

Annex 1. Additional information about the proposed project

Proposal's relationship to the participating countries' National Communications

The proposed Project is well aligned with the adaptation needs and priorities identified by all countries and presented under each country's Second National Communications to the UNFCCC:

- **Bolivia's Second National Communication** (December 2, 2009) shows how the Plurinational State has been working on the generation of a National Mechanism for Adaptation to Climate Change (NMACC), which plays a strategic role in tackling climate change in all sectors of the national economy. Within the framework of the latest National Development Plan, the Ministry of the Environment and Water (MEW) has led the implementation of the NMACC. The strategic objectives of the NMACC include the reduction of vulnerability and risks to climate change and the promotion of planned adaptation under various sectoral programs. The NMACC prioritize 5 sectors, including water, agriculture and ecosystems. It also underlines cross-sectoral actions relating to research, education and recovery of ancestral knowledge. It specifically mentions the articulation of adaptation actions with other operational activities aimed at reducing vulnerability to climate change in the development of programs such as Watershed Management. All these issues are, to some extent, being covered under the proposed project, which, among other things: (i) will be directly lead by MEW, ensuring coherence with the NMACC; (ii) will promote cross-sectoral work; and (iii) will work at watershed level.

- **In its Second National Communication (December 7, 2010), Colombia** states that it is a priority to generate a National Adaptation Plan. Some of the main strategic lines of action include: (i) the management of surface water and groundwater, as a transverse element integrating various sectors - energy, farming, industry, among others; (ii) the design and implementation of measures for adaptation, based on prior evaluations of vulnerability, in such a way as to involve the goods and services provided by ecosystems, the optimization of land-use regulation, and socioeconomic variables and technical conditions to establish the capacity of adaptation to climate change; (iii) the strengthening of activities in research and transfer of knowledge to inform decision-makers, especially in the most vulnerable sectors and ecosystems (farming, health, coastal, marine and island ecosystems, high mountain and paramo ecosystems, hydric systems, infrastructure, energy systems, and dry ecosystems); and (iv) the allocation of a vulnerability value to allow for discussions between sectors, ecosystems and interest groups. In this regard, the proposed project is contributing in further promoting the integrated water management approach, strengthening dialogue and on-the-ground action between different sectors, and creating an enabling environment for knowledge and technology transfer within the Andean Community.

- **As indicated in the Second National Communication (April 2, 2012), Ecuador** elevated both mitigation and adaptation to climate change up to a State Issue, through an Executive Decree in 2009. Five of the twelve objectives of the National Plan for Good Living 2009-2013 include policies, guidelines and goals related to climate change impacts, vulnerability, and adaptation. Further, some specific strategic guidelines under objective (4) include: (i) to manage the water heritage with a comprehensive and integrated approach by hydrographic basin, of strategic use by the State, and that of social, cultural and environmental value, and (ii) to promote the adaptation to and mitigation of weather and climate variability with an emphasis on the climate change process (e.g., the generation of adaptation and response program against climate change with special attention to fragile ecosystems such as paramos, mangroves, and wetlands; the development of improved forecasting models to assess the effects of climate

change; and the promotion of adaptation programs against climate alterations, with an emphasis on those related to energy and food sovereignty). In this regard, the proposed project falls fully within national priorities and the government's mandate to tackle climate change adaptation.

- **Peru's Second National Communication** (September 28, 2010) states that adaptation to climate change is one of its fundamental objectives, which has been further developed under the framework of Peru's National Environment Policy. With the objective to coordinate all actions on this matter, Peru is working on a National Adaptation Plan based on five action pillars, several of which are supported by the proposed project. Specifically: (i) generation of information (e.g., climate, meteorological and hydrological data, vulnerability assessments) for decision taking –this priority is being considered under component 1 of the proposed project; (ii) capacity building to strengthen the ability of relevant institutions to use the available information and develop risk management tools that include climate change considerations under an integrated approach on a long-term basis –considered under components 1 and 2 of the proposed project; and (iii) update policies, regulatory framework, planning tools and targets to reflect changes in priorities due to climate change impacts, with the objective to incorporate the adaptation to climate change variable in the development of plans and actions to reduce poverty in all levels and sectors in a coordinated and consistent manner –tackled under component 2 of the proposed project.

Baseline scenario, associated projects and programs, and co-financing

The National Communications of the four participating countries all point out towards the great needs in terms of adaptation that the country faces, and the significant financing gap. The communications make explicit reference and emphasis on the need to obtain international resources and funds in order to strengthen and “climate proof” their development goals.

The proposed project is intended to close the gap between business-as-usual practices in selected sectors and the need to adapt to future climate variability and change. The specific sectors and completely detailed background information will be defined during preparation, based on wide stakeholder consultations and prioritization schemes. However, they will all be related to water management, and will be geared towards more efficient, more resilient and more inclusive practices, programs and projects. Based on the knowledge gained through the PRAA project and preliminary conversations, there is a level of understanding of the more vulnerable sectors, around which a significant part of the activities will be focused, such as agriculture, irrigation and water supply, together with an important component on knowledge generation on climate change impacts, weather extremes, meteorological modeling, together with capacity building and dissemination.

All participating countries have solid programs and projects on the sectors aforementioned, plenty of which would benefit from: increased scientific understanding of climate change; improved policies that incorporate climate change impacts; demonstration investments that illustrate how to incorporate those impacts; and technology sharing and exchange.

The indicated level of co-financing will be partially covered by several of the ongoing projects and programs being implemented in the four countries, and partially by in-kind contributions from the different agencies and institutions. It is anticipated, for example, that the SENAMHI for Peru and Bolivia, INAMHI for Ecuador, and IDEAM for Colombia (the national meteorology and hydrology research institutes) will devote plenty of time, resources and infrastructure to the project. SGCA provides additional support, mostly in-kind, by providing the framework for project management –office space, communications, legal and advisory services, procurement services amongst others. Moreover, the Ministries of Environment of the four participating

countries will also provide in-kind contributions (additional details on the indicative amounts can be found on Table C of the corresponding GEF Datasheet).

Although a refinement of the actual sources of co-financing will be done during preparation, the following section offers some of the most relevant ongoing programs that constitute the baseline, and upon which the proposed project could bring value added in terms of climate resilience. The main scope here would be to identify programs and projects that are supporting national development, and create strong partnerships and synergies to be able to influence them by mainstreaming concepts of climate resilience into their activities. The baseline is composed both of national programs and also of initiatives that are directly supported by World Bank engagement.

- **In Bolivia**, there is an active promotion of integrated watershed management activities. The National Watersheds Plan (Plan Nacional de Cuencas, PNC) promotes integrated water resources management and integrated basin management throughout the national territory. It aims at promoting participatory approaches to generate integrated water and basin management plans, and the establishment of watershed authorities. PNC is implementing investment projects throughout the country, based on national (General National Treasury, regional governments and beneficiary counterparts) and international (channeled through an agreement with the Netherlands, Denmark, Switzerland, Sweden, Germany, and the European Union). These resources constitute a financing pot, currently amounting \$27 million. PNC currently does not have clear indications or built-in mechanisms to include climate change considerations in the initiatives financed by it.

Another emblematic project in Bolivia, which would greatly benefit from address climate change more systematically, is the “Mi Agua” initiative. Financed through CAF (Corporación Andina de Fomento) with over \$217 million, this program, already in its second phase, provides resources to build rural water supply, sanitation and irrigation infrastructure, technical assistance and environmental management plans. No climate change adaptation considerations are embedded into their screening and analysis of eligible projects.

The “Zero Malnutrition Program” is a multi-sectoral initiative with a \$88 million funding, which, together with the “Program to Support Food Security” initiative (\$16 million), tackle the issues of malnutrition and stunting, and seeks to promote adequate rural agriculture and food production to ensure adequate nourishment levels throughout the country. The program does not include climate as a significant variable which could affect its objectives.

The following represent some of the World Bank-promoted projects in Bolivia that have components in sectors related to water management. The proposed project will aim at partnering with some selected ones and add the climate resilience perspective into them:

Name and description	Type and Status	Amount (US\$)
Community Investment in Rural Areas Project. The objective is to improve access to sustainable basic infrastructure and services for disadvantaged rural communities selected in some of Bolivia’s poorest municipalities.	IBRD Specific Investment Loan Under Implementation	25,000,000
Rural Alliances Project. Institutional Support and Implementation of Rural Productive Alliances	IDA Specific Investment Loan Under Implementation	38,800,000 (divided in two operations)

Bolivia Urban Development ESW. Amongst other things, this study will focus on sustainable land use planning and densification as a means to manage expansion as a complement to urban upgrading in existing urban areas.	Bank Budget Pipeline	100,000
Strengthening Institutional Capacity to Improve Wastewater Management in Peri-Urban Areas and Small Towns of Bolivia. The objective is to provide National and subnational government institutions and water utilities with key inputs that allow them to better plan, manage and sustain sanitation services in periurban areas and small towns.	Bank Budget, Trust Funds Under Implementation	250,000 TBC
Strengthening Environmental and Natural Resources Management.	Bank Budget Under Implementation	88,000

- **Colombia** prepared and is following a very ambitious National Development Plan 2010-2014, "Prosperity for all". According to the multi-annual investment plan, the country will invest more than \$6 billion during the period on rural development, agriculture and cattle, and will tackle, with specific investments, the over 3,7 million people lacking adequate water supply and 5,8 million lacking sanitation services.

The Development Plan identifies sustainable growth and competitiveness as one of three strategic areas, and today's policy discussions often go about the urgent need to reduce the unprecedented high risks of floods caused by unsustainable land use and infrastructure at the level of watersheds. The World Bank has a long history of investments aimed supporting Colombia with these challenges (refer to table below), through financial (lending and grants), convening (training, South-South exchange) and knowledge services. These programs and initiatives, if not properly designed and targeted, could lead the country into lock-in situations. Additional guidance on screening, designing and implementing these projects with the inclusion of climate variability and change would be beneficial.

The following represent some of the World Bank-promoted projects in Colombia that have components in sectors related to water management. The proposed project will aim at partnering with some selected ones and add the climate resilience perspective into them:

Name and description	Type and Status	Amount (US\$)
Sustainable Development Investment Project and Additional Financing. These two operations are targeted towards supporting the incorporation of environmental considerations in the policies of the sectors that result in a high cost of environmental degradation (e.g., health, transport, and water), and the implementation of policy measures for integrated water resource management, among others.	IBRD – Specific Investment Loan Under Implementation	17,000,000
Strengthening Environmental Management in Colombia. This program of analytical support	Bank Budget and Trust Funds	355,555

and technical assistance supports the Government establish policy and investment priorities on environmental management topics.	Under Implementation	
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- **Ecuador's Government** has prepared the National Plan for Irrigation and Drainage 2012-2027, aimed at introducing a new paradigm in the country based on principles of integrated management, which will not only promote investments but also improved social, cultural, environmental and technically viable practices. This plan has ambitious goals, such as reaching out to over 453,000 families, 826,000 hectares under irrigation and drainage, and 96,000ha under pressurized irrigation, with an estimated level of funding of over \$2,800 million, and has been active since February 2013.

In the field of energy production, Ecuador has prepared the Master Electrification Plan, which includes great promotion of renewable sources, particularly hydropower. The investment plan contemplates the construction of 21 hydropower plants during 2012-2021 with national capital, and 11 more using private funds. Public investments are anticipated at the level of over \$5,000 million, plus almost \$1,000 private capital. Climate change concerns, future water availability and seasonality, have not been incorporated into the analysis to the extent that the subject deserves.

The following represent some of the World Bank-promoted projects in Ecuador that have components in sectors related to water management. The proposed project will aim at partnering with some selected ones and add the climate resilience perspective into them::

Name and description	Type and Status	Amount (US\$)
Chimborazo Development Investment Project. The project objective is to increase production and market access of rural families living in the Chambo and Chanchan-Chimbo river basins within Chimborazo Province, through investments in irrigation and roads improvement.	IBRD - Specific Investment Loan Under Implementation	15,300,000
Promoting Environmental Management in Ecuador. The main objective of this technical assistance is to promote environmental management in Ecuador by supporting national and/or sub-national governmental institutions in their efforts to enhance the sustainability of development and growth in the country. This will be done by filling selected knowledge gaps in priority areas, and helping institutions mainstream sound environmental management and climate change concerns in their programs and projects.	Bank Budget and Trust Fund Under Implementation	223,000
Manta Public Services Improvement Project. The main objective of this initiative is to support the Municipality of Manta in increasing the quality and sustainability of public services for water, sanitation and urban transport, through investments in	IBRD Specific Investment Loan Pipeline	100,000,000 TBC

<p>infrastructure and institutional strengthening, through increasing coverage and the quality of water and sanitation services, improving urban mobility and accessibility through improvements to the street network, including sidewalks, and enhancing the capacity of the municipal government in planning and managing the provision of water and sanitation and urban transport services.</p>		
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- **Peru** has embarked on an extremely ambitious decade-long plan, Plan Bicentenario Perú 2021, which underlines a number of large investments in water resources-related issues. Notably, in the agriculture sector, the country has planned to invest \$700 million in technical assistance programs for small-scale agriculture; a national irrigation program, with investments of around \$7 billion on irrigation infrastructure; on a specific \$580 million program targeted to improvements on irrigation canals, reservoirs and technified agriculture. The country is also planning on spending over \$200 million in integrated watershed programs. Equally ambitious investments are destined to improve access to rural (\$600 million) and urban (\$1700 million) water supply and sanitation, or development of the national energy generation infrastructure (\$29 billion) with a target of 15 000MW of installed capacity coming from renewable sources.

The following represent some of the World Bank-promoted projects in Colombia that have components in sectors related to water management. The proposed project will aim at partnering with some selected ones and add the climate resilience perspective into them::

Name and description	Type and Status	Amount (US\$)
<p>Sierra Irrigation Project. Some project objectives of direct relevance are: (i) Modernization and Rehabilitation of collective Irrigation Systems; (ii) Irrigation Technology Improvement ; (iii) Capacity Building of Water Users' Organizations; and (iv) Capacity Building of Agricultural Producers and Business Groups</p>	<p>IBRD Specific Investment Loan</p> <p>Under implementation</p>	<p>20,000,000</p>
<p>Water Resources Management Modernization Project. This project, between other things, aims at: (i) Improving WRM Capacity at the National Level; (ii) Establishing the national water information system; (iii) Formulation of a National Water Quality Management Strategy; (iv) Carrying out of activities aimed at promoting the "Cultura del Agua" Program; (v) Improving WRM in selected River Basins; and (vi) Sensitization to the creation of river basin organizations in four River Basins and validation of preliminary IWRM plans</p>	<p>IBRD Specific Investment Loan</p> <p>Under implementation</p>	<p>10,000,000</p>
<p>Second phase of the Water Resources Management Modernization Project. This proposed operation would expand on the work done through the first phase.</p>	<p>IBRD Loan</p> <p>Under discussion</p>	<p>TBD</p>
<p>Peru Irrigation Sector, National Irrigation</p>	<p>Bank Budget</p>	<p>40,000</p>

<p>Study. The objective is to support the Government of Peru in updating its National Irrigation Policy and Strategy through the preparation of an assessment of the irrigation sector and the formulation of an action plan to address the issues and opportunities identified in the assessment.</p>		
<p>Sierra Rural Development Project. The project objective is to improve the assets and economic conditions of approximately 53,600 rural families in the selected areas of Apurimac, Ayacucho, Huancavelica, Junin, Huanuco, and Pasco, and strengthen government capacity to implement an integrated Sierra development strategy.</p>	<p>IBRD Specific Investment Loan</p> <p>Under implementation</p>	<p>20,000,000</p>
<p>Additional Financing to Sierra Rural Development Project. The objective is to improve the assets and economic conditions of rural families in selected areas of the Peru's Apurimac, Ayacucho, Huancavelica, Junin, Huanuco and Pasco regions</p>	<p>IBRD – Specific Investment Loan</p> <p>Pipeline</p>	<p>20,000,000</p>

Adaptation benefits, additionality and technology transfer potential

The four participating countries are going through periods of prosperity and investments. However, their needs, in terms of access to services and basic infrastructure, are still large. Many investments and interventions in fields such as water supply, agriculture, or natural resources management are still realized following business as usual approaches, through which data from the past is used as a proxy for the future and becomes the basis for design. The importance of including weather extreme episodes or intense variability (longer drought periods, more acute downpours) as a factor in calculations and planning is still nowadays grossly undermined.

The proposed project is designed to cover for some of the additional costs that the countries have to face in light of climate change. On that sense, the proposed component 1 would seek to create an enabling environment for countries to access technologies, approaches and methodologies that strategically help them better prepare for climate change impacts. All these efforts are additional, currently there are no clear incentives to promote exchange on climate change related topics. And the project framework, a regional initiative with a regional institution such as the Andean Community of Nations, is an ideal setting to make this happen.

A similar reasoning can be done about the proposed component 2. Many of the emblematic, nation-wide activities aforementioned, which are currently being implemented by the participating countries, have not mainstreamed climate change concerns into their design. This is, at least partially, due to an inertia to continue to do things as usual, but also due to the lack of sufficient policies and reference material that can better inform the decision making process.

The proposed project aims at selecting policies and programs, based on immediate needs, relationship with climate change variables, level, extent and quality of impact, and including provisions to promote climate change adaptation. In this way, programs such as the National Watershed Program in Bolivia, or Peru's technical assistance programs for small-scale

agriculture, or others selected after consultations, will be reviewed, and with the additional resources obtained by SCCF through this proposed project, climate change considerations will be set forth for inclusion. A further benefit about the “regionality” of the proposed project is that knowledge and experience transfer, at policy level, can be promoted too, and enabling legislation is an important first step towards adequate technology adoption.

Finally, component 3 is intended as an on-the-ground demonstration on how climate change variables can be included into a project, providing a real experience and illustrating the additional costs, together with a showcase of some of the associated benefits. The final investments to be covered by this component will be better defined during preparation, once the level of funding is known and the sectors are prioritized. Specific investments will be defined starting by a process of wide consultation with different stakeholders. Prioritization criteria will include notions of demand level and existence of leadership, expected benefit potential, replication and scale-up potential, required time, cost, and social inclusion. It is anticipated that component 1 will more clearly define some of the most significant impacts of climate change on water resources, whereas component 2 will indicate which sectors have more tools and policies to face these impacts. These two components will thus be an important factor to prioritize interventions.

The whole project, given the way it is conceived and structured, has an important technology, knowledge and approach transfer potential. The four participating countries are at different levels of development, and face different needs. The proposed project creates the spaces and the mechanisms to facilitate exchange and transfer of technologies, approaches and tools. This has been one of the results that have been observed in the PRAA project: given that the Andean Community of Nations has been used as a platform, there has been regional collaboration and technology transfer between the participating countries. This has happened mostly on the scientific field. For example, Bolivian scientists have shown a new technique for the interpretation of satellite ALOS images, using a device that allows for three-dimensional characterization of the images and a level of quantification of glacier retreat. In Ecuador, an interesting pilot is being implemented that aims at restoring high Andean grasslands and paramos. This is one of the first efforts of its kind, and if proven efficient, the proposed project could promote its testing elsewhere. One of the benefits of having a regional project with a regional entity is that innovation in one area is quickly transferred. In Bolivia, the water supply authority of La Paz and El Alto has been implementing a program to reduce the amount of water losses in their system. This has been done with support from the PRAA project by providing the tools (valves and other accessories) and the knowledge (a consortium was hired to implement activities on a selected neighborhood). This exercise has been very successful, has entailed significant water savings for the utility, and is now being replicated, with own funds, in other neighborhoods of La Paz and El Alto. The proposed project can, in this case, serve as a platform to first communicate the experience to the other countries and second to potentially test it in them.

Socio-economic benefits and gender dimension

A common situation observed in many Andean communities is that the differentiation of tasks has been exacerbated by the boom in mining activities. Men often times spend the day in the mines, whereas women see their contribution to food production and agricultural practices greatly increased. Therefore, for any activity in this region to be successful, the gender dimension is a consideration that has to forcefully be well embedded into project identification and design. Therefore, the involvement of women in leading roles on the implementation of adaptation activities will be actively sought and promoted, and the Bank team will include a social expert to support an effective inclusion of gender considerations.

Useful experience and a clear understanding of the benefits of doing this have been gained throughout the design and implementation of community level adaptation activities within the PRAA project, including some cases where adaptation measures were successfully implemented in communities led by only women.

The proposed project will be articulated around water resources management, greater resilience and increased efficiency. Better management and planning on the water sector is a crucial element to support growth in the region, which in turn is critical to lift the poorest communities out of that situation.

Moreover, by generating an enabling environment for technology transfer and better regional collaboration, the adaptation capacity of the countries is also being promoted. Policies, science and on the ground investments will also place countries on a more resilient, better prepared situation than they would have been without the project. Finally, some global environmental benefits include a better managed watershed, and more efficient and integrated use of water resources, which ultimately reduce the stress to which the element is subjected to, leaving more space for generations to come.

Public Participation

The success of any intervention at the water basin level will require the active involvement and participation of the different stakeholders who play a role in the demand and supply of the resource. Therefore, during the preparation of the project, a clear mapping of actors will be required. During the process, consultations and outreach will take place, which will seek to provide adequate spaces to generate discussion and agreements among beneficiaries. In line with World Bank policies, free, previously informed and adequate community consultations are a requirement, and the institution has many years of experience on the most effective ways to conduct them. Key stakeholders might include water and electricity utilities, farmers, miners, indigenous communities, rural and urban population, and CSOs that represent any of the interests in the basin, among others. Relevant experience on participatory processes and methodologies has been gained throughout the identification, design and implementation of adaptation activities within the PRAA, experience that has been properly documented and will be used in the preparation and implementation of the proposed project. Moreover, CSOs such as CARE have had a fundamental role throughout PRAA, which turned out to be very beneficial to the achievement of project goals. During the preparation of this project, new and robust partnerships with CSOs will be sought and promoted.

Coordination and complementarity

The proposed project is not a new initiative, but rather the continuation of an effort that has been ongoing for over four years. The beneficiary countries have understood that the PRAA project has created a unique space for countries to interact, learn from each other, and apply techniques and approaches that have proven valuable on similar contexts. There is a remarkable in-country demand to continue and expand the work, and promote greater levels of inclusion of climate change adaptation into other line ministries and policies.

PRAA has provided useful lessons on coordination matters. Moreover, the General Secretariat for the Andean Community (SGCA) will be involved also in this project, and SGCA is an institution that has as one of its main tasks to ensure cooperation and coordination amongst its members, whom SGCA knows well. PRAA has demonstrated the need of an active, engaged Directive Committee –which has been active at regional level- and which could eventually be replicated at each of the country's levels.

The World Bank is also currently implementing the Pilot Program on Climate Resilience (PPCR) in Bolivia. The PPCR seeks to support the implementation of Bolivia's strategy for Climate

Resilience, by strengthening institutional capacity to define the new Integrated River Basin Management approach to Climate Change adaptation, and supporting its implementation in two pilot sub-basins in the Rio Grande river basin. The Bank teams working at the PPCR and at the proposed project are closely related, and as PPCR moves into full implementation, lessons and experiences gained from it in Bolivia will be applied at the four participating countries whenever relevant.

Other relevant organizations currently working on adaptation in the region, such as the Swiss, German, Japanese or Spanish Cooperation, are well known by the Bank, since they have often been partners during PRAA. For instance the Swiss Development Agency for Cooperation (COSUDE, in Spanish) is supporting a series of initiatives in the region within the framework of its global program on Climate Change and Water, prioritizing a variety of initiatives including climate risk management to integrated water management at the basin level. COSUDE has partnered with the PRAA project, and is now preparing a follow-up operation in Peru. The Japanese international cooperation agency, JICA, is funding a project in Bolivia called GRANDE, "Glacier Retreat impact Assessment and National policy Development", which builds on PRAA achievements and complements specific scientific methodologies and approaches. The Spanish agency is financing activities, implemented through the World Bank, to work on Ecuador's natural protected areas.

Coordination with the IADB, another active player in the region, will be sought through meetings, invitation of their experts to national consultation processes, and eventually even the organization of common supervision missions. Within each specific country, the fact that the proposed project will be supported by decision makers and technicians who have been involved in the PRAA project, gives a level of confidence in both complementarity and coordination of activities.

Innovation and scale-up potential

The mere fact of this proposed project being a regional initiative for four countries (Bolivia, Colombia, Ecuador, Peru) constitutes by itself an innovation (PRAA had only three countries). The proposed project will promote cross-sectoral communication and mainstreaming of climate change concerns not only into the ministry of environment's own policies and regulations, but also in other line ministries. An important innovation of the project is the technology and approach transfer lens, through which the four countries will be incentivized to learn from each other and to create spaces for inter-collaboration. Learning from other experiences from outside the Andean region in terms of adaptation will also bring valuable innovations to the benefit of the countries.

The fact that SGCA will be involved in this project also serves as a mechanism for sustainability. SGCA has the mandate to promote environmental management in the region, has some level of funding, and the capacity to secure other initiatives to continue to implement the Andean Environmental Agenda. Investing in policy and robust science and technology are also, per se, contributors to sustainability. Scaling up is a complex concept, which can definitely not be achieved by the levels of funding currently available for adaptation. However, the project will aim at demonstration valid approaches, create enabling environments to understand and perhaps adopt newer technologies, and on that respect it can be said that the elements needed for countries to further scale-up adaptation activities are being built and delivered to them.

Annex 2. Additional information about the use of Ecuador biodiversity funds

Focal area objectives and results framework, and relation to Aichi targets

As the GEF 5 Biodiversity Strategy underlines on its first paragraph, “the interventions identified in this document are integral components of any effective strategy for human adaptation to climate change”. The overall goal of the biodiversity focal area “is the conservation and sustainable use of biodiversity and the maintenance of ecosystem goods and services”. Under this context, the use of the biodiversity funds, as an integral part of the proposed project, constitutes a clear alignment with the focal area goals.

The project will specifically tackle Objective 2: “Mainstream biodiversity conservation and sustainable use into production landscapes/seascapes and sectors”. Under this objective, the strategy indicates that “GEF will promote measures to help reduce the negative impacts that productive sectors exert on biodiversity, particularly outside of protected areas and those affecting landscape species, and highlight the contribution of all components of biodiversity to ecosystem functioning, economic development and human well-being.”

The activities to be supported through the proposed project are aimed at i) identifying knowledge or expertise gaps that prevent a better, more sustainable management of Andean ecosystems of Global significance (paramo and upper montane forests), and ii) promoting a better understanding and discussion of the linkages between ecosystem functioning, human welfare and biodiversity conservation in high-altitude Andean landscapes. The second set of activities that will be undertaken through the proposed project are to incorporate biodiversity conservation and climate change considerations in the formulation of management plans, land-use planning frameworks, and policy interventions at the regional and national levels. These activities are considered strategic, not only because of the biodiversity loss that accompanies environmental degradation in this region, but also because this degradation directly impacts on the large-scale integrity of these ecosystems.

The project will aim at achieving outcomes 2.1 and 2.2 -“increase sustainably managed landscapes and seascapes that integrate biodiversity conservation”, and “measures to conserve and sustainably use biodiversity incorporated in policy and regulatory frameworks” respectively.

At the same time, by enhancing the sustainable management of fragile Andean ecosystems and focusing on maintaining or enhancing their functionality (their capacity to conserve biodiversity of global significance, and at the same time provide crucial ecosystem services), these activities will contribute directly to the Aichi targets that fall into the Strategic Goals B and D (“Reduce the direct pressures on biodiversity and promote sustainable use”; and “Enhance the benefits to all from biodiversity and ecosystem services”, respectively). During project preparation, the specific project targets and indicators will be defined. Targets 7 and 10 are potential candidates towards which the project will make a contribution. However, the main target that the project will aim at is number 14: “by 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable”.

Although at this early stage it is difficult to identify specific operational indicators, some of the indicators that will most likely be used are:

- Trends in integration of biodiversity into planning, policy formulation and implementation
- Trends in distribution, condition and sustainability of ecosystem services

- At least 80% of the extension within the project selected areas meeting their management effectiveness target

Relation to Ecuador's National Biodiversity Strategy and Action Plan

Whereas several projects are currently supporting the management and conservation of biodiversity in the National Network of Protected Areas, a gap still exists in the development of frameworks that promote the conservation of biodiversity in landscapes that integrate human activities and remnants of native ecosystems. This pattern is specially marked in the Andean region, where the conservation of globally important biodiversity is dependent on the improvement of the management of human-nature matrices. In this context, the proposed activities seek to identify gaps and obstacles that prevent a more efficient management and conservation of biodiversity in cultural landscapes that integrate upper montane forests and paramo ecosystems, including the threats imposed by climate change as an important variable in the analysis. The project will further aim at promoting the discussion and incorporation of biodiversity conservation considerations in policy interventions and land-use planning frameworks, ensuring that main threats are captured and addressed.

From this perspective, the proposed investment contributes directly to Ecuador's NBSAP ("Política y Estrategia Nacional de Biodiversidad del Ecuador" and the "Cuarto informe nacional para el convenio sobre la diversidad biológica") specifically regarding its strategic goals of i) ensuring the persistence, integrity and functionality of all biodiversity components (ecosystems, species and genes; Strategic Goal 2); and ii) balance pressures on the conservation and sustainable use of biodiversity (Strategic Goal 3). By supporting these goals, the proposed activities should contribute to a more efficient management of the landscape that results in biodiversity conservation and the co-benefit of improved maintenance of the ecosystem services –specially water regulation and supply- provided by these ecosystems.

Selected ecosystems and global significance

The ecosystems that the proposed project is targeting are high-altitude Andean ecosystems, specifically paramo and upper-montane forests, which are unique in terms of their Global relevance. These North-Andean ecosystems are recognized as biodiversity hotspots, with very high levels of Beta-diversity in the upper montane forests, and exceptional levels of species endemism in the paramo ecosystems. Moreover, in evolutionary and ecological terms, these high altitude ecosystems represent a unique dispersal path that shaped and still maintains the ecological dynamics of the Andean systems (for example, the Andes are the evolutionary center and genetic reservoir of several crops e.g. potatoes, sweet potatoes) of Global significance. In addition to their biological importance, both ecosystems are part of the Andean corridor which, being the largest mountain chain in the world, has a significant influence in the climatic patterns and functioning of the Amazon basin, and other strategic ecosystems in Latin-America. The stability of the Amazon basin and its capacity to regulate large-scale climatic patterns in the hemisphere, for example, depends at least partly on the input of water, nutrients from the Andean ecosystems, and the ecosystem dynamics that is introduced by the largest river system on the planet, which has its root in the Andean mountain range.

Andean ecosystems are subject to a number of threats. Current expansion of anthropogenic activities, agricultural frontier expansion, competition for water uses, mining and hydropower projects are all having an impact on the biodiversity and ecological integrity of these systems. Compounding these threats is the overarching impact of climate change. Glaciers are receding in the region, and Ecuador is no exception. The regulation capacity of glaciers is a critical function that could disappear as soon as 2030s. Increased temperatures are rendering paramos and montane forests available for activities that traditionally were not allowed (for

example, more massive tourism). All these threats, if not properly managed, could result in unavoidable harm to the unique biodiversity of global importance in this region.

The proposed project will aim at sustainably managing the biodiversity in the proposed ecosystems, using as leveraging argument that, only through appropriate conservation and management of biodiversity can certain necessary ecosystem services be maintained. By partnering with key stakeholders in the area (for example, EPMAPS, the water supply company in Quito, is becoming an active player in the acquisition of land for conservation purposes), it is expected that some of the agents who exerted pressure on the ecosystem can become engines of conservation. Moreover, anthropogenic activities with significant impacts, such as mining, agriculture or extraction of water for population supply still lack the necessary regulations to minimize their impacts on ecosystem integrity, and the project will aim at incorporating them. In addition, management plans are often outdated or non-existent, and most of them do not incorporate climate change as an important variable. Ultimately, thus, the project will aim at identifying which interventions can make the prioritized ecosystems more resilient to present and future impacts.

Baseline projects and initiatives

The proposed project will mainly complement two other activities that are currently being implemented. On one hand, the project will build upon specific goals of the “Vegetation Map of Continental Ecuador” carried out by the Ministry of the Environment. This initiative seeks to contribute to the construction of environmental policies, strategies and projects that promote the conservation, restoration and sustainable use of natural resources in Ecuador. The second initiative is the “Capacity building for climate change adaptation in the Protected Area Systems: a tri-national initiative”, being currently implemented by the Ministry of the Environment. This project seeks to strengthen the management of protected areas in the face of climate change, through several activities which include the improvement of the use of biodiversity in the buffer zones of these protected areas. Among other activities, this project supports the preparation of land-use plans and development strategies of local governments that have responsibilities and jurisdiction on the buffer zones of protected areas.

The proposed project will thus utilize the mapping and prioritization done by the first initiative, and use the skills and capacities developed under the second initiative in order to bring specific benefits for the prioritized paramos and montane forests.

There are other relevant initiatives that conform the baseline, and the proposed project will build on their lessons learned and key results. The Choco-Andean corridor is a GEF project, already closed, that provided institutional strengthening, public awareness raising, and some small scale interventions on alternative livelihoods. The National Protected Areas System project focused its efforts in the consolidation of Ecuador’s NPA system, both in terms of management and financial sustainability. Finally, the Conservation of the Biodiversity of the Paramo in the Northern and Central Andes project, which is currently in the final stages of implementation, has aimed at the strengthening of an enabling environment for the improved livelihoods of paramo stakeholders.

Proposed outcome and outputs

The proposed biodiversity outcome of the project, which will be further refined during preparation, is: High-Andean ecosystem and biodiversity management in selected production landscapes in Ecuador is more resilient and sustainable through the mainstreaming of anticipated water-sector climate change impacts into policy, planning and selected on the ground interventions.

In order to achieve said objective, the proposed outputs are:

- a) characterization of gaps, expertise needs, and opportunities to achieve a better and more sustainable management of Andean ecosystems of Global significance, with the inclusion of anthropogenic and climate change impacts in the implementation of biodiversity management plans.
- b) Local land use planning and policies that govern biodiversity management incorporate climate change impacts considerations on their formulation.
- c) A selected area within a biodiversity hotspot has been strengthened and has become more resilient to anticipated impacts through adaptive management.

Global biodiversity benefits generated by the project and additionality

This project will contribute to the maintenance of biodiversity of global importance that is represented in paramos and montane forests ecosystems. As mentioned above, both ecosystems have great ecological, genetic and scientific importance due to their endemic flora and landscapes, as well as their socio-economic functions. Moreover, the ecosystem stability of the Amazon basin depends largely on the contributions of the Andean mountain range, which has large influence on the climatic patterns and functioning of this basin of global importance.

High-Andean ecosystems in Ecuador are important areas in terms of economic benefits generated, and the expansion of anthropogenic activity and related impacts is likely to continue unless biodiversity consideration and management is mainstreamed on policies and regulations. This must be done on a climate-appropriate way, which is something new with respect to many other baseline projects. There are no direct incentives for this mainstreaming to happen, and therefore, the proposed resources are additional in bridging the existing gaps.

Complementarity and coordination

The proposed project will be implemented by the Ministry of Environment, and more specifically, by the National Biodiversity Directorate, which is already implementing a number of biodiversity activities. The involvement of the Directorate in the leading role ensures that there is no overlapping but rather complementarity, and simplifies coordination arrangements. The proposed biodiversity funds will grapple with a complex issue, to increase the ability of the Directorate to mainstream resilience in high Andean ecosystems, with the inclusion of climate change impacts into policy and planning. Although there are many studies and research efforts, there are no significant efforts to consistently integrate results in the management framework of Ecuador. If the proposed project is able to achieve this, it would become an important complement to ongoing and future efforts.

To further strengthen coordination, the biodiversity funds will have a specially dedicated project manager, experienced on biodiversity and knowledgeable of the Ecuadorian context.

Sustainability strategy

Although it is still premature to provide a full definition of a sustainability strategy, the proposed intervention will have several pillars to enable long term positive effects. The project will (i) engage with Autonomous Decentralized Governments, as well as with local communities that are located in the buffers zones around the selected areas; (ii) aim at having a positive impact in the regulatory framework, including biodiversity conservation with a climate change angle on policies, regulations and programs; (iii) engage and collaborate with key strategic partners, which can become the main promoters of biodiversity conservation, such as EPMAPS, the water utility for Quito; and (iv) engage with national universities (such as Universidad San Francisco), and other centers of excellence, in order to obtain a scientific partner with an interest in the matter and with a long-term presence.

Indicative co-financing

The Bank team is collaborating with the government in order to identify at least US\$2.5 million in co-financing for this project, both in kind and in cash. The possibility to engage with other interested foundations and obtain additional co-financing for this project is also being explored. As the preparation progresses, more details about in-kind and possible in-cash cofinancing will be better defined.

The World Bank, in the past, used to be an important partner in biodiversity issues in Ecuador. After a long hiatus, during which the relations with the country did not allow for further engagement, at present times the reengagement is evident, and this project is seen as strategic, since it could have a catalytic effect on the process. The Bank is an active player on biodiversity in all neighboring countries, and currently, no further impediment seems to exist for this to happen also in Ecuador. As a signal of this reengagement, the Bank has been collaborating with the Ministry of Environment and with several subnational governments (especially Quito), on a non-lending technical activity of over US\$230,000, in which three selected protected areas in the Quito area have been analyzed, the treats characterized, and a consultative process to improve their management has been prepared.