



# PROJECT IDENTIFICATION FORM (PIF)

**PROJECT TYPE: Full-sized Project**

**TYPE OF TRUST FUND: GEF Trust Fund**

## PART I: PROJECT IDENTIFICATION

Project Title:	Integrated Water Resources Management in the Puyango-Tumbes, Catamayo-Chira and Zarumilla Transboundary Aquifers and River Basins		
Country(ies):	Ecuador and Peru	GEF Project ID:	TBD
GEF Agency(ies):	UNDP	GEF Agency Project ID:	4402
Other Executing Partner(s):	The National Water Secretariat of Ecuador (SENAGUA) and The National Water Authority of Peru (ANA)	Submission Date:	February 04, 2013
GEF Focal Area (s):	International Waters	Project Duration (Months):	48
Name of parent program	NA	Agency Fee (\$):	376,200

### A. FOCAL AREA STRATEGY FRAMEWORK:

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Indicative grant amount (\$)	Indicative co-financing (\$)
<b>INTERNATIONAL WATERS</b> IW-3 Support foundational capacity building, portfolio learning, and targeted research needs for joint, ecosystem based management of trans-boundary water systems	<b>Outcome 3.1:</b> Political commitment, shared vision, and institutional capacity demonstrated for joint, ecosystem-based management of waterbodies and local ICM principles	<ul style="list-style-type: none"> <li>National inter-ministry committees established;</li> <li>Transboundary Diagnostic Analyses &amp; Strategic Action Programmes; local IWRM or ICM plans</li> </ul>	GEF TF	3,583,710	19,418,117
	<b>Outcome 3.2:</b> On-the-ground modest actions implemented in water quality, quantity (including basins draining areas of melting ice), fisheries, and coastal habitat demonstrations for “blue forests” to protect carbon	<ul style="list-style-type: none"> <li>Demo-scale local action implemented, including in basins with melting ice and to restore/protect coastal “blue forests”</li> </ul>			
	<b>Outcome 3.3:</b> IW portfolio capacity and performance enhanced from active learning/KM/experience sharing	<ul style="list-style-type: none"> <li>Active experience sharing/ learning practiced in the IW portfolio</li> </ul>			
Sub-total				3,583,710	19,418,117
Project management cost			GEF TF	376,290	957,656
<b>Total project cost</b>				<b>3,960,000</b>	<b>20,375,773</b>

### B. PROJECT FRAMEWORK:

<b>Project Objective:</b> Strengthening institutional, policy, legal and scientific-technical capacities to implement Integrated Transboundary Water Resources Management in Puyango-Tumbes, Catamayo- Chira and Zarumilla River Basins and Aquifers integrating climate variability concerns.						
Project Component	Grant type	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative co-financing
1. Transboundary diagnostic analysis for the Integrated Transboundary	TA	- Transboundary priority issues, including root causes impairing water quantity and quality,	1.1 A Transboundary Diagnostic Analysis (TDA) completed and agreed:  - A technical-scientific document	GEF TF	490,000	2,625,477

<p>Water Resources Management (ITWRM) in the Puyango-Tumbes, Catamayo-Chira and Zarumilla binational aquifers and watersheds.</p>		<p>vulnerability to climate variability and change, and barriers for an ITWRM are identified and agreed</p>	<p>focusing on surface and groundwater resources (WR) issues, including considerations to climate variability and change, developed;</p> <ul style="list-style-type: none"> <li>- Baseline conditions and environmental and socioeconomic status indicators on surface and groundwater resources agreed and adopted;- Hydrological maps of Puyango-Tumbes, Catamayo-Chira and Zarumilla binational aquifers and watersheds updated;</li> <li>- Web-based platform and project site for disseminating project results, maps and awareness materials established;</li> <li>- TDA results disseminated at national, regional, local and community levels;</li> </ul>			
<p>2. Strategic planning to strengthen governance of transboundary water resources in Puyango-Tumbes, Catamayo-Chira and Zarumilla binational aquifers and watersheds</p>	<p>TA</p>	<p>- Key priority actions for transboundary management planning of binational aquifers and watersheds Puyango-Tumbes, Catamayo-Chira and Zarumilla, are identified and integrated into binational, national and local development plans of Ecuador and Peru</p> <p>- Binational legal and policy framework for the Puyango-Tumbes, Catamayo-Chira and Zarumilla Commissions established and harmonized for ITWRM.</p>	<p>2.1. Strategic Action Programme (SAP) completed and endorsed at the highest level by both countries:</p> <p>(a) SAP and National Strategic Action Plans (NSAP) of regional, national and local policy, legal and institutional reforms required for sustainable integrated management of shared aquifers and watersheds approved;</p> <p>(b) M&amp;E set of river basin and aquifer process, stress reduction and environmental and socioeconomic status indicators for tracking SAP and NSAPs implementation, including a gender component, agreed;</p> <p>2.2. Binational institutions for ITWRM strengthened</p> <p>(a) Zarumilla Binational Technical Commission strengthened;</p> <p>(b) Puyango-Tumbes and Catamayo-Chira Binational Technical Commissions established for an ITWRM of the two transboundary watersheds, including statutes and regulations enabling the implementation of plans, programs, projects and investments;</p>	<p>GEF TF</p>	<p>593,710</p>	<p>3,720,637</p>

2a. Capacity building for effective SAP implementation		<p>- Improved local and national capacities for ITWRM, monitoring and enforcement of water quality</p>	<p>2.3. Targeted capacity building programs for national and local stakeholders on:</p> <p>(a) Integrated water resources management, including integrating groundwater and climate change concerns/opportunities</p> <p>(b) Land-use planning and GIS</p> <p>(c) Environmental impact assessments</p> <p>(d) Set-up and operating environmental monitoring systems</p> <p>(e) Law enforcement on water quality</p>			
3. Development, implementation and knowledge management of ITWRM pre-SAP implementation demonstrations and identification of investment needs in Puyango-Tumbes, Catamayo-Chira and Zarumilla aquifers and watersheds	TA	<p>- Integrated water resource and sustainable land management reduces watershed pollution in Puyango-Tumbes, Catamayo-Chira &amp; Zarumilla aquifers and river basins.</p> <p>- Better experience with and knowledge of conjunctive use of surface and groundwater, including determination of investment needs for ITWRM</p> <p>- Enhanced agricultural productivity and reduced sediment and pollution run-off from crop lands to surface and groundwaters</p>	<p>3.1 Targeted interventions for integrating groundwater concerns/opportunities into management of surface water systems in Puyango-Tumbes, Catamayo-Chira &amp; Zarumilla (<i>Specific areas to be determined in the PPG phase</i>);</p> <p>3.2 Pilot projects for transboundary pollution control of water resources in specific sites of Puyango-Tumbes, Catamayo-Chira &amp; Zarumilla shared water systems (<i>Specific areas to be determined in the PPG phase</i>);</p> <p>3.3 Piloting of policy, advocacy/awareness and other tools to reduce erosion and water pollution from agricultural activity on steep slopes;</p> <p>3.4 Incentives program for incorporating gender concerns into ITWRM (<i>Specific areas to be determined in the PPG phase</i>);</p> <p>3.5 Best practices documented and experiences shared with other projects through IW:LEARN participation including IWCs. Functioning website consistent with IW learn guidance;</p> <p>3.6 Pre-feasibility studies on investments required for ITWRM in the three shared aquifers and watersheds during the SAP implementation phase.</p>	GEF TF	2,500,000	13,072,003
Sub-total					3,583,710	19,418,117
Project management cost				GEF TF	376,290	957,656
<b>Total project costs</b>					3,960,000	20,375,773

**C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)**

Sources of Co-financing for baseline project	Name of Co-financier	Type of Co-financing	Amount (\$)
National Government	Ecuador	In-Kind	9,891,773
National Government	Peru	In-Kind	10,000,000
GEF Agency	UNDP	Grant	90,000
GEF Agency	UNDP	In-Kind	394,000
<b>Total Co-financing</b>			<b>20,375,773</b>

**D. GEF/LDCF/SCCF/NPIF RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY**

GEF Agency	Trust Fund	Focal area	Country name/Global	Grant amount (a)	Agency Fee (b)	Total c=a+b
UNDP	GEFTF	IW	Ecuador, Peru	3,960,000	376,200	4,336,200
<b>Total GEF Resources</b>				<b>3,960,000</b>	<b>376,200</b>	<b>4,336,200</b>

**PART II: PROJECT JUSTIFICATION**

**A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:**

**A.1. THE GEF FOCAL AREA STRATEGIES:**

1. The project aims to enhance bi-national efforts of Peru and Ecuador for Integrated Transboundary Water Resources Management (ITWRM) in the three main aquifers and watersheds shared by the two countries in the Pacific Ocean drainage basin - Puyango-Tumbes, Catamayo-Chira and Zarumilla. It will give special attention to integrating groundwater concerns and opportunities and extreme manifestations of climate variability and change in the area, including the cyclical of *El Niño-Southern Oscillation* (ENSO).
2. The aquifers and linked river basins “Zarumilla”, “Puyango-Tumbes” and “Catamayo-Chira” (Figure 1) contain an important, but often highly variable, water supply that is essential to the region’s socio-economic development and to the integrity of its ecosystems. These resources are threatened by overexploitation, pollution and inefficient management, as well as by climate variability and change.

The project will follow a three pronged approach consisting of improving the common understanding of these shared water resources and their environmental and socioeconomic status, strengthening the cooperation mechanisms between the two countries sharing these aquifers and watersheds, and applying and disseminating IWRM demonstrations in targeted site interventions with the aim of replicating them in other areas. The project has a strong emphasis on capacity development and, through the TDA/SAP process, will support countries towards adopting legal, policy and institutional reforms that can deliver global, regional and national environmental benefits. Project will apply the most recently validated GEF International Waters Transboundary Diagnostic Analysis (TDA) and Strategic Action Programme (SAP) methodology to achieve project objectives and outcomes.

3. Under the GEF-5 Focal Area Strategies for International Waters, the Project is consistent with GEF strategic objective IW-3: “Support foundational capacity building, portfolio learning, and targeted research needs for joint, ecosystem-based management of transboundary waters systems”.

**A.2. NATIONAL STRATEGIES AND PLANS OR REPORTS AND ASSESSMENTS UNDER RELEVANT CONVENTIONS**

4. The project is consistent with the national development strategies of the two participating countries. In Ecuador the new Constitution of 2008 calls upon the State to ensure the conservation, restoration and integrated management of water resources, watersheds and ecological flows associated with the hydrological cycle. It also provides for the establishment of a new legal framework (new Organic Law of Water and Water Use and Exploitation, promoting social justice, equity, citizen participation and gender equality), that enables joint management strategies of shared resources. It establishes the National Water Secretariat (SENAGUA, Spanish acronyms) as the national water

authority, responsible for managing and conserving water resources, including managing multipurpose infrastructure, conflict resolution and water quality.

5. SENAGUA establishes policies and rules governing the national water management, and ensures that all programs and projects are consistent with the “National Plan for Good Living” set forth in the 2008 Constitution of Ecuador. The National Water Policy entails the promotion of international commitments and agreements for the management of transboundary water resources.
6. The environment chapter of Ecuador’s “Plan of Good Living on the Border” refers to the 4th goal of the National Development Plan, which proposes: “The promotion of a healthy environment, a sustainable and secure access to water, air and soil”. This plan’s development strategy calls for implementing projects that improve the environmental quality, environmental services and management of watersheds and micro watersheds.
7. In Peru, the institutional framework for managing water resources underwent significant modernization in 2008, with the creation of the National Water Authority (ANA, Spanish acronyms) by Legislative Decree 997. ANA leads the National Water Resources Management System (SNGRH, Spanish acronyms) which constitutes the highest technical authority on water resources. Among the roles and functions of ANA, related to this project, are the following:
  - Ensure multi-sectorial management of water and water-related goods, in an integrated and participatory fashion, including the private sector and the civil society;
  - Promote priority actions, enhancing cooperation and coordination among stakeholders through strategic alliances, in sustainable water management and national environmental quality, at regional, national and local levels;
  - Support the development and implementation of integrated management of water resources and watersheds, as well as actions that lead to the preservation of resources in headwater basins so as to prevent damage per occurrence of extreme hydrological events;
  - Exercise exclusive administrative jurisdiction on water, developing management actions, monitoring, control and surveillance. Ensure the conservation and protection of water (in terms of quantity and quality of natural resources associated with it) and multi-sectorial water infrastructure, exerting to that end the sanctioning authority vested by the Constitution; and
  - Coordinate with the Ministry of Foreign Affairs the signing of agreements related to integrated management of water resources in transboundary river basins.
8. In the bi-national context, the governments of Ecuador and Peru signed in 1998 the “Broad Agreement on Border Integration, Development and Neighborhood”, which establishes the institutional and legal cooperation framework for a bi-national dialogue to jointly address environmental and socio-economic issues. It enables as well a public investment program on productive and social development in the border region and the promotion of private investment. Both the “Bi-national Border Region Development Plan” and the “Binational Fund for Peace and Development” constitute an integral part of the agreement. Because of its success, the Binational Plan was extended for five additional years through an agreement signed between both governments in 2009.
9. This agreement has promoted bilateral agendas and joint actions of integrated management of water resources, such as the recent creation of the “Binational Commission for the Integrated Water Resources Management of Transboundary Water Resources in the Zarumilla River Basin”.

## **B. PROJECT OVERVIEW**

### **B.1. DESCRIBE THE BASELINE PROJECT AND THE PROBLEM THAT IT SEEKS TO ADDRESS:**

10. In Peru around 312.000 km<sup>2</sup>, 25 % of its territory, belongs to transboundary river basins, of which 178.000 km<sup>2</sup> are located in basins shared with Ecuador. In Ecuador transboundary river basins constitute around 61% of the surface of continental Ecuador. Of this area, 95% corresponds to the 10 transboundary water systems the country shares with Peru. Seven of these are sub-systems of the great Amazon basin and constitute the Ecuadorian Atlantic Ocean’s drainage basin. The other three systems, i.e. the transboundary watersheds “Zarumilla”, “Puyango-Tumbes” and “Catamayo-Chira” each drain into the Pacific Ocean.
11. The Zarumilla River basin covers an area of approximately 880 km<sup>2</sup>, of which 510 km<sup>2</sup> are in Ecuador, at El Oro Province, in the Districts of Las Lajas, Arenillas and Huaquillas. The other 370 km<sup>2</sup> are located in Peruvian territory,

at Tumbes Department, Zarumilla Province, and in the Districts of Aguas Verdes, Zarumilla, Matapalo and Papayal. This basin contains the Zarumilla aquifer which consists of a coastal plain and a series of mountains oriented NE-SW direction with elevation variations of 0-800m. The aquifer covers an area of 918 Km<sup>2</sup> and is formed mainly of Quaternary sediments and Tertiary semi-consolidated rocks.

12. The Tumbes-Puyango river basin covers an area of 4,800 km<sup>2</sup>, of which 2,880 km<sup>2</sup> (60%) lies within South East Ecuador (El Oro and La Loja Provinces) and 1,920 km<sup>2</sup> (40%) belongs to Northern Peru (Tumbes Department). Population living in this watershed is 757,000 inhabitants.
13. The Catamayo-Chira watershed covers an area of 17,740 km<sup>2</sup>, of which 7,210 km<sup>2</sup> are in Ecuador, corresponding to 67% of the Loja Province (cantons of Celica, Pindal, Macara, Sozoranga, Bald, Espindola, Gonzanamá, Quilanga, and some portions of cantons Loja, Catamayo, Avocados, Olmedo, Puyango and Zapotillo). In Peruvian territory, this basin covers an area of 10,530 km<sup>2</sup> (Department of Piura, Provinces of Sullana, Ayabaca, Huancabamba, Morropón, Paita, Talara and Piura). It has been estimated that there is considerable underground water potential, but the basic information available is insufficient for a definitive characterization. The total population of the Catamayo-Chira river basin is 585,000 people.
14. The Pacific drainage basin is of very high socioeconomic interest to both countries, since it contains the largest part of the population and its productive activities. Ecuador's SW Pacific basin and the whole Peruvian Pacific basin suffer from environmental problems of water quality and availability. In several sections of this transboundary region there is a deficit of available water which has seriously limited local socioeconomic development and raised the levels of poverty in the region. Nonetheless, there are sectors where water resource availability has led to intensive socioeconomic activity. The economy of these areas, however, is highly dependent on water availability, and is therefore vulnerable to mismanagement, overexploitation and pollution of the resource as well as to the effects of climate variability and change.
15. In some sub-basins water resources are exploited for agriculture, domestic and industrial uses, in a non-planned and inefficient way resulting in negative impacts on water quality and quantity affecting the hydrological cycle and associated ecosystems. The low-lands contain the vast majority of the resources, which are exploited through excavated wells, both superficial and deep-drilled, for water supply. In other sub-basins serious environmental impacts due to informal mining and other sources of pollution in the border area are of great concern, and the resulting pollution of the transboundary rivers (e.g. the Rio Amarillo, a tributary of the River Puyango-Tumbes), ranks first in heavy metal pollution, solid and liquid wastes, as well as uncontrolled mining.
16. Both countries have advanced negotiations on the joint management of these watersheds. In the joint presidential declaration of October 2010, the presidents of Ecuador and Peru highlighted the recent entry into force of the Bi-national Agreement for the "Establishment of the Bi-national Commission for Integrated Water Resources Management of the Zarumilla Transboundary River Basin" and the start of operations of the Zarumilla Canal (supervised by the "Bi-national Permanent Commission for the Administration of the Zarumilla Canal and its Water Use"). This Canal will irrigate 1,400 ha of agricultural lands in Peru and Ecuador. This Joint declaration also considered the adjudication of the "Feasibility study for hydraulic works of the Puyango-Tumbes River Basin" and the "Final Design and Implementation of Common Works of the Bi-national Puyango-Tumbes project". Acknowledging the serious environmental and socioeconomic impacts from informal mining and other sources polluting the transboundary rivers, the joint declaration appointed the competent authorities to address these issues in Puyango-Tumbes and Catamayo-Chira watersheds.
17. Current efforts on IWRM in these watersheds include: i) Land Use Planning and Development of Transboundary Basin Catamayo-Chira; ii) Hydrogeological Study of the Zarumilla River Aquifer; iii) Tahuin Multipurpose Project Studies; iv) Policies for financing for Irrigation and Drinking Water; v) Current Characterization of the Hydrology of Ecuador and detailed analyses of the Aquifers; vi) Feasibility studies and final design of the "Matala-CasaVieja-Nambacola Multipurpose Project".

18. The long term solution sought by the project is to ensure the conservation, restoration and integrated management of surface and groundwater resources including maintenance of ecological flows, associated with the water cycle in the Puyango-Tumbes, Catamayo-Chira and Zarumilla river basins. This solution is currently hampered by the following barriers:
- a) *Deficiencies in water resource knowledge and its environmental status.* There is a lack of full understanding on the characteristics of the resource, its transboundary implications –particularly in the case of freshwater aquifers–, and on the need to integrate groundwater concerns into management of surface water systems considering vulnerability to climate variability and change. Assessment of water quality and water resource availability threats from informal mining and agriculture remain incomplete.
  - b) *Integrated Transboundary Water Resource Management institutional deficiencies.* Important steps have been taken by both countries to address environmental and socio-economic issues such as the establishment of the Bi-national Commission for Zarumilla, but bi-national institutions at technical level are either absent (Puyango-Tumbes and Catamayo-Chira) or incipient (Zarumilla) and lack specific cooperative frameworks required for addressing threats to water quality. Local and regional administration capacities for developing and enforcing regulations on water quality and quantity remain weak, as well as for integrating groundwater concerns/opportunities into local/regional development plans. Use of GIS technologies for land use planning is non-existent, while EIA procedures do not adequately address threats to watershed and aquifer related ecosystems.
  - c) *Insufficient demonstration of appropriate practices and technologies.* Approaches and technologies for reducing negative impacts from mining and agriculture in the watersheds and aquifers have not been tested for their effectiveness in engendering environmental benefits nor in terms of their financial feasibility. It is also the case for pilot interventions integrating groundwater concerns/opportunities into management of surface water systems.
19. Project builds on the recent support provided by UNDP in the area of water governance in Ecuador and Peru. In the first case, through the inter-agency joint program *Governance in the Water and Sanitation Sector in Ecuador*, UNDP and three other United Nations agencies have contributed to the development of democratic governance in Ecuador's water and sanitation services supporting the Government to apply an integrated water resources management in the framework of the State reform process for the water sector. This project has supported the implementation of a new regulatory and institutional framework for this sector as well as the strengthening of the technical, administrative and financial capacities of service providers. (2008-2014: 2,700,000 USD).
20. Likewise, the project *Adaptation to Climate Change through effective Water Governance in Ecuador*, implemented by UNDP, has contributed to mainstreaming climate change adaptation to water management practices in Ecuador by integrating climate change risk into the water sector in key national and local development plans and implementing adaptation measures. The proposed field interventions will be programmed within the framework of the local and regional relevant development plans that have integrated climate change risks into water sector planning, and will benefit from the lessons on adaptation measures developed by this project (e.g. water storage systems, reforestation activities for micro watersheds and water sources protection, agro-ecological production systems for food security improvement in communities against climate change risks). (2008-2014: 5,800,000 USD).
21. In the case of Peru, the project *Integral and Adaptive Management of Environmental Resources to Minimize Vulnerability to Climate Change in High Andean micro-watersheds* –implemented by UNDP, UNEP and the FAO– is working on increasing capacities to plan, develop and implement adaptation initiatives; strengthening the capacities of producers' associations and other grassroots organizations for the development, access and application of practices for sustainable management of natural resources –water, soils and forests–; and the participation of the villagers and local producer associations in competitive and innovative models for managing natural resources with an emphasis on water, soil and forest resources. The lessons learnt through this project can be adapted to proposed field interventions dealing with micro-watershed management (2008-2012: 3,900,000 USD).
22. The project *Mountain Ecosystem-Based Adaptation Program* –co-implemented by UNDP, UNEP and IUCN– aims at building the economic and environmental case for Ecosystem-Based Adaptation in Peru, through the development of a pilot experience in the Nor Yauyos Cochas Landscape Reserve in Lima and Junin Regions. The Ministry of Environment, SERNANP and Ministry of Economy and Finance are the national counterparts of this program that

will provide valuable lessons for adopting management strategies to changes in hydrological cycle and changes in seasonal cycle, and building economic and environmental cases for favoring protection of water services. (2012-2014: 3,000,000 USD).

23. UNDP Cap-Net as an established UNDP delivery mechanism to enhance national capacities in the area of integrated water resources management (IWRM) has supported both countries since 2002 in case of Peru and 2009 in case of Ecuador. With the very active participation of national specialists and organizations covering various disciplines and sectors, training on IWRM principles, plans and water governance, water and sanitation, and conflict resolution have been provided. Courses on economic instruments for IWRM, IWRM as a tool for climate change adaptation, and strengthening river basin organizations have been also delivered. (2003-2012: 500,000 USD).

## **B. 2. INCREMENTAL COST REASONING AND THE ASSOCIATED GLOBAL ENVIRONMENTAL BENEFITS:**

24. Both countries, Ecuador and Peru, recognize that joint actions are needed to work in a top priority range of technical, economic, financial, regulatory and institutional measures necessary to restore and protect the transboundary water bodies and find joint solutions to bi-national water issues. The objective of the project is to strengthen the institutional, policy, legal and scientific-technical capacities to implement integrated transboundary water resources management in the Puyango-Tumbes, Catamayo- Chira and Zarumilla watersheds and aquifers, including incorporation of groundwater and climate variability concerns. Based on identifying shared issues and opportunities through a Transboundary Diagnostic Analysis, the project seeks to define a set of proper responses through a planning process –regional Strategic Action Programme and National Action Plans– applying an IWRM approach.

25. Project strategy includes promoting a common understanding on main environmental and socio-economic issues affecting the shared watersheds and aquifers, including immediate and root causes impairing water quality, quantity and vulnerability to climate variability and change, and identifying key priority actions for transboundary management planning. This will be complemented by targeted initial capacity building actions to strengthen the governance and institutions for the shared management of these watersheds, and by a suite of targeted interventions aiming at developing demonstrations of applying IWRM in specific sites with the aim of future replication in several river and aquifer sub-basins for which identification of investment needs will be conducted. Also, through experience and knowledge sharing, the project will act as a valuable source of information for the GEF-IW portfolio, with particular emphasis on issues relating to transboundary IWRM, and conjunctive use of surface and groundwater, in the Pacific Ocean's drainage basin.

26. Without the proposed GEF Project, very complex sustainable development challenges would be faced by the two countries: transboundary issues would worsen, inefficient and unilateral management of shared water resources would continue with no joint management, and the existing pressures on the transboundary watershed are likely to continue or worsen. In combination with anticipated climate variability and change and the lack of a bilateral cooperative framework, the aforementioned pressures are likely to reduce economic and ecosystem productivity and resilience with detrimental consequences for the communities of the region, including reduced food security and regional stability, as well as increased desertification and poverty levels.

27. The levels of water stress and the current and potential transboundary issues resulting from pollution and ecosystem degradation are likely to increase. In addition, large impacts on infrastructure and ecological and socioeconomic systems in the area, along with the strong manifestations of climate variability (and most extreme weather events related to the ENSO cyclicity), would compound without the project.

28. Some of the recent national reforms undertaken in both countries on institutional frameworks for IWRM have been conducted unilaterally. It is now a suitable time to support the bi-national efforts, with financial support from the GEF, aiming at ensuring compatibility among the two countries' policy, legal and institutional frameworks, so as to promote the integrated management of these transboundary water resources applying an ecosystem based approach and developing joint coordination and participation mechanisms.

29. *Global Benefits.* The proposed project includes actions which will contribute to global environmental benefits related to maintaining the interconnectedness of the global hydrologic cycle that links the watersheds and aquifers shared between Peru and Ecuador. Expanding the GEF portfolio experiences on capacity building for governance of mixed water systems (i.e. aquifer-surface water) within a geographical area with a very strong incidence of the ENSO

phenomenon (and opportunities for replication of good practices identified by the Project) stresses the importance of the project in terms of its overall positive environmental and demonstration impact. Additionally, the integrated management of transboundary water resources will contribute to the ecosystem integrity and biodiversity conservation of the associated dry forests, which are located in the bi-national river basins and have global significance.

30. The GEF intervention aims at covering the incremental costs of joint bi-national actions, coordinated with ongoing unilateral national activities (baseline) in the two countries, include three components that will assist to address transboundary issues of a shared resource:
31. Component 1. Transboundary diagnostic analyses for the Integrated Management of Transboundary Water Resources (ITWRM) in the bi-national Puyango-Tumbes, Catamayo-Chira & Zarumilla aquifers and watersheds.
32. This component seeks to perform a strategic and systemic diagnosis of the bi-national Puyango-Tumbes, Catamayo-Chira & Zarumilla watersheds and aquifers that will enable a common understanding on current issues affecting water resources of these river basins and groundwater systems. Based on available information (cartography and bibliography, among others) and using different tools and procedures, a diagnosis of current state of the watersheds and aquifers will be performed. A technical-scientific TDA document focusing on water resources issues, while considering climate variability and climate change, will be prepared and its results will be incorporated into and disseminated through networks and partners, with a wide participatory process of stakeholder involvement at local, national and regional levels. Special emphasis will be given to the diagnostic on hydrogeological aspects in order to update the information on groundwater (circulation, hydro-geological conditioning, groundwater capture). Also, new data for a set of indicators related to the conservation and sustainable use of groundwater in bi-national basins will be generated, following the GEF IW indicators framework (P, SR, ESS).
33. Component 2. Strategic planning to strengthen governance of Transboundary Water Resources in binational Puyango-Tumbes, Chira and Catamayo-Zarumilla Aquifers and River Basins
34. The TDA will be complemented by a SWOT analysis, which will help identify the strategic actions to be adopted in the Strategic Action Programme and the National Action Plans. A set of Monitoring and Evaluation indicators for tracking SAP and NSAPs implementation, including a gender component, will be agreed.
35. The project will support the establishment of the Puyango-Tumbes and Catamayo-Chira Bi-national Technical Commissions for the ITWRM of the two watersheds, and will help the strengthening of the Zarumilla Binational Technical Commission. The project will also support activities for enhancing technical capacities for an educated decision-making, based on sustainable use of the water resources. To this end targeted training will be offered to improve local and national capacities for ITWRM, monitoring of water quality and law enforcement programs. Training will include: (a) Integrated water resources management, including integrating groundwater concerns/opportunities; (b) Land-use planning and GIS; (c) Environmental impact assessments; (d) Set-up and operating environmental monitoring systems; (e) law enforcement on protection of water resources and water quality.
36. Component 3. Development, implementation and knowledge management of IWRM demonstrations, and identification of investment needs, in Puyango-Tumbes, Catamayo-Chira and Zarumilla watersheds
37. Components one and two have been specified: they define and organize, respectively, the set of actions to be implemented in order to achieve an integrated management of transboundary water resources, and a set of strengthened organizational structures that enable the identification, prioritization and implementation of actions. The third component is a suite of targeted interventions aiming at demonstrating technologies and approaches for applying ITWRM into specific sites, to both inform the SAP process and with the aim of future replication.
38. These pilots will seek to demonstrate feasibility of protecting water sources –located at channel formations, rivers, streams, creeks, ponds– by control of pollution from mining and other economic activities, reforestation, promoting improved agricultural practices in coordination with the communities living in the territory to reduce water and land impacts from farming on steep slopes, and integrating groundwater concerns/opportunities into management of surface water systems. These pilots will be coupled with pre-feasibility studies on investments required for ITWRM in the three basins and aquifers during the SAP implementation phase.

**B.3. SOCIOECONOMIC BENEFITS TO BE DELIVERED BY THE PROJECT INCLUDING GENDER DIMENSIONS:**

39. By promoting development, conservation and management of transboundary water resources in a region of significant socioeconomic importance to both countries, the project will generate a positive impact on quality of life of populations living in the Zarumilla, Puyango-Tumbes and Catamayo-Chira river basins and aquifers. National benefits will be realized from integrating surface water and groundwater management, implementing adaptation measures to climate change and mitigating the effects of extreme weather-related events, and providing technical training to local/regional authorities and training on sustainable use to water users. The transboundary river basin and aquifer communities’ capacities will be enhanced to sustainably manage international water resources, with increased community and ecosystem resilience to climate change. Communities’ quality of life will increase through the use of productive activities applying ITWRM in the river basins and aquifers, and will benefit from harmonized water management policies and legal frameworks.

40. Furthermore, this project will bring the following specific socioeconomic benefits:

- a) Benefit-sharing of the water-related goods and services of both countries, as a development tool to promote better regional economic integration;
- b) Balancing competing uses of surface and groundwater resources, especially upstream and downstream uses, in a transparent and participative way for local and regional sustainable development;
- c) Focusing on poverty reduction, public participation and gender balance to ensure equitable access to water for sustainable livelihoods;
- d) Recognizing the importance of freshwater ecosystems’ integrity for water resource protection and natural risk prevention;
- e) Protecting water resources during conflicts and rehabilitating them when the conflicts are over;
- f) Improving knowledge on root causes of potential social, economic and environmental impacts resulting from a non-integrated management of water resources and on the policy responses needed to prevent such approaches; and
- g) Developing capacity building on integrated water resources management (IWRM) at national authorities’, community and private sector level.

41. *Gender focus.* Gender constitutes a cross-cutting axis along all components and activities of this project. In the transboundary watershed there is a large number of women, head of households (especially in the upper parts of the basins, where migration of men has been very marked). The resilience of households and communities depends greatly on the resilience of women. Women’s empowerment is present in all areas: the project integrates a gender perspective into environmental protection since the earliest stages of project implementation, and men and women will participate in all stages of project development and implementation. Mainstreaming gender is key to all the Project processes of bi-national governance and management of trans-border water resources. The education and training course provided through the project will ensure the direct involvement of both women and men. As part of the project implementation arrangements, special attention will be paid to ensuring an appropriate gender balance in the training and capacity development activities.

**B.4. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS AND MEASURES THAT ADDRESS THESE RISKS:**

Risk	Rating	Risk Mitigation Strategy
Insufficient national financial commitment and human resources	M	One of the main risks when implementing a project is that national governments do not provide sufficient financial support due to economic situations, or to issues related to programming and prioritizing budgets. To address this risk and diversify national financing to the project, partnerships with local governments and social and community organizations in the zone of influence will be promoted at all stages of project development
Limited environmental awareness including understanding of IWRM principles	M	Integrated management of natural resources in watersheds and aquifers is a concept for which the range of understanding by stakeholders is quite diverse. To overcome this problem, the project will: a) design activities to assess the needs of stakeholders, b) promote information exchange, and c) implement targeted capacity building programs.

<b>Risk</b>	<b>Rating</b>	<b>Risk Mitigation Strategy</b>
Political instability	M	Actions directed towards the integration and development of the border area have a top priority in both countries since the signing of the peace agreement in 1998. Even if a potential risk associated with political instability cannot be fully excluded, the high relevance of water resources for development in the shared area and its high vulnerability to phenomena associated with climate change and variability could entail that political stability may represent a moderate risk. A highly participatory scientific-technical approach to the TDA and a broad consensus in the SAP's development, as well as the prioritization of actions, will increase resilience levels of the intervention, which will reduce the level of risk.
Insufficient incorporation of climate variability and change in IWRM planning and other processes	M	The integration of the concept of "CC adaptability" is cross-cutting to all the activities and products of the Project. This project will seek to identify and promote solutions that facilitate adaptation and increase resilience of ecological and socioeconomic systems in the zone of intervention.
Insufficient baseline information	L	The concept of "adaptability" in the context of planning for water resources management will facilitate a decision-making processes based on the information and knowledge available. Its subsequent periodic adjustment will be based on learning processes and on the information availability.

#### **B.5. KEY STAKEHOLDERS INVOLVED IN THE PROJECT:**

<b>Stakeholders</b>	<b>Countries</b>	<b>Project Implementation Role</b>
Ministries of Foreign Affairs	Ecuador, Perú	The Ministries of Foreign Affairs are the central bodies that guide, direct and coordinate the work of diplomatic missions and consular offices in their relations and bilateral projects.
National Water Secretariat of Ecuador (SENAGUA) and National Water Authority of Peru (ANA)	Ecuador, Perú	Implementing partners of the project. Responsible for the development and implementation of integrated water management national policies and in charge of executing project activities.
Ministries of the Environment (MAE, MINAM), Ministries of Agriculture, National Risk Management Secretariat of Ecuador	Ecuador, Perú	Government institutions in charge of environmental, agriculture and disaster risk management national policies which have incidence at both the systemic and the site project's intervention level.
Regional, Sub-regional and Local Governments, including local water authorities	Ecuador, Perú	Responsible for promoting integrated regional, sub-regional and local development.
Water users, CSOs, including women and indigenous people's organizations	Ecuador, Perú	Relevant civil society organizations in the geographic area of the project, participating in forums and decision-making on the management and use of natural resources
Universities	Ecuador, Perú	Higher education institutions that are responsible for the training of professionals and the contribution to research and knowledge
Private Sector	Perú	Relevant companies in the geographic area of the project that are involved in the management of transboundary water resources

#### **B.6. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:**

42. In Ecuador, the project will coordinate with national government initiatives aiming at the integrated management of watersheds, including those in the Jubones District (Zarumilla and Puyango-Tumbes basins) for flood control and irrigation; Puyango-Catamayo District on financial policies for water irrigation and human consumption; characterization of the current hydrology of Ecuador and detailed analyses of its aquifers; and irrigation systems and protection works in the area of project's intervention. It will also coordinate with the Bi-national Commission for the Water Resources Management of the Zarumilla Transboundary Basin and with the Decentralized Autonomous Government of El Oro and the Decentralized Autonomous Government of Loja, relevant municipalities and Parochial Committees, which are implementing specific activities related to IWRM.
43. In Perú, it will also coordinate with the Bi-national Commission for the Water Resources Management of the Zarumilla Transboundary Basin, the Water Resources Management Councils of the Tumbes and Chira-Piura watersheds, and the Special Puyango Tumbes Project, a decentralized entity of the Ministry of Agriculture which has technical autonomy, and economic and administrative authority within the framework of the law. This project is the executive body for the national Peruvian component of the bi-national Puyango-Tumbes Agreement signed between Perú and Ecuador. Its functions include the development of studies and/or execution of works aimed at developing the bi-national Puyango-Tumbes irrigation. In the PPG phase, synergies will be further identified and pursued with the loan-based cooperation – IDB “Modernization of the water resources management – PMGRH”.
44. It will also coordinate with UNDP projects i) ‘Towards a Low-emission and Climate-Resilient Development in the regions of Piura and Tumbes’ in Peru and ii) the ART programme for El Oro Province in Ecuador, which are projects implemented with UNDP support. The first aims to strengthen the capacities of national and regional authorities to integrate climate change into territorial planning. The implementation of the project by the Ministry of Environment and the Regional Governments of Tumbes and Piura will lead to a territorial approach to climate change, culminating in Regional Integral Climate Change Plans for the regions of Tumbes and Piura in Peru. The plan will incorporate Climate Change response strategies and investment plans in order to promote development options sufficiently robust to withstand different future climatic conditions as well as climatic variability. The ART programme supports the development processes in the El Oro province in Ecuador, neighboring the border with Peru, by strengthening capacities to integrate local, provincial and national development agendas and to align the international cooperation to these plans. The programme seeks to foster synergies to progress in the national and regional development goals, including those related to ensuring water security and pollution control.
45. Likewise the project will coordinate with the project “BRIDGE: Water Governance in transboundary watersheds - Andes component” which IUCN has been implementing since 2011. The project is financed by the Swiss Development Agency (COSUDE) and is part of a global project also under implementation in Mesoamerica and in Southeast Asia. Selected watersheds in the Andean region are Zarumilla (Ecuador and Peru), Catamayo-Chira (Ecuador and Peru) and Titicaca (Bolivia and Peru). The objectives include the integrated management of water resources and the development of technical tools to promote a single water management by the countries that share river basins. Lastly, the project will coordinate closely with UNDP Cap-Net as an established UNDP delivery mechanism to enhance national capacities in the area of integrated water resources management (IWRM)

**C. DESCRIBE THE GEF AGENCY’S COMPARATIVE ADVANTAGE TO IMPLEMENT THIS PROJECT:**

**C.1. INDICATE THE CO-FINANCING AMOUNT THE GEF AGENCY IS BRINGING TO THE PROJECT:**

46. The total UNDP cofinancing is \$484,000 broken down into \$90,000 from TRAC funds from both country offices, \$265,000 from UNDP Cap-Net, and US\$ 129,000 from the UNDP projects ‘Towards a Low-emission and Climate-Resilient Development in the regions of Piura and Tumbes’ and the ART programme for El Oro Province. The first aims to strengthen the capacities of national and regional authorities to integrate climate change into territorial planning. UNDP’s Cap-Net (Capacity Building for Sustainable Water Resources Management, [www.cap-net.org](http://www.cap-net.org)) program will provide co-financing to the project in two areas under Component 2a: 1. Capacity delivery (courses and training workshops on various themes which include water management practices, river basin organisations, water supply and sanitation, climate change adaptation, and water education in broad terms) and 2. Strengthening networks (network management support and training of trainers). The ART programme supports the development processes in the El Oro province in Ecuador, neighboring the border with Peru, by strengthening capacities to integrate local, provincial and national development agendas and to align the international cooperation to these plans.

## C.2. HOW DOES THE PROJECT FIT INTO THE GEF AGENCY'S PROGRAM AND STAFF CAPACITY IN THE COUNTRY TO FOLLOW UP PROJECT IMPLEMENTATION

47. UNDP's Strategic Plan for 2008-2013 approved by the UNDP Executive Board includes *Managing Energy and the Environment for Sustainable Development* (Goal 4), and includes the outcome *Strengthened national capacities to mainstream environment and energy concerns into national development plans and implementation systems*. UNDP has taken further internal steps to operationalize the mainstreaming elements of the Strategic Plan at a subsidiary level through its **Water Governance Strategy** endorsed by the UNDP Management Group in 2007. The Water Governance Strategy includes as one of its three Strategic Priorities **Regional and Global Cooperation** and the associated Outcome, *Enhanced regional and global cooperation, peace, security and socio-economic development through adaptive governance of shared water and marine resources*, and the principal Output, *Assist countries to develop and implement cooperation on transboundary waters through multi-country agreements on priority concerns, governance reforms, investments, legal frameworks, institutions and strategic action programmes*.
48. Notably, UNDP's work on improving governance of shared water resources incorporates the important linkages between upstream water and land management and the health and integrity of downstream ecosystems. Of the GEF agencies, UNDP has the largest portfolio and associated experience in the development and implementation of TDAs and SAPs in a wide range of river, groundwater, lake and marine water bodies. UNDP's strong track record in facilitating improved transboundary waters governance has been further strengthened by the recent integration of UNDP's 'core' Water and Ocean Governance Programme (WOGP) with its GEF International Waters cluster, and the similar full integration of the UNDP Water Governance Facility at SIWI with UNDP's corporate water and ocean governance activities.
49. The proposed project fits within the three main areas of WGP support:
- 1) [Integrated Water Resources Management \(IWRM\)](#)  
This area aims to reduce [poverty](#) and [vulnerability](#), sustain and enhance [livelihoods](#) and protect [environmental resources](#) by helping countries to achieve equitable allocation and [efficient water resources management](#) through [adaptive water governance](#).
  - 2) [Water Supply and Sanitation \(WSS\)](#)  
This area focuses on helping countries strengthen [water governance](#) towards achieving or exceeding the [water supply and sanitation MDGs](#). Special attention is given to local conditions and the needs of poor and [marginalized groups](#).
  - 3) [Regional & global cooperation](#)  
This area focuses on enhancing regional and global [cooperation, peace, security](#) and [socio-economic development](#) through [adaptive governance](#) of [shared water resources](#). UNDP helps countries develop and implement multi-country agreements on priority concerns, [governance reforms](#), investments, legal frameworks, institutions and [strategic action programmes](#).
50. In terms of international advocacy, UNDP has championed the global water crisis and stressed the importance of water for life and water for livelihoods in its 2006 *Human Development Report titled "Beyond scarcity: Power, poverty and the global water crisis"*. UNDP's priorities within this area include:
- Improving national and local water resources management for poverty reduction and sustainable development
  - Increasing access to adequate and safe water supply and sustainable sanitation for the poor
  - Promoting cooperation on shared water resources and global water challenges
  - Gender mainstreaming in water governance
  - Capacity development for Integrated Water Resources Management (IWRM)
51. In managing its transboundary waters programmes, UNDP's Water and Ocean Governance Programme ([www.undp.org/water/ocean-coastal-governance.shtml](http://www.undp.org/water/ocean-coastal-governance.shtml)) draws on a wide range of staff expertise in water resources management at HQ, in its Regional Centers, and through its network of Country Offices. In terms of implementing GEF IW projects, UNDP has consistently delivered results through a broad range of international transboundary water

interventions, including the strengthening or establishing of 20 multi-country river and lake basin and marine/coastal management agencies or commissions.

52. UNDP builds also on both its field presence in the two countries of the project – Ecuador and Peru and with its partner organizations in the two countries. In addition, the project will be directly supported by the UNDP Regional Technical Advisor based in the region and by the UNDP Principal Technical Advisor at UNDP Headquarters with responsibility for global oversight of the UNDP Water and Ocean Governance programme.

**PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT AND GEF AGENCY**

**A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT ON BEHALF OF THE GOVERNMENT:** (Please attach the [Operational Focal Point endorsement letter](#) with this template).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Lorena Tapia	Minister, GEF-OPF	MINISTRY OF THE ENVIRONMENT (MAE) ECUADOR	November 29, 2012
Jose Antonio González Norris	GEF-OPF, Director of the Int. Cooperation and Negotiations Office	MINISTRY OF THE ENVIRONMENT (MINAM) PERU	November 30, 2012

**B. GEF AGENCY CERTIFICATION**

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for project identification and preparation.					
Agency Coordinator, Agency name	Signature	Date (MM/DD/YY)	Project Contact Person	Telephone	Email Address
Adriana Dinu, UNDP/GEF Deputy Executive Coordinator		4 February 2013	José Vicente Troya, RTA, Water, Ecosystems & Biodiversity, LAC-RCS	+ 507 302 4636	jose.troya@undp.org

Figure 1

