

**Implementation Status & Results
Andean Countries
Adaptation to the Impact of Rapid Glacier Retreat in the Tropical Andes (P098248)**

Operation Name: Adaptation to the Impact of Rapid Glacier Retreat in the Tropical Andes (P098248) Project Stage: Implementation Seq.No: 8 Status: ARCHIVED Archive Date: 14-Aug-2011

Country: Andean Countries Approval FY: 2008
 Product Line: Global Environment Project Region: LATIN AMERICA AND CARIBBEAN Lending Instrument: Specific Investment Loan
 Implementing Agency(ies): Secretaria General de la Comunidad Andina

Key Dates

Board Approval Date	27-May-2008	Original Closing Date	30-Sep-2012	Planned Mid Term Review Date	Last Archived ISR Date	14-Aug-2011
Effectiveness Date	12-May-2006	Revised Closing Date	30-Sep-2012	Actual Mid Term Review Date	10-Oct-2010	

Global Environmental Objectives

Global Environmental Objective (from Project Appraisal Document)

The broad development objective of the proposed project is to contribute to strengthening the resilience of local ecosystems and economies to the impacts of glacier retreat in the Tropical Andes, through the implementation of specific pilot adaptation activities that illustrate the costs and benefits of adaptation. The specific objectives of the project, in support of this broad objective, are: a) the effective integration of the implications of glacier retreat into the regional and local planning in glacierized basins; b) the inclusion of glacier retreat impacts in local, sector development projects; and c) generation of data on glacier dynamics.

Has the Project Development Objective been changed since Board Approval of the Project?

Yes No

Component(s)

Component Name	Component Cost
Development of climate change scenarios and glacier-fed basin impact maps and models	0.32
Design and implementation of pilot adaptation measures	5.81
Monitoring of glacier retreat in the region	0.35
Project Management	0.70
Development of regional activities	0.75

Overall Ratings

	Previous Rating	Current Rating
Progress towards achievement of GEO	Moderately Satisfactory	Moderately Satisfactory
Overall Implementation Progress (IP)	Moderately Satisfactory	Moderately Satisfactory
Overall Risk Rating	Moderate	Moderate

Implementation Status Overview

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During this reporting period, the project was restructured in order to update the description of some activities, including the incorporation of a fifth component. The fifth component was created with the scope of strengthening the regional dimension of the project, collect and inter-compare results, share experiences and methodologies, and disseminate lessons.

Activities are progressing at different pace in the three beneficiary countries, but still the project has started to play a role in the inclusion of climate change considerations in the definition of policy instruments at local and regional level in all of them.

Activities in Bolivia have progressed notably: definition and final design of all activities has been finalized, and are currently in the procurement phase. Substantial resources have been devoted to acquisition of equipment and software to increase efficiency of the potable water distribution system for La Paz and El Alto; key strategic consultancies to devise action plans to reduce water losses, and studies to identify adaptation measures to manage future higher demand and lower water availability, are in the selection phase. Pilot demonstration irrigation systems in Batallas and Palca are fully designed, and selection of contractors will start shortly. The implementation of community-based development activities are well advance under the leadership of CARE, strategic partner of the project. On the knowledge side, Bolivia has just finished the national glacier inventory, a thorough study using advanced satellite imagery and other techniques to characterize and map the glaciers of the country.

The agility of the procurement of goods, works and consultancies, and the proficiency of the awarded firms and contractors, will have an important weigh in ensuring the achievement of objectives for the country.

In Ecuador progress has been less evident, but has accelerated in the past months. A critical consultancy to perform a climate change vulnerability analysis of the Pita basin is underway. Technical specifications for a pilot water supply and sanitation system in Papallacta are finalized, and several activities targeted towards high-mountain wetlands (paramos) conservation and protection, sustainable small-scale cattle and farming practices, and ecologic tourism activities in Papallacta are in final stages of design or under procurement. Specifications for the purchase of hydro, meteorological and rainfall monitoring stations that will support a monitoring system to assess water availability have been prepared.

In Peru, two of the four adaptation activities implemented in the Shullcas-basin pilot area, have been finalized and are performing their first test runs (water-efficient irrigation systems, and improvement of an irrigation canal). The reforestation and conservation of natural grasslands activities are well underway, with some minor delays. Substantial and comprehensive technical support and assistance to users and communities has been given by CARE. In Santa Teresa, the other selected pilot area, activities led by CARE are well advanced, and dissemination and lessons learned are now being collected through the project. The only critical activity pending is a consultancy to study the impacts of climate change on the paramo ecosystem in Piura, for which terms of reference have already been prepared.

The implementation of activities within the recently created regional component is progressing slowly. This was affected by the resignation of the regional coordinator of the project in July, position that still has not been filled-in. Among the key tasks of the new coordinator will be to speed up the implementation of the regional activities.

All high-mountain monitoring stations have been installed.

The project is due to close in September 2012, and most activities are expected to be completed by then. Still, it has been agreed that as assessment of the need to extend the project closing date will be done during the first quarter of 2012.

Locations

Country	First Administrative Division	Location	Planned	Actual
Ecuador	Provincia de Pichincha	Provincia de Pichincha		✓
Ecuador	Provincia de Napo	Provincia de Napo		✓
Bolivia	Departamento de La Paz	Rio La Paz		
Bolivia	Departamento de La Paz	Departamento de La Paz		

Country	First Administrative Division	Location	Planned	Actual
Bolivia	Departamento de La Paz	El Palomar		
Bolivia	Departamento de La Paz	El Alto		
Peru	Departamento de Junin	Departamento de Junin		✓
Peru	Departamento de Cusco	Departamento de Cusco		✓

Results

Global Environmental Objective Indicators

Indicator Name	Core	Unit of Measure		Baseline	Current	End Target
Contribute to strengthening Andean region integration by supporting implementation of Andean Env Agenda, through generation of tools to assess impacts and design and implement adapt measures	<input type="checkbox"/>	Text	Value	The Andean Environmental Agenda establishes the need to work on these topics at the sub-regional level, but this has not fully materialized.	Several activities such as AndesPlus have started implementation.	The results of the different studies, and design and implementation of adaptation activities in all countries has been systematized. Good practices at the community, national and Andean sub-regional levels have been identified and disseminated in participating countries.
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	New indicator resulting from the inclusion of a new component (Comp 5) through the restructuring.		
Increase in the national and local awareness of the impacts of rapid tropical glacier retreat as measured through mentions in written media of mass circulation.	<input type="checkbox"/>	Text	Value	No mentions in written media.	Several dissemination notes and press articles have been published in written media, etc, in all countries.	At least 8 press articles in the local written media.
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	Unchanged after project restructuring.	Indicator achieved	
Strengthened national meteorological services capacity to monitor glacier dynamic in Bolivia Ecuador and Peru.	<input type="checkbox"/>	Text	Value	Limited availability of high-mountain meteorological stations (only those administered by the IRD of France). Limited availability of satellite images/data.	8 meteorological stations have been purchased (2 for each country including Colombia) and O&M arrangements are being finalized. Allstations have been	Information on glacier behavior in the region is available and 8 high-mountain meteorological stations provide useful data for modeling, and for CC impact and glacier retreat studies in
			Date			
			Comments			

					installed and are operational. Also the 4 countries have received ALOS images of the relevant glacier basins.	the selected basins. ALOS images have been processed.
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	This indicator has been adjusted as per approved project restructuring.		
Design and implementation of pilots generates lessons delivered to relevant institutions which could be incorporated into planning and implementation of public/private investment programs and projects	<input type="checkbox"/>	Text	Value	There is no systematization of lessons learnt from what could be considered adaptation activities.	Pilots still in the implementation phase. Institutions in three countries fully engaged and extracting lessons.	All adaptation investment activities implemented by the PRAA generate relevant information on adaptation which is collected and elaborated to be used as input in the planning and implementation of public/private investment programs and projects.
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	This indicator has been adjusted as per approved project restructuring.		
Information/data on CC scenarios and glacier retreat contribute to the definition of local/regional governments' adaptation strategies to CC and/or integrated water resources management plans.	<input type="checkbox"/>	Text	Value	There are no climate change (CC) adaptation strategies or plans for the selected basins that incorporate the implications of CC or glacier retreat.	Adaptation strategies to CC and other management plans in all three countries are being prepared using project inputs.	Development of at least one adaptation strategy/plan per country that incorporates the information generated by the project on the implications of CC and glacier retreat.
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	This indicator has been adjusted as per approved project restructuring.		

Intermediate Results Indicators

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Indicator Name	Core	Unit of Measure		Baseline	Current	End Target
Dissemination among the communities, local governments involved, specialized institutions and other stakeholders of the participatory working experiences and results on the topic of adaptation to CC.	<input type="checkbox"/>	Text	Value	Limited formal understanding by the communities of the problematic of CC, glacier retreat and the role of the high-mountain ecosystems on the eater cycle. Very few press articles and publications at the community level on this topic in the Andean region.	Socialization about these topics at the community level is well underway. There are many press notes and dissemination material at the local level. The SGCA has created the project web page.	Project web page that integrates information about the topic, experiences, and results at the local and sub-regional level is operational. Project closing workshop and Report.
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	Indicator modified through project restructuring.		
Systematization and analysis of the different adaptation processes applied in the different pilots financed by the project.	<input type="checkbox"/>	Text	Value	There is no or very limited regional exchange on this topic, and if done, is not formal.	Planning of activities to exchange experiences and document their systematization is available.	At least one workshop to exchange know-how on adaptation processes. A document that systematizes the experiences of Bolivia, Ecuador and Peru on this topic is also available.
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	New indicator to reflect newly created comp. 5 through project restructuring.		
Development of capacity to analyze and monitor high-mountain ecosystems' (paramos) behavior to CC, in reference to the water cycle and their role in fixing carbon.	<input type="checkbox"/>	Text	Value	There is no knowledge about the impacts of CC on paramos.	ToRs for the design of a study on paramos in Peru and Ecuador are being finalized.	The studies on the role of the paramos on the water and carbon cycle in Peru and Ecuador have been finalized.
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	Indicator modified through project restructuring.		
Availability and use of satellite images and/or aerial photographs to characterize glacier surface, assess the dynamic of glaciers and high-mountain ecosystems in the 4 countries.	<input type="checkbox"/>	Text	Value	ALOS images are not being used and very few photogrammetric analyses are being done to assess glacier behavior in the region.	ALOS images are being used by all countries, although some challenges with their software processing remain. Peru has already characterized the glacier surface of Huaytapallana and Salkantay. In Colombia work is beng done to characterize the Chingaza paramo and Huila volcano. Ecuador has	Each country has at least generated one study on glacier cover evolution, using ALOS images and/or aerial photos obtained by the Project.

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					made progress on the characterization of Antisana's glaciers 12 and 15. Bolivia has recently finalized its national glacier inventory.	
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	Indicator modified through project restructuring.		
	<input type="checkbox"/>	Text	Value	Limited availability of high-mountain meteorological data in the tropical Andes.	All stations have been installed and are operational (in Peru, Ecuador, Bolivia and Colombia, two per country). There are some difficulties with a sensor in one Ecuadorian station. Work on data interpretation underway.	8 meteorological stations installed and operational, generating accessible data to all relevant stakeholders in the 4 countries (Bolivia, Colombia, Ecuador and Peru).
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	Indicator modified through project restructuring.		
	<input type="checkbox"/>	Text	Value	Each country applies its own methodology and generates data, but there is no exchange of information generated by the project among countries.	The Project has generated information about glacier monitoring. However, still there is no effective exchange of information among countries at the Andean sub-region level.	At least one workshop to exchange know-how on CC scenarios development and glacier monitoring has taken place. A document that systematizes the experiences of Bolivia, Ecuador and Peru on this topic is also available.
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	New indicator to reflect newly created comp. 5 through project restructuring.		
	<input type="checkbox"/>	Text	Value	There are several methodologies but none specifically designed for high-mountain ecosystems.	Two workshops to develop methodology to formulate the baseline have taken place.	Methodological guide is available.
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	New indicator to reflect newly created comp. 5 through project restructuring.		

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Increase knowledge about the economic implications of glacier retreat in the region.	<input type="checkbox"/>	Text	Value	There is no economic information about the impacts of rapid glacier retreat in the region.	Colombia is undertaking a study to determine the economic, social and ecological value of glacier retreat in the Parque Nacional ElCocuy and the Parque Nacional de los Nevados (Colombia).	Studies on the economic impacts of glacier retreat have been finalized in all countries based on the methodology agreed by all.
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	New indicator introduced through project restructuring.		
Implementation of adaptation activities to promote integrated water resources management in the cities of La Paz and El Alto, and in the selected sub-basins in Batallas and Palca in Bolivia.	<input type="checkbox"/>	Text	Value	Water distribution systems in La Paz and El Alto register unaccounted-for water (UFW) loses of more than 30%. There are no local level plans that include CC and glacier retreat considerations.	Study to improve water distribution efficiency and reduce unaccounted-for water in La Paz and El Alto underway. Demonstration activities on resilient agriculture are being implemented. Improved irrigation schemes are on the final hiring stage.	A proposal to reduce UFW and improve efficiency is delivered to EPSAS. At least one adaptation activity is implemented in Palca and one in Batallas, with their own M&E system.
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	Indicator modified through project restructuring.		
Implementation of adapt activities to promote integrated water resources mgment, including demo activities for CC resilient agriculture in the selected basins (Sta Teresa, Shullcas) in Peru	<input type="checkbox"/>	Text	Value	There is no water resources planning that considers the impact of glacier retreat in any of the two selected sub-basins, and limited knowledge on climate change resilient agriculture practices amongst local farmers.	Implementation of adaptation activities is well advanced in the two selected sub-basins.	At least one adaptation activity has been implemented and tested in each sub-basin under each pilot in Peru, with their own M&E system. At least one of the activities includes demonstration pilot showcasing good agricultural practices and water efficiency.
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	Indicator modified through project restructuring.		
Implementation of adaptation activities to promote integrated water resources management in the selected basins in Ecuador.	<input type="checkbox"/>	Text	Value	No specific activities on fragile high-mountain ecosystems in Ecuador, which contribute to water regulation at the basin level, have been designed or	Community-level reforestation and conservation activities are being implemented in Ecuador. Complemented, in some cases, with the	At least one adaptation measure implemented under each pilot in Ecuador, with its own M&E system.

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				implemented as an adaptation response to CC.	implementation of activities on alternative livelihoods in order to reduce the pressure on high-mountain ecosystems. Several demonstrative activities on agro-forestry, reforestation, fire preventing plan are in early stages of implementation.	
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	Indicator modified through project restructuring.		
Sets of adaptation measures designed for the selected basins.	<input type="checkbox"/>	Text	Value	No adaptation activities have been designed in the selected basins.	All activities in Peru and all main ones in Bolivia have been designed. In Ecuador, detailed design specifications are available for several of the activities under PP2, and PP1 is being finalized.	At least two adaptation activities have been designed under each pilot. Each design includes its own M&E system able to generate information, beyond project closure.
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	Indicator unchanged, target value adjusted through project restructuring.		
Participatory development at the regional/local level of CC adaptation strategies and/or plans (e.g. integrated water management plan or zoning plan that considers CC and glacier retreat implications)	<input type="checkbox"/>	Text	Value	There are no CC adaptation strategies or plans for the selected basins. Also, the coordination among water users is very limited.	Local and regional development and management plans that incorporate CC considerations have, and are being produced with the support of the project for several basins in the three countries.	At least one strategy and/or plan has been developed for each participating country.
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	New indicator introduced through project restructuring.		
Generation of models and/or impact maps to the effects of climate change and glacier retreat in the selected basins in Bolivia, Ecuador and Peru.	<input type="checkbox"/>	Text	Value	There are no impact maps due to the effects of CC and glacier retreat for the selected basins.	Peru is developing a climate Atlas, and is working on the agro-climatic characterization of priority crops and water supply in the selected basins. Ecuador and Bolivia are working on their maps.	At least one model or impact map has been developed by each country.

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Climate change scenarios developed using data from a high-resolution global circulation model (Earth Simulator, MRI Japan) in participating countries generating useful information for selected basins.	<input type="checkbox"/>	Text	Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	New indicator introduced through project restructuring.		
			Value	Availability of some scenarios based on other global circulation models with less resolution.	Peru is close to finalize CC scenarios for 2030 for the Mantaro and Urubamba basins. Ecuador has already finished the scenarios for the relevant basins (including Antisana and Pita). Bolivia has started the modeling of scenarios with MRI data.	The three countries have generated CC scenarios with MRI data for the selected basins. This constitutes an input for assessing CC impacts on water balances on those basins.
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	Indicator modified through project restructuring.		
			Number of water utilities that the project is supporting	<input checked="" type="checkbox"/>	Number	Value
			Date	15-Oct-2008	20-Dec-2011	30-Sep-2012
			Comments	No water utilities supported by project	EPMAPS in Ecuador, EPSAS in Bolivia, SEDAM in Huancayo (Peru).	At least 3 water utilities involved with project activities and supported by it.

Data on Financial Performance (as of 07-Dec-2011)

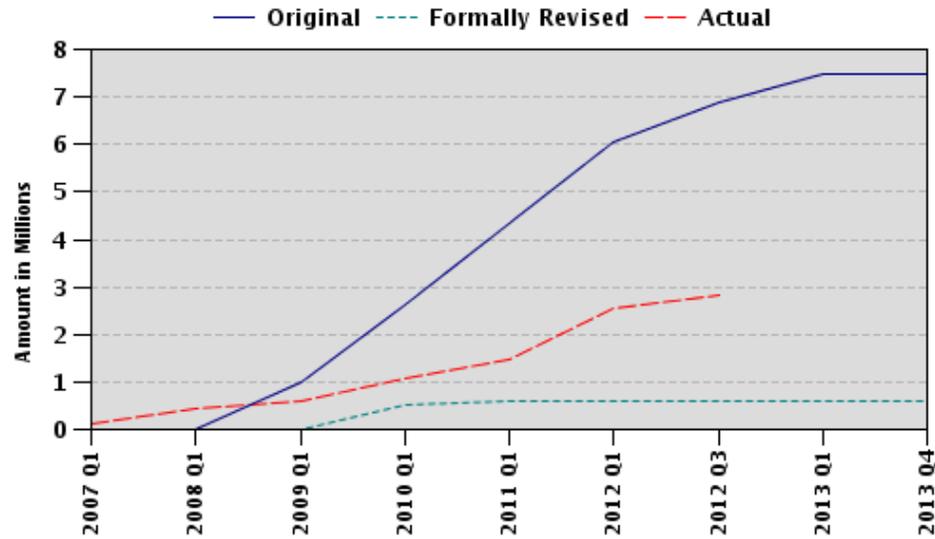
Financial Agreement(s) Key Dates

Project	Loan No.	Status	Approval Date	Signing Date	Effectiveness Date	Closing Date
P098248	TF-56694	Closed	12-May-2006	12-May-2006	12-May-2006	12-Dec-2007
P098248	TF-90328	Effective	31-Oct-2007	31-Oct-2007	31-Oct-2007	30-Sep-2012
P098248	TF-91712	Effective	11-Jul-2008	11-Jul-2008	11-Jul-2008	30-Sep-2012

Disbursements (in Millions)

Project	Loan No.	Status	Currency	Original	Revised	Cancelled	Disbursed	Undisbursed	% Disbursed
P098248	TF-56694	Closed	USD	0.59	0.58	0.01	0.58	0.00	100.00
P098248	TF-90328	Effective	USD	0.87	0.87	0.00	0.65	0.22	75.00
P098248	TF-91712	Effective	USD	7.49	7.49	0.00	2.26	5.68	30.00

Disbursement Graph



Key Decisions Regarding Implementation

Following a request from the Implementing Agency (SGCA), the project has been restructured. The designs and technical specifications of most activities are now available, and most activities are expected to be completed by project closure (September 2012). However, because the time required to contract and implement of a specific few activities might be more than currently available, it has been agreed that the possibility to extend the project will be discussed during the first quarter of 2012.

Restructuring History

There has been no restructuring to date.

Related Projects

P119725-Adaptation to the Impact of Rapid Glacier Retreat in the Tropical Andes Additional Financing