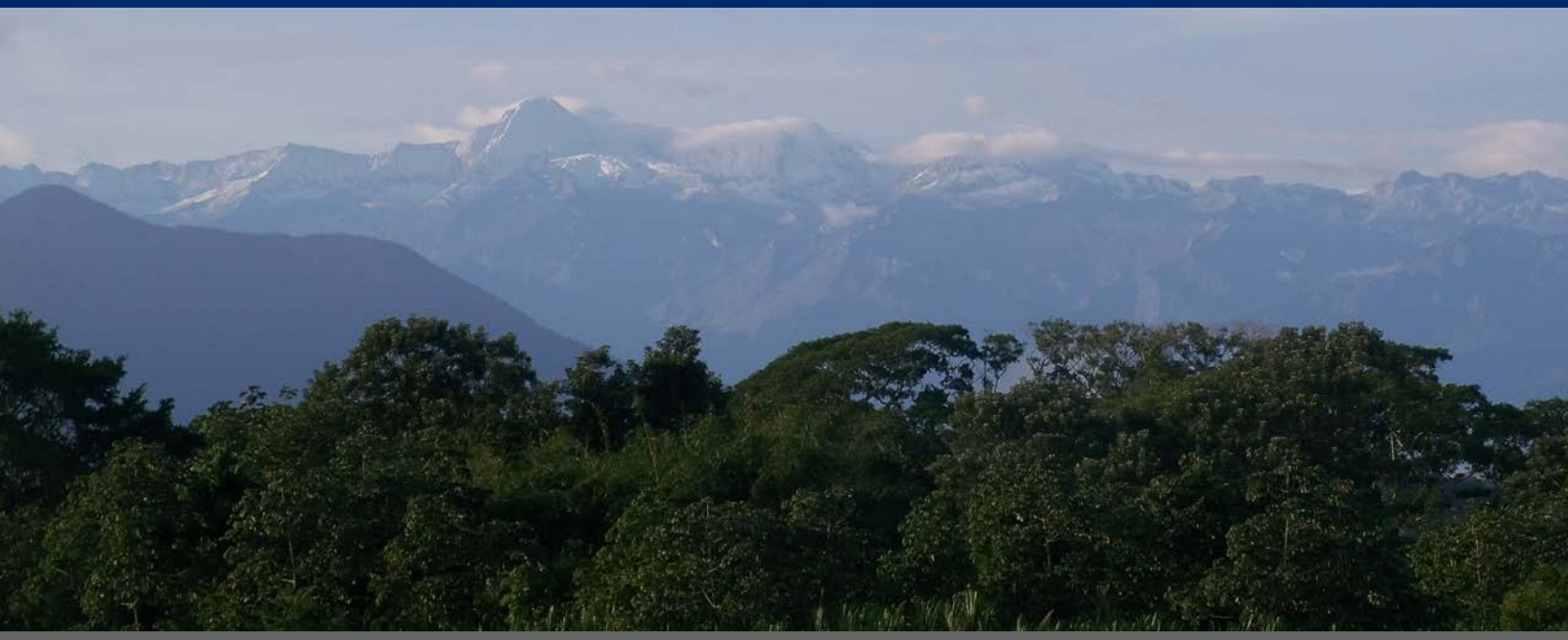
PARTNERING FOR ADAPTATION AND RESILIENCE – AGUA (PARA-AGUA) PROJECT

QUARTERLY REPORT

QR3 FY 2015 – APRIL TO JUNE 2015



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ACRONYMS

ALA	Administraciones Locales de Agua
ANA	Autoridad Nacional del Agua
APC	Agencia Presidencial de Cooperación Internacional de Colombia
ASOJAC	Asociaciones de Juntas de Acción Comunal
AUTODEMA	Autoridad Autónoma de Majes
CECOBOSQUE	Central de Comunidades Campesinas del Bosque Seco de Piura
CHEC	Central Hidroeléctrica de Caldas
CIIFEN	International Center for Research of the el Niño Phenomenon
CoP	Science and Adaptation Community of Practice
CONDESAN	Consorcio para el Desarrollo Sostenible de la Ecorregión Andina
CORPOCALDAS	Regional Autonomous Corporation of Caldas
CORPOCESAR	Corporación Autónoma Regional del Cesar
CRHC	Consejo de Recursos Hídricos de Cuenca
EMAS S.A.	Empresa Metropolitana de Aseo S.A.
FCAS	Fondo de Cooperación para Agua y Saneamiento
FONDAM	Fondo de las Américas
FONDO MIREGO	Fondo Promoción del Riego en la Sierra
FONIPREL	Fondo de Promoción a la Inversión Pública Regional y Local
FORASAN	Fondo Regional de Agua y Saneamiento Ambiental
FUNMUVI	Fundación Mujer Vida
GCMs	Global Climate Models
IGP	Instituto Geofísico del Peru
MAD	Ministerio de Ambiente y Desarrollo Sostenible de Colombia
MINAM	Ministerio del Ambiente del Perú
MOU	Memorandum of Understanding
NCAR	National Center for Atmospheric Research (U.S.)
PROFONANPE	Fondo de Promoción de las Áreas Naturales Protegidas del Perú
PMGRH POMCA	Proyecto de Modernización de la Gestión de los Recursos Hídricos
PROCOMPITE	Plan de Manejo y Ordenamiento de una Cuenca
RDS	Apoyo a la Competitividad Productiva
SENAMHI	Robust Decision Support
USAID	Servicio Nacional de Meteorología e Hidrología del Perú
USG	United States Agency for International Development
WAVES	United States Government
WEAP	Wealth Accounting and the Valuation of Ecosystem Services program Water Evaluation and Planning

Executive

SUMMARY

PARA-Agua is a climate change adaptation and policy project that began by focusing on two target watersheds: the Chira-Piura Watershed in northern Peru and the Chinchina Watershed in Colombia. Over the course of the third quarter FY15, activities in both watersheds notably moved from the identification and analysis of adaptation strategies to supporting the finance of prioritized adaptation projects. Here, hydro climatological model development and associated capacity building represent a major part of ongoing efforts. PARA-Agua also continued working in the two additional watersheds, where implementation began more recently: the Quilca-Chili Watershed in southern Peru and Guatapuri Watershed in northern Colombia.

In the last quarter, PARA-Agua engaged more researchers and community members through the official launch of the Community of Practice website; including policy makers and members from institutions identified in the recently published report that serves as a directory for the community. PARA-Agua also published the first toolkit on "Communication on Hydroclimatological Science to Decision-Makers" and coordinated with other international donors to collaborate on work in the newest watershed, Guatapuri.

This report presents the major accomplishments during the third quarter of FY15, which represents the seventh quarter of PARA-Agua activities. This report also presents activities planned for the last quarter of FY15 (July to September).

Name of USAID Activity: **Partnering for Adaptation – Agua (PARA-Agua) Project**

Name of Prime Contractor: **AECOM International Development**

Total funding: **USD 7,995,163.82 (Cost Plus Fixed Fee including option years)**

Start date: **September 9, 2013**

End date: **September 8, 2015 (base period)**

Overall goals and objectives: **The Partnering for Adaptation – Agua Project aims to strengthen the ability of up to four key glacier, snow and ice research centers in the region to generate policy-oriented scientific data on high montane hydrological systems; ensure that new climate data is integrated regularly into decision-making processes; strengthen planning systems that optimize water use over the whole length of the watersheds, and provide assistance on management of water and other resources in the face of climate change throughout the region.**

Expected outcomes:

- **New scientifically sound data on the dynamics of water resources**
- **Water management plans, investment analyses, program designs, engineering studies and other decision-making tools**
- **Public and private sector investments and new community level water management program and actions.**

Partnering for Adaptation – Agua (PARA-Agua) project is implemented by AECOM International Development in accordance with the U.S. Agency for International Development (USAID) contract number AID-OAA-TO-13-00037.

Major Achievements

TASK 1: STRENGTHENING THE CAPACITY OF THE RESEARCH COMMUNITY TO GENERATE POLICY-ORIENTED DATA ON WATERSHED MANAGEMENT AND CLIMATE CHANGE ADAPTATION

- ✓ Published a report that identified key research and policy institutions within the new Quilca-Chili and Guatapuri target watersheds. The report also contains an analysis of the state of coordination between key organizations in each new target watershed.
- ✓ Launched the Science and Adaptation Community of Practice (CoP) the first week of May 2015 along with its website: para-agua.net
- ✓ Published the first toolkit, "Communication of Hydroclimatological Science to Decision-Makers"

TASK 2: MAINSTREAMING AND INTEGRATING CLIMATE DATA INTO DECISION-MAKING RELATED TO WATERSHED MANAGEMENT

- ✓ Conducted the third set of regional training workshops in Manizales and Lima to support Water Evaluation and Planning (WEAP) model results for watershed management policies.
- ✓ Participated in two important events in Colombia in April: a national workshop to establish national climate change adaptation indicators, and a meeting on government mandated regional water studies.
- ✓ Co-organized and participated in a round table workshop held at the end of May in Peru, aimed at boosting public/private sector coordination in the management of the Quiroz Watershed.
- ✓ Participated in the Simposio Agua, Clima y Adaptación en Cuencas de Colombia to gain valuable insight into existing and potential sources of adaptation project funding.
- ✓ Met with representatives from the World Bank's Wealth Accounting and the Valuation of Ecosystem Services (WAVES) program in Colombia.

TASK 3: STRENGTHENING PLANNING SYSTEMS THAT OPTIMIZE WATER USE OVER THE WHOLE LENGTH OF WATERSHEDS IN THE CONTEXT OF CLIMATE CHANGE ADAPTATION

- ✓ Commenced work in the Guatapuri Watershed in Colombia.
- ✓ Completed the Robust Decision Support (RDS) process for Chira-Piura and Chinchina.
- ✓ Identified the most promising sources of international and national sources of finance for prioritized adaptation projects in Colombia and Peru.
- ✓ Formally established international twinning partnerships between Chira-Piura and the Yolo County Flood Control and Water Conservation District, and Chinchina with the Sonoma County Water Agency.
- ✓ Officially transferred the Chira-Piura WEAP model, including all associated hydroclimatological data and Tableau visualization files to the Peruvian National Water Authority (ANA).
- ✓ Established a regional strategic partnership for watershed management through a memorandum of understanding (MOU) between water managers in Chinchina, Chira-Piura, and Quilca-Chili.
- ✓ Monitored the commitments made by different institutions to consolidate the Regional Fund for Water and Sanitation (FORASAN) in Peru
- ✓ Drafted the initial technical documentation that supports the regional ordinance to be discussed among council members within regional government.

Introduction

Climate change is altering weather and climate conditions around the globe including the Latin America and Caribbean region. Changes in the frequency and intensity of precipitation and temperature impact water resources, agriculture, energy, tourism, and general economies in wide ecosystems in the Northern Andes of South America. Changes in temporal and spatial intensity of floods and droughts are contributing to the spread of disease vectors.

To meet these challenges, the LAC Bureau of the United States Agency for International Development (USAID) contract number AID-EDH-I-00-08-024 Task Order AID-OAA-TO-13-00037 has developed the Partnering for Adaptation and Resilience – Agua (PARA-Agua), or "For Water" Project, an innovative regional project that will work directly with scientists, decision-makers, and communities to strengthen watershed resilience to climate change impacts. The project was awarded on September 9, 2013, with a period of performance ending on September 8, 2015, including two one-year option periods.

The three main project tasks for PARA-Agua are:

1. Strengthening the capacity of the research community to generate policy-oriented data on watershed management and climate change adaptation;
2. Mainstreaming and integrating climate data into decision-making related to watershed management; and
3. Strengthening planning systems that optimize water use over the whole length of watersheds in the context of climate change adaptation.

To accomplish these objectives, PARA-Agua combines training programs with expanded professional and counterpart linkages between national research organizations with regional and international counterparts to create new incentives for better research and the creation of policy-oriented data in Task 1. To implement Task 2, PARA-Agua builds linkages between climate researchers and watershed stakeholders to enable the mainstreaming of the resulting research data into community dialogue and decision-making for each watershed through a coordinated program of planning and cooperation. In Task 3, the PARA-Agua links science and policy to action at the watershed level through an integrated program of planning, adaptation interventions and twinning partnerships.

PARA-Agua is currently working in four watersheds: two in Peru and two in Colombia.

Peru:

- ***Quilca-Chili***: Located in the Arequipa Department in the south of Peru and draining the western Andean cordillera towards the Pacific, this basin covers an area of 13800 km2 with a population of close to 1 M people.
- ***Chira-Piura***: Situated in the Department of Piura in northern Peru, the Chira-Piura watershed spans 310,000 hectares (ha) and is one of the most productive basins of coastal Peru, undergoing fast economic growth in multiple sectors. The Chira portion of the basin represents 30% of the bi-national watershed Catamayo – Chira system; and 40% (39,000 ha) of irrigated area in the Peruvian section of the entire Chira-Piura watershed.

Colombia

- ***Chinchina***: The Rio Chinchina Basin drains the western flank of the Andean Cordillera Central in Colombia, with the upper part of the basin lying within the Parque Nacional los Nevados that contains some of the most substantial glaciers in Colombia along with large expanses of Paramo ecosystems. Downstream from the Cordillera, the Rio Chinchina flows through the Caldas Department, with a

total population of over 1,000,000, within which the city of Manizales is the major urban area with a population of approximately 350,000.

- ***Guatapuri***: The Guatapuri Watershed covers an area of about 860 km2, in the municipalities of Valledupar and Pueblo Bello, both within the department of Cesar (jurisdiction of CORPOCESAR). Steep slopes and torrential flows characterize the basin. The river is the main drinking water source supplying the Valledupar municipality, a population of 500,000.

This report represents the project's seventh quarterly report. It endeavors to discuss the status of PARA-Agua's activities, challenges the project has and is currently facing, and the solutions PARA-Agua has implemented.

Task 1

STRENGTHENING THE RESEARCH COMMUNITY

To strengthen the capacity of the research community to conduct research that generates policy-oriented data on watershed management and climate change adaptation, PARA-Agua combines training programs with expanded professional and counterpart linkages between national research organizations with regional and international counterparts to create new incentives for better research and the creation of policy-oriented data. PARA-Agua uses this opportunity to reach out to female leaders in the research community who can benefit from exposure to professional networking opportunities, training programs, and for increased collaboration between research organizations across the region. This contributes to a more balanced representation of interests and perspectives in the research community and policy-oriented data on watershed management and climate change adaptation.

The research community consists of national government agencies, research institutions and universities. These research centers face capacity limitations in terms of staff, funding and equipment, and need to strengthen coordination with relevant agencies and stakeholders at all levels. Effective data collection, management and analysis are also a continuing challenge.

IDENTIFICATION OF KEY RESEARCH AND POLICY INSTITUTIONS IN NEW TARGET WATERSHEDS

PARA-Agua published a report that identified key research and policy institutions within the new Quilca-Chili and Guatapuri target watersheds. This report was a culmination of information gathering activities initiated in 2014. The report will help guide PARA-Agua engagement with key actors in each watershed. In the Quilca-Chili watershed, the key actors include relevant universities and research centers such as:

- Universidad Nacional de San Agustín, Arequipa,
- Universidad Católica San Pablo,
- Universidad Complutense de Madrid
- Centro de Estudios y Promoción del Desarrollo, and
- The United States' National Aeronautics and Space Administration.

The report details the institutions' past and present research programs as well as areas of research that they have not yet addressed. The report covers the Guatapurí watershed in Colombia in the same way, where government agencies, such as Corporación Autónoma Regional del Cesar (CORPOCESAR), have a more active role in relevant scientific studies. The report also contains an analysis of the state of coordination between key organizations in each new watershed. Through this process, PARA-Agua identified existing levels of coordination between policy and scientific organizations for the Guatapurí watershed to build off of in future work. Additionally, PARA-Agua also identified opportunities for stronger linkages in the Quilca-Chili watershed. The Colombian directory now includes information on 72 institutions and 84 professionals, and the Peruvian directory contains 63 institutions and 70 professionals. PARA-Agua will continue to update and use directory to target key individuals and organizations to achieve the project's goals.

OFFICIAL LAUNCH OF THE SCIENCE AND ADAPTATION COMMUNITY OF PRACTICE

During the first week of May 2015, PARA-Agua officially launched the Science and Adaption Community of Practice (CoP) along with its website, www.para-agua.net. As a central element of PARA-Agua's sustainability strategy, the CoP will serve as an ongoing forum for communication and collaboration between climate scientists, researchers, and decision-makers involved in watershed management. Preparation for the launch began in FY14 with the identification and initial outreach to potential members. By the end of FY15Q3, PARA-Agua invited 355 potential members to join the community. Eighty-nine individuals formally registered as community members by the end of June 2014. Members receive special benefits for joining the community; however, the website is accessible to the broader community as well.

Figure 1: The CoP Website

The number of community members using the site is much greater than the number of registered users. The challenge in the coming months will be to encourage dynamic and valuable interaction within CoP website for members and nonmembers alike. Founding members need to be empowered to take ownership building an active membership base. PARA-Agua will continue to support the CoP in every way possible, including further integrating the CoP and its website in future workshops.

CoP REFINEMENT OF TOOLKITS

As part of the vision for para-agua.net serving as a forum of the CoP, the website is a place where best practices related to watershed management and climate change adaptation are accessed, refined, and promoted. Following the website's public launch in May 2015, PARA-Agua published the first toolkit titled, "*Communication of Hydroclimatological Science to Decision-Makers*" (see Figure 2). Community members are now contributing to the refinement of this first toolkit to provide feedback that better serves the practical needs of community stakeholders.

Over time, the project expects that the on-going involvement of the CoP will foster a greater sense of ownership for sustained use of best practices and impact. PARA-Agua also published the second toolkit, titled "*Protocols to Integrate Public and Private Organizations in National Information Systems for Climate Change Adaptation in Watersheds*" to the CoP website in June 2015.

IMPLEMENTATION OF PARA-AGUA'S SUSTAINABILITY STRATEGY

As a part of PARA-Agua's project design, the project has a clearly identified sustainability strategy to ensure the continuation of its goals and objectives. In this plan, PARA-Agua has previously identified local organizations that will carry on the mantle of the work. This includes the formation of a consortium of three partner institutions.

During FY15 Q3, PARA-Agua hired a dedicated consultant to assist in the implementation of its sustainability strategy. PARA-Agua worked closely with these organizations to determine the steps for a long-term arrangement for the consortium responsible for the stewardship of PARA-Agua's mission after the project ends. Two members of the consortium collaborated in the development of a work plan, a management framework, and the identification of possible funding sources. By next quarter, their progress made in Q3 will result in the publication of a strategy report and memorandum of understanding.

EVENTS PLANNED FOR NEXT QUARTER

- PARA-Agua will hold a fourth set of regional training workshops on watershed climate-change monitoring systems that can be used to manage the impact of adaptation projects.
- PARA-Agua will use the feedback received during the climate change monitoring systems workshop to complete the first iteration of an associated toolkit (Toolkit 3).
- PARA-Agua will finalize and publish Toolkit 3 on the CoP forum for the community's review, with the results serving as vital information used in the toolkit's ongoing refinement.
- PARA-Agua will transfer Toolkit 2 over to the CoP for further utilization and dissemination.
- The consortium will continue to make progress on the sustainability strategy. A strategy report and is expected in FY15 Q4.

TASK 2

INTEGRATING CLIMATE DATA IN DECISION-MAKING

PARA-Agua develops new models for mainstreaming scientific data into water policy-making and community development through a coordinated program of planning and cooperation. Through facilitated dialogue, the project enables scientists, decision-makers and community leaders to collaborate in developing new mechanisms for mainstreaming climate data into decision-making. Integral to this activity and the project as a whole, PARA-Agua works to effectively engage women from the watersheds, as well as female scientists, decision-makers, and other community leaders in targeted ways to help address gender gaps in access to information and education of climate change factors among vulnerable groups.

REGIONAL TRAINING WORKSHOPS ON THE APPLICATION OF WEAP IN THE DEVELOPMENT OF ADAPTATION POLICY

PARA-Agua conducted a third set of regional training workshops in Manizales and Lima in May 2015. The events, like previous Task 1 training workshops, were based on a regional gap analysis completed in late 2014. The May workshops aimed to support the application of WEAP model results in the development of watershed management policy, including policy formulated specifically in response to the threats associated with climate change. PARA-Agua team members presented methodologies to improve communication between the research community and decision-makers during the workshops. Key public and private sector organizations participated in the workshops. These stakeholders provided critical input that will guide the development of a new toolkit, which will be further refined and promoted through the CoP. PARA-Agua expects to finalize a report with the material presented during the event and stakeholder feedback by next quarter.

PARTICIPATION IN MEETINGS AND EVENTS SPONSORED BY LOCAL PROJECT PARTNERS

Communication and ongoing collaboration with a wide range of public and private sector actors in watershed management and climate change are vital to PARA-Agua's success. This interaction also supports the project's objectives associated with Task 2. During FY15 Q3, PARA-Agua participated in events relevant to its mission, and continued its coordination efforts with existing and newly established actors within target watersheds.

Colombia. PARA-Agua representatives participated in two important events in Colombia in April: a national workshop to establish national climate change adaptation indicators, and a meeting led by IDEAM on government mandated regional water studies. At the adaptation indicators workshop, PARA-Agua and other organizations working on issues related to climate change adaptation participated in working groups that helped lay the groundwork for shared indicators used for climate change adaptation across Colombia. The workshop was a first step in a process, with more events expected. The IDEAM meeting on regional water studies included presentations by public sector stakeholders, including PARA-Agua project partner. PARA-Agua discussed with IDEAM and other participants how WEAP could be applied in the development of future analyses.

PARA-Agua also met with representatives from the Wealth Accounting and the Valuation of Ecosystem Services (WAVES) program in Colombia. WAVES is a global initiative of the World Bank currently working in Colombia and seven other countries to mainstream the valuation of natural capital in development planning and national economic accounts. The Chinchina Watershed is one of three selected pilot watersheds in Colombia where WAVES is working towards water and ecosystem accounts. PARA-Agua met with WAVES coordinate efforts in Chinchina. WAVES also proposed the possibility of augmenting the current WEAP model with a WAVES economic module to aid in the evaluation of adaptation strategies.

Peru. In Peru, PARA-Agua co-organized and participated in a round table workshop held at the end of May, aimed at boosting public/private sector coordination in the management of the Quiroz watershed (a sub-watershed within Chira-Piura). One of main topics during the event was the Fondo del Agua Quiroz and The Regional Fund for Water and Sanitation (FORASAN). During the first week of June, PARA-Agua participated in the Simposio Agua, Clima y Adaptación en Cuencas de Colombia to share the successes of the project to date.

EVENTS PLANNED FOR NEXT QUARTER

- PARA-Agua will complete a preliminary stakeholder and governance analysis for the Guatapuri watershed.
- As a part of PARA-Agua's new program activities in the Guatapuri watershed, PARA-Agua will also identify potential infrastructure and policy-related adaptation measures.
- PARA-Agua will prepare for exchange visits between representatives from Chinchina and Chira-Piura to their Californian counterparts as planned under the twinning partnership agreement.
- PARA-Agua will participate in the second Congreso de Ciencias Ambientales in Pereira, Colombia
- PARA-Agua will officially transfer the Chinchina WEAP data to CORPOCALDAS.

TASK 3

STRENGTHENING PLANNING SYSTEMS

Through Task 3, the PARA-Agua project links science and policy to action at the watershed level through an integrated program of planning, adaptation interventions and twinning partnerships. The PARA-Agua Robust Decision Support (RDS) framework (see Figure 2: Robust Decision Support (RDS) Process) facilitates a watershed-level participatory planning process using the Water Evaluation and Planning (WEAP) modeling system. As part of this effort, a broad range of stakeholders, including scientists, policy-makers, decision-makers and community representatives work together to articulate the impact of possible management and adaptation responses.

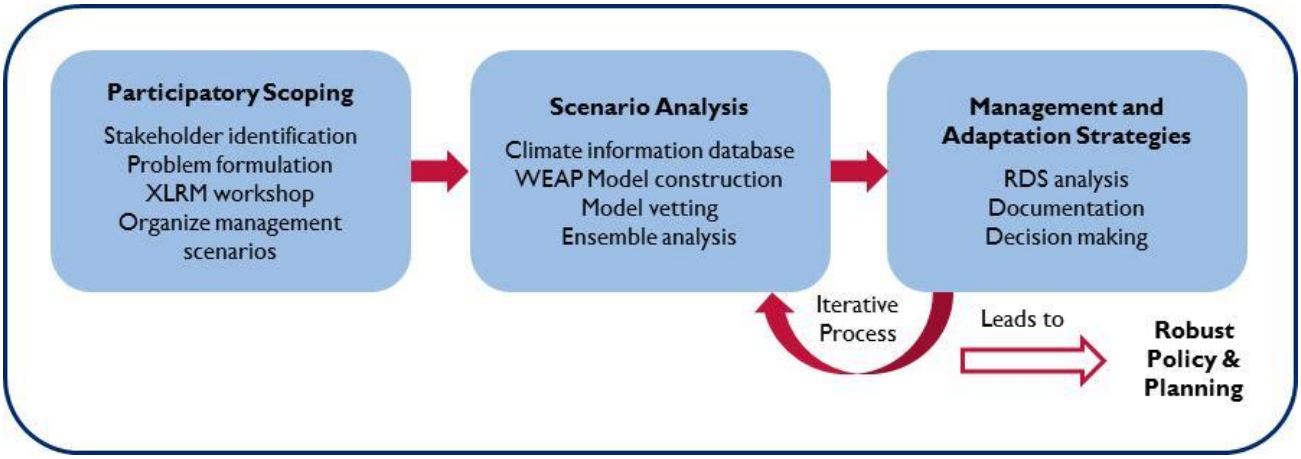
CHIRA-PIURA AND CHINCHINÁ WATERSHEDS

Completion of the RDS Process for the Chira-Piura and Chinchina Watershed.

PARA-Agua completed the implementation of the RDS (Figure 2: Robust Decision Support (RDS) Process) process in the Chira-Piura and Chinchina Watersheds during the last quarter. The end of the year-long program was marked by a new set of WEAP model runs that examined the performance of adaptation strategies that were refined based on stakeholder feedback received during FY15 Q2. PARA-Agua presented the WEAP results from the latest analyses to stakeholders in Chira-Piura and Chinchina during workshops in April and May, respectively. Attendees that included key decision-makers are now able to use performance estimates to prioritize strategies that will be the subject of applications for finance.

Furthermore, PARA-Agua officially transferred the WEAP models to project partners in the Chira-Piura watershed on April 13. The transfer of the Chinchina WEAP model is scheduled for FY15 Q4.

Figure 2: Robust Decision Support (RDS) Process



Assessment of Financing Sources for Priority Adaptation Projects and Development of Project Applications

As a part of the RDS process, PARA-Agua supported the watersheds in prioritizing areas that will need funding to achieve their desired objectives. Below is a list of the priority areas by watershed.

Chira-Piura

- Reforestation and forest enhancement, including the establishment of nurseries, the training of communities and forest management officers, and the establishment of local forest management committees
- Improving irrigation efficiency and irrigation canals
- Construction of a Vilcazan reservoir and upgrading of an existing reservoir
- Upgrading capacity of Poechos reservoir

Chinchina

- Changes in land use through rezoning and public land purchases
- Policy to restore environmental flows within the watershed and the establishment of an associated monitoring system
- Upgrading of urban water distribution system in Villamaría
- New wastewater treatment plants in Manizales and Villamaría

PARA-Agua made significant progress during the FY15 Q3 in linking these adaptation strategies international and national funding sources. PARA-Agua completed studies for Peru and Colombia that evaluated the suitability of international funding sources, identified the most promising opportunities, and provided guidance in for the preparation of proposals. The international funding sources that will be the focus of PARA-Agua efforts in both watersheds are the Adaptation Fund and the soon to be operational Green Climate Fund. Work is already underway to prepare applications for financial support from the Adaptation Fund.

PARA-Agua complemented the assessment of international funding sources with national and regional sources. In Peru, PARA-Agua identified the Fondo de Promoción a la Inversión Pública Regional y Local (FONIPREL), El Fondo Promoción del Riego en la Sierra (FONDO MIREGO), and the Fondo de Promoción de las Áreas Naturales Protegidas del Perú (PROFONANPE) as potential funding sources with programmatic objectives that fit well with the prioritized adaption projects. Newly hired consultants in each country will continue work towards the goal of securing financial support in the coming months.

Continued Support of FORASAN in Peru

PARA-Agua provides technical support and facilitates a participatory process to create and consolidate FORASAN, a long-term financial mechanism to protect water sources for the region. The fund would establish and payment for environmental services, whereby natural areas critical to water supplies would be supported by downstream stakeholders. Through periodic technical visits and joint collaboration with the CRCH, PARA-Agua monitored the commitments made by different institutions to consolidate FORASAN last quarter. PARA-Agua also played a major role in the obtaining official government recognition for the fund. PARA-Agua drafted the initial technical documentation that supports the regional ordinance to be discussed among council members within regional government. To date, the proposal is under review and expected to be approved in the near future. The project also helped to finalize the structure and how the fund will operate. A complete technical document was prepared setting the basis for the structure of FORASAN. Discussions with other donors and the private sector have occurred during this period, clarifying what FORASAN will do and how it will operate. PARA-Agua visited four private companies and two have expressed interest in participating and contributing to the fund. The Piura Chamber of Commerce also expressed its interest and support in

contributing to the fund and highlighting the importance of this mechanism to protect water sources.

Figure 3: Climate Scenarios Workshop Participants in Quilca-Chili

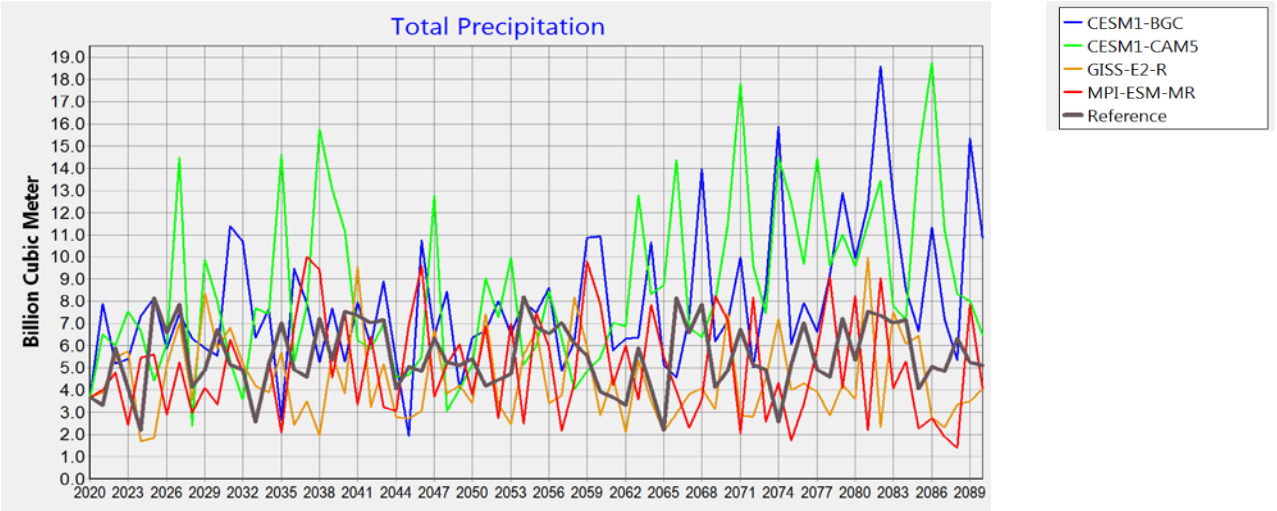
QUILCA-CHILI

Climate Scenarios Training for the Quilca-Chili Watershed in Peru

PARA-Agua works with project partners to develop analytical tools to assess the future vulnerability of vital watershed systems and the potential performance of adaptive responses. The quality of the analysis completed with these tools depends on climate projections. Key stakeholders and decision-makers from Quilca-Chili participated in a hands-on training workshop on May 13 and 14th designed to build the necessary capacity to develop and interpret state of the art watershed-scale climate change projections. Representatives from the Water Resources Council (CRCH), SENAMHI, the Administrative Authority of Water (AAA), and the National University of San Agostín, and others attended the event. Participants learned important concepts related to climate modeling and the downscaling process used to develop projections at the watershed-level. They also used statistical analysis software with downscaling tools developed by PARA-Agua to produce climate data through the end of the century. In the following quarter, these projections will become a part of the vulnerability assessment step within the RDS process.

Climate Projection Dataset Development and Synthesis for the Quilca-Chili Watershed

Complementing the climate scenarios training in Quilca-Chili is the highly technical work of the initial evaluation and selection of relevant regional climate data and projections from Global Climate Models (GCMs) (Figures 5 and 6). Note that PARA-Agua found that the ensemble average of all available GCM projections to 2050 show a 10% drier conditions (Precip Ratio = 0.9) and a warming of a little more than 1.5^{o}C for the broader region. Part of the evaluation process entailed evaluation of GCM performance by comparing Quilca-Chili historical climate observations with those obtained from SENHAMI. PARA-Agua and local project partners will then use these data to develop specific climate projections for the Quilca-Chili watershed that are appropriate for use with WEAP. These watershed-level projections for Quilca-Chili will be developed with local technicians using downscaling process similar to previous project efforts in Chira-Piura and Chinchina.



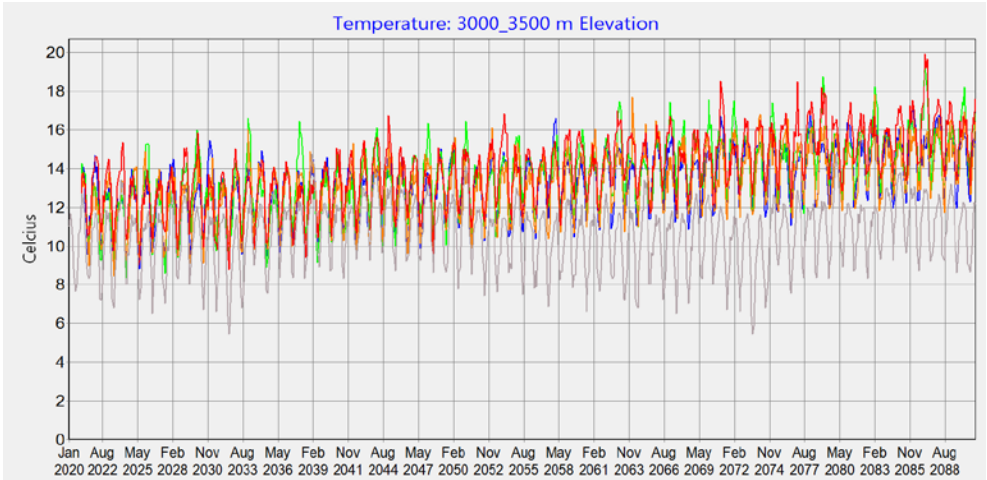


Figure 4 Total Watershed Precipitation Projections and Average Temperatures for Quilca-Chili

GUATAPURI

Evaluating the Risks Associated with the Loss of Glacial Meltwater Flows Due to Climate Change

PARA-Agua has begun work in the Guatapuri Watershed in Colombia that will characterize the risks associated with the loss of glacial meltwater flows due to climate change. The Guatapuri Watershed covers an area of about 860 km^2, in the municipalities of Valledupar and Pueblo Bello, both within the department of Cesar (jurisdiction of CORPOCESAR). Steep slopes and torrential flows characterize the basin. During the rainy season occurring because of the 2010-2011 La Niña phenomenon, heavy flooding and disasters occurred in inhabited areas. The river is the main drinking water source supplying the Valledupar municipality, with the population of 500,000.

A third of the basin (360 km^2) lies within the Ecoregion Sierra Nevada Santa Marta, which has been declared a Biosphere Reserve under the National Parks of Colombia.

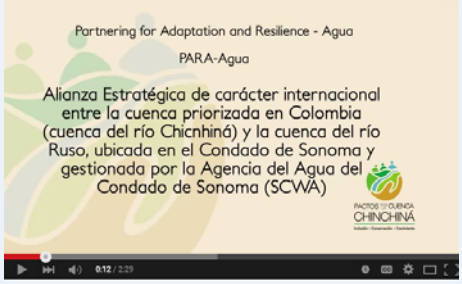
At the close of the quarter, PARA-Agua collected all available data and began to develop the analytical tools required to assess the vulnerability in the Rio Guatapuri system. These tools will be finished in Q4.

REGIONAL AND INTERNATIONAL LINKAGES

Formalization of Twinning Partnerships between South American and Californian Water Management Agencies

The development of international partnerships is a key feature of the PARA-Agua project design. PARA-Agua developed agreements between Chira-Piura and the Yolo County Flood Control and Water Conservation District, and Chinchina with the Sonoma County Water Agency to serve as mentor organizations during FY15 Q2. Building on this preparatory work, PARA-Agua fostered the formal establishment of the international twinning partnerships during Q3. Participants formalized their commitment by signing letters of intent in mid-April. Later that month, the general managers of each organization visited their respective partner basins to identify priority needs and to begin sharing best practices. The twinning partnership members will use the findings from these first consultations to produce a program for technical exchange that will be implemented over the next year.

Pactos por la Cuenca produced a video documenting the start of the twinning partnership between Chinchina and the Sonoma County Water Agency.



https://www.youtube.com/watch?v=R9sUTxvEr6w&feature=youtu.be

Building Capacity through Regional Strategic Partnerships

Similar to the international partnerships described above, PARA-Agua is also supporting regional partnerships between water management agencies. Water managers in Chinchina, Chira-Piura, and Quilca-Chili signed an MOU and together began regional exchange visits during FY15 Q3. Representatives from CRHC Chira-Piura visited the Chinchina Watershed in May, followed by Chinchina representatives in Peru. The exchanges resulted in valuable conversations on a variety of commonly encountered management challenges. Participants shared their strategies and experiences in inter-agency engagement, public outreach, negotiation, and project finance. All sides of the partnership renewed their commitment and identified shared objectives for future exchanges.

EVENTS PLANNED FOR NEXT QUARTER

- PARA-Agua will complete the next Regional Climate Modeling Workshop.
- PARA-Agua will complete the regional climate dataset for the WEAP model for the Quilca-Chili River watershed.
- PARA-Agua will hold the first WEAP workshop in Guatapuri on July 21 and 22.
- PARA-Agua will continue to refine the climate data dynamical downscaling tool and associated user manual for generating WEAP compatible future climate based on the feedback provide during related training events.
- PARA-Agua will submit a series of technical documents designed to support the establishment and sustainability of FORASAN. These documents will include guides and procedures to fund and select projects, plans for a basic monitoring system, and financial projections.
- PARA-Agua will also hold a series of trainings events and meetings with the private sector and agricultural water boards to raise their awareness and highlight the importance of participating in FORASAN. These efforts will aid in the integration of the private sector and water management stakeholders with the CRCH, as part of FORASAN.

- Draft applications for the Adaptation Fund will be completed for prioritized adaptation strategies in Chinchina and Chira-Piura
- As part of RDS implementation, PARA-Agua will conduct a vulnerability assessment workshop for the Quilca-Chili watershed and use the results of this workshop to identify the final set of potential adaptation actions that can be evaluated in later phases of RDS implementation.
- PARA-Agua will complete and report upon the study of the risks associated with the loss of glacial meltwater contributions in the Guatapuri Basin under climate change.
- PARA-Agua will prepare for the travel of delegations from the Chira-Piura watershed to the Yolo County Flood Control and Water Conservation District, and from the Chinchina Watershed to the Sonoma County Water Agency.
- PARA-Agua will complete fact sheets on gender and climate change intended for use within the CoP.
- PARA-Agua will complete a workshop on gender and climate change in Chinchina.

CROSS-CUTTING

GENDER

Women in the Andes Mountains are particularly vulnerable to climate change and the resulting changes in water resources, due to prevailing socio-cultural attitudes and practices that limit their access to financial, social and educational resources and information. Glacier melt and the recent loss of fresh water sources during the dry season means that women and girls spend more time collecting fresh water for household and subsistence use, yet because women rarely have land tenure they are often excluded from water management decision-making. Despite this, women, with their knowledge of the natural environment, traditional agriculture techniques and water resources, are well positioned to be agents of change and contribute to adaptive livelihood strategies in relation to climate change.

With this backdrop, PARA-Agua makes gender considerations a top priority in all aspects of the project's implementation. This quarter, PARA-Agua continued to make progress towards its objectives related to gender. The implementation of the project's Gender Action Plan completed during the previous quarter guided related activities, which included:

- Dissemination of PARA-Agua's gender related research and analysis during a dedicated event held on May 7th in Manizales, Colombia;
- Development of basin-specific for each target watershed in partnership with local stakeholders;
- Collection of gender-related baseline M&E data;
- Technical support to CECOBOSQUE (a prioritized women's group in Chira-Piura) in the revision of their rules and regulations;
- Completion of a workshop on gender and climate change, implemented with the Junta de Usuarios, Santa Rita de Siguas (located in Quilca-Chili);
- Mainstreaming of gender related materials into PARA-Agua training events.

Additional details on the progress made toward PARA-Agua's gender related objectives are presented in section 4.

IMPLEMENTATION

CHALLENGES

Throughout the implementation of PARA-Agua, the project continues to face a number of challenges. Each challenge is unique in its own right and requires thoughtful and creative solution from the team, counterparts and USAID to ensure the project's goals and objectives are effectively achieved. Over the past quarter, PARA-Agua has worked tirelessly to resolve issues relating to supporting local counterparts in obtaining funding for their activities, maintaining the project's influence, and creating sustainable and long-term solutions.

Financial Support. The technical preparation of applications for funding for the implementation of adaptation measures in the watersheds is a significant challenge, due to the multiple possibilities available nationally and internationally for adaptation measures. PARA-Agua is in the process of assisting watershed councils to prepare applications for financing, integrating climate projections into the analysis and design of adaptation measures. To this end, PARA-Agua is working with a team of financial advisors in the preparation of applications for adaptation funds.

FORASAN continues to represent one of the biggest challenges to the PARA-Agua project. The scope of this water fund is well beyond any experience realized in Peru thus far and it is highly dependent on political will as much as receiving income to assure its sustainability. The Swiss Agency for Development and Cooperation remains firmly committed to capitalize the fund. Contributions from other donors have been minimal during reporting period but are expected to grow in importance as the fund is established. The issue of a supreme decree by the regional government of Piura for the official political creation of the fund is expected during next quarter. The purpose of the water fund was widened

not only to finance investments in water and sanitation but also in environmental conservation activities. Significant progress has been made to engineer the management of the fund by bringing PROFONANPE as the manager of the fund with the agreement of all stakeholders. Private industry, water users and other key stakeholders have committed resources to establish the fund.

Project Influence. Furthermore, with PARA-Agua's main office in Lima, Peru the challenge is to balance the project's influence and investments in Colombia. PARA-Agua is bringing national hydrometeorological institutions closer to the project to mitigate this challenge. A training program between SENAMHI in Peru, IDEAM in Colombia and PARA-Agua as the trainer is envisioned during next quarter. This will narrow the gap for influence in Colombia. Notwithstanding, more work remains to be done in Colombia to balance the allocation of project resources. A focus for next year will be the Guatapuri Watershed draining from the Sierra Nevada de Santa Marta Glacier in Northern Colombia.

PARA-Agua is set to start activities in its fifth and last watershed in the region. Peru's national water authorities have requested that the project work in the Chancay-Lambayeque watershed in central Peru. In this watershed, they envision that PARA-Agua will develop adaptation interventions and provide technical assistance in watershed management in the context of climate change. PARA-Agua will look for resources to meet and this request, either through existing project funds or outside sources.

Project Continuity and Sustainability. As the mid-term performance evaluation of the PARA-Agua project has been positive, USAID has decided to exercise the first option year and award a third year to the project. This has eliminated a number of uncertainties and the challenge is now to pick up the pace and complete the year with tangible results. PARA-Agua is setting up activities that can be rapidly accelerated during FY16.

Finally, sustainability is an issue that PARA-Agua constantly considers in the process of implementation. The legacy consortium will be strengthened to foster and sustain the collaboration and capacity building initiated by PARA-Agua well into the future.

ANNEXES

ANNEX I

During FY15 Q3, PARA-Agua made significant progress toward meeting its goals with the technical assistance provided by institutions and stakeholders in the watersheds of the Chinchina and Guatapuri Rivers (Colombia) and those in Chira-Piura and Quilca-Chili (Peru). Below is a table that contains the results posted at the end of Q3 followed by a narrative that describes progress under each indicator.

INDICATORS	FY 2014 TARGETS		FY 2015 TARGETS	
	Goal	Achieved	Goal	Achieved (June 2015)
SO: Identify and take actions that increase climate resilience				
Number of watershed level investments or other climate change adaptation interventions planned or implemented	0	0	1	0
IR 1: Strengthen capacity of research community to generate policy-oriented data on watershed management and climate change adaptation				
Number of institutions with improved capacity to address climate change issues as a result of USG assistance	7	7	8	9
IR 2: Mainstream and integrate climate data into decision-making related to watershed management				
Number of stakeholders using climate information in their decision-making as a result of USG assistance	10	28	12	10
IR 3: Strengthening planning systems that optimize water use over the whole length of watersheds in the context of climate change adaptation				
3.1 - Number of climate adaptation tools, technologies and methodologies developed, tested and/or adopted as a result of USG assistance	4	6	4	3
3.2 - Number of climate stakeholders with increased capacity to adapt to the impacts of climate variability and change	17	15	20	20
3.3 - Number of women's groups with increased capacity to adapt to impacts of climate change	3	4	3	3

SO: Identify and take actions that increase climate resilience

Number of watershed level investments or other climate change adaptation interventions planned or implemented

The search continues for financing sources for climate change projects in the Watersheds prioritized by the program in Colombia and Peru. PARA-Agua and its partners were able to make progress towards the goal of one climate change adaptation intervention planned or implemented primarily through research and networking efforts.

Progress to Date

In the case of Colombia, PARA-Agua identified the following sources and began communicating with key contacts. They call for requests every year for financing for climate change projects. At the international level, the Adaptation Fund and the Green Climate Fund are potential funding sources, with objectives that closely match those of the prioritized adaptation projects of PARA-Agua target watersheds.

In the case of Peru, a total of 24 bilateral and multilateral funds for climate change were identified, seven of which operate in Peru, such as the International Climate Initiative of Germany, the Fund to Achieve the Millennium Development Goals, among others. PARA-Agua began to develop a strategy for the Green Climate Fund, and the project should be able to begin working with the fund by October of this year. To accomplish this, the project must begin coordinating with the Ministry of the Environment (MINAM) and with the Fondo de Promoción de las Áreas Naturales Protegidas de Perú (PROFONANPE), which is the implementing entity in Peru. At the national level, PARA-Agua identified ten funds in Peru that may be potential sources of adaptation financing (see text box). Three of these funds, Fondo de Promoción a la Inversión Pública Regional y Local (FONIPREL), Fondo Promoción del Riego en la Sierra (MIRIEGO), and Fondo de las Américas (FONDAM), will be available until the end of 2015. Together, the efforts to prioritize funding sources and develop successful applications should result in at least one adaptation project planned or implemented by the end of FY15.

Ten Potential Funding Sources in Peru for Watershed Goals and Objectives:

- Fondo de Promoción a la Inversión Pública Regional y Local (FONIPREL);
- Fondo Promoción del Riego en la Sierra (MIRIEGO),
- Fondo de las Américas (FONDAM);
- Fondo de Promoción de las Áreas Naturales Protegidas del Perú (PROFONANPE);
- National Program for Forest Conservation to Mitigate Climate Change under MINAM;
- Peru-Germany Counter-Value Fund;
- Fondo de Cooperación para Agua y Saneamiento (FCAS);
- Italian-Peruvian Fund,
- Peru-Japan General Counter-Value Fund; and
- Apoyo a la Competitividad Productiva (PROCOMPITE) fund.

IR I: Strengthen capacity of research community to generate policy-oriented data on watershed management and climate change adaptation

Indicator: Number of institutions with improved capacity to address climate change issues as a result of USG assistance

Nine additional institutions improved their capacity to address climate change due to the program's assistance and training efforts over the course of FY15 Q3 (Figure 5). This indicator is particularly important because it allows us to visualize strengthening actors in a sustainable way based on institutional performance, which in turn allows us to better direct policies related to climate change in the prioritized watersheds. The institutions that have been strengthened in Peru are: the Council for Water Resources in the Quilca-Chili Watershed and SENAMHI. In the case of Colombia, noteworthy achievements include the Agreements for the Chinchina River Basin, the Hydroelectric Power Station in Caldas, and IDEAM, among others. The PARA-Agua capacity building efforts completed as part of the RDS process have been particularly important, with participants now able to complete WEAP analyses and develop watershed-scale climate scenarios. These efforts strengthened the research community and watershed mangers to generate information to formulate investment projects that incorporate risk assessment in the context of climate change.

	Institution	Country
1	CRHC Quilca-Chili	PERU
2	SENAMHI – National Meteorology and Hydrology Service	PERU
3	Ministry of the Environment- MINAM	PERU
4	Agreements for the Chinchiná River Basin	COLOMBIA
5	Caldas Hydroelectric Station- CHEC	COLOMBIA
6	IDEAM Institute of Hydrology, Meteorology and Environmental Studies of Colombia	COLOMBIA
7	National Natural Parks of Colombia	COLOMBIA
8	Aguas Manizales- Watershed Council	COLOMBIA
9	Aquamana (Public Company)	COLOMBIA

Figure 5 Institutions with Improved Capacity

IR 2: Mainstream and integrate climate data into decision-making related to watershed management

Indicator: Number of stakeholders using climate information in their decision-making as a result of USG assistance

Ten additional stakeholders in leadership positions qualified under this indicator during FY 15 Q3. They received assistance and training from the program and are using the information they received from these events for the Chinchina, Chira-Piura, and Quilca-Chili watersheds. The climate information being applied stems from PARA-Agua assistance related to vulnerability analysis; performance assessments of the current system in the watersheds with regard to future scenarios; options for water distribution; demographic change; and deforestation, among others. The decision-makers that have received assistance and training are directors, coordinators, or heads of institutions such as, the PMGRH and the Water Resource Council of the Quilca-Chili. In the case of Colombia, the decision-makers from the Caldas Hydroelectric Power Station, CORPOCALDAS, IDEAM, and others benefited from PARA-Agua training efforts.

IR 3: Strengthening planning systems that optimize water use over the whole length of watersheds in the context of climate change adaptation

Indicator 3.1: Number of climate adaptation tools, technologies and methodologies developed, tested and/or adopted as a result of USG assistance

PARA-Agua developed three additional tools and methodologies under the during FY15 that qualify under the criteria associated with indicator 3.1: the XLRM methodology and WEAP software was applied with decision-makers in the Quilca-Chili watershed in Arequipa; and the preliminary version of Toolkit 1, Communicating Hydroclimatological Information to Decision-Makers.

The XLRM methodology was applied in a workshop conducted in Arequipa for the Quilca-Chili watershed, which allowed stakeholders to identify in advance which characteristics will have an impact on this watershed's future. This includes:

1) exogenous factors ("X"), which cannot be controlled by water administrators and which tend to be uncertain and not completely understood (e.g. climate change, demographic growth;
2) Management Options ("L"), which are actions that water administrators take to modify results;
3) Relations ("R") which describe how the factors interact and govern final results; and
4) Performance measurements ("M"), which are the measurements that water administrators use to determine the success of various strategies under different scenarios.

With the Quilca-Chili WEAP model, decision makers are better equipped to assess the impacts of different strategies for water management in the Quilca-Chili watershed by identifying the most suitable actions to address water scarcity under climate change conditions. Policy makers are now better able to optimize planning for water resources in the watershed by striking a balance between water supply and demand.

Toolkit 1, *Communicating Hydroclimatological Information to Decision-Makers*, offers guidance to decision-makers on how to communicate the results of scientific research. It offers a specific framework for understanding how scientific information is applied by decision-makers; evaluating informational needs of the end user; and the proper disclosure of the uncertainties associated with research findings and other scientific information. The CoP is now utilizing this toolkit as part of the CoP's website.

Toolkit 2, *Integrating Institutions in Information Systems*, aids the various actors involved in watershed management to develop sustainable and effective networks for information exchange and coordination. This toolkit has been developed, but has not received final approval for distribution. PARA-Agua anticipated that it will be counted towards indicator 3.1 in FY15 Q4. Toolkit 2 will be used as an integral part of the CoP website along with Toolkit 1.

Indicator 3.2: Number of climate stakeholders with increased capacity to adapt to the impacts of climate variability and change

Progress relative to this indicator refers to the number of stakeholders that have improved their capacity to adapt to climate change thanks to the Program's assistance. Twenty stakeholders made improvements due to the direct assistance and training provided by the workshops in Colombia and Peru.

The improvements transferred to stakeholders relate to using the XLRM methodology to identify future scenarios based on the strategies that have been selected and on uncertainty. We have also strengthened the stakeholders' capacities to use and manage the WEAP model, which has helped improve water resource planning and management in the watershed.

The Program has also provided assistance and training on methods to generate climate scenarios. These tools have been transferred this quarter and are in use in the Quilca-Chili (Arequipa) and Chira-Piura (Piura) in particular. It is also important to mention the Program's assistance in Colombia to assess, with the help of actors in the Chinchina Watershed, which options are most robust to address climate change and other uncertainties.

The stakeholders that have been assisted and trained by the program are linked to institutions and organizations such as the Water Resource Council of the Quilca-Chili watershed, CORPOCALDAS, the Water Council of Chinchina, among others.

Strategic twinning alliances were also established in Colombia and Peru for the Chinchina and Chira-Piura watersheds. Representatives from both watersheds have said that this has been very useful because they have been able to exchange ideas; enrich their experience; and see how the councils operate in both countries. It is important to mention the visit made by the *Guardianas de la Ladera* project, which is a women's group in the Chinchina Watershed in Colombia that has been working closely with the Program from a gender perspective.

Indicator 3.3: Number of women's groups with increased capacity to adapt to impacts of climate change

Under the leadership of the project's Gender Specialist, we have identified seven organizations that have a noteworthy presence in activities linked to climate change. Three of these organizations are newly accounted for in FY15 Q3.

In the case of the Chira-Piura watershed, it is important to note the work done by the CECOBOSQUE organizations and the Users Committees in Sechura. In both cases, we have been supporting efforts to update the organizations' statutes to increase women's participation.

In the Quilca-Chili watershed, the program has been supporting the Users Committee of Santa Rita de Siguas. In the case of the Chinchina Watershed, the Fundación Mujer Vida and Guardianas de las Laderas have shown the best progress. In July and August, we will hold a Workshop on Gender and Climate Change in the Chinchina Watershed.

For this report, PARA-Agua is listing three of the organizations that have made the most progress: CECOBOSQUE (Chira-Piura), User Committee of Santa Rita de Siguas (Quilca-Chili), and the Women's Life Foundation (Chinchina).

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