role of the Climate Change and Development Strategy; elaboration of efforts to monitor and evaluate progress; and highlight the new Resilience Policy (December 2012). The revised ACCAP was submitted to USAID in May, 2013 and CEQ in June, 2013.

Task 1.3.4 Provide support for USAID Integration Pilot in Kazakhstan

In December 2012, CCRD Chief of Party Glen Anderson traveled to Astana, Kazakhstan for start-up meetings for the USAID-funded and UNDP-implemented Climate Resilient Wheat (CRW) Integration Pilot. During these meetings, the role of CCRD in supporting CRW was agreed with UNDP and USAID/CAR. CCRD activities were incorporated into the CRW and CCRD work plans. During FY 2013, CCRD activities in support of CRW focused on a needs assessment and associated stakeholder meetings with follow-up efforts to help Kazakhstan's wheat sector respond to climate change, and strengthen weather and climate information and services provided to the wheat sector.

Needs Assessment and Stakeholder Consultations

CCRD conducted four stakeholder workshops to facilitate discussions on the challenges facing the wheat sector in Kazakhstan, with a primary focus on the impacts of climate change and variability. The first of these stakeholder meetings was convened in Astana with major government and private sector groups. Three additional one-day stakeholder meetings were held in the northern wheat growing regions, with participants including farmers, local researchers, and local officials. These stakeholder meetings featured presentations and small group discussions and exercises, facilitated by CRW project staff trained by CCRD staff.

In the first consultation, tailored for national decision-makers and practitioners, small group and plenary discussions were designed to elicit views on: (1) general challenges in the agricultural sector (primarily for context); (2) perceptions of climate change and variability in the wheat sector; (3) vulnerability of the sector to climate change and variability; (4) identification of a range of adaptation options to address climate variability and change; and (5) Kazakhstan's role in supporting increased food security in Central Asia.

The subsequent three one-day regional stakeholder consultations also involved small group discussions on four topics: (1) general challenges in the agricultural sector (primarily for context); (2) perceptions of climate change and variability in the wheat sector; (3) access and use of weather and climate information in farm decision-making; and (4) identification of a range of adaptation options to address climate variability and change. A technical report summarizing small group and plenary discussion was provided on the FY 2013 Quarter 2 CD-ROM.

CCRD Support for Strengthening Climate Services

As a result of findings during the initial inception meetings and inputs during the stakeholder consultations, CCRD organized a Roundtable on the Provision of Services on Weather and Climate in Almaty, Kazakhstan, May 22-23, 2013. The goal of the roundtable was to explore concrete ideas for collaboration between Kazakh

experts and CCRD on a range of activities to strengthen Kazakh capabilities in data management and dissemination, weather and climate forecasting, and crop yield forecasting and modeling.

The roundtable featured presentations by Kazakh practitioners from Kazhydromet, the National Space Institute (NSI), and the agricultural research and extension sector. International participants supported by CCRD provided comments on the current Kazakh suite of weather and climate information and services and made presentations on seasonal forecasting (Tony Barnston, IRI), drought forecasting (Brad Lyon, IRI), and crop yield forecasting (Alan Basist, WeatherPredict).

At the conclusion of the roundtable, the Kazakh participants formulated a “wish list” of technical assistance. Their list was presented to CRW and CCRD and included the following technical assistance activities:

- Development of long-term statistical methods for forecasting temperature and precipitation
- Development of improved methods of forecasting drought
- Assistance in strengthening electronic databases and geo-portal interfaces
- Adaptation and testing of crop yield models and drought forecasts in the three demonstration sites
- Development of agro-meteorological data base in view of user demands and preferred dissemination methods
- Training and education to strengthen capabilities and understanding of climate change and variability

During the fourth quarter of FY 2013, CCRD staff and consultants initiated work to respond to Kazakh requests. Two TDY missions were organized for Alan Basist and Fernanda Zermoglio (see below). In addition, IRI experts Tony Barnston and Bradford Lyon began work on improved weather and drought forecasting, with plans to travel to Kazakhstan to work with Kazakh partners in the first quarter of FY 2014. The TDY missions of Alan Basist and Fernanda Zermoglio are briefly summarized below:

- Alan Basist traveled to Almaty in September 2013 to work with Kazakh partners in the National Space Institute on the development of improved analytical and forecasting products using remote sensing products. He also met with and secured a commitment from Kazhydromet to supply historical data on temperature, precipitation, and soil moisture readings. In addition to these meetings, he gave a seminar on the use of remote sensing information in developing crop yield projections, and finalized the scope of activities he will conduct over the next year.
- Fernanda Zermoglio traveled to Almaty and Astana at the end of September 2013 to work with partners at the National Space Institute (strengthening their geoportal) and Kazhydromet (improving hydrometeorological data management and visual products on their website). She also gave a half-day seminar on accessing and using climate information in Almaty to more than 25 participants from the National Space Institute, Kazhydromet, and research organizations in Almaty. As part of her trip report, she prepared a scope of work for CCRD support of the National Space Institute and Kazhydromet.

NCCRD Support to the Wheat Sector in Responding to Climate Variability and Change

In August 2013, Glen Anderson and videographer Daniel Byers traveled to Kazakhstan to participate in the three field days organized by the CRW UNDP project team in collaboration with research centers in Shortandy and Kostanay and with a large commercial farm in Petropavlovsk. Dr. Anderson made presentations at seminars organized along with the field visits on climate variability and change, potential impacts on the wheat sector and preliminary options for responding to climate impacts in the wheat sector. The presentations were based on results of the stakeholder consultations and a desk review and provided the initial information that will be developed into findings and recommendations for responding to climate variability and change during FY 2014.

In addition, Mr. Byers, filmed the field days and interviews with farmers, Kazakh stakeholders, USAID staff in Washington, DC (in advance of the TDY mission), and the CRW/UNDP project team. Three videos will be produced based on the field days and interviews, augmented by harvest and grain elevator footage shot by a local videographer in October.

ACTIVITY I.4 SUPPORT FOR GENDER DEVELOPMENT

Task I.4.1 Technical Assistance to the Office of Gender Equality and Women's Empowerment

Ed Carr at the University of South Carolina was tasked to complete a literature review focused on gender, adaptation, and development. The literature review was designed to fill a knowledge gap at USAID, helping USAID to understand “gender” as a more complex issue than simply women versus men. The literature survey focused primarily on gender issues in agriculture and rural livelihoods.

Dr. Carr also prepared a report examining case studies in Africa (Mali, Ghana, and Malawi) for different manifestations of gender differences relevant to adaptation and development goals, and delivered a workshop/roundtable discussion at USAID on September 13, 2013. The workshop presented findings of the report, and solicited Agency staff for guidance on how to move the findings into implementation.

D. OBJECTIVE 2: COORDINATE WITH OTHER US GOVERNMENT AGENCIES TO SUPPORT MAINSTREAMING

Objective 2 activities during the year focused on support for the Adaptation Partnership (AP), including convening two workshop in Washington DC and Dakar, Senegal, and preparing materials for dissemination at the 18th session of the Conference of the Parties (COP18) for the UNFCCC, in Doha, Qatar.

ACTIVITY 2.1 ADAPTATION PARTNERSHIP (AP) WORKSHOPS

Task 2.1.1 Conduct Adaptation Partnership Workshops

Building Urban Climate Change Resilience in Asia (Bangkok)

The final report for this workshop was completed in October 2012 and uploaded to the AP web site along with the workshop presentations.

Climate Change and Security (Washington, DC)

The two-day workshop was comprised of lively plenary discussions, small group exercises, and a role play simulation that was developed specifically for this meeting. The workshop report was prepared by staff at the Woodrow Wilson Center and Engility-IRG, sent to all participants, and also uploaded to the AP site.

CCRD, the Wilson Center, USAID, the U.S. Department of State, and the Institute for Security Studies (ISS) initiated planning efforts for a follow-up workshop in Addis Ababa, Ethiopia in October 2013.

International South-South (SS) Learning Workshop: Scaling Up Good Practice in Climate Services for Farmers in Africa and South Asia (Dakar, Senegal)

The International SS learning Workshop: Scaling up Good Practice in Climate Services for Farmers in Africa and South Asia was held outside of Dakar, Senegal, December 10-12, 2012. The purpose of the workshop was to capture and share lessons and evidence about how climate information services can be used to improve the lives of smallholder farmers; foster collaboration between and within sub-Saharan Africa and South Asia; identify critical gaps in the design, delivery, and use of climate-related information among smallholder farmers; and initiate a process toward strengthening and scaling-up climate information and advisory services for food security in sub-Saharan Africa and South Asia. CCRD staff participated in the workshop, and facilitated logistics for participants.

The workshop report was published in April 2013 by the Consultative Group on International Agricultural Research (CGIAR) Research Program on Climate Change, Agriculture, and Food Security (CCAFS). The report was sent to all participants and uploaded onto the CGIAR website. As a follow-up to the workshop,

CCRD convened four proposal writing workshops in June and July 2013 in Africa and South Asia to help participants apply for competitive grants to implement project ideas developed during the December 2012 workshop.

Climate Change and Security (Addis Ababa, Ethiopia)

Planning began for the follow-on to the Climate Change and Security workshop with the Woodrow Wilson Center, Engility, USAID, the U.S. Department of State, and the ISS. The ISS developed a concept note and budget for the workshop that was approved by USAID. The workshop took place from October 14-16, 2013. Details from the workshop will be included as part the FY 2013 report.

Climate Change Basics Training for MPA Practitioners (Western Indian Ocean [WIO] region)

The National Oceanic and Atmospheric Administration's (NOAA) International Capacity Building Program, NOAA's Climate Program Office, The Nature Conservancy (TNC), and Western Indian Ocean Marine Science Association (WIOMSA) and CCRD combined efforts to build upon the one-time training on climate change and reef resilience that TNC-NOAA conducted in the WIO region in June 2013. Mary Sue Brancato, an Engility-IRG consultant, served as a training instructor for this one-time reef resilience and climate change training that will be used as a springboard for additional capacity building training in the region.

Planning with NOAA continued to develop follow-on training to the Climate Change Adaptation Priority Setting Workshop that was held in February 2012. The Climate Change Basics training will be an overview course to provide a basic understanding of the root cause of climate change in marine protected areas; the types of physical, chemical, and biological changes that are taking – or may take – place; and anticipated types of resulting impacts on habitats, species, natural systems, and human communities. The training will also be used for participants to develop a stakeholder engagement plan for involving stakeholders in planning for and adapting to climate change. It will also give stakeholders the tools for communicating climate change, including message development. The training is scheduled to take place in November 2013 for up to 30 participants from the WIO Agulhas and Somali Current Large Marine Ecosystems (ASCLME).

ACTIVITY 2.2 ADAPTATION PARTNERSHIP COMMUNITIES OF PRACTICE

Task 2.2.2 Develop Adaptation Partnership Materials

CCRD staff prepared 270 USB thumb drives for dissemination at the COP18, which took place in Doha November 26 – December 7, 2012. The drives were pre-loaded with information on the AP; country profiles of “Review of Current and Planned Adaptation Action” for Africa, Asia, and LAC; and technical papers on mainstreaming and Communities of Practice.

CCRD supported USAID's management of reviews for the Asia and Australasia chapters of the second-order draft of the Intergovernmental Panel on Climate Change (IPCC) Assessment Report (AR5). ICF assisted Jonathan Cook, USAID lead on the AR5 review, in organizing conference calls of chapter reviewers; preparing notes on key issues raised during conference calls; completing the technical review of the Asia chapter and submission of comments to the online review system; and organizing meetings with the USAID-GCC staff lead to review and synthesize reviewers' comments. Several CCRD staff and consultants served as technical reviewers of the two chapters.

E. OBJECTIVE 3: IDENTIFY AND RESPOND TO EMERGING ISSUES AND FILL GAPS

CCRD continued work during FY 2013 on the three emerging areas that have been supported since the first year. CCRD facilitated adaptation planning workshops in Tanzania and Ghana, expanded efforts in the High Mountains Adaptation Partnership to integrate analyses of glacial lake outburst floods into local planning document, and supported capacity building, assessments, and knowledge management for climate services. In addition, a new program – the Climate Resilient Infrastructure Services (CRIS) Program – was initiated and began work to develop pilots in three developing countries.

ACTIVITY 3.1 SUPPORT ADAPTATION PLANNING AND IMPLEMENTATION

Task 3.1.1 Support Preparation of National Adaptation Plans

CCRD, in collaboration with USAID, has been supporting a process for developing an integrated policy framework for the Government of Jamaica that incorporates climate considerations. Discussions have been carried out between USAID and the Government of Jamaica regarding next steps. Slow reactionary time from the Jamaican government has limited CCRD's ability to contribute to the policy framework.

Tanzania Coastal Climate Change Workshop

Working with Tanzania's Vice President's Office, USAID/Tanzania, and the University of Rhode Island's Coastal Resources Center, CCRD conducted a coastal-focused workshop to support and inform Tanzania's national adaptation planning process. The workshop was attended by 30 people on Day 1 and 25 people on Day 2, with representatives from Government (e.g., Vice President's Office; Ministries of Agriculture, Water, Livestock and Fisheries, Natural Resources and Tourism; Planning Commission), NGOs (e.g., WWF), research institutes (e.g., WIOMSA), and the private sector (Norwegian oil company). The objectives of the workshop included: vetting USAID's mainstreaming approach with the stakeholder group, eliciting quality inputs on the coastal sector that the government could use as they move their National Adaptation Plan (NAP) process forward, and stimulating thinking about criteria for evaluating adaptation options.

West Africa Regional Coastal NAP Workshop

Working with Economic Community of West African States (ECOWAS), USAID/West Africa, and the University of Rhode Island's Coastal Resources Center, CCRD conducted a coastal-focused workshop to support and inform national adaptation planning processes in coastal member states of ECOWAS. The two and a half-day workshop was attended by 31 people, and the working group session on the afternoon of the third day by 18 people, with national governments as well as regional institutions represented at both. The objectives of the workshop were to: identify priority issues for coastal adaptation at national and sub-regional levels; demonstrate and refine methods for national adaptation planning; facilitate the integration of climate change adaptation into development plans, processes, and strategies; agree on a road map for a regional plan

of action that supports the NAP process in each country; and document experiences to inform and influence the UNFCCC and other relevant international processes. Engility-IRG, ICF, and Coastal Resources Center are currently drafting the workshop report, an action plan, talking points, and a presentation capturing lessons learned.

Since the conclusion of the workshop, CCRD has been hosting weekly calls involving USAID/West Africa and ECOWAS to encourage continued dialogue and facilitate identification of next steps.

Task 3.1.2 Develop and Pilot Fast Track Implementation (FTI) Concept

The CCRD team presented the initial concepts for FTI, which uses a streamlined approach for identifying adaptation options that can be implemented quickly, at the Senior Advisory Committee meeting in January 2013. The CCRD team submitted a revised concept paper that incorporated comments received from the Senior Advisory Committee. Work began on identifying criteria for applying FTI. From this work, the team submitted a memo “Criteria for Identifying FTI Opportunities” on March 25, 2013, and another entitled “FTI Sector Identification” on March 29, 2013. These options are low-cost, flexible, easy-to-implement, and reduce climatic and other risks. A memo on Selection of FTI pilots was submitted on June 19, 2013. The purpose of this memo was to outline some options for the selection and development of appropriate sites for piloting the FTI approach.

CCRD developed a screening approach for FTI of climate adaptation. This comprised a set of diagnosis and design criteria for identifying places and situations where a FTI approach would work well. It also involved identification of a broad range of adaptation options that may be effective in FTI (characterized as a combination of impacts, RSAs, and options), starting with a set of high-priority sectors: coastal, urban systems, water resources, energy, health, and agriculture. Initial results covering two sectors (agriculture and health) were presented during a Green Bag Lunch at ICF on August 9th. In addition, the team began to synthesize the outputs from each of the six high-priority sectors.

ACTIVITY 3.2 GLACIERS AND MOUNTAINS

Task 3.2.2 Develop the HiMAP’s Community of Practice

Community of Practice (CoP)

The HiMAP’s Community of Practice (CoP) aims to increase awareness of the critical importance of high mountain watersheds in the context of climate change, highland-lowland interactions, and ecosystem services. New members included practitioners from the American Anthropological Association, World Wildlife Federation, UNDP – Pakistan, small NGOs, and non-profit organizations in China, Peru, and the United States. Members adopted a strategic approach to meet the goals of the HiMAP CoP. This strategy includes a strong emphasis on face-to-face interactions and workshops, commitment to scientific rigor and accuracy, development of educational tools, and outreach.

Redesigned and launched in April, the central platform for CoP membership interaction is www.highmountains.org. Since April, two newsletters were published and the first HiMAP CoP webinar was broadcast (available at: www.highmountains.org/event/webinar).

CoP Meetings

The third international HiMAP conference, “Glacial Flooding and Disaster Risk Management Knowledge Exchange and Field Training,” was held in Huaraz, Peru from July 11-24, 2013. Thirty-three papers were presented, 5 field training sessions were held, and approximately 40 international scientists and development practitioners participated in a three-day field-visit to a glacial lake management site in the Cordillera Blanca.

Additionally, the “Everest Alliance” is being formed to bring international stakeholders (private, public, civil society, and government) to resolve environmental and social problems related to tourism and climate change in the Mt. Everest watersheds, from the Lukla airstrip to the summit. Alton Byers and Ang Chiri Sherpa organized a meeting to discuss feasibility and planning of the alliance at the Khumbu Alpine Conservation

Council (KACC) headquarters in September. The concept was endorsed by KACC with HiMAP designated as the initiative's principal partner.

CoP Outreach and Services

A large monograph on glacial lake management in Peru, titled "Technical Report: Reducing Risk from Dangerous Glacial Lakes in the Cordillera Blanca, Peru" was written by CoP member César Portocarrero, HiMAP staff John Harlin, and TMI staff Alton Byers and is expected to be finalized in the first quarter of FY 2014. The report will provide governments, stakeholders, and practitioners with practical guidance and best practices for managing glacial lakes in high mountain regions across the globe.

CoP Presentations

The HiMAP poster and oral presentation sessions on "Climate Change in Mountain Environments" at the American Geophysical Union (AGU) focused on two issues: (1) Emerging Glacial Lakes in the Cordillera Blanca, Peru and (2) Importance of field work in natural disaster risk assessments in high mountains.

Alton Byers attended the American Alpine Club (AAC)'s Annual Meeting. Byers discussed on-going HiMAP-AAC Climber Scientist program collaboration with the director of the AAC's Conservation Program. Byers also met with representatives with the National Geographic Society (NGS) and The North Face regarding the NGS Everest book and a speaking engagement at NGS Live!

Senior staff from TMI presented progress of HiMAP and future plans of the program to USAID/Engility-IRG on June 6, 2013.

Task 3.2.4 Implement CoP Pilot Project and Research

Nepal Regional LAPA

Nepal's first regionally-focused Local Adaptation Programme of Action (LAPA) was developed during the period. The Khumbu LAPA integrates USAID's Climate-Resilient Development Framework into a policy and planning strategy that covers three communities. The communities voted to combine three proposed LAPAs into one plan with a regional approach throughout the Khumbu region. The participating communities are Chaurikharka (Phakding), Namche (including the Thame region), and Khumjung (including the Gokyo and upper Imja khola regions).

Dr. Mr. Shailendra Thakali was hired in April as the Nepal program's LAPA Team Leader. Facilitation of the LAPA process began in January 2013. A framework of guidelines, summation of initial work, and a plan for developing a draft LAPA action plan were developed by the LAPA Team. This process began with community consultations in Phakding, Namche, and Dingboche, as well as several follow on meetings in Kathmandu. Additional design of the Khumbu LAPA builds on TMI's decades of experience in the region, community workshops, Engility-IRG's training of trainers' workshop in Kathmandu, and trainings of TMI staff in climate change principles and adaptation methodologies.

Several officials¹ are on record stating that the Khumbu LAPA should serve as a premier model for new and existing (over 70) LAPAs throughout Nepal. The Joint Secretary of the Ministry of Forests and Soil Conservation as well as Chief Warden of Sagarmatha National Park also expressed a high level of satisfaction with the LAPA team processes and resulting framework. The LAPA will be completed December 2013 for in-country final reviews.

Khumbu Regional Commitments

Several new projects are in development as a result of the implementation and development promises from the community led and managed Khumbu LAPA. The Khumjung Village Development Committee's Buffer Zone Committee raised Nepali Rupees (Rs.) 3 Lakhs (e.g., approximately \$3,000 USD as of this publication)

¹ Mr. Gautam Rajkarnikar and Mr. Top Khatri of Government of Nepal Ministry of Science, Technology, and Environment; Keti Chachibaia, of UNDP/GEF; and Anupa Rimal Lamichhane, of UNDP Nepal.

for the Khumbu Alpine Conservation Council (KACC) nursery and infrastructure improvement; Rs. 3.5 lakh (e.g., approximately \$3,500 USD as of this publication) for repair of the Debouch bridge that collapsed in July 2013; and Rs. 5 lakhs (e.g., approximately \$5,000 USD as of this publication) for the development of a new freshwater system for Dingboche—all three of these projects are action plan priorities listed in the **Khumbu LAPA**. The KACC has expressed its gratitude to USAID and HiMAP for leveraging these projects.

Additionally, the KACC has engaged in a project to provide solar-powered biogas plants to 25 lodges in the region.

Peru Funded MOU for an Innovation Pilot

The HiMAP signed a Memorandum of Understanding with the Ministry of Environment of Peru to cooperate on a pilot project with the Ministry of Environment of Peru/Inter-American Development Bank (IDB). The pilot will strengthen Peru's regional capacities to adapt to climate change in the development and implementation of the Quilcay (Palcacocha) Valley and Huaraz Local Adaptation Plan.

Peru New Research

TMI completed five climate adaptation workshops in Quilcay Valley and provided technical support to the municipalities of Huaraz and Independencia to establish investment in adaptation and management of Quilcay Local Adaptation Plan. University of Texas staff analyzed the impact of a glacial lake outburst flood (GLOF) from Palcacocha Lake on the city of Huaraz. In addition, a geographic information system (GIS) database of Peru LAPA activities and a first draft of a water management model for the Quilcay basin have been developed.

Peru LAPA

HiMAP and the Peru Ministry of Environment worked to implement several LAPA objectives, including building local capacity to respond to GLOFs and climate change hazards, design of a GLOF early warning system (EWS), and improvement of ecosystem and infrastructure resilience. Investments allocated for LAPA implementation with local partners exceed \$380,000 through mid-2014.

ACTIVITY 3.3 CLIMATE SERVICES

Task 3.3.2 Coordinate Activities of the Climate Services Partnership

Over the last year, the primary activity of the CSP has been the coordination and implementation of the International Conference on Climate Services or ICCS. The final report for the Second International Conference on Climate Services (ICCS2) was completed and distributed to the conference participants and broader Climate Services Partnership (CSP) network. Meanwhile, planning and preparations for ICCS3 have continued throughout the reporting year. The conference organizing group consists of 13 active organizations including The Jamaica Met, Caribbean Institute of Meteorology and Hydrology, World Bank, UK Met Office (UKMO), NOAA, the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), CSC Germany, Institute Català de Ciències del Clima (IC3), UNDP, Centro Euro-Mediterraneo sui Cambiamenti Climatici (CMCC), the National Center for Atmospheric Research (NCAR), and Engility-IRG (Glen Anderson). Consultations have shown significant interest in featuring sessions concerning health, drought management, climate services for smallholder farmers, financial services, and coastal management, in addition to featuring existing climate services programs in Jamaica and the greater Caribbean. CCRD is also working with Jamaica Met Service and USAID to establish a local organizing committee of agencies and government ministries to support the conference, and assist in high-level invitations. The Secretariat has been working with designated leaders of parallel sessions to establish agendas, contributors, and outputs that can support an overall conference objective. As a new element of ICCS, CCRD is also offering a Tools and Training Expo segment, where organizations will showcase products or tools of relevance to climate services.

The CSP also formally launched the CSP Knowledge Exchange, with a webinar entitled "Stakeholder Involvement through the EUPORIUS project," delivered by Carlo Buontempo of the UKMO. The first event had a respectable level of participation (more than 30), and proceeded smoothly with the Adobe

Connect technology, adopted from the CCRD web development team. The second event was held on June 27, 2013, and covered the topic of data recovery, delivered by T. Allen of IEDRO with 32 participants in attendance. A future webinar entitled “Business, Community and Climate: Emerging Ideas on How to Build Supply Chain Climate Resilience” delivered by Peter Allen of Acclimatise will be delivered in early FY 2013. In addition to the webinar series, a CSP Newsletter was launched in early July. It is a quarterly publication providing information, current events, and editorials targeted to the broad CSP network. Design and production are being managed at the Secretariat, as well as editorial and other content. The second edition of the CSP Newsletter is being produced and is expected to be released in early FY 2013.

In December 2012, The CSP held a joint CCAFS/WMO/USAID/CSP workshop on “Scaling Up Climate Services for Farmers in Africa and South Asia”, in Saly, Senegal. The event allowed the assessment work on climate services in Mali by CCRD, and similar assessments in India by CCAFS to be presented and discussed; additionally other case studies were presented, key challenges and issues were discussed, and aspects of good practices identified. Emerging from the workshop was a set of program ideas for regional or interregional collaborations in farmer-focused climate services. The CSP built on the outcomes of the December workshop by assisting in the development of collaborative proposals and projects among the participants, and utilizing the CSP platform to promote a focus area on climate services for farmers. From June to July 2013, four separate Writeshops were held in Nairobi, Dakar, and Kathmandu that were facilitated by consultant Mannava Sivakumar and various Engility-IRG staff. Participants were tasked with developing proposals in response to the solicitation development by the CSP. The Secretariat contributed to the review of proposals for small grants to be implemented under CCRD. Awards are to be made in early FY 2014.

Task 3.3.3 Compile and Disseminate Current Climate Services Knowledge

The CSP website was completed and launched on July 22, 2013. The CSP secretariat worked with CCRD staff to further develop and manage the site. An online forum to support South-South collaboration on information tool development was also included as part of the website functionality. The CSP has also released a survey to solicit more information to contribute to the database, and has hired interns to manage this process. For more information please visit: <http://www.climate-services.org/>

Task 3.3.4 Conduct Case Studies and Assessments of Climate Services

The CSP added several new case studies to its collection including those from The International Federation for the Red Cross and Red Crescent, the German Climate Service Center, US National Oceanic and Atmospheric Administration, Beijing Climate Center, Netherlands Meteorological Institute, and Centre for Climate Risk and Opportunity Management in Southeast Asia, and Ebonyi State University.

The CSP finalized and published four case studies on the climate services website. These include: Atmospheric Climate Information for Urban Planning: Beijing Municipal Climate Center; Climate Services Across Borders (KNMI); Building the Capacity of Smallholder Rice Farmers Under a Changing Climate in Nigeria (RGCCA-Nig); and Applying Science to Society: The Climate Service Center (CSC).

Throughout FY 2013, Ed Carr worked on the Mali Agrometeorological Program Assessment. He collaborated with CCAFS to ensure data entry proceeded at an appropriate pace, facilitated the resolution of database issues, and worked with Stratus Consulting staff data queries. Mr. Carr analyzed the assessment data to facilitate drafts of the program assessment. Inconsistencies in data entry of crop varieties were identified and provided standardized crop variety names, which were then incorporated into a corrected analysis database by Stratus Consulting. Crop names were also standardized to allow for more meaningful analysis. In addition to the crop analysis, an analysis of crop varieties (by village cluster and demographic information) was performed. Discussions regarding data collection in the coming year have been held, including preliminary information about revisions to the data collection instrument.

Task 3.3.5 Economic Valuation of Climate Services

Under Task 3.3.5, Engility-IRG and Stratus managed and engaged in discussions on future efforts related to the economic valuation of climate services.

Literature Survey and Synthesis Paper on Valuing Climate Services

CCRD finalized a literature survey and synthesis paper on valuing climate services and initiated work on a primer/book on the socio-economic benefits of weather, climate, and water information and services.

Literature Survey and Synthesis Paper on Valuing Climate Services

Janet Clements and Aaron Ray of Stratus Consulting, with support from CCRD Chief of Party, Glen Anderson, finalized the report on economic valuation of climate services across economic sectors. This was in response to comments and feedback from participants at the International Conference on Climate Services (ICCS2) in Brussels, Belgium in September 2012, and from members of the CSP Working group on Valuing Climate Services. A paper based on the report has been accepted for publication in *Environment and Society: Advances in Research*.

Primer on Valuing the Benefits of Weather, Climate and Water Services

CCRD co-organized the Meeting of the World Meteorological Organization (WMO) Forum: Social and Economic Applications and Benefits of Weather, Climate and Water Services in Geneva, Switzerland, April 8-11, 2013 (jointly with WMO and the World Bank). The purpose of this meeting was to bring together experts to begin developing a primer on valuing weather, climate, and water services and understanding how to design both ex ante and ex post studies and communicate the results to funding agencies, national met and hydromet services, and users of climate services. The first two days of the meeting featured presentations on the valuation of climate services and reports on climate services development in countries around the world. The latter two days of the meeting were focused on the review and revision of an annotated outline prepared by CCRD staff for the Primer on Valuing the Benefits of Weather, Climate and Water Services.

In the months following the meeting in Geneva, lead editor Glen Anderson, coordinated the refinement of the annotated outline, confirmed commitments of lead and contributing authors for the 10 chapters of the primer, and worked with WMO and the World Bank to finalize a timeline and secure funding for authors and workshops to vet drafts of the primer and production of the primer. In addition to Glen Anderson's role as co-editor and contributor to selected chapters, CCRD is supporting lead authors on five of the ten chapters of the primer. The book, a joint collaboration of WMO, USAID, CSP, and the World Bank is expected to be published by WMO in FY 2014.

Task 3.3.6 Climate Information Guide

During this period, a second draft of the Guidance Note on Hydromet Services, commissioned by the World Bank, was completed. Following discussions among USAID/E3, IRI, and the World Bank on the topic of collaboration on climate services guidance under the CSP umbrella, IRI sent guidance material requests to a number of institutions/stakeholders. IRI received guidance materials from several institutions and posted the materials on the CSP website following approval of the authoring institution. IRI continued to review guidance materials and populate the template guide. IRI also began to identify overarching themes, topics, needs, gaps, and possibilities to integrate and build on the materials.

Task 3.3.7 National/Regional-level Climate Services Development

Subtask 3.3.7.1 Climate service capacities and communities of practice for West Africa

IRI conducted two training workshops at AGRYMET. The first, held July 17-27 2013, was on data quality control, satellite rainfall estimation, and merging station data with satellite and other proxies. The workshop sought to enable participants to understand and implement basic data quality control procedures; ensure that participants understand the strengths and limitations of satellite rainfall estimates; and to enable participants to understand and implement data merging techniques. The second workshop was on the development and management of Map Room targeting AGRYMET IT personnel.

Subtask 3.3.7.1.c National-level Climate Services development in Tanzania.

Simon Mason conducted training on seasonal forecasting, emphasizing the Climate Predictability Tool, during the week of September 2, 2013. A prototype forecast for subregional precipitation was produced and utilized

in a parallel training activity for development and agriculture practitioners in northern Tanzania, led by CCAFS. Both are steps forward toward a larger program being developed with World Vision International, WMO, and other partners.

Subtask 3.3.7.2 Central America Follow-up Workshops to Adaptation Partnership workshop

Three workshops in Honduras, Dominican Republic, and Guatemala were held as follow-ups to the Adaptation Partnership workshop in FY 2012. Brief summaries are provided below:

Honduras

With additional support of the CGIAR Research Program on "Climate Change, Agriculture and Food Security" (CCAFS), and technical resources of the Regional Committee for Hydraulic Resources (CRRH), IRI held workshop on "Developing Climate Information System for Agriculture in Central America," in Tegucigalpa on July 18, 2013. During the workshop, participants discussed the mechanisms and strategies to strengthen information systems that reduce the vulnerability of production systems in the Central Region; they also identified priorities addressed by new research initiatives in the region.

Given the diversity of the participants and the various experiences shared, this opportunity was a unique opportunity to exchange ideas and strengthen communication mechanisms between representatives of the Meteorological Services of the different countries of the Central American region and representatives of different organizations and agricultural entities in the region. In particular, the even highlighted the need for information tools to assist in decision making regarding basic grains (e.g., maize and beans), as well as early warning systems for crop diseases, especially with regards to coffee.

Dominican Republic

IRI hosted a workshop in the Dominican Republic in order to help communities and producers of various agricultural chains that are vulnerable to the impacts of climate variability and change. As a result of this workshop, the participants were able to identify specific needs of users including the needs to improve access to climate information for decision making; improve available forecasts (1-5 days and seasonal); conduct a characterization of the climate to recognize what has been changing in Dominican Republic, for example, in terms of precipitation and temperature; establish insurance programs (traditional and index) and risk analysis; and build capacity of national meteorological service staff, farmers, and the staff responsible for communicating and disseminating the information.

Guatemala

The Private Research Institute on Climate Change (ICC) collaborated with IRI to conduct a workshop to support the generation and use of meteorological tools in agriculture. One of the major goals was to discuss the use of climate information in the agricultural sector in order to address vulnerability to climate variability.

Subtask 3.3.7.4 National-level Climate Services development in Jamaica

The initial activities in engaging key institutions in Jamaica were completed during a visit from IRI's team, joined by John Furlow of USAID, in early February 2013. The findings of the initial Agency consultations identified major interest in climate services to support drought management but did not yet identify specific agency participation or potential targeted products and services that might be developed. The team consulted with Jamaica Meteorological Service (JMS) partners, and agreed to convene a workshop with the many interested agencies and organizations to discuss specific climate services priorities, interests, and practical steps toward implementation of activities in 2013 (to be showcased at ICCS3 in December).

The workshop was held May 7, 2013 in Kingston, Jamaica. IRI and Mr. Furlow participated in the workshop and a set of additional Agency consultation meetings. As a result of the workshop, specific proposals and institutional commitments to support a climate services Working Group for Agriculture and Climate were established. A broader set of climate-related interests were identified, including an internship program.

On the technical support side, IRI hosted Mr. Glenroy Brown of the Jamaica Meteorological Service (JMS) for one week in May for training on climate forecasting using the Climate Predictability Tool. This will be incorporated into the new drought-related information products to be developed for the climate services initiative. Additionally, IRI worked with partners at the Caribbean Institute for Meteorology & Hydrology (CIMH) on forecasting technologies that can support and assist JMS in database development and management. IRI and JMS developed a proposal and rationale for new computer hardware to support the new services. As a result, a request was forwarded to the World Bank/IDB for financial support in connection with their Jamaican investments under the Pilot Program on Climate Resilience.

The above will all be featured in the Jamaica presentation at ICCS3, showcasing national climate services development for a global audience.

Task 3.3.8 Develop Climate Services Products for the Agricultural Sector

The starting point for the assigned work consisted of a preexisting code base that had been applied for hydrological and agriculture simulation in the Western Cape province of South Africa. In addition to incorporating modifications and improvements as directed, the IRI programmer extensively “refactored” the code. This is expected to facilitate future application across new regions, as well as modification of the code itself. Work is presently proceeding on a set of diagnostic routines so that simulation output can be carefully validated prior to releasing it for use in driving agricultural models.

Subtask 3.3.8.1 Develop the next generation of Global Gridded Biophysical Model Systems

Progress has been made developing multi-model capacity within the Parallel System for Integrating Impact Models and Sectors (pSIMS). Translation apps prototyped in have been refined, tested, and integrated into the framework. Prototype tools for Decision Support System for Agrotechnology Transfer (DSSAT) and the Agriculture Production Simulator (APSIM) were finalized at the planning workshop hosted in Chicago September 3-6. This workshop brought together the developer and other project participants with collaborators with key relevant expertise (e.g. DSSAT expert Ken Boote (U. Florida), APSIM expert Sotirios Archontoulis (Iowa State), and soil data expert Jetse Stoorvogel (Wageningen). With these experts, the DSSAT and APSIM prototypes were debugged and refined and successful prototype runs (global simulations of maize at 0.5 degree spatial resolution) were completed for both models. Since the workshop, the framework interface has been further refined to improve usability and operational capacity.

Subtask 3.3.8.2 Develop near-term climate scenarios for Agmip

A simulation model was constructed and is presently being validated and tuned, focusing on the West Africa subdomain of Sub-Saharan Africa (the Sahel region). The model is statistical in nature and optimally incorporates information from both global climate models and regional observational networks. Model code has recently been modified so as to assimilate observations from the AgMERRA network and generate simulated climate sequences on the daily time step (daily time resolution is required in order that the simulations be useable for driving agricultural models), and testing of daily precipitation and temperature characteristics, including wet- and dry-spell lengths and extremes, is presently underway. Coordination with the CCSR team has enabled the use of common data formats, so that model output can be readily ingested by the full range of follow-on agricultural models.

Core model functions have been designed for “portability” to the extent possible, and are expected to be widely useable over all of the Agricultural Model Intercomparison and Improvement Project (AgMIP) regions under investigation, viz., West and East Africa and South Asia. The model core must be supplemented, region by region, with analysis of local climatologies, separation of the “true” climate change response from regional decadal variability and consideration of driving factors that may be regionally unique. These analytic elements will be taken up as the team move from region to region within the AgMIP framework.

Task 3.3.9 Climate Services Technical Backstopping of Development Programs

Fast Track Implementation Internship Program (FTI)

The IRI launched the FTI program for climate change adaptation within the health and agriculture sectors. The goal of FTI is to use a streamlined approach for identifying adaptation options that can be implemented quickly, and demonstrate the immediate and tangible development benefits of adaptation. Four candidates from the M.A. program for Climate and Society at Columbia University were selected to conduct research.

The FTI team traveled to Washington DC from June 6-7, 2013 to receive background information on CCRD from CoP Glen Anderson, develop a framework for analyzing FTI options, and detail a work plan and schedule for deliverables.

Research was performed over a ten-week period (June 3 to August 9, 2013). As a result, three triads were defined for each sector, which outlined climate hazard, impact, and resource/sub-population/assets at risk, for each sector. The FTI team presented program findings August 9, 2013 in Washington, DC.

ACTIVITY 3.4: CLIMATE RESILIENT INFRASTRUCTURE SERVICES PROGRAM

CCRD developed and delivered a work plan for the Climate Resilient Infrastructure Services program (CRIS) to USAID and began implementation of CRIS activities. CRIS is developing and testing approaches that can increase the climate resilience of infrastructure assets and the services they provide in developing countries. The knowledge and experience gained from working with CRIS pilot cities may be multiplied by sharing successes and lessons learned with other cities confronting similar issues. CRIS is also managing a small grants program to directly fund implementation actions to improve climate resilience in city neighborhoods and build capacity for adaptation planning, advocacy, and implementation at the local level.

During FY 2013, the CRIS work plan was refined to ensure it meets USAID objectives and engages CCRD partners. This involved multiple meetings with USAID to solidify the scope of CRIS activities, meetings and discussions with Engility-IRG, Stratus, and Cascadia staff, CCRD SAC meetings, and internal staffing and budget meetings. CRIS staff also attended the USAID Infrastructure Workshop and the 2013 International Council for Local Environmental Initiatives conference to raise awareness among USAID field staff and development practitioners about CRIS.

Task 3.4.1 Identification of Pilot Cities

This activity was completed in FY 2013. CCRD partner ICF identified and selected three pilot cities to work with under CRIS: **Piura, Peru; Nacala-Porto, Mozambique; and Santo Domingo, Dominican Republic.** Subsequently, the USAID/Peru mission decided to provide additional funding to support a pilot with **Trujillo, Peru,** and the work of CCRD partner Cascadia with **Hue, Vietnam** was incorporated into the CRIS program. This increased the number of CRIS pilots to **five cities.** The identification process, which was developed and implemented for the selection of the initial three pilots, accomplished the following:

Memorandums of Understanding (MOUs) between USAID and the selected pilot municipalities in Peru, Dominican Republic, and Mozambique were drafted. Plans for executing and announcing the MOUs were developed with the country missions and signing ceremonies are planned for FY 2014. A memo that documented the pilot city selection process was submitted to USAID on August 13, 2013.

Task 3.4.2 CRIS Support to Pilot Cities to Accelerate Climate Risk Management

In FY 2013, ICF began work plan implementation in Peru, Dominican Republic, and Mozambique. In addition, work by CCRD partner Cascadia continued in Vietnam. The work with the Latin American and African pilot municipalities focused on establishing a CRIS presence in each city, assessing city needs and development objectives, and developing tailored work plans to be jointly implemented by the CRIS team and stakeholders in each city.

The work plans were designed to build capacity and provide technical assistance to each municipality to support their ability to increase climate resilience. In Hue and Hanoi, Vietnam, CCRD partner Cascadia continued to implement a customized Climate Impacts Decision Support Tool (CIMPACT-DST) for the government of Vietnam.

More specific information on each of the pilot cities' work planning trips follows.

Peru

In FY 2013, CCRD partner ICF developed and initiated a technical plan of work with the city of Piura, Peru under the CRIS program. This work included developing stronger relationships with the Municipality of Piura and external stakeholders, identifying local support in Piura, and delivering training to increase the technical understanding of city officials.

After visiting Piura for the scoping and city selection process in May 2013, the CRIS team conducted two working trips to Piura. A representative of the USAID Peru mission accompanied the CRIS team on these trips. The first working trip in July 2013 focused on collecting information and developing a draft work plan of activities to undertake with the city over the next year. The team met with officials in the Municipality of Piura, the Piura regional government, and various external stakeholders from civil society and academia. Based on this visit, the CRIS team developed a work plan that identified three areas of activities to undertake with the Municipality of Piura through July 2014. The team also developed a MOU to execute with the municipality in recognition of the partnership between Piura and USAID. The CRIS team shared the MOU and work plan with USAID, USAID/Peru, and the Municipality of Piura for feedback.

The CRIS team conducted a second working visit to Piura for September 2013 to implement work plan activities with the city. The trip included a one-day workshop with the Municipality of Piura and the University of Piura to share information on foundational concepts related to climate change, climate information, impacts, climate risk, vulnerability (including exposure, sensitivity, and adaptive capacity), and adaptation strategies. The workshop featured a presentation from the municipality on its development objectives and a presentation from the University of Piura on drainage issues in the city and projects that are underway or being considered to help alleviate current flooding impacts. The team will hold collect information on infrastructure and development projects, existing plans, and climate and socio-economic data.

Additionally, CCRD and CRIS staff worked with USAID to facilitate a buy-in from the Peru mission.

Dominican Republic

ICF worked with the National District (ADN), USAID, and the USAID/Dominican Republic mission to plan and conduct a working trip from July 29 to August 1 2013 to identify areas where CRIS priorities could align with the National District's priorities. The team also coordinated with ADN to schedule meetings with internal staff and other National District entities, including the Mayor of the National District, the district's Urban Planning Division, the local water utility, and others. The team gathered information on city infrastructure and existing vulnerabilities, city priorities and planned projects, climate information, and external initiatives and potential partners. This information was used to inform the work plan.

MOUs between the USAID mission and the National District were drafted and submitted to USAID.

In early FY 2014, CRIS will meet with ADN, USAID, and the USAID/Dominican Republic mission to conduct trainings with project stakeholders on foundational concepts for climate information and resilient decisions.

Mozambique

The CRIS team worked with Antonio Queface, technical consultant, and Adelino Emílio Cobre, point of contact for Nacala-Porto, to assist Nacala-Porto's efforts in planning for future climate impacts, identify vulnerabilities to infrastructure services, and begin addressing climate risk as part of municipal decision

making. The CRIS team worked to: (i) better understand the social, economic, and environmental development context of Nacala-Porto, (ii) to work with the municipality to identify work areas that would both meet Nacala-Porto's needs and support CRIS objectives, and (iii) to interview candidates for the local CRIS coordinator position. The team also introduced the CRIS program to stakeholders, initiated relationships with municipal staff, and identified partner organizations including the INGC (Mozambique's Department of Disaster Risk Reduction). An in-country coordinator will be selected in early FY 2014 to support CRIS activities and maintain progress with the municipality for the duration of the program.

Task 3.4.3 Fast Track Implementation Small Grants Program

In FY 2013, the CCRD team developed and released the first CRIS small grant solicitation to approximately 60 organizations across the world. The objective of the first Call for Proposals was to identify and fund projects that involve direct collaboration with city governments in developing countries, to increase the climate resilience of infrastructure services. Grant proposals were solicited in the following areas:

- Demonstration of approaches for the development of an urban infrastructure inventory to support climate resilient planning efforts;
- Demonstration of a rapid vulnerability assessment approach for infrastructure services, and
- Implementation of public-private partnerships to undertake joint strategies to ensure climate resilient infrastructure services.

A total of 11 eligible proposals were received, and five organizations were selected to receive grants. Grant awards ranged from \$109,000 to \$150,000. The grantees and their proposed work are:

- The Energy and Resource Institute (TERI) – “Urban Infrastructure Inventory and Rapid Vulnerability Assessment for Resilience Planning in Two Coastal Cities in India”
- Yayasan Kota Kita Surakarta – “Vulnerability Assessment, Infrastructure Inventory, Resilience Planning and Capacity Building for the City of Manado, Indonesia”
- Yayasan Mercy Corps Indonesia (YMCI) – “CRISPI Climate Resilient Infrastructure Services Program – Indonesia”
- Thailand Environment Institute – “Public-Private Partnerships for Climate Resilient Infrastructure: Barriers and Opportunities in the Phuket Tourism Sector”
- Instituto Dominicano de Desarrollo Integral (IDDI) – “Increasing Resilience to Climate Change of Santo Domingo's Services Infrastructure”

In consultation with USAID, ICF developed the first-round solicitation from ideas drawn from needs at the city level for assessing infrastructure vulnerability and promoting climate resilient development. A set of sub-city level activities (e.g., at the level of community organizations) will be considered in subsequent CRIS solicitations in FY 2014.

CCRD staff received responses to the Call for Proposals and initially screened the applications for completeness. USAID, CCRD staff, and partners ICF, Stratus, and Cascadia reviewed the proposals to identify the best applications. Grant agreements were executed with the applicants and technical reviewer roles were assigned to Stratus and Cascadia. Agreements for the remaining three selected grants will be implemented in early FY 2014.

A second round of small grants, targeting organizations working in CRIS pilot cities, is planned for FY 2014.

Task 3.4.4 Global City-To-City Information Exchange

In FY 2013, ICF designed the structure of the global city-to-city information exchange through research and consultations with USAID, CCRD staff and partners, and external organizations. Peer learning events will be

conducted in FY 2014. ICF also developed a communications strategy for the CRIS program. This included development of products to communicate the program to stakeholders at USAID, missions, pilot cities, and other organizations. These activities consisted of the following:

Peer Learning Activities

ICF worked closely with the Institute for Sustainable Communities (ISC) and CCRD staff to develop a budget for the Latin America/Caribbean Regional Workshop to be held in March 2014 in Santo Domingo, Dominican Republic. The 3 day workshop will bring together key decision makers from 6-8 coastal and low-lying cities, including the CRIS pilot cities to foster peer learning and prepare city authorities to take concrete actions to build the climate resilience of vulnerable infrastructure services in high-risk areas. Key organizations that CRIS has engaged with include:

- NGOs, academics, and practitioners: ISC, ICLEI, START, Urban Climate Change Research Network (UCCRN), International Institute for Environment and Development (IIED)
- City governments: the City of Seattle, CRIS pilot cities and candidate pilot cities
- Donor agencies: IDB, the World Bank

Communications Products and Outreach Activities

ICF, CCRD staff, and USAID developed a detailed communications strategy for CRIS. The communications plan identifies three primary objectives of communications under CRIS: (i) to promote the program, (ii) to facilitate peer learning and capacity building, and (iii) to disseminate CRIS's primary messages. The communications plan identifies the media and products that will be used to achieve these three objectives, including the development of two-pagers to communicate work with city pilots, small grants, and other work products developed under the program; videos to highlight work in one or more pilot cities; articles in relevant publications; convening regional workshops to facilitate peer learning; attendance at workshops and conferences; webinars, including a small grants webinar featuring the work of grantees; and preparation for a global city workshop to be held in 2015.

The CRIS team developed and delivered a "Climate 101" presentation targeted for Piura municipality representatives and other key Piura stakeholders on foundational concepts related to climate information and resilient development. The presentation was tailored for Santo Domingo (and may also be for Nacala-Porto in FY 2014), as well as generalized for broader dissemination to the development and adaptation communities.

A four-page overview, a two-page summary, and a tri-fold brochure describing the CRIS program were published and distributed locally. A white paper on pre-planning for post-disaster reconstruction was drafted and presented at the SAC Meeting in January. And ICF incorporated feedback and research, and a revised draft of the white paper will be circulated to CCRD partners for review in FY 2014.

An article for USAID Frontlines was submitted by the CRIS team for publication in the November 2013 issue. The article highlights the CRIS approach and work conducted in Nacala-Porto, Mozambique.

Task 3.4.5 Provide Information and Technical Resources to USAID Staff

In FY 2013, the CRIS team collaborated with USAID mission staff located in the respective countries of CRIS pilot municipalities. CCRD partner ICF worked with USAID Global Climate Change staff to plan for the 2013 Infrastructure Workshop for USAID staff, to be held in December 2013. ICF brainstormed topics and activities for the climate change adaptation session, including making the case for incorporating adaptation into infrastructure projects and programs, diagnosing climate change impacts on infrastructure projects and programs, designing adaptation actions to mitigate impacts, and communicating about climate change impacts to key stakeholders. A variety of training activities have been under consideration, including a game or other interactive exercises, featured presentations by USAID field staff who are addressing climate change as part of their program activities, and updates on CRIS activities and lessons learned.

Task 3.4.6 Evaluate CRIS Activities and Recommend Next Steps

In the final months of FY 2013, ICF assessed the next steps for the CRIS program, with an emphasis on FY 2014 activities. ICF developed a work plan and task budget for the third CCRD contract year from August 2013 through July 2014 by scoping out the activities that would occur in the final quarter of FY 2013 and the first three quarters of FY 2014. This also included identifying roles for CCRD partners and reinforcing linkages between the CCRD approach and the CRIS program.

ICF drafted indicators for monitoring and evaluating the CRIS program for implementation in FY 2014. These indicators will help inform the development of a plan for program continuity and sustainability at the conclusion of CRIS. ICF will (i) develop measurement indicators in each activity area that are aligned with CCRD M&E indicators and priorities, (ii) establish processes for tracking information required to evaluate CRIS indicators (e.g., processes for tracking workshop attendees, number of male/female participants); and (iii) consolidate information and report on indicators in development of quarterly reports.

Task 3.4.7 Cascadia Vietnam Pilot

Cascadia Consulting Group successfully conducted a final technology transfer of the Climate Impacts Decision Support Tool (CIMPACT-DST) to the Hue Urban Planning Institute in late FY 2013. This included a transfer of the tool itself, a tool User Guide, an Administrator Guide, and a document that summarizes the tool's embedded information. Administrators plan to fully test the provided materials and then distribute the Tool and User Guide to city and provincial government staff from a variety of sectors, including the Departments of Natural Resources and Environment, Planning and Investment, Agriculture and Rural Development, Construction, and Architecture.

Throughout FY 2013, Cascadia customized the CIMPACT-DST for the government of Vietnam. The developers trained the Administrators of Hue CIMPACT-DST on how to use, customize, and update the tool. Cascadia also trained future users and administrators of Hue CIMPACT-DST at the Hue Urban Planning Institute on the tool and its functions, information sources, and processes for maintenance and updating.

Cascadia coordinated with Dr. Luu Duc Cuong at Centre for Research and Planning on Urban and Rural Environment (CRURE) on the scope, timeline, and organization of the national-level CIMPACT-DST. This coordination included additional assessment of available information provided by CRURE for inclusion in the tool, the tool's organization and structure that will best support the master planning processes, and logistics for the training and technology transfer visit by staff from the Vietnam Institute of Architecture and Urban and Rural Planning and CRURE to Cascadia's offices in Seattle in November 2013. This training visit will include briefings from Cascadia and local government staff from both Seattle and Portland and visits to actual examples of climate resilient infrastructure. In addition to this visit in November, Cascadia will work in-country with CRURE staff in early FY 2014 to finalize a detailed project description, finalize the Tool Needs Assessment, and craft a Scope of Use document that outlines the role of the tool in development of climate resilient Master Plans throughout Vietnam.

ANNEX I. CCRD PERFORMANCE INDICATORS AND ACHIEVEMENTS

During FY 2013, implementation activities supported nine of the 11 performance indicators specified in the CCRD Performance Management Plan. Below is a summary of CCRD performance indicator achievements, followed by a summary table.

Indicator #1: Number of people with increased capacity to adapt to the impacts of climate variability and change as a result of USG assistance (mandatory for Adaptation funding). This indicator is the most stringently measured under CCRD. Measuring adaptive capacity requires an initial baseline assessment of the targeted capacity(ies) and a post-intervention assessment. Due to the need for post-intervention assessment and follow-up, some interventions are not reported until a later reporting period.

- (1) Four people using the Climate Impacts Decision Support Tool (CIMPACT-DST) at the Hue Planning Institute in Hue, Vietnam in their decision making process

Indicator #2: Number of stakeholders receiving training in climate change supported by USG assistance (Person-hours of training completed in climate change supported by USG assistance). Training is defined as a learning activity involving 1) a setting intended for teaching or transferring knowledge, skills, or attitudes; 2) formally designated instructors or lead persons; 3) a defined curriculum, learning objectives, and outcomes. Meetings or other efforts that could have educational value but do not have a defined curriculum or objectives are not considered training.

Support for indicator #2 resulted from 15 workshops/trainings:

- (1) Resource Himalaya Foundation's workshop on *Guideline Preparation for Local Adaptation Plans of Action* (114 people, 89 men, 25 women, 570 hours of training, 445 hours of training for men, 125 hours of training for women)
- (2) Resource Himalaya Foundation's workshop on *How to conduct a Community Based Vulnerability Assessment* (32 people, 22 men, 10 women, 96 hours of training, 66 hours of training for men, 30 hours of training for women)
- (3) Zamorano's *Learning-by-Doing Training* in Honduras (61 people, 34 men, 27 women, 7,320 hours of training, 4,080 hours of training for men, 3,240 hours of training for women)
- (4) ICC's training *Graduates for farmers* in Guatemala Pacific slopes (190 people, 105 men, 85 women, 7,320 hours of training, 4,080 hours of training for men, 3,240 hours of training for women)
- (5) ICC's *Graduates for Farmers* in La Maquina, Nicaragua (56 people, 29 men, 27 women, 2,212 hours of training, 1,422 hours of training for men, 1,067 hours of training for women)

- (6) ICC's *Graduates for Farmers* in Paramos, Guatemala (62 people, 36 men, 26 women, 2,449 hours of training, 1,422 hours of training for men, 1,027 hours of training for women)
- (7) ICC's *Graduates for Farmers* in Nahuala, Guatemala (76 people, 49 men, 27 women, 3,002 hours of training, 1,936 hours of training for men, 1,066 hours of training for women)
- (8) ICC's *Graduates for Farmers* in La Nueva Concepcion, Guatemala (60 people, 30 men, 30 women, 2,370 hours of training, 1,185 hours of training for men, 1,185 hours of training for women)
- (9) ICC's Gender Engagement Sessions in all training sites (23 women, 69 hours of training for women)
- (10) ICC's Community of Practice Sessions in all training sites (24 people, 18 men, 6 women, 108 hours of training, 81 hours of training for men, 27 hours of training for women)
- (11) HiMAP's *Glacial Flooding and Disaster Risk Management Knowledge Exchange and Field Training: Field Methods and Modules sessions I and II* in Huaraz, Peru (62 people, 48 men, 14 women, 992 hours of training, 384 hours of training for men, 224 hours of training for women)
- (12) HiMAP's Nepal LAPA meetings (107 people, 77 men, 14 women, 1,712 hours of training, 1,232 hours of training for men, 224 hours of training for women)
- (13) IRI-AGRHYMET training on data quality control, satellite rainfall estimation and merging station data with satellite and other proxies (30 people, 25 men, 5 women, 2,160 hours of training, 1,800 hours of training for men, 360 hours of training for women)
- (14) IRI-AGRHYMET training on development and management of map rooms (4 men, 56 hours of training for men)
- (15) IRI-Tanzania Meteorological Agency training on seasonal forecasting and Climate Predictability Tools (4 men, 84 hours of training for men)

Indicator #3: Number of laws, policies, strategies, plans, agreements, or regulations addressing climate change officially proposed, adopted, or implemented as a result of USG assistance

- (1) Agreement between the municipalities of Independencia and Huaraz (that together comprise the city of Huaraz) to establish the Waraq Municipal Commonwealth to cooperate in GLOF risk management and integrated watershed management of Quilcay.
- (2) LAPA signed by three Village Development Communities (VDC): Chaurikharka (Phakding), Namche (including the Thame region), and Khumjung (including the Gokyo and upper Imja khola regions)
- (3) Memorandum of Understanding between ATREE and University of Massachusetts – Boston. Supports development of a regional framework for climate-resilient development in the Kanchenjunga Trans-boundary Conservation Area (KTCA).

Indicator #4: Amount of investment leveraged in U.S. dollars from private and public sources, for climate change as a result of USG assistance

CCRD benefitted from the financial contributions of numerous public and private organizations. Not all organizations providing leverage have been forthcoming in sharing cost information. In those instances, an estimate of the value of leverage is provided based on CCRD's experience in convening similar events such as international conferences and workshops.

MINAM (\$383,636)

- Total budget allocation for Quilcay adaptation measures, including actions such as development of the EWS and production of data to improve accuracy of GLOF models under elaboration by The University of Texas.

NASA/USAID SERVIR Applied Sciences Team (\$18,000)

- Co-funded scientific expeditions to the upper Seti Basin

CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) (\$19,000)

- Co-funded one-day workshop on *Developing Climate Information System for Agriculture in Central America* in Tegucigalpa, Honduras, along with Regional Committee for Hydraulic Resources and the IRI

Indicator #5: Number of institutions with improved capacity to address climate change issues as a result of USG assistance. Measuring improved institutional capacity requires an initial baseline assessment of the targeted capacity(ies) and a post-intervention assessment. Due to the need for post-intervention assessment and follow-up, some interventions are not reported until a later reporting period.

Support for indicator #5 resulted from one workshops/trainings:

- (1) Hue Planning Institute in Hue, Vietnam, through the use of the Climate Impacts Decision Support Tool (CIMPACT-DST) in the decision making process (one institution)

Indicator #6: Number of days of USG funded technical assistance in climate change provided to counterparts or stakeholders. Includes the transfer of knowledge and/or expertise by way of staff, skills training, research work and financing to support quality of program implementation and impact, support administration, management, representation, publicity, policy development and capacity building. Generally, workshops/meetings that are not counted under Indicator #2 (climate change training) are included here.

- One-day workshop to develop a climate change and biodiversity monitoring and assessment system and open source database tool in Sikkim, India (hosted by ATREE). The database and tool will improve the ability of the Sikkim Forest Department and other agencies to document and monitor biodiversity trajectories and plan for climate adaptation actions.
- Two-day field visit to knowledge park and a drip irrigation farm in Kathmandu, Nepal (hosted by Resources Himalaya Foundation)
- 80 days of technical assistance on demonstrative farms for training and knowledge sharing in Honduras, Nicaragua, and El Salvador (hosted by Zamorano)
- Half-day seminar on accessing and using climate information in Almaty, Kazakhstan
- Three days of seminars on climate variability and change, potential impacts on the wheat sector and preliminary options to climate impacts in Kazakhstan
- One-day meeting at the Khumbu Alpine conservation Council (KACC) to hold facilitated discussions on the concept of an Everest Alliance
- Two-day *Glacial Flooding and Disaster Risk Management Knowledge Exchange and Field Training: paper presentations and moderated sessions* in Huaraz, Peru

- Three-day *Glacial Flooding and Disaster Risk Management Knowledge Exchange and Field Training: Quilcabuanca-Palcacocha Expedition* in Huaraz, Peru
- Two-day *Glacial Flooding and Disaster Risk Management Knowledge Exchange and Field Training: Community of Practice understanding and development discussion* in Huaraz, Peru
- One-day *Developing Climate Information System for Agriculture in Central America* in Tegucigalpa, Honduras
- Three-day planning workshop for developing multi-model capacity within pSIMS in Chicago, United States
- Five-day *Scaling Up Climate Services for Farmers in Africa and South Asia Proposal Writing and Planning Workshop* in Nairobi, Kenya (Week 1)
- Five-day *Scaling Up Climate Services for Farmers in Africa and South Asia Proposal Writing and Planning Workshop* in Nairobi, Kenya (Week 2)
- Five-day *Scaling Up Climate Services for Farmers in Africa and South Asia Proposal Writing and Planning Workshop* in Dakar, Senegal
- Five-day *Scaling Up Climate Services for Farmers in Africa and South Asia Proposal Writing and Planning Workshop* in Kathmandu, Nepal
- One-day stakeholder meetings releasing CIMPACT-DST including (1) local stakeholder/expert review meeting and (2) local and provincial government user training meeting

Indicator #7: Number of climate adaptation tools, technologies and methodologies developed, tested, and/or adopted as a result of USG assistance

Zamorano's demonstrative farms/sites in El Salvador, Honduras, and Nicaragua have established at least 18 technologies/practices to adapt to climate variability and change.

Indicator #8: Number of climate vulnerability assessments conducted

Data is forthcoming.

Indicator #9: Number of people registering to participate in adaptation-related communities of practice

The Climate Services Partnership established 308 new contacts. For a list of contact names and emails please refer to Cathy Vaughan at IRI cvaughan@iri.columbia.edu

Indicator #10: Number of unique visitors logging on to/accessing the adaptation-related websites supported with USG assistance

CCRD monitored visits to the Adaptation Partnership, Climate Services, and High Mountain websites:

1. Adaptation partnership: **1,729 unique visitors**
2. HMGWP CoP: **477 unique visitors**
3. CSP CoP: **324 unique visitors**
4. Central America Climate Resilient Agriculture: **20 unique visitors**

Indicator #11: Number of adaptation financing proposals benefitting from USG assistance

Data is forthcoming.

CCRD Performance Indicators and Achievements

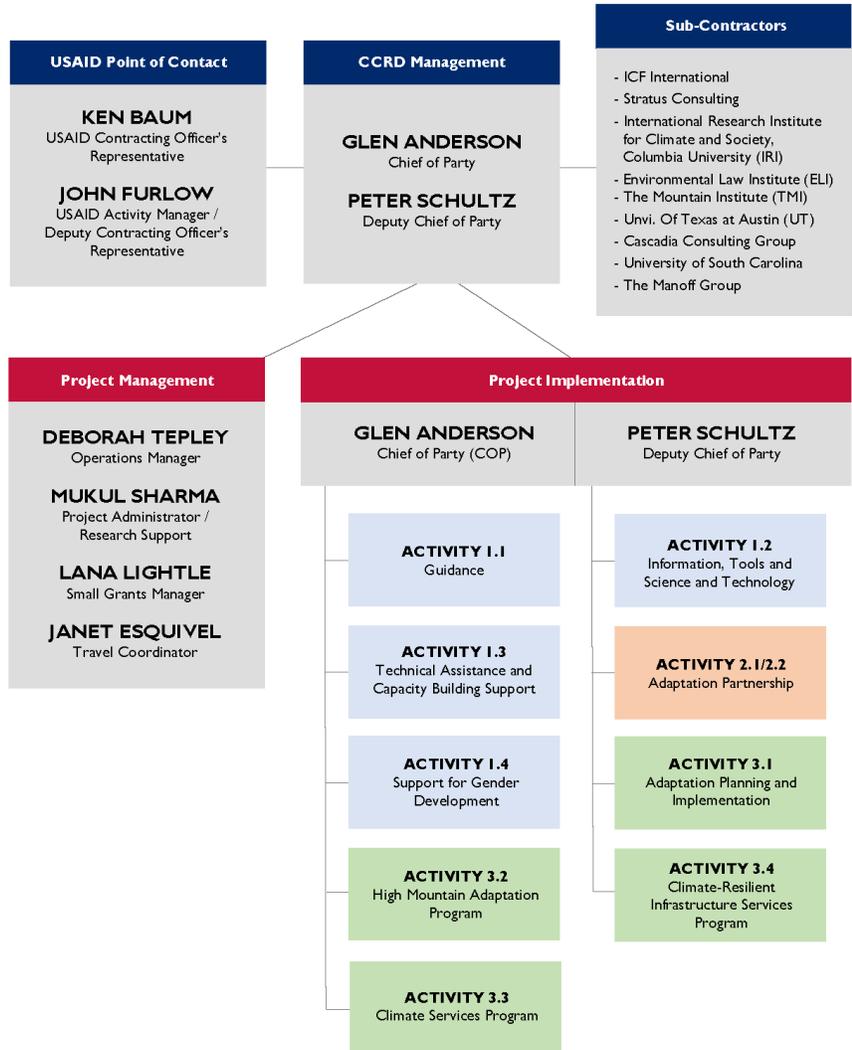
#	Indicator	Unit	FY 2012 Actuals	Achievement – FY 2013					FY 2013 Totals	Remarks	CCRD Cumulative FY 2012 – FY 2013
				FY 2013 Targets	QTR 1	QTR 2	QTR 3	QTR 4			
1	Number of stakeholders with increased capacity to adapt to the impacts of climate variability and change as a result of USG assistance (mandatory for Adaptation funding) MEN	Number	48	200				4	4	Stakeholders at the Hue Planning Institute in Vietnam	52
	Number of stakeholders with increased capacity to adapt to the impacts of climate variability and change as a result of USG assistance (mandatory for Adaptation funding) WOMEN	Number	9	165					0		9
2	Number of people receiving training in climate change supported by USG assistance (Person-hours of training completed in climate change supported by USG assistance) MEN	Number/ Hours	376/ 7,913	1,700	93/ 2,142	206/ 3,499	796/ 12,671.50	570/ 18,273	1,665/ 36,585.50	In FY13-Q4 CCRD supported 15 separate workshops/trainings in Central and South America, Africa and Asia resulting in 889 total people training and 30,157 hours of training. For more information on the workshops please refer to the indicator explanations above	2,041/ 44,498.50
	Number of people receiving training in climate change supported by USG assistance (Person-hours of training completed in climate change)	Number/ Hours	148/ 2,736	1,700	43/ 982	74/ 1,019	454/ 7,426	319/ 11,884	890/ 21,311		1,038/ 24,047

#	Indicator	Unit	FY 2012 Actuals	Achievement – FY 2013					FY 2013 Totals	Remarks	CCRD Cumulative FY 2012 – FY 2013
				FY 2013 Targets	QTR 1	QTR 2	QTR 3	QTR 4			
	supported by USG assistance) WOMEN										
3	Number of laws, policies, strategies, plans, agreements, or regulations addressing climate change officially proposed, adopted, or implemented as a result of USG assistance	Number		8		6		5	11		11
4	Amount of investment leveraged in US dollars from private and public sources, for climate change as a result of USG assistance	Dollars	\$440,000	\$500,000	\$131,125	\$238,664	\$14,000	\$420,636	\$804,425	CCRD benefitted from financial contributions from MINAM, NASA/USAID SERVIR, and CCAFS	\$1,244,425
5	Number of institutions with improved capacity to address climate change issues as a result of USG assistance	Number	272	75	79	160	146	1	386	Hue Planning Institute in Vietnam	658
6	Number of days of USG-funded technical assistance in climate change provided to counterparts or stakeholders	Days	171	250	5	7	10	119.50	141.50	Technical assistance provided through 16 separate events in Central and South America, Africa and Asia	312.50
7	Number of climate adaptation tools, technologies and methodologies developed, tested, and/or adopted as a	Number	6			1		18	19	Specifically technologies used at Zamorano's demonstrative farms/sites in El Salvador, Honduras,	25

#	Indicator	Unit	FY 2012 Actuals	Achievement – FY 2013					FY 2013 Totals	Remarks	CCRD Cumulative FY 2012 – FY 2013
				FY 2013 Targets	QTR 1	QTR 2	QTR 3	QTR 4			
	result of USG assistance									and Nicaragua	
8	Number of climate vulnerability assessments conducted	Number	5		1			1			6
9	Number of people registering to participate in adaptation-related communities of practice	Number	80		9	27	5	308	349	308 new CSP CoP Members	429
10	Number of people logging on to/accessing the adaptation-related websites supported with USG assistance	Number	7,687		2,046	2,586	2,726	2,550	9,908	Includes visitors to the Adaptation Partnership, Climate Services, and High Mountain websites	17,595
11	Number of adaptation financing proposals benefitting from USG assistance	Number				3			3		3

ANNEX II. ORG CHART

Exhibit 2. Organization Chart



PROJECT MANAGEMENT ----- GLEN ANDERSON

WORK PLAN ----- G. ANDERSON / KEN BAUM
 PMP ----- G. ANDERSON / K. BAUM
 STRATEGIC PLANNING/SAC ----- G. ANDERSON / JOHN FURLOW
 REPORTING ----- DEBORAH TEPLY / K. BAUM
 COMMUNICATIONS, OUTREACH AND COMMUNITIES OF PRACTICE ----- MICHAEL COTE / JENNY FRANKEL-REED
 POC FOR SUBCONTRACTOR/CONSULTANTS ----- D. TEPLY / K. BAUM
 SMALL GRANTS ----- LANA LIGHTLE / K. BAUM

PROJECT IMPLEMENTATION ----- GLEN ANDERSON / PETER SCHULTZ

1.1 ACTIVITY: GUIDANCE ----- G. ANDERSON / J. FRANKEL-REED
1.1 GUIDANCE, BRIEFS AND ANNEXES ----- YOON KIM / J. FRANKEL-REED
 CLIMATE RESILIENT DEVELOPMENT FRAMEWORK ----- Y. KIM / J. FRANKEL-REED & JONATHAN COOK
 DIAGNOSIS ANNEX ----- P. SCHULTZ / J. FRANKEL-REED & J. COOK
 COASTAL AND MARINE ANNEX ----- JASON VOGEL / J. COOK
 DIFFERENTIATED VULNERABILITY ANNEX ----- ED CARR / ANDRE MERSHON
 GOVERNANCE ANNEX ----- JESSICAL TROELL / J. COOK
 CLIMATE INFORMATION GUIDE ----- P. SCHULTZ / J. FRANKEL-REED
 NEW DIRECTIONS IN PILOTS AND RESEARCH ----- P. SCHULTZ / J. FURLOW

1.2 ACTIVITY: INFORMATION, TOOLS AND SCI AND TECH ----- P. SCHULTZ / J. FRANKEL-REED
 UNDP ADAPTATION LEARNING MECHANISM WEBSITE ----- M. COTE / J. FRANKEL-REED

1.3 ACTIVITY: PROVIDE CAPACITY BUILDING SUPPORT ON MAINSTREAMING ----- G. ANDERSON
 SUPPORT DEVELOPMENT OF USAID'S FEDERAL AGENCY CLIMATE CHANGE PLAN ----- MICHELLE COLLEY / NORA FERM
 SUPPORT FOR USAID INTEGRATION PILOT IN KAZAKHSTAN ----- G. ANDERSON / J. FRANKEL-REED
 SUPPORT FOR CLIMATE RESILIENT LOW EMISSIONS DEVELOPMENT STRATEGIES ----- CHARLOTTE MACK / J. FURLOW

1.4 SUPPORT FOR GENDER DEVELOPMENT
 TECHNICAL ASSISTANCE TO THE OFFICE OF GENDER EQUALITY AND WOMEN'S EMPOWERMENT ----- E. CARR / A. MERSHON

2.1/2.2 ACTIVITY: ADAPTATION PARTNERSHIP ----- P. SCHULTZ
2.1 ADAPTATION PARTNERSHIP ----- ROSAMUND MISCHÉ JOHN
 CONDUCT URBAN ADAPTATION PARTNERSHIP WORKSHOP ----- C. MACK / N. FERM
 CONDUCT CLIMATE AND SECURITY ADAPTATION PARTNERSHIP WORKSHOP ----- MUKUL SHARMA / J. FURLOW
 CONDUCT TRAINING ON MAINSTREAMING FOR MARINE PROTECTED AREA MANAGERS ----- Y. KIM / J. COOK

3.1 ACTIVITY: SUPPORT ADAPTATION PLANNING AND IMPLEMENTATION ----- P. SCHULTZ
 SUPPORT PREPARATION OF NATIONAL ADAPTATION PLANS (NAPS) ----- Y. KIM
 DEVELOP AND PILOT FAST TRACK IMPLEMENTATION CONCEPT ----- P. SCHULTZ

3.2 ACTIVITY: HIGH MOUNTAIN ADAPTATION PROGRAM ----- G. ANDERSON
3.2 HIGH MOUNTAIN AND ADAPTATION PROGRAM ----- M. COTE
 DEVELOP THE HIGH MOUNTAIN ADAPTATION PROGRAM CoP SECRETARIAT ----- JOHN HARLIN
 IMPLEMENT COMMUNITY OF PRACTICE PILOT PROJECTS AND RESEARCH ----- TMI / UT

3.3 ACTIVITY: CLIMATE SERVICES PARTNERSHIP ----- G. ANDERSON
3.3 CLIMATE SERVICES ----- FERNANDA ZERMOGLIO
 COORDINATE ACTIVITIES OF THE CLIMATE SERVICES PARTNERSHIP ----- STEVE ZEBIAK
 COMPILER AND DISSEMINATE CURRENT CLIMATE SERVICES KNOWLEDGE ----- IRI STAFF
 CONDUCT CASE STUDIES AND ASSESSMENTS OF CLIMATE SERVICES ----- IRI STAFF
 ECONOMIC VALUATION OF CLIMATE SERVICES ----- G. ANDERSON
 PILOT NATIONAL LEVEL CLIMATE SERVICES ANALYSIS ----- S. ZEBIAK/IRI
 DEVELOP CLIMATE SERVICES PRODUCT FOR AGRICULTURAL SECTOR ----- IRI STAFF
 CLIMATE SERVICES TECHNICAL BACKSTOPPING OF DEVELOPMENT PROGRAM ----- S. ZEBIAK/IRI
 INTERNATIONAL RESEARCH AND APPLICATIONS PROJECT ----- LISA GODDARD/IRI

3.4 ACTIVITY: CLIMATE RESILIENT INFRASTRUCTURE SERVICES PROGRAM (CRIS) ----- P. SCHULTZ
 PROVIDE CRIS SUPPORT TO PILOT CITIES TO ACCELERATE CLIMATE RISK MANAGEMENT ----- J. POTTER
 DESIGN AND IMPLEMENT A SMALL GRANTS PROGRAM ----- CHRIS EVANS / L. LIGHTLE
 FACILITATE GLOBAL CITY-TO-CITY INFORMATION ----- J. POTTER/ WENDY JAGLOM
 PROVIDE INFORMATION AND TECHNICAL RESOURCES TO USAID STAFF ----- J. POTTER
 EVALUATE CRIS ACTIVITIES AND RECOMMEND NEXT STEPS ----- J. POTTER

J. FURLOW
 J. COOK
 J. COOK
 J. FURLOW
 J. FURLOW
 N. FERM

ANNEX III. SMALL GRANTS

Name-Number	Title	Type	Amount	Status
Adam French (University of California, Santa Cruz): CCRDCS0001	Integrated and Participatory Risk Management in Peru's Lake Paron Glacier Basin	Climber-Scientist Small Grants (Individual Grant)	\$24,818	Active
Ulyana Nadia Horodyskyj (University of Colorado (UC) at Boulder): CCRDCS0002	Quantifying Supraglacial Lake Changes: Contributions to Glacial Ice Volume Loss and Runoff Inputs to Rivers in Nepal and Tibet	Climber-Scientist Small Grants (Individual Grant)	\$31,527	Active
Shah Raees Khan (University of Manitoba): CCRDCS0003	Understanding Vulnerabilities to Environmental Hazards in Mountain Areas: A Case Study of Climate Change Analysis on Livelihoods in Northern Pakistan	Climber-Scientist Small Grants (Individual Grant)	\$24,985	Suspended
Laura Read (Tufts University): CCRDCS0004	Tres Cuencas Commonwealth	Climber-Scientist Small Grants (Individual Grant)	\$25,962	Active
Raúl Augusto Loayza Muro (Universidad Peruana Cayetano Herida): CCRDCS0005	Natural acid and metal leaching in Andean headwaters: an interdisciplinary approach to evaluate water quality and potential sources for remediation in a climate change context in the Cordillera Blanca (Peru)	Climber-Scientist Small Grants (Individual Grant)	\$24,997.60	Active
ATREE (India-Nepal): CCRDCS0006	Climate change in Kanchenjunga TCA: Vulnerabilities and adaptive capacities	Climber-Scientist Small Grants (Institutional Grant)	\$93,700	Active
The Research Foundation for the State University of New York (SUNY) (Mongolia-Altai): CCRDCS0007	Engaging Climber-Scientists and Indigenous Herders on Grazing and Climate Change Issues in the Altai Mountain Region of Mongolia	Climber-Scientist Small Grants (Institutional Grant)	\$99,655	Active
Resources Himalaya Foundation (Nepal): CCRDCS0008	Building Climate Change Resilience Capacity of Mountain People in Nepal	Climber-Scientist Small Grants (Institutional Grant)	\$97,823.53	Active
Geo-Science Innovations (Nepal): CCRDCS0009	Investigation of the Seti River disaster (May 5, 2012) and assessment of past and future mountain hazards facing Pokhara, Nepal and upstream communities	Climber-Scientist Small Grants (Institutional Grant)	\$100,000	Active
Institute of Environmental Engineering (Eidgenössische Technische Hochschule ETH), Zurich, Switzerland: CCRDCS0010	Including the Sherpa Factor in Water Resources Projections in the Nepalese Himalaya	Climber-Scientist Small Grants (Institutional Grant)	\$99,590	Active
Stephanie Spray (Harvard University): CCRDCS0011	Snow River Film Project	Climber-Scientist Small Grants (Individual Grant)	\$28,610	Active

Name-Number	Title	Type	Amount	Status
Private Institute for Climate Change Research (ICC); part of the Guatemalan Sugar Association (Asociación de Azucareros de Guatemala - ASAZGUA) CCRDCR0001	Develop a mechanism for Climate Change Technology Transfer for staple crops within the Guatemalan Pacific slopes.	Costa Rica Small Grants (Institutional Grant)	\$127,511.29	Active
Tropical Agricultural Research and Higher Education Center (CATIE) CCRDCR0002	Strengthening the resilience of cattle farms to climate variability and climate change in Honduras, Nicaragua and Costa Rica	Costa Rica Small Grants (Institutional Grant)	\$171,570.83	Active
Pan American School of Agriculture, also known as Zamorano (university) CCRDCR0003	Building capacity for climate-resilient agriculture in the dry corridor of northern central America	Costa Rica Small Grants (Institutional Grant)	\$159,362.50	Active
International Environmental Data Rescue Organization (IEDRO) :CCRDS0001	West Africa Data Rescue and Digitization Facility	Sole Source Small Grants (Institutional Grants)	\$85,321.75	Active
The Energy and Resources Institute (TERI)	Urban Infrastructure Inventory and Rapid Vulnerability Assessment for Resilience Planning in Two Coastal Cities in India	The Climate Resilient Infrastructure Services (CRIS) Program (Institutional Grants)	\$136,630.91	Grant Agreement is in process
Yayasan Kota Kita Surakarta	Vulnerability Assessment, Infrastructure Inventory, Resilience Planning and Capacity Building for the City of Manado, Indonesia	The Climate Resilient Infrastructure Services (CRIS) Program (Institutional Grants)	\$108,874	Grant Agreement is in process
Yayasan Mercy Corps Indonesia (YMCI)	CRISPI Climate Resilient Infrastructure Services Program - Indonesia	The Climate Resilient Infrastructure Services (CRIS) Program (Institutional Grants)	\$149,990	Grant Agreement is in process
Thailand Environment Institute (TEI)	Public-Private Partnerships for Climate Resilient Infrastructure: Barriers and Opportunities in the Phuket Tourism Sector	The Climate Resilient Infrastructure Services (CRIS) Program (Institutional Grants)	\$122,852	Grant Agreement is in process
Instituto Dominicano de Desarrollo Integral (IDDI)	Increasing Resilience to Climate Change of Santo Domingo's Services Infrastructure	The Climate Resilient Infrastructure Services (CRIS) Program (Institutional Grants)	\$146,673.98	Grant Agreement is in process
Total Amount			\$1,860,455.39	

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